CONTRACT NO. 04420

Backsfed.051420

STATE OF MONTANA
DEPARTMENT OF TRANSPORTATION
BID PACKAGE

Sealed bids for construction of this project will be received by the Montana Department of Transportation, Construction Contracting Bureau, Room 101, 2701 Prospect, Helena, Montana until 9:00 a.m. on May 14, 2020. All bids will then be publicly opened, reviewed for correctness, and then publicly read in the Department's auditorium.

Federal Aid Project(s):

STPB 8113(9) Higgins Ave Bridge Rehab - Missoula

Bid proposals, Plans, Standard Specifications, Detail Drawings, and Standard Contract Forms are on file for examination and may be obtained from the Construction Contracting Bureau of the Montana Department of Transportation, 2701 Prospect Avenue, P.O. Box 201001, Helena, Montana 59620-1001.

Prime bidders use the Electronic Bid System or bid on-line through Bid Express to produce a bid containing Proposal Forms, Schedule of Items, and Disadvantaged Business Enterprises (DBE) Requirements (if applicable).

CONTRACT #04420
AWARDED ON: MAY 26, 2020
TO: SLETTEN CONSTRUCTION COMPANY

MONTANA DEPARTMENT OF TRANSPORTATION

Barb Skelton, Chairperson
Montana Transportation Commission

Michael T. Tooley
Director of Transportation

Contract No.04420
PB:JJ:8807000AWD-101

AWARD COPY

CURRENT QUESTIONS & ANSWERS

101 - HIGGINS AVE BRIDGE REHAB - MISSOULA - May 14, 2020

Notifications

-1-

Submitted: Monday 20-APR-2020 8:37 AM

PRE_BID_MEETING_SIGN_IN
PRE_BID_MEETING_MINUTES
PRE_BID_MEETING_RECORDING

Addendums

-1-

Submitted: Tuesday 12-MAY-2020 1:46 PM

An Addendum has been posted for this project: **ADDENDUM** To download the addendum bid files, click here: **BID FILES**

There is a bug where the Amendment Summary print option is throwing an error until after the .ebsx file has been saved. Once an .ebsx file has been saved the Amendment Summary will print without issue. The software developer will be correcting this issue in the next release.

To print successfully follow the steps below:
1. Open the .ebsx file.
2. Close the Amendment Summary Dialogue Box.
3. Click save.
4. Choose View Amendment Summary from the Tools menu.
5. Print.

We apologize for the inconvenience.

Clarifications

-1-

Submitted: Monday 20-APR-2020 7:30 AM

- Contractor can use a hydrant for dust control water. City of Missoula will provide a meter. Contact Dennis Bowman (406) 552-6741 for coordination.
- The deck pour sequence for spans 3-5 are shown in B69, spans 7-9 on B76 and spans 10-12 on B79. No deck pouring sequence for spans 1,2,6 and 13 is specified, since these are simple spans.
- Notice to bidders to replace “Class Deck” with “Class Structure – Low Slump” as currently shown the plans. This will be corrected in the Awarded Plan Set.
- Polymer Overlay Primer quantity will be added to the bridge plans in the Awarded Plan Set.

Questions

-1-

Submitted: Wednesday 22-APR-2020 08:06 PM
Company: Diamond Drilling & Sawing
Contact: Eric Blackburn
In reference to Clarification # 1 regarding the hydrant available for use for dust control. Can the department reference which hydrant location(s) are available? When the project originally bid; upon exploration, there wasn't a viable location to permanently install a hydrant and backflow

CURRENT QUESTIONS & ANSWERS

preventer for the project duration because it was an impedance to pedestrian traffic.
Answer
Submitted: Monday 27-APR-2020 11:46 AM
It is the responsibility of the contractor to supply water for dust control as defined in the contract. It was mentioned in the Pre-Bid that the City of Missoula would not allow use of a hydrant with a meter and hose connection. MDT reached out to the city, resolved this issue, and is the reason for the clarification.

-2-
Submitted: Thursday 23-APR-2020 02:11 PM
Company: Jackson Contractor Group
Contact: Jason Watkins
Will the project manager approve nighttime work outside 7am to 7pm?
Answer
Submitted: Monday 27-APR-2020 11:38 AM
Yes. Night work will be approved by the Project Manager on a case by case basis for each operation based on need and impact to the traveling public. Each night work request will be evaluated independently based on operation, impact, duration and other factors as determined by the Project Manager. All provisions of the contract still apply.

-3-
Submitted: Thursday 23-APR-2020 02:12 PM
Company: Jackson Contractor Group
Contact: Jason Watkins
Will temporary lane closures prior to Phase 1 be allowed?
Answer
Submitted: Monday 27-APR-2020 11:42 AM
No. Per Special Provision 4.B.3) this would be an activity that affects pedestrian or vehicle traffic.

-4-
Submitted: Thursday 23-APR-2020 02:12 PM
Company: Jackson Contractor Group
Contact: Jason Watkins
Will temporary full bridge closures of Higgins be allowed?
Answer
Submitted: Monday 27-APR-2020 11:40 AM
Yes. Short term short duration full closures will be allowed if it is determined by the Project Manager to be in the best interest of the project and the traveling public. The requirements of all other provisions in the contract still apply.

-5-
Submitted: Thursday 23-APR-2020 02:13 PM
Company: Jackson Contractor Group
Contact: Jason Watkins
Can lay down areas be occupied prior to Phase 1?
Answer
Submitted: Monday 27-APR-2020 11:44 AM
No. Staging areas can only be occupied as defined in the Construction Phasing Details and as outlined in the Special Provisions.

AWARD COPY

CURRENT QUESTIONS & ANSWERS

-6-
Submitted: Friday 24-APR-2020 07:40 AM
Company: Sletten Construction
Contact: Tracy Gilbert
The bidding documents identify two historical buildings potentially impacted by this construction, The Wilma and the Penwell Buildings. For insurance purposes, please provide a declaration of each building's stated value and/or agreed value.
Answer
Submitted: Friday 01-MAY-2020 10:50 AM
Determination of a declared or stated value for adjacent properties is the responsibility of the Contractor. No formal Appraisals are available. In addition to the requirements of Subsection 107.013.1, the Contractor must obtain insurance with a minimum aggregate limit of $15,000,000 and an occurrence limit of $7,500,000 for potential damage to surrounding buildings. The requirement for additional insurance will be paid for at the invoice price and paid in accordance with Subsection 109.04. Premiums for insurance in excess of the contract requirements is the responsibility of the Contractor.

-7-
Submitted: Tuesday 28-APR-2020 12:01 PM
Company: Western Coating
Contact: Jeff Estep
Considering potential supply issues, sole-source vs. multi-source and cost structure volatility (alloy costs) would the state allow for a value engineering option to provide epoxy-coated rebar on the structure in lieu of MMFX (ChromX)?
Answer
Submitted: Wednesday 29-APR-2020 02:55 PM
No. Corrosion-resistant reinforcement must be provided as specified in the contract.

-8-
Submitted: Wednesday 29-APR-2020 05:00 PM
Company: Teton Prestress Concrete
Contact: Hal Simmons
We don't have a Type A form for the new prestressed girders. We have an AASHTO Type III at 1' 10" x 3' 9" instead of the Type A 1' 8" x 3' 4", would the AASHTO girders be accepable?
Answer
Submitted: Thursday 30-APR-2020 09:30 AM
No. Type A girders must be provided as specified in the contract.

-9-
Submitted: Thursday 30-APR-2020 10:39 AM
Company: Scougal Rubber Corp
Contact: Scott Nelson
Reference sheet B42. Are fiber reinforced pads required under the shim plates at Bent 1 & 7 Fixed Bearings?
Answer
Submitted: Friday 01-MAY-2020 6:22 AM
Fiber reinforced pads are required between steel plates and the concrete per the Standard Specifications (§565.03.2).

-10-
Submitted: Thursday 30-APR-2020 11:08 AM
Company: Jackson Contractor Group
Contact: Jason Watkins
Bridge Plans Sheet B52 (Drawing No 23950) NOTES states that "Plans were prepared based on existing steel girder geometry from the original shop drawings. Existing structure dimensions may vary from those shown on the original shop drawings and replicated on these

CURRENT QUESTIONS & ANSWERS

plans....Original shop drawings will be made available for the Contractor's use." Please provide these shop drawings.
Answer
Submitted: Friday 8-May-2020 11:45 AM
The shop drawings can be found at the following link: **SHOP DRAWINGS**
-11-
Submitted: Monday 04-MAY-2020 01:17 PM
Company: Jackson Contractor Group
Contact: Jason Watkins
The response to question number 6 indicated the "Contractor must obtain insurance with a minimum aggregate limit of $15,000,000 and an occurrence limit of $7,500,000 for potential damage to surrounding buildings". Is it MDT's intent to pay for this invoice value as a change order to the contract after award or are we to include the premium for this extra in our bid?
Answer
Submitted: Thursday 07-MAY-2020 01:02 PM
Insurance requirements laid out in response to question number six are in addition to the insurance requirements of the standard specification. MDT will pay for the additional insurance required in the response to question number six at the invoice price via change order after the project is awarded. Costs for coverage over and above that specific policy is the responsibility of the contractor.
-12-
Submitted: Tuesday 05-MAY-2020 04:57 PM
Company: Sletten Construction Co.
Contact: Mike Anderson
Vibration monitoring -
1) As part of the pre- and post-construction surveys does the contractor need to hire a licensed surveyor to survey the interior and/or exterior of the buildings or is this something MDT will do per the Special?
2) What kind of access will be available into the buildings that need to be surveyed (e.g., Penwell is currently developed as mixed use with apartments on the upper floors)?
Answer
Submitted: Thursday 07-MAY-2020 01:18 PM
1) The Contractor’s Vibration Monitoring Consultant will perform a pre-construction assessment on the Penwell Building and the Wilma Building, as a minimum, and any other structures the Contractor identifies. MDT reserves the right to perform an independent pre-construction and post-construction survey, either in conjunction with the vibration monitoring specialist or separately.
2) Coordinate with the property owners and tenants to obtain the rights-of-entry to their property in order to conduct the pre-construction and post-construction assessments and document in writing all permissions or objections provided by the property owner/tenants. If a right-of-entry permission to conduct the assessment is denied by the property owner, then the condition assessment will only be conducted from the exterior of the property (maintaining proper distance using public access locations) and using high quality photographic methods. Obtain a signed acknowledgement by the property owner that he/she is waiving the opportunity for a pre-construction condition assessment and accepting the Contractor’s best estimate of existing conditions.
-13-
Submitted: Wednesday 06-MAY-2020 04:32 PM
Company: Jackson Contractor Group
Contact: Jason Watkins
Hazardous Materials Has a hazardous material assessment been performed and are there any

hazardous materials anticipated to be encountered on the project? If so can you provide the documentation?

Answer

Submitted: Tuesday 12-MAY-2020 2:11 PM

Asbestos Contractors of Montana (ACM) contracted with MDT to inspect the Higgins Bridge for asbestos and lead. The inspections did not identify any asbestos containing materials other than the transite blast plates that were removed in 2016. Painted surfaces should be treated as lead hazardous waste. Lead Based Paint Removal and Disposal Special Provision is hereby added to the contract:

1 LEAD BASED PAINT REMOVAL AND DISPOSAL

A. Description. Lead and other heavy metal based paint removed from highway bridge structures is considered hazardous waste. Remove lead-based paint from steel bridge components, as necessary, to complete the objectives of the project.

Paint is regulated as lead-containing when concentrations exceed 5,000 milligrams per kilogram (mg/kg) or 0.5% by weight. Testing for lead has been conducted on the project bridge paint using X-ray Fluorescence (XRF) analysis. The EPA standard for lead-based paint is 1.0mg/cm^2 by XRF analysis. Results of XRF analysis indicate total lead content in the orange undercoat paint greater than 1.0mg/cm^2 which indicates the painted surfaces should be treated as lead hazardous waste. The orange undercoat paint is below the silver top coat which is present on the steel superstructure and railing. Additional information on the results of the testing can be provided upon request.

Lead-based paint can cause serious health effects on workers and the environment if precautionary measures are not conducted. Any work that disturbs the paint may (1) expose workers to health hazards and (2) produce debris containing heavy metals in amounts that exceed hazardous waste thresholds established in state and federal regulations.

B. Construction Requirements.

1) Remove lead-based paint in locations indicated elsewhere in the contract or as directed. Do not allow paint to escape into the environment. Immediately halt work if removed lead-based paint waste is observed to enter the environment and re-evaluate work procedures to ensure complete capture of lead-based paint waste.

2) Do not remove lead based material during scheduled public events within the project limits that serve food and beverages. Coordinate with the Project Manager as described elsewhere in the Special Provisions to determine dates and times for events within the project vicinity.

3) Test waste streams, as needed, and directed by the disposal facility accepting lead-based paint waste. Provide all analytical results to the Project Manager.

4) Containerize and dispose of any lead-based paint waste in accordance with applicable regulations which may include RCRA regulations (40 CFR Parts 266-299). Comply with all storage and transportation requirements.

5) Contractor Responsibilities. Be familiar with and perform all work in accordance with all applicable standards provided in the Code of Federal Regulations, Title 29 Part 26, including the OSHA Hazard Communication Standard (29 CFR 1926.59), the OSHA Lead Standard (29 CFR 1926.62), and the OSHA Respiratory Standard (29 CFR 1926.134); the Resource Conservation and Recovery Act (40 CFR Parts 266-299) and Administrative Rules of Montana Title 17 Chapter 53. To obtain copies of the Federal regulations, contact the US Governments Printing Office at (202) 783-3238. Questions concerning state regulations or to obtain copies of state regulations, contact the Montana Department of Environmental Equality, Hazardous Waste Program at 406-444-5300.

C. Measurement and Payment. This item is not measured for payment and is considered incidental to other items.

AWARD COPY

CURRENT QUESTIONS & ANSWERS

-14-
Submitted: Thursday 07-MAY-2020 04:50 PM
Company: Jackson Contractor Group
Contact: Jason Watkiins
Are the unit of measure for bid items 0970 and 0980 correct?
Answer
Submitted: Tuesday 12-MAY-2020 6:28 AM
The units as shown in the contract are correct however the quantities should be 980 LNFT. An addendum will be issued with the corrected quantities.

-15-
Submitted: Thursday 07-MAY-2020 04:58 PM
Company: Jackson Contractor Group
Contact: Jason Watkins
Is MDT going to require that all subcontractors on the project carry the same limits for extra insurance as required by question 6 (15,000,000 Aggregate, 7,500,000 per occurrence)?
Answer
Submitted: Friday 08-MAY-2020 02:13 PM
MDT does not have a contract with subcontractors. It is the responsibility of the prime contractor to determine what is required of the subcontractor. Per section 108.01.2 of the standard specification: 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.
Written consent to subcontract, assign or transfer the contract does not release the Contractor from liability under the contract and bond.

-16-
Submitted: Friday 08-MAY-2020 09:27 AM
Company: Sletten Construction
Contact: Russ Robertson
Will MDT please provide As-Builts?
Answer
Submitted: Friday 08-MAY-2020 11:36 AM
The files linked below represent the as-built drawings for the structures. MDT provides them for informational purposes only. They do not include drawings for modifications to the structures, such as joint replacements and guardrail revisions and may not completely represent current conditions. Thus, some of the information contained in these documents may be out of date or not applicable with regard to the advertised project. The contractor should not rely solely on the as-built drawings provided for bidding purposes nor does any data in these files supersede the data in the contract documents.
AS-BUILTS

-17-
Submitted: Monday 11-MAY-2020 09:28 AM
Company: Frontier West, LLC
Contact: Estimating
Due to the time of year, and possible cold of temperatures. Can the top flanges of the existing and new structural steel girders remain bare and not painted?
Answer
Submitted: Tuesday 12-MAY-2020 8:26 AM
Per the plan note on Sheet B11, provide an overcoat painting system on the existing steel in spans No. 3, No. 4 and No. 5. This includes all existing steel exposed faces that will not be in contact with concrete for all girders, stringers, floor trusses, floor beams, bracing, connection plates, bearings and other attachments.

CURRENT QUESTIONS & ANSWERS

Isolated locations of the top surface of the girder top flanges may also require painting based on the steel condition observed once the deck is removed. The Project Manager will determine locations where the existing top flanges require painting. Payment will be made under the bid item Paint Structure.

On Sheet B11, in the note "Painting Existing Steel", the correct estimated area of existing steel to be painted is 4300 SY per phase or 8600 SY total.

-18-

Submitted: Monday 11-MAY-2020 09:41 AM
Company: MWHC
Contact: Chris Connors
Plan pages 51 & 52 reference the Impact Attenuator's as "Special Design". Please provide guidance to where the plans give details to the special design or provide this information if it is not already included.

Answer
Submitted: Tuesday 12-MAY-2020 10:26 AM
The impact attenuator callouts on Sheets 51 & 52 should be revised to "Impact Attenuator - 3 Bay" not "Special Design". This will match the summary frame on Sheet No. 14. Bridge plan sheet B81 provides information for attaching the attenuator to the bridge deck.

CONTRACT NO. 04420

Montana Department of Transportation
Construction Contracting Bureau

Date(s) Issued:
May 12, 2020

A D D E N D U M

For The Following Project(s)
To Be Let On:
May 14, 2020

101 – Higgins Ave Bridge Rehab - Missoula
STPB 8113(9)

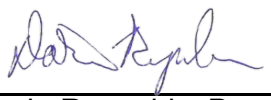
ADDENDUM NO. 1
ATTACHMENT NO. 1

REVISED SCHEDULE OF ITEMS
Changing quantity for Item #:
618 190 100 – Temporary Barrier Rail – 980 LNFT
618 190 110 – Reset Temp Barrier Rail – 980 LNFT

INSTRUCTIONS – READ CAREFULLY

Load the electronic amendment file while in the opened project file to apply the addendum. In order to be responsive, the Schedule of Items printout on projects with addendums must show the addendum(s) applied at the bottom of each page.

Revised documents supersede and replace the documents you now have. New documents supplement the documents you now have. Make the necessary changes in your bidding documents.



Darin Reynolds, Bureau Chief
Construction Contracting Bureau

MONTANA DEPARTMENT OF TRANSPORTATION
SCHEDULE OF ITEMS

CONTRACT ID: 04420

PROJECT: STPB 8113(9) (8807009000)
HIGGINS AVE BRIDGE REHAB - MISSOULA

PROP LINE NO.	ITEM NUMBER	ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY
	SECTION 0001 - BRIDGE REHAB AND WIDENING			
0010	103 000 000	TRAINING PROGRAM	HOUR	1,000.00
0020	103 500 005	ESCROW OF BID DOCUMENTS	LS	1.00
0030	104 030 010	MISCELLANEOUS WORK	UNIT	75,000.00
0040	104 030 045	MISCELLANEOUS ITEMS-EACH	EACH	2.00
0050	104 030 065	MISCELLANEOUS ITEMS-LNFT	LNFT	99.30
0060	104 030 070	MISCELLANEOUS ITEMS-REMOVAL	LS	1.00
0070	105 070 000	CONTRACTOR SURVEY AND LAYOUT	LS	1.00
0080	108 000 000	CRITICAL PATH SCHEDULE	LS	1.00
0090	109 200 005	MOBILIZATION	LS	1.00
0100	202 020 041	REMOVE STRUCTURE	LS	1.00
0110	202 020 115	REMOVE DECK	SQYD	5,842.80
0120	202 020 140	REMOVE BITUMINOUS PAVEMENT	SQYD	4,304.00
0130	203 020 200	EXCAVATION-UNCLASS BORROW	CUYD	163.00
0140	203 020 225	EXCAVATION-STREET	CUYD	556.00
0150	203 020 405	SITE MONITORING	LS	1.00
0160	208 010 000	BMP ADMINISTRATION-LS	LS	1.00
0170	208 010 200	TEMPORARY EROSION CONTROL-FIXED	UNIT	500.00
0180	209 010 160	TEMPORARY SHORING	LS	1.00
0190	301 020 340	CRUSHED AGGREGATE COURSE	CUYD	255.00
0200	301 020 625	AGGREGATE TREATMENT	SQYD	1,196.00
0210	401 020 060	COMMERCIAL MIX-3/8 IN-PG 70-28	TON	998.00
0220	401 020 063	COMMERCIAL MIX-1/2 IN-PG 70-28	TON	235.00
0230	402 020 315	EMULSIFIED ASPHALT-TACK COAT	GAL	250.00
0240	411 010 000	COLD MILLING	SQYD	2,255.00
0250	551 020 035	CONCRETE-CLASS STRUCTURE	CUYD	175.00
0260	551 020 036	CONCRETE-CLASS STRUCTURE LOW SLUMP	CUYD	1,730.50
0270	551 020 104	CONCRETE-CLASS UHPC	CUYD	24.30
0280	551 020 166	CONCRETE-CLASS DRILLED SHAFT	CUYD	111.80
0290	552 010 042	FRP DECK PANELS	SQFT	6,272.00
0300	552 010 045	SUPERSTRUCTURE JACKING	LS	1.00
0310	552 010 060	REPAIR STRUCTURE	LS	1.00
0320	552 010 303	CONCRETE STRUCT MODIFICATION	CUYD	30.50
0330	552 011 000	EXPANSION JOINT	LNFT	29.80
0340	552 011 010	EXPANSION JOINT STRIP SEAL	LNFT	207.10
0350	553 010 010	PRESTRESSED BEAM-TYPE A	LNFT	348.80
0360	555 010 100	REINFORCING STEEL	LB	48,418.80
0370	555 010 410	REINFORCING STEEL-CR-CLASS 1	LB	474,478.70
0380	556 000 110	PAINT STRUCTURE	LS	1.00
0390	556 010 010	STRUCTURAL STEEL - MISC	LS	1.00
0400	556 010 011	STRUCTURAL STEEL - GIRDER	LS	1.00
0410	557 010 050	42 IN OPEN RAIL-BR	LNFT	1,983.10
0420	557 010 055	42 IN OPEN RAIL PARAPET-BR	EACH	6.00
0430	557 010 105	PEDESTRIAN RAIL	LNFT	2,053.80
0440	557 010 110	HAND RAIL	LNFT	482.90
0450	558 000 120	DRILLED SHAFT - 3.0 FT	LNFT	25.00
0460	558 000 140	DRILLED SHAFT - 4.0 FT	LNFT	225.00
0470	558 010 050	THERMAL INTEGRITY PROFILER	EACH	10.00
0480	561 010 525	EXPANSION JOINT-PRECOMPRESSED	LNFT	304.60

PROP LINE NO.	ITEM NUMBER	ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY
0490	563 000 040	POLYMER OVERLAY	SQYD	7,015.30
0500	563 000 045	POLYMER OVERLAY PRIMER	SQYD	7,015.30
0510	563 000 100	PREPARE DECK	SQYD	7,015.30
0520	565 000 010	ELASTOMERIC BEARING DEVICES	EACH	61.00
0530	603 000 065	TRENCH DRAIN	LNFT	124.00
0540	603 013 457	PIPE-PVC 8 IN	LNFT	265.00
0550	603 013 462	PIPE-PVC 6 IN	LNFT	59.70
0560	603 013 553	CONNECT TO EXISTING MANHOLE	EACH	3.00
0570	603 017 040	STORM DRAIN PIPE-12 IN	LNFT	215.50
0580	603 750 300	DRAINAGE-STRUCTURE	LS	1.00
0590	604 000 100	ADJUST MANHOLE	EACH	4.00
0600	604 000 260	ADJUST DROP INLET	EACH	1.00
0610	604 010 302	MANHOLE STRUCTURE BASE 48 IN	EACH	3.00
0620	604 010 660	MANHOLE LID AND FRAME	EACH	3.00
0630	606 010 385	REMOVE GUARDRAIL	LNFT	160.20
0640	606 011 503	RESET TEMP IMPACT ATTENUATOR	EACH	2.00
0650	606 011 518	TEMPORARY IMPACT ATTENUATOR	EACH	2.00
0660	606 011 548	IMPACT ATTENUATOR-3 BAY	EACH	2.00
0670	606 400 120	BOLLARDS	EACH	1.00
0680	606 400 130	REMOVABLE BOLLARD	EACH	1.00
0690	608 010 017	PEDESTRIAN STAIRWAY-STEEL	LS	1.00
0700	608 010 020	SIDEWALK-CONCRETE 4 IN	SQYD	260.10
0710	608 010 035	SIDEWALK-CONCRETE 4 IN COLORED	SQYD	328.40
0720	608 010 052	SIDEWALK-CONCRETE 8 IN	SQYD	244.50
0730	608 010 125	DETEC WARNING DEVICES-TYPE 1	SQYD	4.70
0740	609 010 121	CURB-SPECIAL DESIGN	LNFT	135.60
0750	609 010 160	GUTTER-CONC VALLEY	SQYD	15.50
0760	609 010 200	CURB AND GUTTER-CONC	LNFT	649.30
0770	609 010 209	REMOVE MEDIAN CURB	LNFT	1,134.00
0780	610 100 559	REVEGETATION	LS	1.00
0790	610 100 625	LANDSCAPING	LS	1.00
0800	616 323 120	CONDUIT-STEEL 2 IN RIGID	LNFT	2,900.00
0810	616 343 920	CONDUIT-PLASTIC 2 IN	LNFT	850.00
0820	616 723 003	JUNCTION BOX	EACH	9.00
0830	616 783 007	PULL BOX-COMPOSITE TYPE 2	EACH	2.00
0840	616 783 008	PULL BOX-COMPOSITE TYPE 3	EACH	1.00
0850	617 000 000	FOUNDATION-CONCRETE	CUYD	5.60
0860	617 033 212	CABLE-COPPER 3AWG12-600V	LNFT	750.00
0870	617 123 106	CONDUCTOR-COPPER AWG6-600V	LNFT	23,825.00
0880	617 123 108	CONDUCTOR-COPPER AWG8-600V	LNFT	13,775.00
0890	617 123 110	CONDUCTOR-COPPER AWG10-600V	LNFT	2,800.00
0900	617 130 066	DECORATIVE LUMINAIRE POLE-TYPE 1	EACH	27.00
0910	617 303 300	HIGH EFFICACY LUMINAIRE LED	EACH	7.00
0920	617 333 198	SERV ASSEMBLY-200 AMP	EACH	1.00
0930	617 783 035	OUTLET RECEPTACLE-120 VOLT	EACH	31.00
0940	618 030 005	TRAFFIC CONTROL DEVICES CB	UNIT	250,000.00
0950	618 030 020	TEMPORARY PEDESTRIAN PROTECTION	LNFT	300.00
0960	618 110 000	INSTALL, REMOVE CAMERA SYSTEM	LS	1.00
0970	618 190 100	TEMPORARY BARRIER RAIL	LNFT	**980.00**
0980	618 190 110	RESET TEMP BARRIER RAIL	LNFT	**980.00**
0990	619 010 086	SIGNS-ALUM REFL SHEET IV	SQFT	15.80
1000	619 010 090	SIGNS-ALUM REFL SHEET XI	SQFT	60.50
1010	619 010 200	RESET SIGNS	EACH	1.00
1020	619 010 210	RESET SIGNS-GUIDE	EACH	1.00
1030	619 010 230	REMOVE SIGN	EACH	14.00
1040	619 010 340	POSTS-TUBULAR STEEL-SQ-PERF	LB	340.00
1050	620 011 105	WORDS AND SYMBOLS-WHITE PAINT	GAL	29.00
1060	620 011 260	WORDS AND SYMBOLS-WHITE EPOXY	GAL	5.00

PROP LINE NO.	ITEM NUMBER	ITEM DESCRIPTION	UNIT OF MEASURE	QUANTITY
1070	620 011 311	WORDS AND SYMBOLS-GREEN EPOXY	GAL	6.00
1080	620 012 955	TEMPORARY STRIPING	LNFT	1,446.50
1090	620 013 000	STRIPING-WHITE PAINT	GAL	25.00
1100	620 013 960	STRIPING-WHITE EPOXY	GAL	34.00
1110	620 014 000	STRIPING-YELLOW PAINT	GAL	11.00
1120	620 014 960	STRIPING-YELLOW EPOXY	GAL	15.00
1130	699 010 230	SUMP	EACH	1.00

TABLE OF CONTENTS
FEDERAL AID PROJECT(S) STPB 8113(9)

1. PROJECT DESCRIPTION [102] 9
2. CONTRACT TIME - COMPLETION DATE [108] 9
3. EXPEDITED NOTICE TO PROCEED [108] (REVISED 11-3-11) 9
4. CONTRACT TIME – INCENTIVE AND DISINCENTIVE 10
5. DISADVANTAGED BUSINESS ENTERPRISES (DBE) REQUIREMENTS [102] (REVISED 1-18-18) 11
6. DBE QUOTES [102] (REVISED 3-10-16) 12
7. DBE USAGE [102] (REVISED 2-13-20 M) 12
8. LABOR REQUIREMENTS [102] (REVISED 9-5-19) 12
9. CERTIFIED PAYROLL COMPLIANCE ELECTRONIC PAYROLL SUBMISSION [102] 12
10. TRAINING PROGRAM [102] (REVISED 2-27-14 M) 13
11. ZONE PAY [102] (REVISED 5-10-18) 14
12. SOIL BORING INFORMATION [102] (REVISED 1-16-14) 14
13. 103.07 EXECUTION AND APPROVAL OF CONTRACT [103] (ADDED 6-13-19) 15
14. BIDDER'S PROPOSED AGGREGATE SOURCE(S) [103] (REVISED 1-24-19) 15
15. ESCROW OF BID DOCUMENTS [103] (REVISED 9-30-10) 15
16. CONTRACTOR SURVEYING AND LAYOUT - DEPARTMENT STAKING [105] (REVISED 7-10-14) 16
17. SUBMISSION OF CERTIFIED CLAIMS [105] (ADDED 4-23-20) 16
18. STEEL PRICE ADJUSTMENT [106] (REVISED 4-25-19) 17
19. NOISE IMPACT [107] 18
20. STORM WATER PERMITTING REQUIREMENTS UNDER THE MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (MPDES) [107] (REV 3-16-17) 18
21. MONTANA FLOODPLAIN AND FLOODWAY MANAGEMENT ACT [107] (REVISED 3-10-16) 21
22. MIGRATORY BIRD TREATY ACT COMPLIANCE - STRUCTURES [107] (REVISED 12-8-16) 21
23. MIGRATORY BIRD TREATY ACT COMPLIANCE -VEGETATION REMOVAL [107] (ADDED 9-26-13) 22
24. AIS WATERCRAFT AND EQUIPMENT INSPECTION [107] (ADDED 4-25-19) 22
25. PUBLIC INVOLVEMENT [107] (REVISED 4-25-19) 23
26. TRAFFIC CONTROL PLAN [108] 24
27. TRAFFIC CONTROL - BRIDGE DECK CLOSURE POUR 24
28. SEQUENCE OF OPERATIONS [108] 25
29. TRAIL ACCESS 26
30. NORTHWESTERN ENERGY TRANSMISSION LINES 27

31. WILMA BUILDING COORDINATION 27
32. SITE MONITORING TO PROTECT HISTORIC STRUCTURES 28
33. REPUBLIC SERVICES COORDINATION 30
34. PUBLIC EVENTS 30
35. ADDITIONAL DUST SUPPRESSION 31
36. STATUS OF UTILITIES [108] (ADDED 1-1-03) 31
37. SUBCONTRACTING CONSULTANTS [108] (REVISED 2-27-14 M) 32
38. NOTICE TO BIDDERS [108] (ADDED 11-21-08) 32
39. PROTECTION OF STORM WATER DRAINAGE SYSTEM AND COMPLIANCE WITH LOCAL PERMIT REQUIREMENTS [208] (REVISED 2-18-16) 32
40. TEMPORARY SHORING 33
41. LONGITUDINAL JOINT COMPACTION [401] (REVISED 10-10-19) 33
42. SURFACE PROFILE DEFECTS [401] (ADDED 11-14-19) 34
43. EMULSIFIED ASPHALT [402] (REVISED 3-26-20) 35
44. DISPOSAL OF COLD MILLINGS 36
45. ELECTRICAL 36
46. UNDER BRIDGE LIGHTING 38
47. DECORATIVE LUMINARE POLE 39
48. BASE PRICE FOR CONCRETE [551] (ADDED 3-12-15) 40
49. MODIFIED BRIDGE DECK CONCRETE WATER CURE [551] (REVISED 7-11-19) 40
50. EXPANSION JOINT (REVISED 12-14-12) 42
51. WATERWAY PASSAGE AND SIGNING (REVISED 2-23-10) 43
52. CONSTRUCTION EQUIPMENT ON STRUCTURES 44
53. PROTECTION OF EXISTING ROADWAYS UNDER STRUCTURES (REVISED 5-28-04) 45
54. GIRDER TEMPERATURE REQUIREMENTS FOR FIXED SHOE WELDING (REVISED 6-4-09) 45
55. BRIDGE DECK REINFORCING STEEL COVER (REVISED 12-28-09) 45
56. POLYMER OVERLAY WITH PRIMER 46
57. AREA III LEVEE EMERGENCY ACTION PLAN (EAP) 50
58. AREA III LEVEE EXCAVATION AND BACKFILL 52
59. FRP DECK PANELS 53
60. ULTRA HIGH PERFORMANCE CONCRETE (UHPC) 57
61. BRIDGE DRAINAGE STRUCTURE 59
62. EXISTING STRUCTURE REPAIRS 61
63. SUPERSTRUCTURE JACKING 65

64. DRILLED SHAFTS – VIBRATORY METHODS 67
65. DRILLED SHAFT SUPPLEMENTAL SPECIAL PROVISION 67
66. THERMAL INTEGRITY PROFILER (TIP) TEST METHOD FOR DRILLED SHAFTS (WIRE METHOD) 68
67. PAINT EXISTING STEEL BRIDGE 69
68. CORROSION RESISTANT REINFORCING STEEL 71
69. EXPANSION JOINT – ADHERED GLAND SEAL 72
70. EXPANSION JOINT – PRECOMPRESSED JOINT SEAL 73
71. ADHESIVE ANCHOR SYSTEM – SUSTAINED TENSION 74
72. ADHESIVE ANCHOR SYSTEM 75
73. PEDESTRIAN RAIL 76
74. TEMPORARY PEDESTRIAN RAILING 77
75. REINFORCED CONCRETE PIPES, BOXES, INLETS AND MANHOLES [603] (ADDED 12-13-18) 78
76. TRENCH DRAIN 78
77. RESET AND ADJUST IN-PLACE MANHOLES AND UTILITY BOXES 78
78. IMPACT ATTENUATOR – TEMPORARY [606] (REVISED 2-28-13) 79
79. CONCRETE CURB, GUTTER AND SIDEWALK 80
80. COLORED CONCRETE 80
81. CONCRETE WARRANTY [608] (ADDED 4-23-20) 81
82. LANDSCAPING 82
83. DECOMPOSED GRANITE 86
84. SODDING 87
85. REVEGETATION 88
86. RECLAMATION SEED [610] (ADDED 1-23-20) 88
87. TREE REMOVAL 88
88. EXISTING SPRINKLER SYSTEM 89
89. CAMERA SYSTEM, INSTALL AND REMOVE [618] (REVISED 9-11-14) 89
90. TEMPORARY BARRIER RAIL [618] (REVISED 12-7-17) 90
91. TRAFFIC CONTROL PLASTIC DRUMS [618] (REVISED 8-15-19) 91
92. GREEN EPOXY PAVEMENT MARKINGS 91
93. 48-INCH SUMP 91

SECTION II
Nondiscrimination Notice
Logs of Boring

SECTION III
Standard Provisions & Requirements

SPECIAL PROVISIONS
FEDERAL AID PROJECT NO(S). NH STWD (239)

(REVISED 4-23-20)

The following special provisions are hereby made a part of this contract and supplement and/or supersede any sections of the Standard and Supplemental Specifications for Road and Bridge Construction, adopted by the Montana Department of Transportation and the Montana Transportation Commission and all supplements thereto in conflict therewith.

The following documents are hereby incorporated by reference into this contract:

1.) "Standard and Supplemental Specifications for Road and Bridge Construction 2020 V1.1 Edition" found at the following link:
https://www.mdt.mt.gov/other/webdata/external/const/specifications/2020/SPEC-BOOK/2020-SPEC-BOOK-V1-1.pdf

2.) The most recent version of the Detailed Drawings can be found at the following link:
https://www.mdt.mt.gov/business/contracting/detailed_drawings.shtml

The latest version of the Standard and Supplemental Specifications, Quarterly updates, and revision summaries can be found at the following website:
https://www.mdt.mt.gov/business/contracting/standard_specs.shtml

The Question and Answer Forum opens at 5:00 p.m. on the bid letting advertisement date and closes at 10:00 a.m. on the Monday before the bid letting. If Monday is a state holiday, the forum will close on the Friday before the bid letting at 3:00 p.m. Questions raised by potential bidders on this project, and the answers and other information posted by the Department on the "Question and Answer Forum" can be found at the website https://www.mdt.mt.gov/business/contracting/qacurrent.shtml up to 5:00 p.m. on the day before the bid letting.

The U.S. Department of Transportation (DOT) operates a toll free number at 1-800-424-9071, 24 hours a day - 7 days a week. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use this number to report such activities. All information will be treated confidentially, and callers may remain anonymous.

The Department attempts to provide reasonable accommodations for any known disability that may interfere with a person participating in any service, program or activity of the Department. Alternate accessible formats of this document will be provided upon request. If reasonable accommodation is needed to participate in Department bid lettings, call the Civil Rights Bureau at 444-6331 or TTY 406-444-7696 [TTY 1-800-335-7592 (toll free)].

1. PROJECT DESCRIPTION [102]

Bridge rehab and widening on the Higgins Ave Bridge Rehab-Missoula project located within the city limits of Missoula in Missoula County. Work includes: grading, cold milling, PMS overlay, pedestrian and safety rail, drainage, sidewalks, curb/gutter and electrical. The project is located on Urban Route 8113/Higgins Avenue beginning at RP 0.06, north of the intersection with 4th Street, extending over the Clark Fork River to RP 0.33, south of the intersection with Front Street.

2. CONTRACT TIME - COMPLETION DATE [108]

A. This contract is a completion date contract. The work begins on the effective date stated in the Notice to Proceed (NTP) and all work is to be completed no later than June 10, 2022. Unusually severe weather is not considered as a delay cause. The NTP will be issued with an effective date of June 5, 2020.

3. EXPEDITED NOTICE TO PROCEED [108] (REVISED 11-3-11)

This project will have an expedited Notice to Proceed. The awarded Contractor is required to submit the completed performance and material bonds, and insurance certificates

five calendar days after the project is awarded, with the day after the award counting as the first day. The Notice to Proceed will be issued with an effective date set approximately ten days after the award date.

4. CONTRACT TIME – INCENTIVE AND DISINCENTIVE

A. Description. Contract time will be assessed into 4 Phases. Phases One andthree will be assessed by a completion date and have incentives and disincentives.

B. Definition of Terms. The following terms apply to this contract:

1) Contract Time. Contract time will be assessed in accordance with Subsection 108.07.01

2) Normal Traffic Flow. Defined as four lane, two way traffic flow unimpeded by traffic control devices, reduced lane widths or flagging.

3) Pre phase one work – Vibration monitoring

- Vibration monitoring and other activities that do not affect pedestrian or vehicle traffic will be allowed prior to the phase one start date at the approval of the project manager.

4) Phase One. – not to begin before October 5, 2020- Complete southbound Higgins Avenue improvements including:

a) Southbound bridge widening,
b) Southbound structural repairs and deck replacement;
c) New curb, gutter and sidewalk;
d) South 3rd Street West reconstruction;
e) Installation of new stormwater drainage system;
f) Caras Park and South 3rd Street West landscaping;
g) Construction of the stairs providing access to Caras Park; and
h) Pavement reconstruction and preservation on the existing two southbound lanes.

Phase One must be completed on or before June 2, 2021

- No work will be allowed on South 3rd Street West or on South Higgins Avenue south of South 3rd Street West prior to April 1, 2021
- Excludes final pavement markings

5) Phase Two. Complete northbound Higgins Avenue improvements including:

a) Northbound bridge structural repairs and deck replacement;
b) New curb, gutter and sidewalk;
c) Higgins Avenue landscaping along the east side of the roadway;
d) Removal of the staircase on the east side of the bridge; and
e) Pavement preservation and reconstruction on the existing two northbound lanes.

Complete all work associated with Phase Two on or before December 4, 2021

- Excludes final pavement markings

6) Phase Three. Open the bridge to pedestrians and normal traffic flow

a) Complete the bridge deck closure pour
b) Application of interim pavement markings in the final striping configuration
c) Final signing
d) Open the bridge to normal traffic flow and open both bridge shared use paths and approach roadway sidewalks
e) Remove the staging area and construction fence north of bent 9
f) All of the activities shown in Phase three can be completed in the earlier phases at the approval of the project manager.

Complete all work associated with Phase Three on or before December 4, 2021

7) Phase Four. Complete the remaining work items including:

a) Bridge deck polymer overlay. Single lane closures in each direction will be allowed at the approval of the project manager.
b) Final structure painting below the deck surface while maintaining normal traffic flow.

c) Final pavement markings
d) Paving of the temporary construction permit areas under the bridge
e) All remaining work items
f) All of the activities shown in Phase four can be completed in the earlier phases at the approval of the project manager.

Complete all work associated with Phase Four on or before June 10, 2022.

8) Daily Road User Cost. The dollar figure that represents the average daily cost to the traveling public resulting from disruption of normal traffic flow. The daily road user cost resulting from disruption of normal traffic flow is $7,000.00. The incentive \ disincentive for this contract is $7,000.00 per calendar day for Phase 1 and Phase 3.

C. Incentive / Disincentive. Incentives and disincentives will only be applied to Phases one and three.

1) Early Completion.

a) Phase One. An incentive of $7,000.00 per day, up to a maximum of 10 days, will be assessed for each calendar day that Phase One work is completed before the specified completion date.

b) Phase Three. An incentive of $7,000.00 per day, up to a maximum of 10 days, will be assessed for each calendar day that Phase Three work is completed before the specified completion date.

2) Late Completion.

a) Phase One. A disincentive of $7,000.00 per day will be assessed for each calendar day that Phase One work is not complete after the specified completion date.

b) Phase Three. A disincentive of $7,000.00 per day will be assessed for each calendar day that Phase Three work is not complete after the specified completion date.

c) Phase Four. Liquidated damages will be assessed for each calendar day that Phase Four work is not complete after the specified date. Liquidated damages will be calculated as per the standard specifications.

d) The maximum penalty for not completing any phase on time is $7000.00 per day for each calendar day that the work is not complete.

D. Time Extensions. Calendar days will be added to the contract for extra work in accordance with Subsection 108.07.5. Unusually severe weather is not considered as a delay. The completion date for the Phases will be adjusted for extra work performed that affects the critical path. The extra work must be shown to be on the critical path or affecting the critical path on an updated CPM schedule, as described elsewhere in the contract.

E. Conditions. The Project Manager has sole authority to determine when the Phase is complete. Complete form MDT-CON-105-15-1, Contractor's Component Inspection upon the completion of the Phase.

5. DISADVANTAGED BUSINESS ENTERPRISES (DBE) REQUIREMENTS [102] (REVISED 1-18-18)

The DBE goal for this contract is 0.00%. Use the AASHTOWare Project Bids™ Electronic Bid System (EBS) to print the DBE submittal and timing requirements. If the contract does not have a project-specific goal, the field will display in the AASHTOWare Project Bids™ bid file as a blank field.

List the DBE commitments in the EBS file. An on-line DBE Directory is available at: https://app.mdt.mt.gov/dbe/dbe/search.

If the DBE goal cannot be met, show a good faith effort per the Good Faith Effort Criteria and supporting forms, available at: http://www.mdt.mt.gov/publications/forms.shtml. Submit the Good Faith Effort documentation within 48 hours of the bid opening.

6. DBE QUOTES [102] (REVISED 3-10-16)

The Department has a quick and easy way for you to request quotes from Montana DBE-certified companies. The information goes to the DBE companies that same day. The on-line form is located at web site: https://app.mdt.mt.gov/dbeqt/.

Call the Department DBE Supportive Services, 1-800-883-5811, for further assistance. Using this online request form will be considered for good faith efforts, but it does not constitute meeting all requirements of good faith efforts.

7. DBE USAGE [102] (REVISED 2-13-20 M)

Contract specific goals are not placed on contracts; however, the Department has an overall 6.5% DBE goal it must achieve. To assist contractors in determining their DBE commitment level, the Department has reviewed the estimates for this contract, and has established an aspirational goal of 5.3% DBE usage. Although not a contract requirement, the Department believes that the aspirational goal can realistically be achieved through race neutral measures based on current availability of DBEs and standard competitive procurement processes. While the utilization is not mandatory to be awarded the project, continuing utilization of DBE firms on contracts supports the success of Montana's DBE Program.

Any project listing a 0% DBE aspirational goal does not mean that a DBE may not be used on that project. A 0% DBE aspirational goal may have been established due to any of the following reasons:

- Limited identified subcontracting opportunities;
- Minimal contract days; and/or,
- Small contract dollar amount.

Contractors are encouraged to identify any opportunities to subcontract to DBEs.

The Department's DBE directory may be found at the following website: https://app.mdt.mt.gov/dbe/dbe/search.

8. LABOR REQUIREMENTS [102] (REVISED 9-5-19)

Pay the minimum wage rates contained elsewhere in the bid package. Comply with the required contract provisions contained in the form FHWA 1273 included with this contract. To obtain more information, contact the Department's Construction Engineering Services Bureau at 2701 Prospect, Helena, MT (406)475-2258, (800)335-7592 (TTY) or (406)444-7297 (Fax). The local employment service office, designated by the Workforce Service Division, Department of Labor & Industry, for this project is Missoula.

Executive Orders 13658 and 13706 do not apply to this contract.

9. CERTIFIED PAYROLL COMPLIANCE ELECTRONIC PAYROLL SUBMISSION [102] (REVISED 3-12-20)

The Contractor and all subcontractors must use AASHTOWare Project Civil Rights & Labor™ (CRL) to submit Certified Payrolls (CPRs). Ensure that all subcontractors have submitted their Vendor Access Form which can be found on the following page: https://www.mdt.mt.gov/business/contracting/prevailing-wage.shtml to the Department and have received their login IDs prior to work.

Request the contract number and project ID(s) from the Project Manager. Provide the information to all subcontractors subject to the FHWA 1273 requirements. This information is also available using the Search Awarded Contracts located at: https://app.mdt.mt.gov/project-search/project/search.

Provide assistance and ensure all subcontractors submit CPRs electronically into CRL within the required timeframe.

10. TRAINING PROGRAM [102] (REVISED 2-27-14 M)

A. Description. This work is providing on-the-job training for 2 trainees.

B. Materials. Vacant.

C. Construction Requirements.

1) Training Program. Training and upgrading of minorities and women toward journeyperson status is the primary objective of the Training Program. Journeyperson status is considered achieved when an individual is recognized as a qualified and skilled person in a trade and is entitled to the wages and benefits associated with that trade. Make every effort to enroll minority and women trainees (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. Be responsible for demonstrating the steps taken to meet the primary objective. This training commitment is not intended, and is not to be used, to discriminate against any applicant for training, whether a member of a minority group or not.

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 Civil Rights Bureau 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 journeyperson 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 two copies of a letter listing the number of trainees to be trained in each selected classification and the Training Program fifteen calendar days prior to commencing any construction activities for approval. Specify the expected start date for training in each of the classifications. 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 Civil Rights Bureau prior to commencing work associated with the Training Program.

The Contractor may submit a written request to the Project Manager and the 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 journeyperson. Classifications such as clerk-typists or secretarial positions are not eligible for the Training Program. Training is permissible in 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.

The trainee must begin training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in the work classification or until the Training Program is completed. It is not required that all trainees be employed for the entire length of the contract.

Provide for the maintenance of records and furnish the Project Manager two copies of the monthly 7A reports documenting training performance under this provision.

In the event the Contractor subcontracts a portion of the contract work, designate in writing which Subcontractors are to participate in the training obligation. Ensure this provision is physically attached to each subcontract, as appropriate. Retain the primary responsibility for meeting the training requirements.

2) Trainee Payrolls. Trainees must be paid the following percentages of the appropriate minimum journeyperson's rate specified in the contract, or if no rate is specified in the contract, the percentages of the minimum rate paid journeypersons by the Contractor:

- 60 percent for the first half of the training period.
- 75 percent for the third quarter of the training period.
- 90 percent for the last quarter of the training period.

In the event apprentices or trainees in an approved existing program are enrolled as trainees on this project, the appropriate rates approved by the Departments of Labor or Transportation apply to all trainees being trained for the same classification who are covered by this provision.

Furnish the trainee a copy of the program and explain to the trainee the intent of the specific training to be provided. Upon completion of the Training Program, provide each trainee with a certification showing the type and length of training satisfactorily completed.

D. Method of Measurement. All hours of onsite training as outlined in the approved program and as shown on project payrolls and monthly 7A Training Reports will be measured for payment, up to the total established by the approved Training Program.

E. Basis of Payment. Payment at the contract unit price bid per hour of Training Program is considered full reimbursement for the extra cost involved in providing the training as outlined in the approved Training Program.

No additional reimbursements will be made for trainee or trainer wages. No reimbursement for off-site training will occur, unless otherwise stated in the contract. No payment will be made to the Contractor if failure to provide the required training occurs or if the Contractor fails to meet the primary objective and is unable to provide evidence indicating good faith efforts to meet it. Failure to furnish required documents and reports in the manner and time specified may result in forfeiture of all or a portion of the amounts due the Contractor for training reimbursement.

11. ZONE PAY [102] (REVISED 5-10-18)

Wage rates and zone pay requirements can be found elsewhere in the proposal. The mileage for determining the zone is 1 mile.

Indicate the Zone requirements for all classifications. Provide this information to the Project Manager at the Preconstruction Conference on Form MDT-CON-102_02.

12. SOIL BORING INFORMATION [102] (REVISED 1-16-14)

The Department routinely conducts subsurface investigations and laboratory testing to collect soil, rock and groundwater information (“geotechnical information”) within the anticipated limits of upcoming projects and maintains a comprehensive set of this information in its geotechnical file. For this contract, geotechnical information has been collected by the Department and logs of boring summarizing this information have been included in the Special Provisions and Plans. “Logs of Borings” in the Special Provisions and Plans are based on an interpretation of the field investigation and laboratory testing data, and do not include all the geotechnical information that may be available. The geotechnical information contained in the “Logs of Borings” has been edited or abridged and may not reveal all the geotechnical information which might be useful or of interest to the bidder.

The comprehensive set of geotechnical information is considered too voluminous to include in the bidding package. The geotechnical information that the Department has is

available for review or copying upon request. Rock core samples are regularly retained as well. All bidders are expected to fully review all of the geotechnical information prior to submitting their bid. The prime bidder is responsible for ensuring that a firm submitting a subcontractor quote for the prime's use is aware of all available geotechnical information.

Submission of a bid without fully reviewing the Department's comprehensive set of geotechnical information or accepting a quote from a subcontractor without verifying that the subcontractor reviewed all available geotechnical information is a business decision by the bidder. Failing to fully review all available geotechnical information waives the contractor from making any claim, whether termed "superior knowledge", "justifiable reliance", "differing site condition", or otherwise, against the Department for any information that may be included in the comprehensive geotechnical information file and not shown, or not fully shown, in the “Logs of Borings” contained in the contract documents.

Soil, rock, and groundwater conditions shown on the logs of boring apply only at the specific boring locations and at the time the borings were made. They are not warranted to be representative of subsurface conditions at other locations or times. Groundwater conditions commonly vary seasonally and from that encountered during drilling. Determination of a material's classification is based in part on judgment and opinion. The Department assumes no responsibility for any variation or misinterpretation of the classification of materials.

Utilize the Question and Answer forum to request additional geotechnical information or to submit questions regarding the geotechnical information. To review all available geotechnical information, submit a request in writing to the Department’s Geotechnical Section to schedule a time to review the available geotechnical information. Requests for access should be made a minimum of 10 business days prior to the bid opening.

13. 103.07 EXECUTION AND APPROVAL OF CONTRACT [103] (ADDED 6-13-19)

Use DocuSign to sign the contract in accordance with Subsection 103.07.

No later than 5 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 Construction Contracting Bureau, during its regular work hours, a fully completed Contract Recipients Form documenting names and emails of authorized agents of the Contract and Surety to sign the contract. If the 5th day is a holiday, turn the documentation in earlier. The Contract Recipients Form is available at the following web page: https://www.mdt.mt.gov/publications/forms/contract-recipients.shtml.

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

14. BIDDER’S PROPOSED AGGREGATE SOURCE(S) [103] (REVISED 1-24-19)

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 Construction Contracting Bureau, during its regular work hours, a fully completed 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.)

The Bidder’s Proposed Aggregate Source form is available at the following web page: http://www.mdt.mt.gov/publications/forms.shtml#hig.

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

15. ESCROW OF BID DOCUMENTS [103] (REVISED 9-30-10)

Escrow of bid documents under 103.09 is required for this contract.

16. CONTRACTOR SURVEYING AND LAYOUT - DEPARTMENT STAKING [105] (REVISED 7-10-14)

Furnish Contractor Survey and Layout in accordance with Subsection 105.08.2 with the following exceptions:

- The Department will conduct all right-of-way and monumentation surveys.
- The Department will determine the slope stake catch point and provide copies of the slope staking notes to the Contractor. Replace any stakes that are obliterated by the Contractor or by construction activities.
- Unclassified Excavation, Embankment in Place and Unclassified Borrow items will be measured for payment.

17. SUBMISSION OF CERTIFIED CLAIMS [105] (ADDED 4-23-20)

This provision rescinds and replaces the first two paragraphs of Subsection 105.16.2.

If an agreeable resolution is not reached within 14 calendar days of the written notice, the Contractor may submit a Certified Claim by completing the Certified Claim form MDT-CON-105-16-2 to the Project Manager no more than 7 calendar days after receipt of the Project Manager's response. The form is available from the Project Manager or the Department's website. Include all Claim Cost Records to date with the Certified Claim. Submit electronic copies to the DCE and the CES Engineer of the Engineering Division. The Project Manager will continue to attempt to resolve the disagreement after the Certified Claim is submitted.

Detail the following, if applicable, in the Certified Claim:

A. Summary. (label page 1.1 through page 1.X) Include a detailed, factual statement of the claim for additional compensation and contract time, if any, with necessary dates and locations of work involved in the claim. Also include detailed facts supporting the Contractor's position.

B. Proof of Notice. (label page 2.1 through page 2.X) Submit notice of claim with all attachments that was furnished to the Department. Include the date when the written notice was given.

C. Supporting Documents. (label page 3.1 through page 3.X) Furnish copies of the contract specifications that support the Contractor's claim.

D. Theory of Entitlement. (label page 4.1 through page 4.X) Include a narrative of how or why the specific contract specifications support the claim.

E. Itemized Lists. (label page 5.1 through page 5.X) Provide an itemized list of claimed damages that resulted from the event with a narrative of the theories and records and documents used to arrive at the value of the damages.

F. Time Requests. (label page 6.1 through page 6.X) Provide additional contract time requests if the claim is for a combination of additional compensation and contract time. Submit a copy of the schedule that was in effect when the event occurred and a detailed narrative which explains how the event impacted contract time. In addition, if the Department-caused delay is claimed, provide the following:

1) Include the specific days and dates under claim;

2) Provide detailed facts about the specific acts or omissions of the Department that allegedly caused the delay, and the specific reasons why the resulting delay was unreasonable; and

3) Provide a schedule evaluation that accurately describes the impacts of the claimed delay.

G. Expense Records. (label page 7.1 through page 7.X) Submit copies of actual expense records. Include documents that contain the detailed records which support and total to the exact amount of additional compensation requested. Include the information and calculations necessary to support that amount. At a minimum, provide the following:

1) Direct materials.

2) Direct equipment. The rate claimed for each piece of equipment not to exceed the actual cost. For each piece of equipment, include a detailed description of the equipment and attachments, specific days and dates of use or standby, and specific hours of use or standby.

3) Direct labor; and

4) Other categories as specified by the Contractor or the Agency.

H. Supporting Records. (label page 8.1 through page 8.X) Provide additional supporting records and documents including copies of, or excerpts from the following:

1) Any documents that support the claim, such as manuals standard to the industry and used by the Contractor; and

2) Any daily reports or diaries related to the event, photographs or media that help explain the issue or event.

I. Certification. (label page 9.1 through 9.X) Provide a certified statement, signed by a representative authorized to execute change orders, by the Contractor, subcontractor, supplier, or entity originating the claim as to the validity of facts and costs

J. Lower Tier Claim. (label page 10.1 through 10.X) If the claim includes work done or costs incurred by any subcontractors, suppliers, or any entity other than the Contractor, the following are required:

1) Copies of the Contractor's, subcontractor's, supplier's and entity's (at all tiers above the level of which the claim originates) separate evaluation of entitlement.

2) Copies of the Contractor's, subcontractor's, supplier's and entity's (at all tiers above the level of which the claim originates) independent verification and evaluation of the amount of damages sought; and

3) An authorized representative to execute change orders on behalf of the Contractor, Subcontractor, Supplier and Entity (at all tiers above the level of which the claim originates).

If the Project Manager determines that additional information, records, or documentation is needed to allow proper evaluation of the claim submittal, the Project Manager will request the information, records, or documentation. Submit the requested information to the Project Manager within14 calendar days.

If the claim includes requests for delay compensation, follow all procedures in Subsection 108.07.6.

18. STEEL PRICE ADJUSTMENT [106] (REVISED 4-25-19)

A. General. The Department may apply a Steel Price Adjustment to payments for the applicable steel items of work listed in the contract as payment to the contractor or a credit to the Department. Payments will only be made for fluctuations in the cost of the steel used in the items of work listed in the contract. No adjustment will be made for changes in the cost of manufacturing, fabrication, shipping, or storage.

Payments may be positive, negative, or non-existent depending on the circumstances. Payments or deductions for the steel price adjustment will be calculated by the Project Manager. No steel price adjustments will be made for any products manufactured from steel purchased from the mill prior to the letting date.

Notify the Project Manager in writing by the Notice to Proceed date or at the pre-construction conference, whichever comes first, of intent to participate in steel price adjustment. The price adjustment will be based on a base price per pounds of steel. The base price is provided to the Department by the National Steel Bridge Alliance monthly and updated as necessary.

- The current base price per pound of steel is: $0.55.

The Department will use the Bureau of Labor and Statistics Producer Price Index (BLS PPI) “Steel Mill Products” Series ID WPU1017 not seasonally adjusted. The index used will be

the final version of the index, revised 4 months after the original publication, including any corrections to the index or rebasing of the index.

B. Applicable Bid Items. The Department may apply a steel price adjustment to steel quantities in certain items. The cost of the steel within the item must be at least $5,000 to qualify for a steel price adjustment.

Nuts, bolts, rebar chairs, connecting bands, and other miscellaneous hardware items will not be included in the price adjustment. No other items will be considered for a price adjustment.

C. Steel Price Index. Furnish the following documentation for all steel bid items applicable to the steel price adjustment:

1) The weight of steel (pounds) to be incorporated into the various items of work covered by this special provision.

2) Steel Certification and Mill Test Reports.

3) The date that the steel item, subject to adjustment, was shipped from the producing mill.

Accompany the above documentation by an affidavit signed by the Contractor stating that the information provided is true and accurate. Submit all documentation, including the affidavit, to the Project Manager prior to incorporating the steel into the work. This provision in no way modifies or cancels the requirements of Subsection 106.09.

D. Steel Price Adjustment. Adjustments may be positive, negative, or non-existent depending on the difference between the Base Index (IB) and Current Index (IC). No price adjustment will be made unless the IC is 10% higher or lower than the IB.

For Increases:

Adjustment Factor (AF) = (IC/IB-1.1)
If AF is equal to or less than 0, no adjustment.
If AF is greater than 0.0, continue
Price Adjustment = AF x quantity x base price

For Decreases:

Adjustment Factor (AF) = (IC/IB-0.9)
If AF is equal to or greater than 0, no adjustment.
If AF is less than 0.0, continue
Price Adjustment = AF x quantity x base price

Where:
IB = BLS PPI for month contract was let
IC = BLS PPI for month material was purchased from the mill (invoice date)

19. NOISE IMPACT [107]

To minimize construction noise impacts on the local residents, construction activities will not be allowed between the hours of 7 p.m. and 7 a.m. unless otherwise approved by the Project Manager.

20. STORM WATER PERMITTING REQUIREMENTS UNDER THE MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (MPDES) [107] (REV 3-16-17)

A. Description. The Montana Department of Environmental Quality (DEQ) regulates storm water discharges under the MPDES program. If the bid package contains blank erosion control plans, a construction storm water discharge permit authorization will be required. If not, a storm water discharge permit authorization may be required for this project depending on

Contractor's operations. Sum the disturbance area (as defined by DEQ) identified in the contract with the area of disturbance caused by contractor operations to determine if the permit acreage threshold is exceeded. Contractor operations can include, but are not limited to, the following support activities: staging areas, access roads, material storage areas, temporary concrete or asphalt batch plants, borrow areas, areas used for fill placement, etc. If the summed disturbance area is one acre or more, use the DEQ authorization to discharge under the MPDES General Permit for Storm Water Discharges Associated with Construction Activity for this project. In order to facilitate permit transfer, separate NOI packages are required for areas within the right-of-way and areas outside of the right-of-way. A Notice of Intent (NOI) package includes a Notice of Intent, with a topographic map, a Storm Water Pollution Prevention Plan (SWPPP), the erosion control plans, sage grouse consultation letter, if applicable, and supporting documentation.

Blank Erosion Control Plans, and a topographic map, are provided with the plans if the plans include greater than 1 acre of disturbance. Complete the erosion control plans as required by the general permit. Complete the SWPPP using DEQ's most current SWPPP Form.

B. Materials. Follow the requirements described in the Department's *Erosion and Sediment Control Best Management Practices Manual (December 2016).* Rescind Section 208 detailed drawings. Submit to the Project Manager for review and acceptance BMPs proposed for use that are not included in the Manual.

C. Construction Requirements.

1) MPDES Permit Required.

a) Submit one NOI package and the associated fees to DEQ for ground disturbance areas shown in the plans or within the right-of-way. For ground disturbance areas shown in the plans and any other areas within the right-of-way where Contractor activities causing ground disturbance are planned, the Contractor is the sole permittee until construction is complete and the General Permit is transferred to the Department or another entity.

The Department is not responsible for delays caused by incomplete or inaccurate submittals by the Contractor.

Comply with the requirements of the General Permit for Storm Water Discharges Associated with Construction Activity and implement the SWPPP. Provide two copies of the NOI Package submitted to DEQ and confirmation for receipt of a complete NOI Package from DEQ to the Project Manager prior to conducting any ground disturbance activities.

Do not begin construction activities until the required copy of the NOI Package submitted to DEQ and confirmation for receipt of a complete NOI Package from DEQ is received by the Project Manager.

b) Submit a separate NOI package and the associated fees to DEQ for ground disturbance and support activity areas outside the right-of-way and not shown in the plans. Contractor furnished material sources, staging areas, plant sites, or any other Contractor caused ground disturbance outside the right-of-way and not shown in the plans, are the Contractor's responsibility and must be submitted under a separate NOI package from the ground disturbance within the right-of-way. For all support activities outside the right-of-way which are not part of a larger commercial operation serving multiple unrelated construction activities, and will not continue operation beyond the completion of the contracted road construction activity, a notice of intent package must be submitted to DEQ to obtain an authorization under the storm water construction permit. Sand and gravel borrow area operations, gravel pits, and/or concrete batch plants that will continue operation beyond the completion of the contracted road project, are part of a larger commercial operation, or serving multiple unrelated construction activities must obtain permit coverage under the Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity (MSGP) regardless of acreage size of the activity if the activity does not already have MSGP authorization. The Contractor is the sole permittee until stabilization is complete and the

General Permit is terminated or transferred to another entity. The Department is not responsible for delays caused by incomplete or inaccurate submittals to DEQ by the Contractor.

Provide a copy of the NOI Package submitted to DEQ and confirmation for receipt of a complete NOI Package from DEQ to the Project Manager prior to conducting any ground disturbance activities.

Be responsible for all temporary erosion, sediment, and pollution prevention controls for Contractor furnished material sources, staging areas, plant sites, or any other Contractor caused ground disturbance outside the right-of-way and not shown in the plans.

c) Complete and document all inspections in accordance with the requirements of the General Permit for Storm Water Discharges Associated with Construction Activity. Use DEQ's most current self-inspection form available online at: http://deq.mt.gov/Water/WPB/mpdes/stormwaterconstruction. Provide a copy of all inspection reports to the Project Manager.

Report potential noncompliance in accordance with applicable regulations, guidance, and permit conditions. Submit to the Project Manager within seven days of sending or receiving all correspondence to or from regulatory agencies regarding potential noncompliance or violations.

The temporary erosion and sediment control measures and devices to prevent pollution and control sediment transport and soil erosion will be inspected as part of the final inspection to ensure they are maintained and functioning properly. Do not transfer or terminate the General Storm Water Permit coverage until the BMPs are inspected and accepted and all records required under the permit, including inspection and monitoring reports, are furnished to the Project Manager. The Department may require that certain Best Management Practices (BMPs) be replaced by another type of BMP as a condition of permit transfer.

Upon approval of site conditions, measures, devices and all pertinent records, submit a signed copy of the Permit Transfer Notification Form provided by the Department. When submitting the General Storm Water Permit transfer package/application to the Department, include a check for the permit transfer fee. Make the check for the amount of the fee payable to the DEQ. The Department is not liable for the completeness or accuracy of Contractor records completed prior to the permit transfer. Upon receipt of the signed form, the Department will obtain signature of the new permit owner and submit to DEQ. Ensure permit conditions and responsibilities are met until confirmation of the transfer is received from DEQ. Defend and hold MDT harmless from any violations, claims, enforcement actions, penalties or fines issued for Contractor activities or recordkeeping that occurred prior to the transfer of the General Permit for Storm Water Discharges Associated with Construction Activity authorization.

If the Department concurs that final stabilization has been met during the final walk-through, the Contractor may submit a Notice of Termination form to DEQ. Pay the annual fee invoice due at the time of termination. Submit the annual fee invoice to the Project Manager for reimbursement.

2) MPDES Permit not Required.

The BMP-Administration item is included in contracts that may not meet either criteria for a MPDES permit but include ground disturbing activities. Complete BMP inspections and install BMPs, if necessary, in accordance with Section 208, if no storm water permit is required. Utilize form MDT-ENV-014, Water Pollution Control Inspection Report. A certified SWPPP Administrator is not required to conduct the inspections if no permit is required.

D. Method of Measurement. DEQ MPDES fees and monitoring costs associated with obtaining and maintaining the General Permit for Storm Water Discharges Associated with Construction Activity for ground disturbance areas both within and outside the right-of-way are not measured separately for payment.

If no permit is necessary, include the cost of all erosion control, devices, and inspections in the BMP-Administration bid item.

E. Basis of Payment. No additional payment will be made for the DEQ MPDES fees and monitoring costs associated with the General Permit for Storm Water Discharges Associated with Construction Activity. Include these costs in the Temporary Erosion Control-Lump Sum bid item.

For project including the BMP-Administration item, include the cost of all erosion control, devices, and inspections in the BMP-Administration bid item. Partial payment for the BMP-Administration will be monthly based on the lump sum contract price in accordance with Table 208-1 in Subsection 208.05.1.

Payment for BMPs required by an event or extra work, and approved by the Project Manager, will be measured and paid for in accordance with the Erosion Control Rate Schedule contained in the contract at a unit price of $1.00 per unit.

21. MONTANA FLOODPLAIN AND FLOODWAY MANAGEMENT ACT [107] (REVISED 3-10-16)

A. Description: This contract is located within the regulated floodplain of the Clark Fork River, HDR Engineering, Community Panel Number 30063C1480E. The Department has obtained a preconstruction floodplain permit from the City of Missoula, 435 Ryman, 406-552-6630 for the permanent features associated with this contract. A copy of this floodplain permit is available upon request from the Project Manager.

This floodplain permit does not cover the construction of temporary facilities such as work bridges, work pads, cofferdams, temporary detours, diversions, etc. This permit does not include access to and from authorized locations, sequencing, or construction methodology required to construct authorized features, or other impacts to areas outside of the planned construction footprint.

B. Materials. Vacant.

C. Requirements.

1) Contact the floodplain administrator indicated above to determine floodplain permitting requirements, if any, for the temporary facilities and any other work within the floodplain not covered here or within the preconstruction floodplain permit.

2) If a floodplain permit is required, complete and submit the Joint Application for Proposed Work in Montana's Streams, Wetlands, Floodplains, and Other Water Bodies and required information directly to the floodplain administrator according to the floodplain permitting requirements along with the applicable fee. The Joint Application Form can be downloaded from: http://dnrc.mt.gov/divisions/water/operations/floodplain-management/permitting-and-regulations.

3) If a floodplain permit is not required, but the floodplain administrator requires other information, prepare and submit it directly to the floodplain administrator.

4) Submit copies of the application and other required information to the Project Manager concurrently with the submittals required in Subsections 208.03.4(B) and 208.03.4(C). Obtain all required permits or authorizations and furnish copies or permit approvals to the Project Manager before starting activities that require permits.

D. Method of Measurement and Basis of Payment. Work described in this provision is not measured for payment. Include the cost to obtain this permit and provide required information in the mobilization bid item.

22. MIGRATORY BIRD TREATY ACT COMPLIANCE - STRUCTURES [107] (REVISED 12-8-16)

A. Description. Migratory birds may nest on the structures affected by this project.

B. Construction Requirements. Use one or a combination of the following measures for structure removal or work that may directly impact active nests:

1) It is permissible to remove non-active nests (without birds or eggs), partially completed nests or new nests as they are built (prior to occupation).

2) Conduct work that may impact active nests outside of the nesting season, typically between the dates of August 16 and April 15, or when no active nests are present, or;

3) Install nesting deterrents meeting the requirements below prior to the nesting season as follows:

a) Cover or enclose all potential nesting surfaces on the structure with mesh netting or other suitable material to prevent birds from establishing new nests. Use netting or other material with no opening or mesh size greater than ½-inch. Maintain the material/enclosure until the structure is removed or work is completed, or;

b) Apply a non-toxic, non-lethal, bird roosting or landing repellent gel or liquid (do not use smell or taste deterrents) on all potential nesting surfaces on the structure in accordance with the manufacturer's instructions. Reapply the repellant as needed to maintain adequate coverage to prevent new nests from being established, or;

c) Prepare a description of alternate methods of effectively keeping birds from establishing nests during the nesting season, and submit them along with proposed installation dates and methods to the Project Manager for review.

C. Method of Measurement and Basis of Payment. Work described in this provision is not measured for payment. Consider all costs associated with this provision incidental to performance of the work. Include the cost in the cost of other items.

23. MIGRATORY BIRD TREATY ACT COMPLIANCE -VEGETATION REMOVAL [107] (ADDED 9-26-13)

A. Description. Suitable nesting habitat (trees and shrubs) exists for migratory birds within the construction limits.

B. Construction Requirements. Perform any required cutting of trees or shrubs between August 16th and April 15th. Remove only those trees and shrubs in direct conflict with the permanent construction limits. Where possible, do not remove, but trim trees and shrubs as necessary for equipment access and construction activities.

C. Method of Measurement and Basis of Payment. Work described in this provision is not measured for payment. Consider all costs associated with this provision incidental to performance of the work. Include the cost in the cost of other items.

24. AIS WATERCRAFT AND EQUIPMENT INSPECTION [107] (ADDED 4-25-19)

A. Description. State laws, regulations, and rules are in effect in Montana to prevent the spread of AIS. The following website includes information to aid in the prevention of AIS: http://cleandraindry.mt.gov/.

B. Requirements. Contact Montana Fish, Wildlife & Parks (FWP) at least 2 weeks prior to operating equipment in or working within an aquatic resource. FWP may require additional inspection or action for aquatic invasive species (AIS) prior to equipment use in any aquatic resource in the State of Montana.

FWP Contact Information		
Fisheries Front Desk:	(406) 444-2449	
Watercraft Inspection Program Coordinator:	(406) 444-5383 – Office	(406) 546-3847 - Cell
Watercraft Inspection Specialist:	(406) 444-5540 – Office	(406) 465-6705 - Cell

1) Ensure all watercraft vessels and equipment that enters Montana from out of state, crosses the continental divide, or enters the Flathead basin is inspected by FWP prior to launch in an aquatic resource in the State of Montana.

2) Clean, drain, dry all watercraft and equipment according to FWP guidelines after exiting any aquatic resource and prior to launch into or use in another aquatic resource.

C. Method of Measurement and Basis of Payment. Work described in this provision is not measured for payment. Consider all costs associated with this provision incidental to performance of the work. Include the cost in the cost of other items.

25. PUBLIC INVOLVEMENT [107] (REVISED 4-25-19)

A. The Department may provide public relations or may hire a public involvement (PI) firm to develop and administer a communication plan. Coordinate activities with the PI firm or Department. The name and contact information for the PI firm will be available from the Project Manager following award of the contract.

Attend all public meetings held by the PI firm or Department. Public meetings may be held up to once per week. Provide a brief description of current operations, an anticipated schedule of work for the upcoming week, description of current detours, delays, closures, and possible effects on residents and businesses, such as temporary loss of access and construction traffic.

1) Coordinate with the PI firm or Department to develop a written summary of the intended operations at least 10 calendar days prior to the start of construction or any disruption of traffic.

2) Upon approval of a traffic control plan and at least 10 calendar days prior to beginning construction and disrupting traffic, coordinate with the PI firm or Department to provide appropriate information to the media. This information must specify at a minimum the impact of the construction on the public, duration, sequence of the work, and project overview.

B. Contractor Requirements – During Construction. For the purposes of this special provision, the period “during construction” is defined as the time beginning at the point when normal traffic operations are first disrupted and ending when all work is complete. During this period, perform the following tasks;

1) If requested, install signs on the project denoting the portable radio station information and Contractor phone number for problems and complaints regarding the project. Maintain these signs until the resumption of normal traffic operations. Install signs at locations approved by the Project Manager. Signs will be paid for in accordance with the Traffic Control Rate Schedule if required.

2) Coordinate with the PI firm or Department so they can contact and inform individual businesses and residents at least 3 calendar days prior to conducting operations at locations that may affect their access or convenience.

3) Provide contact information.

a) Provide a 24-hour contact number to the Project Manager for emergency use.

b) Provide a Contractor staffed local telephone number with live personnel available to answer the phone during working hours, for public comments, questions, or complaints. Ensure the telephone has been connected and in service before any work is commenced that has the potential for inconveniencing any residence or business establishment adjacent to the project. Make the phone number available to the public by furnishing it to the PI firm or Department for news/information releases and including it in the traffic advisory constant loop on the Department’s portable radio station, if available. Do not use answering machines during working hours; answering machines are acceptable after working hours, with all messages answered by completion of the next workday. Maintain a written log of calls that identifies the caller; the nature of the comment, question, or complaint; and disposition. Make the log available to the Project Manager upon request.

c) Act within 24 hours to resolve complaints about safety and convenience. Refer changes in project design, traffic control, or extra work to the Project Manager for approval before acting.

4) The PI firm or the Department will update the media. Coordinate with the PI firm or Department so they can provide regular, at least once per month, project status reports and future impacts to the travelling public, landowners, and businesses. Make updates and traffic

advisories available to them as well to facilitate positive news coverage. The goal is to garner news coverage of the project any time major changes or milestones occur.

Coordinate with the PI firm or Department so they can provide project advisories in the form of radio spots, if requested.

Ensure advisories include the Contractor provided contact number for the public to call for additional information. Coordinate with the PI firm or Department to update the advisories after every weekly progress meeting; or more often if conditions change substantially, such as significant unanticipated schedule changes and changes in detour routes as applicable.

C. Method of Measurement and Basis of Payment. Public Relations and coordination with the PI firm is not measured separately for payment.

This provision does not alter or cancel any other contract provision such as, but not limited to, control of the work, legal relations and responsibility to property owners, and measurement and payment.

26. TRAFFIC CONTROL PLAN [108]

Provide traffic control in accordance with Section 618, Detailed Drawings, the Plans and the MUTCD. Submit a written traffic control plan a minimum of two weeks prior to any anticipated work. Proceed with operations only after obtaining the Project Manager's approval.

Provide pedestrian traffic control as described in Subsection 618.03.2. In addition, maintain ADA accessible pedestrian access and delivery access to all businesses during business hours. Provide written notice to business owners, the City of Missoula and the Project Manager 72 hours in advance of any closures. Coordinate with emergency services providers. All closures must be approved by the Project Manager. Provide business access signs for alternate access locations. All businesses access coordination efforts will be in conjunction with MDT, Big Sky Public Relations and the Contractor. All signs and devices used will be paid per the traffic control rate schedule.

27. TRAFFIC CONTROL - BRIDGE DECK CLOSURE POUR

A. Description. Provide traffic control to restrict heavy vehicles on the bridge during the placement and curing of the Ultra High Performance Concrete (UHPC) bridge deck closure pour.

B. Submittals. Submit the proposed traffic control plan for the deck closure pour that occurs in Phase 3 construction described elsewhere in the Special Provisions.

C. Construction Requirements.

1) Maintain single lane traffic in each direction as shown in the plans. It is desirable to locate traffic away from the closure pour to reduce impacts to the UHPC concrete during curing. Barrier rail may be used in lieu of the flexible guide posts shown in the plans as approved by the Project Manager. The temporary traffic lane configuration shown for Phase 2 in the plans may be used during the closure pour if:

a) An approved UHPC placement and cure plan has been developed by the UHPC supplier addressing the potential impacts of nearby traffic, and

b) As approved by the Project Manager.

2) Unless more restrictive requirements are specified by the UHPC supplier, restrict traffic to passenger cars and trucks, and light weight single unit delivery vehicles with a maximum GVW of 10,000-lbs during placement and curing of the closure pour concrete.

3) Provide the appropriate signing and flagging to restrict traffic during the closure pour. Work with MDT and the Public Involvement Firm to provide advanced notification to the public on when weight limit restrictions will be in effect and the detour route for heavy vehicles.

4) Remove weight restrictions when the closure pour concrete has attained a compressive strength of 14-ksi and as approved by the Project Manager.

5) Refer to other requirements of the contract regarding the use of UHPC.

D. Method of Measurement and Payment. Payment will be made according to the traffic control rate schedule.

28. SEQUENCE OF OPERATIONS [108]

A. Description. This work includes coordination and staging of construction operations to complete activities in accordance with the contract.

B. Materials. Vacant.

C. Construction Requirements.

1) In addition to the requirements of Subsections 104.05 and 108.04, schedule operations in sequences outlined below to provide the least amount of inconvenience to the traveling public, pedestrians and adjacent property owners.

2) Participate in weekly coordination meetings with MDT, the City, and other stakeholders as determined by the Project Manager to discuss project schedule, status, and upcoming work items.

3) Provide reasonable access to the following or when requested:

- to Caras Park;
- accommodate maintenance work in the park;
- to the lift station located on the east side of the bridge below the east staircase; and
- other services and events that occur on either side of the bridge and in the downtown area.

4) Provide crane mats or other approved methods to minimize damage to the existing landscape in Caras Park during construction.

5) Maintain existing irrigation systems in Caras Park on either side of the bridge. Work with the City Parks to determine the locations for existing irrigation lines and develop a means to protect them in place. If necessary, provide alternate means for irrigation as approved by the Project Manager.

6) Protect and maintain existing trail and park lighting in place unless otherwise approved by the Project Manager.

7) Provide temporary construction fencing with a minimum height of 6-ft and with privacy matting around the work zone areas in Caras Park and below the bridge.

8) Park equipment and personal vehicles within the temporary construction permit areas.

9) Contact Troy Monroe (406.552.6091) to coordinate activities with emergency services.

10) Coordinate milling, paving, and sidewalk work with businesses to provide the least amount of disruption as reasonably possible. Notify business owners at least two weeks in advance of the demolition of their adjacent sidewalk or approach.

11) Provide single use signs to direct traffic to businesses as necessary.

12) South 3rd Street West Traffic Control Plan.

a) Detour traffic to accommodate intersection improvements. Provide a detailed detour route and traffic control plan for the closure at least two weeks prior to any construction activity at this location.

b) Complete all 3rd Street intersection improvements in accordance with Phase 1 described elsewhere in the Contract.

13) Maintain a 12-ft wide westbound roadway under the bridge connecting Carousel Drive to Kiwanis Street and the Riverside Parking Lot. Carousel Drive may be closed to traffic with approval from the Project Manager.

14) Maintain the existing ADA accessible route through the parking structure on Kiwanis Street, across Carousel Drive to Caras Park. This route may be temporarily closed given an approved alternate route or accommodations are provided. Construct temporary covered paths along the ADA route under the bridge to protect pedestrians from falling debris.

Coordinate with the Project Manager and City of Missoula to obtain approval on the use of a covered path.

15) Provide temporary fencing along the existing curb line on the west side of Higgins Avenue in front of the Wilma Building during Phase 1 work to provide fall protection for pedestrians.

16) Provide pedestrian traffic control devices and positive separation in accordance with the MUTCD.

17) Provide temporary pedestrian barriers during public events held on the bridge and for any other situation where fall protection is necessary as described elsewhere in the Special Provisions.

18) Progressive work needs to be maintained on each sidewalk area once the existing concrete is removed, and all sidewalk work must be completed in a timely manner.

19) Complete construction activities involving sawcut of existing asphalt prior to placing of final asphalt.

20) Temporary lane closures beyond that shown in the plans may be approved on a case by case basis. All lane closures must be approved by the Project Manager prior to being implemented. Lane closures may be restricted during peak hours if deemed necessary by the Project Manager. Peak hours are between 7:00 am and 9:00 am and between 4:00 pm and 6:00 pm.

21) Maintain delivery truck access to the Wilma Building from the west side of Higgins Avenue between Front Street and the north end of the bridge. During Phase 1, provide access to the bus stop zone located at the southwest corner of Higgins Avenue and Front Street for delivery vehicles. The existing bus stop will be temporarily moved one block to the north prior to construction. This area may be used to temporarily store materials and equipment provided it is moved in advance of deliveries. Coordinate with the Project Manager and the Wilma to allow for event deliveries.

22) Snow removal within temporary construction permit areas is the responsibility of the Contractor. Do not move or stockpile snow from the work zone to areas outside of the temporary construction permit boundaries.

23) Close the northbound on-street bicycle lane and provide a signed detour route during both Phase 1 and Phase 2 construction as described below. During Phase 1, close the southbound on-street bicycle lane and provide a signed detour route. During Phase 2, allow for pedestrian traffic, and southbound bicycle traffic on the completed Phase 1 shared use path. Phase 1 and Phase 2 work is described elsewhere in the Contract.

24) Single lane closures beyond 4-hours are not permitted during Phase 4 work.

D. Measurement and Payment. All work required by this provision is measured and paid for at the unit quantities and prices bid for the respective items of the contract. Temporary covered path structures will be paid for by the foot of path covered, under Temporary pedestrian protection.

29. TRAIL ACCESS

A. Description. Maintain access to the Riverfront trails on either side of the river and below the bridge during construction. Short-term closures, up to 10-hours, of the trail will be approved with the appropriate notification and detours in place.

B. Construction Requirements.

1) Adequately sign detour routes in accordance with the Standard Specifications and as approved by the Project Manager.

2) Where necessary, construct temporary covered paths to protect trail users from falling debris. Coordinate with the Project Manager and City of Missoula to obtain approval on the use of a covered path.

3) Short term temporary closures of the trail segments directly below the bridge may be approved with adequate signing and notification of detour routes. Coordinate trail

detours and short-term closures a minimum of 2 weeks in advance of construction activities that impact trail use. Unless otherwise approved by the Project Manager.

4) Contact Troy Monroe (406.552.6091), to obtain the necessary permits and approval from the City of Missoula.

5) Do not close both the Riverfront Trail-South and Riverfront Trail-North at the same time.

6) Coordinate the work that impacts trail use to avoid events in Caras Park. Trail detours may not be approved if it is determined to significantly impact events.

C. Submittals. Submit trail detour signing plans along with dates and durations for closures for approval. Include plans for temporary covered paths where proposed. The Project Manager will allow the work to proceed with the approval and necessary permits obtained from the City.

D. Measurement and Payment. Traffic control devices used to meet the requirements of this provision will be paid for according to the traffic control rate schedule. Temporary covered path structures will be paid for by the linear foot of path covered, under Temporary Pedestrian Protection.

30. NORTHWESTERN ENERGY TRANSMISSION LINES

A. Description. Overhead transmission lines are present above the bridge. Coordinate with NorthWestern Energy (NWE) to determine and comply with requirements for working around the power lines. Coordinate construction activities that may require NorthWestern Energy personnel to be onsite during the work. Contact Joe Wulf with NorthWestern Energy at 406.542.5931.

B. Measurement and Payment. This item is not measured for payment and is considered incidental to other items.

31. WILMA BUILDING COORDINATION

A. Description. Conduct construction activities to prevent impacts to the Wilma Building and minimize impacts to occupants.

B. Construction Requirements.

1) Protect the existing Wilma Building during construction. The existing bridge deck was cast against the side of the Wilma Building. Remove the existing bridge deck and construct the new deck in a manner that prevents damage to the building. Do not use any portion of the building to support temporary falsework during construction. Damage to the building and any resulting corrective action is at the contractor's expense. Refer to other requirements in the special provisions for Site Monitoring and protection of adjacent properties.

2) Provide public access to the street side entrance at all times during construction. Provide protective fencing between the work area and the sidewalk directly adjacent to the bridge.

3) Access to and from the lower level door located below the bridge deck and north of Carousel Drive is needed for residents to access the elevators inside the building, and the outside dumpsters for trash disposal. Maintain access to the lower level building entrance unless other means of trash disposal and access to the elevators can be arranged. See other requirements in in the Special Provisions for coordination with Republic Services on trash disposal. Provide temporary covered access to the doorway to protect against falling debris as necessary.

4) Coordinate with Teresa Walsh at Millennium Property Management (406.541.6468), on any operations that impact access to the Wilma Building. Provide a 2-weeks minimum notice on changes to trash pickup and or loss of access to the lower level door.

C. C. Measurement and Payment. Coordination with the Wilma is not measured for payment and is considered incidental to other items. Temporary covered path structures will be paid for by the foot of path covered.

32. SITE MONITORING TO PROTECT HISTORIC STRUCTURES

A. Description. This work is retaining a vibration monitoring consultant to monitor vibrations induced during construction activities, specifically during the following: drilled shaft construction, vibratory compaction, and demolition. This includes monitoring vibrations at the following nearby structures, 1) the Wilma Building on the north side of Higgins Avenue Bridge, and 2) the Penwell Building on the south side of Higgins Avenue Bridge in addition to any structures identified by the vibration monitoring consultant to protect the contractor's interest. Also included in this work is performing a pre-construction inspection and post construction inspection of the Penwell and Wilma buildings and other buildings as identified by the vibration monitoring consultant. MDT reserves the right to perform an independent pre-construction and post-construction survey, either in conjunction with the vibration monitoring specialist or separately.

B. Submittals. Submit the following items for approval

1) Vibration Monitoring Consultant. Retain a Vibration Monitoring Consultant with the following minimum qualifications.

a) Licensed Professional Engineer in State of Montana with Professional Liability insurance and Errors and Omissions coverage commensurate with the work being performed but not less than One Million Dollars ($1,000,000) per occurrence.

b) 5 years of experience performing vibration monitoring

2) Vibration Control and Monitoring.

a) Have the Vibration Monitoring Consultant establish a vibration control and monitoring program. Submit the vibration control and monitoring program to the Project Manager for review not less than 10 working days before the start of construction operations.

b) At a minimum, the vibration monitoring program will include a description of the following:

(1) Identify the maximum Peak Particle Velocity (PPV) threshold for nearby structures.

(2) Alternative construction methods or equipment that could potentially be used to achieve low project vibration levels,

(3) Alternative construction methods and equipment that will be used if the PPV threshold is reached or exceeded.

(4) Detailed description of the vibration monitoring systems that will be used; how the monitoring equipment will be calibrated and re-calibrated if necessary during the life of the project; description and schematics if necessary of how the independent components will function as a system.

(5) Identification of the individual, and their contact information, designated to oversee the vibration monitoring system(s); and daily recording activities required in this specification. A brief description of qualifications or resume of the individual is also required.

(6) How monitoring equipment will be deployed to continuously record vibration events, during construction activity. Depending on the monitoring equipment deployed and method chosen for networking, it is possible there will need to be both electrical and telecommunications connections available at multiple remote locations. The monitoring plan will address how utility service will be provided to the monitoring equipment, protection of the monitoring equipment from potential vandalism and the elements, and monitoring of the overall system's day-to-day operation.

(7) Details for establishing and deploying an alarm system to announce immediate shut down of all site activities if a vibration event occurs which exceeds the PPV threshold established for the Wilma and Penwell Buildings, or other buildings deemed critical and being monitored.

(8) Establish a protocol for the identification of the activity or construction equipment that caused the PPV threshold to be exceeded.

(9) Description of the process which will be used to verify that the monitoring equipment will function as planned before starting work and the process which will be used to verify (daily) that the monitoring equipment remains in calibrated working order.

(10) Detail a protocol including responsible parties to be notified if an exceedance occurs. This includes, but is not limited to the construction superintendent and the Project Manager.

(11) Daily activity log of vibration activity. A daily inspection log for the duration of the construction project shall be maintained either in written or electronic form.

(12) Daily testing and logging of entire geophone/seismograph/communications network (start of day test). If the equipment fails the daily test, correct the deficiency before proceeding with planned activities for that day or temporarily suspend work until the equipment is repaired or replaced. All daily logs will be available to the Project Manager for a review and a summary of daily logging will be provided in the post-condition survey.

3) Pre-Construction Condition Assessment Report. Submit to the Project Manager a report summarizing the results of the Pre-Construction Condition Assessment including a summary of the findings, the written documentation of all permissions or objections to right-of-entry with the property owners, and under the same, or a separate, submittal electronic copies of all documentation from the Pre-Construction Condition Assessment.

4) Post-Construction Condition Assessment Report. Submit to the Project Manager with a copy of all post construction survey reports, recorded log summaries for vibration and crack monitors as well as an analysis document comparing pre and post structural condition.

C. Construction and Monitoring Requirements.

a) Pre-Construction Condition Assessment. The Contractor's Vibration Monitoring Consultant will perform a pre-construction assessment on the Penwell Building and the Wilma Building, as a minimum, and any other structures the Contractor identifies. Coordinate with the property owners and tenants to obtain the rights-of-entry to their property in order to conduct the pre-construction and post-construction assessments and document in writing all permissions or objections provided by the property owner/tenants. If a right-of-entry permission to conduct the assessment is denied by the property owner, then the condition assessment will only be conducted from the exterior of the property (maintaining proper distance using public access locations) and using high quality photographic methods. Obtain a signed acknowledgement by the property owner that he/she is waiving the opportunity for a pre-construction condition assessment and accepting the Contractor's best estimate of existing conditions.

During the Pre-Construction Condition Assessment document all aspects of the structural condition through observations, actual measurements, plan sketches, photographs, video and any other data the Vibration Monitoring Consultant may deem appropriate. At a minimum, the condition assessment should include video and photographic documentation of all exteriors and interiors as well as the installation of crack monitors on all pre-existing cracks that may propagate due to construction vibrations.

b) Monitor vibrations as directed by the Vibration Monitoring Consultant using an approved seismograph located between the work area and the closest structure subject to damage whenever vibration damage to adjacent structures is possible. Use a seismograph capable of recording peak particle velocity for three mutually perpendicular components of vibration in the ranges typical for the construction activity being performed.

c) Do not allow peak particle velocity of each component to exceed the safe limits of the nearest structure subject to vibration damage. Have the vibration consultant interpret the seismograph records to ensure that the seismograph data is effectively utilized in the control of the construction operations with respect to the existing structures.

d) Provide the data recorded for the construction activity performed to the Project Manager prior to performing sustained periods of the activity. For drilled shaft construction activities provide the data from the first shaft constructed prior to constructing additional shafts. Recorded data is to include the following:

(1) Identification of instrument used.
(2) Name of qualified observer and interpreter.
(3) Distance and direction of recording station from activity area.
(4) Type of ground at recording station and material on which the instrument is sitting.
(5) Maximum peak particle velocity in each component.
(6) A dated and signed copy of photographic records of seismograph readings.

e) The Vibration Monitoring Consultant will determine the safe vibration limits for the project and nearby structures as appropriate. A suggested threshold for PPV for all non-historic structures on site is 0.5-in/sec (12.5mm/sec). A suggested threshold for PPV for historic structures including the Wilma and Penwell buildings is 0.25-in/sec (6.4-mm/sec).

f) The Vibration Monitoring Consultant is responsible for all necessary materials and equipment utilized in the performance of this work.

g) The Vibration Consultant will perform the required monitoring, and record keeping as described above and as directed by the Project Manager.

h) Post-Construction Condition Assessment. The Vibration Consultant will perform a post-construction condition assessment and analysis at the Penwell Building and Wilma Building to determine if there are any structural changes as a result of the construction activities.

D. Liability. As noted previously in this special provision, it is the contractor's responsibility to conduct an extensive pre-construction and post-construction survey of the structures listed in this special provision, to document the presence of existing cracking or damage (spalling of concrete, cracked windows) on the buildings. The primary goal of the thorough vibration monitoring program, and securing a professional vibration monitoring consultant, is to ensure that the construction means and methods used to perform the work do not cause new or additional cracking, or other damage to the existing buildings. Repair any damage identified as a result of the post-construction survey and as directed by the Project Manager based on the results of MDT's post-construction survey.

The requirements of Section 107.13 of the Standard Specifications apply as a minimum. As necessary, obtain additional insurance that is commensurate with the specific risks associated with construction adjacent to historic buildings. Damage to the buildings as a result of construction and any required repairs is at the contractor's expense.

E. Method of Measurement. All associated activities, equipment and incidentals necessary to complete the Site Monitoring are measured as lump sum.

F. Basis of Payment. Include all costs associated with retaining a consultant, monitoring, providing materials, documenting, and any other requirements of this special provision in the lump sum price bid for Site Monitoring.

33. REPUBLIC SERVICES COORDINATION

A. Description. Trash bins and dumpsters are located under the bridge on both sides of Carousel Drive. Coordinate with Republic Services to temporarily relocate the trash bins and dumpsters to accommodate construction activities.

Contact Eric Bauer with Republic Services at 406.532.5134 two weeks in advance to determine new locations for the trash bins.

Notify property owners and provide access to the new temporary locations for trash disposal.

B. Measurement and Payment. This item is not measured for payment and is considered incidental to other items.

34. PUBLIC EVENTS

A. Description. Accommodate multiple public events that occur in Caras Park and the immediate project vicinity during construction. Up to 100 events per year occur in Caras Park including the following:

Event	Estimated Timeframe
St. Patrick's Day Parade	March
Run for the Trees	April
Wildwalk Parade	April
YMCA Riverbank Run	April
Clark Fork Market	Saturdays, May thru October
Out to Lunch	Wednesdays, 11A-2P, June thru August
Downtown Tonight	Thursdays, 530P-830P, June thru August
Missoula 5k	July
Missoula Marathon	July
River City Roots 4 Mile Run	August
Sunday Streets	September
UM Homecoming Parade	October
Day of Remembrance	November
Turkey Run	November
Parade of Lights	December

B. Construction Requirements.

1) Coordinate with the Project Manager, Public Involvement Firm, and other project stakeholders as designated by the Project Manager to confirm dates and the specific accommodations that may be necessary during public events.

2) Sequence the work to avoid activities that create significant dust and noise during public events. Provide safe access for the public and vendors through the construction zone. Maintain trail access during public events.

3) During the Out to Lunch and Downtown Tonight events construction work is limited to hand tools only, small generators and operation of light vehicles unless otherwise approved by the Project Manager. The Project Manager has the discretion to prohibit work, if in the opinion of the Project Manager, the work causes a significant noise, dust, or other disruption to the events.

4) Do not apply chemical dust suppressant, herbicides, or other potentially toxic chemicals during events in Caras Park that serve food and beverages.

C. Method of Measurement and Payment. This item is not measured for payment and is considered incidental to the work.

35. ADDITIONAL DUST SUPPRESSION

Missoula is a non-attainment area for particulate matter less than 10 microns (PM-10). The air sampler exists at 3131 Washburn Avenue at Boyd Park and daily monitoring of PM-10 emissions are conducted by the Missoula City – County Health Department. During construction, the Project Manager will be notified of elevations in PM-10 emissions.

Suppress dust at all times with water or chemical dust suppressants. Sweep or vacuum paved roads adjacent to the construction site to eliminate dust that is suspended into the air from construction equipment and motor vehicles entering and leaving unpaved areas.

Do not apply chemical dust suppressant during events that serve food and drinks in Caras Park unless otherwise approved by the Project Manager.

Document all construction activities which occur in Missoula and the immediate vicinity by noting dates and type of work conducted.

Include the costs for additional dust suppression in the other bid items.

36. STATUS OF UTILITIES [108] (ADDED 1-1-03)

Utility relocation work is not complete, and will not be complete as of the letting date or contract award date. Should unforeseen conditions arise which substantially delay the utilities

relocation work, and directly results in a delay to the project work, make a written request to the department for a time extension (see sub-section 108.07.4). Under no circumstances will a delay in relocating utility facilities be considered for additional compensation

Coordinate with utilities to accomplish the relocations concurrently with road construction.

Utility company contacts:

- CenturyLink – John Olson, 406-543-2218, john.olson@centurylink.com
- NorthWestern Energy Electric Distribution – Nick Keller, 406-542-5960, nicholas.keller@northwestern.com
- City of Missoula Water & Sanitary Sewer – Kevin Slovarp, 406-552-6099, kslovarp@ci.missola.us

37. SUBCONTRACTING CONSULTANTS [108] (REVISED 2-27-14 M)

The following consultants performed work on the project.

- HDR
- DJ&A, PC
- Tetra Tech

38. NOTICE TO BIDDERS [108] (ADDED 11-21-08)

This project is funded in whole or in part by funds received from the Federal Highway Administration (FHWA), and its construction is wholly contingent on the state's continued receipt of those federal funds. If the federal funds are reduced or not received, the Department may choose to terminate the contract for convenience under the provisions of Subsection 108.10. Any bidder on this project, by submitting its bid, understands and accepts the possibility of the contract being terminated in the event federal funds are reduced or not available and by submitting a bid, each bidder waives any claims for costs or damages other than as specifically allowed by Subsection 108.10.2. In particular, bidders understand and accept that no payment will be allowed for any claimed anticipated profit for work not performed.

39. PROTECTION OF STORM WATER DRAINAGE SYSTEM AND COMPLIANCE WITH LOCAL PERMIT REQUIREMENTS [208] (REVISED 2-18-16)

A. Description. This work is the protection of regulated Small Municipal Separate Storm Sewer Systems (MS4). This project is located within an area designated by the Montana Department of Environmental Quality (DEQ) as a regulated MS4.

B. Materials. Vacant.

C. Construction Requirements.

1) Contact the City of Missoula Public Works, 435 Ryman St, Missoula, MT 59802, phone 406-522-6353 and Missoula County Public Works, 6089 Training Dr, Missoula, MT 59808, phone 406-258-4832 to determine if additional requirements are in place for construction storm water discharges that would affect this project.

2) Obtain any additional permits, licenses, or permissions that may be required as a result of the local MS4 permit and the applicable Storm Water Management Program.

3) Implement appropriate BMPs to protect existing storm drain inlets, gutter systems, storm sewer, and/or open ditch systems within and adjacent to the project from discharge of contaminants, such as sediment or construction debris.

4) Do not discharge any construction related waters not composed entirely of storm water. Do not discharge washwater, water used for dust suppression, cooling or curing waters, saw cutting waters, or any other non-storm waters to the MS4.

5) Contact the Project Manager who will coordinate with the Department's District Environmental Engineering Specialist if further clarification is required prior to or during construction.

D. Method of Measurement. Work performed, including permit applications, necessary to protect the MS4 from contaminants as a result of Contractor operations is not measured for payment. Work performed to prevent pollution and control sediment transport due to storm water is measured and paid under the Temporary Erosion Control - Lump Sum bid item. If this project does not have a bid item for Temporary Erosion Control, payment will be determined using the Erosion and Sediment Control Rate Schedule and paid under Miscellaneous Work.

E. Basis of Payment. Protect the MS4 from contaminants from Contractor operations at no additional expense to the Department.

40. TEMPORARY SHORING

A. Description. Design, install, and remove temporary shoring to support the roadway during the widening and replacement of the diaphragm at Bent No. 1.

B. Construction Requirements. Install shoring as necessary to facilitate the work and maintain traffic on the existing roadway. Monitor the installed shoring for excessive deflection, sloughing of the supported roadway embankment, or other indications that the shoring is not sufficiently supporting the roadway. Immediately advise the Project Manager of these conditions and provide corrective action as approved by the Project Manager. Remove temporary shoring upon completion of the work.

C. Submittals. Submit a temporary shoring proposal including design calculations signed and sealed by a Professional Engineer licensed in Montana. Include the geometry and limits of all proposed temporary shoring.

D. Measurement and Payment. Include all costs associated with designing, furnishing, installing, and removing temporary shoring in the Lump Sum bid for Temporary Shoring.

41. LONGITUDINAL JOINT COMPACTION [401] (REVISED 10-10-19)

Construct 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 provision.

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 ½ 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. Submit information on the device used to the Project Manager.

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

Complete compaction rolling in accordance with Subsection 401.03.21. 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% - ⅜-inch (9.5 mm) mixes with plan depths of less than 0.12-foot (36 mm).

The joint density is determined from cores taken at randomly selected locations after all rolling is complete and before the roadway is open to traffic, based on the length of joint constructed. 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 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. Patch the core holes in accordance with Subsection 401.03.21.

Density acceptance by cores for longitudinal joints does not apply to leveling or isolation lifts that have a depth of less than 0.10-foot (30 mm) thick, or first lifts of plant mix surfacing placed directly over crushed aggregate courses.

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 of 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:

- 90%; then 90% will be used for the relative in-place density of that core in the QA evaluation.
- 89% for ⅜-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.

MT 328 is used to establish the target Rice density. The bulk specific gravity (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/ft^3 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%).

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.

Include all costs of furnishing and cutting the cores in the cost of plant mix surfacing. No separate measurement or payment will be made.

Longitudinal joints are evaluated for density on a lot-by-lot basis in accordance with Subsection 105.03.2 using an F factor of 3. 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.

Pay adjustment = (P/100) x Length x 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.

Include all costs associated with constructing the joint in the cost of plant mix surfacing.

42. SURFACE PROFILE DEFECTS [401] (ADDED 11-14-19)

Correct surface profile defects greater than 0.40 inches (10 mm) in a distance of 25 feet (7.62 m) within 30 calendar days of notification but prior to seal and cover or plant mix seal operations. Correct surface profile defects by milling and filling deficient pavement depths or by diamond grinding excess pavement depths full travel lane width. Corrected surface profile defects will be retested and evaluated. Pavement thickness will be measured after profile corrections are made. Ensure corrected pavements do not create a transverse height difference between adjacent lanes exceeding ⅛-inch (3 mm). Fog seal corrected areas if the roadway is not chip sealed prior to winter suspension.

43. EMULSIFIED ASPHALT [402] (REVISED 3-26-20)

A. Description. The work is furnishing emulsified asphalt for fog seal or tack coat. The rates shown and the basis of plan quantity are calculated based on undiluted material quantities.

B. Materials. Furnish all emulsified asphalts in accordance with Section 402 and 702.

C. Construction.

1) Use and Application. Furnish and apply emulsified asphalt in accordance with Table 402-3.

Table 402-3

Bid Item	Materials Allowed	Minimum Diluted Residue [1]	Undiluted Shot Rate	
TackCoat [3]	SS-1h, CSS-1h	28.5%	0.05 gal/sy [2]	
Fog Seal			over chip seal	over rumble strips
			0.075 gal/sy	0.05 gal/sy [2]

Note 1: If diluted, as tested out of the distributer, as applied.
Note 2: Apply a double shot of emulsion on concrete surfaces and over rumble strips.
Note 3: When placing tack coat for microsurfacing operations, CQS-1h may also be used.

The contractor may dilute the material as needed to achieve the required undiluted shot rate. Notify the Project Manager of any dilution and the percentage before applying the material. Ensure the dilution rate, if applicable, is indicated on the bill of lading and/or certificate of compliance.

When fog sealing a chip sealed surface, if the material will be diluted, furnish emulsion that has been diluted at the supplier.

When applying tack coat, meet all requirements of Subsection 407.03 other than the dilution and shot rate requirements.

When a double shot of emulsion is called for in the contract, apply 2 applications at the minimum rate specified above. Ensure the first shot is cured prior to applying the second. The minimum undiluted residue is applicable to each shot. If an undiluted emulsion is applied, one shot at twice the minimum rate may be used if approved by the Project Manager.

2) Testing and Acceptance. All emulsified asphalt will be sampled, tested and accepted in accordance with Subsection 402.03 unless listed on the QPL. Samples of SS-1h from suppliers listed on the QPL will be at the Project Manager's or Materials Bureau's discretion. All emulsions require a certificate of compliance for acceptance, regardless of listing on the QPL. Any diluted emulsion found to be below the minimum residue will not be measured for payment.

D. Method of Measurement. Emulsified asphalt is measured by the undiluted gallon in accordance with Subsection 402.04. When not specified as a contract pay item, emulsified asphalt is not measured separately. Include the cost of emulsified asphalt in the associated work items. Water for diluting emulsified asphalt is not measured separately for payment.

E. Basis of Payment. Payment for the completed and accepted quantities is made under the following:

Pay Item	Pay Unit
Emulsified Asphalt	Gallon

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

44. DISPOSAL OF COLD MILLINGS

A. Prior to placing the bituminous surfacing, remove the existing bituminous surfacing from the roadways as shown on the plans, these special provisions and in accordance with Section 411 of the Standard Specifications. Haul and windrow or stockpile the excess cold millings to the location designated below.

B. Materials. Vacant.

C. Construction Requirements.

1) Cubic yard quantities shown for cold millings are based on in place compacted volumes before milling. Cold millings will become the property of Missoula County. Haul and stockpile cold millings at the Miller Creek Maintenance Yard.

2) The maximum size of the cold millings is 2 inches. Deliver the cold millings in a loose and ready to use condition. Do not haul or drive stockpiling equipment on any milling stockpiles.

3) The contractor is to notify Shawn LaDue, Missoula County Road Maintenance Supervisor at 406-258-4851 two weeks (14 days) prior to the start of hauling of cold millings for coordination. Do not dispose of cold millings other than as described herein unless approved in writing by the Project Manager.

D. Measurement and Payment. Cold milling will be measured and paid for by the square yard at the specified depth. Areas requiring tapers or areas relatively close in depth shall be paid as an average depth as shown on the plans. No additional measurement or payment will be considered for hauling, windrowing, transferring, or stockpiling the excess cold milled material. All related costs for delivery of cold millings are included and absorbed in the unit price per square yard of cold milling.

45. ELECTRICAL

A. Description of Work. This work includes furnishing and installing all electrical wiring, conduits, pull boxes, luminaire foundations, and other incidentals for the new lighting system, and removal of the existing lighting within the project limits as shown in the Plans. Install all designated conduit (underground and above grade), contactors, fittings, splices, boxes, meter base, poles, switches, grounding rods, lugs, and conductors including all required associated excavation and backfilling, concrete and concrete reinforcement, anchor bolts and miscellaneous equipment required for a complete and operable lighting system.

B. Materials. Provide and install materials in conformance with Section 616, 617, and 703, of the Standard Specifications for Road and Bridge Construction, 2014.

Use rigid galvanized steel conduit where mounted or anchored onto or cast into bridge structure. Use PVC plastic conduit for direct bury conduit.

C. Construction Requirements

1) Notification of Work. Coordinate with affected utility companies and NorthWestern Energy (Nicholas Keller, 406.542.5960) prior to beginning the work. The Project Manager will allow work to proceed with verification that the proper coordination has occurred.

2) Removal of Existing Luminaires. NorthWestern Energy will remove the existing luminaires. Saw cut a 3ft by 3ft portion around each luminaire to allow NorthWestern Energy to remove the poles. Remove the existing pole foundations to 6 inches below finish grade. Replace concrete where existing poles were removed except were not needed for new luminaires and/or tree grates.

3) Existing Luminaire Attachments. Remove and store flower baskets and banners for reuse by the Downtown Missoula Partnership. Contact the Downtown Missoula Partnership (406.543.4238) to coordinate the pickup of salvaged materials.

4) Install foundations for luminaire poles with no more than 4-inches of the foundation or anchor bolts protruding above the ground line at any point. Contour backfill to slope away from the foundation no steeper than 6:1 slope where applicable.

5) Where foundation is installed in sidewalk, or adjacent to sidewalk, finish the top of the foundation flush with the sidewalk grade. Field verify foundation heights prior to installation, and verify with the Project Manager.

6) Install rigid steel and plastic conduit as shown on the plans and per NEC requirements. Use plastic conduit to terminate plastic conduit runs in pull boxes, foundations, etc. Install conduit before new plant mix surfacing and concrete work are put into place.

7) Make the conduit and metal poles mechanically and electrically secure so that they form a continuously bonded system. Install bushing adapters on the ends of all plastic and steel conduits prior to installation of wires/cabling. When not included as part of the new foundation, furnish, install, and include all work and materials (such as grounding straps and bare AWG No. 6 wire) necessary to make a continuously bonded system.

8) Install conduit expansion joints in conduit in all locations specified in plans as well as where a conduit crosses a fixed or structure expansion joint. Equip each expansion fitting with a grounding strap jumper. Thoroughly clean contact areas before clamping ground straps.

9) Where shown on plans, open cutting along curb and gutter of roadway will be allowed. Fill open cuts along roadways with Controlled low Strength Material (CLSM) per the plans and Standard Specifications. Furnish and place CLSM as an alternative to compacted soil to the lines and grades shown on the plans.

10) Use straps, soil anchors, or other approved means of restraint when CLSM fill is used for pipe backfill and other uses that may result in flotation, uplift, or misalignment. Confine the CLSM within the designated placement area. Prevent intrusion damage to adjacent work areas and facilities from lateral hydraulic pressure of the fill during placement and prior to hardening. After placement, leave the CLSM undisturbed until the material has set. The Project Manager will determine when CLSM may be covered.

11) Service Assembly – 200A.

a) Install electrical service assemblies at the locations indicated on plans. Services will be 120/240V, three-wire, 200A single-phase dual meter mounted on pressure treated 6” x 6” x 10’ post and per the Standard Specifications.

b) Provide an auto-off-manual switch in conjunction with a photoelectric controlled contactor for street light circuits. House the lighting contactor and all associated wiring in a NEMA 3R enclosure. Mount the lighting contactor panel as shown in the plans. Provide a separate auto-off-manual switch and photoelectric controlled contactor for 20A pole top GFCI receptacles. House the receptacle contactor and all associated wiring in a NEMA 3R enclosure. Mount the receptacle contactor panel as shown in the plans.

c) Provide photoelectric control installed in accordance with manufacturer’s specification and mounted on service as shown in plans. Photoelectric control will turn luminaires on at 1.3 footcandles (+/- 0.5 fc) and off at 6 footcandles (+/- 0.5 fc). Photoelectric control and photoelectric control wiring is incidental to the cost of the service. Photoelectric control does not control luminaire output footcandles.

d) Two electrical meters in one service by NorthWestern Energy will be feeding the roadway luminaires and receptacles in a shared system. Install a permanent plaque or directory at each service disconnect location denoting all other services, feeders, branch circuits and areas and fixtures served by each.

e) Electrical service will be checked and tagged by the City Electrical Inspector prior to final acceptance. Service will also need to meet all requirements set forth in NorthWestern Energy’s New Service Guide. Comply with these requirements and revise the work if necessary and as approved by the Project Manager.

D. Method of Measurement and Basis of Payment. Measurement and payment for all work associated with installing conduit (underground and above grade), contactors, fittings, splices, boxes, meter base, poles, switches, grounding rods, lugs, conductors including all required associated excavation and backfilling, concrete and concrete reinforcement, anchor bolts and miscellaneous equipment required for a complete and operable lighting system are

per the respective items defined in the Standard Specifications. Unless noted otherwise, include payment for all work included in this special provision not specifically measured for payment incidental to other items

46. UNDER BRIDGE LIGHTING

A. Description. Furnish and install lighting under the bridge as shown on the plans and as specified herein.

B. Materials.

1) Provide 240V, Type 4, 3000K Cobrahead Style LED luminaires mounted on existing brackets attached to the bridge bents as shown in the plans.

2) Furnish luminaires with a die cast aluminum housing, a powder coated gray finish, and a universal four-bolt slip fitter mount.

Provide luminaires with a light distribution of Type IV and rated at 5,800 delivered lumens. Provide luminaires that have an uplight rating of U1 or less.

Meet ANSI C136.37 standards for solid state light sources and ANSI C136.31 luminaire vibration standards for bridge/overpass applications.

Provide luminaires that are photometrically tested by certified independent testing laboratories in accordance with IES LM-79 testing procedures. Use a correlated color temperature (CCT) of 3000K and a minimum color rendering index (CRI) of 70.

Use LEDs that are mercury and lead free. Use LEDs that are tested in accordance with IES LM-80 testing procedures. Use LEDs rated at a minimum of 50,000 hours of life at 25°C, L70.

3) Provide a power supply with a minimum power factor of .90 and a maximum total harmonic distortion (THD) of 20%. Provide surge protection with a minimum of ANSI/IEEE C62.41 category C-high protection. Wire luminaires for 240-volt operation. Provide access to electrical components without the use of tools. Provide luminaires that are UL listed for use in wet locations.

4) Provide a minimum 5 year warranty for the entire luminaire assembly including material, workmanship, photometrics, power supply and LED modules. If more than 5% of the individual LED's fail within the warranty period the luminaire must be repaired and replaced.

C. Submittals. Submit manufacturer drawings, details, operation details, and product certifications as specified herein. Include a TN-21 report for the LEDs. Submit proposed details for mounting the lighting to the existing bridge substructure.

D. Construction Requirements. Install under bridge luminaire assembly in accordance with manufacturer's recommendations. Mount electrical supply conduit to the bottom of the bridge decking as indicated in bridge plans. Furnish and install mounting bracket on the existing bridge bents as shown in the plans and as approved by the Project Manager.

E. Method of Measurement. Under bridge lighting is measured by the unit for each luminaire installed. Conduit and conductors between the service and the under bridge luminaires, and between under bridge luminaires, are measured and paid for under their respective items.

F. Basis of Payment. Payment for all work and materials required for furnishing and installing a workable under bridge lighting system is made under the following:

PAY ITEM	PAY UNIT
High Efficacy Luminaire LED	Each

47. DECORATIVE LUMINARE POLE

A. Description. Design, furnish and install decorative luminaire poles as detailed in plans and specified herein. Provide a pole with a design and appearance consistent with the City of Missoula decorative luminaire standard.

B. Materials.

1) Luminaire Fixture. Use Philips Hadco Item Number C08551 totally enclosed LED style with spun aluminum brim to match the plans. Provide fixture that is IP66 rated, to protect from the ingress of water and dust. Provide a 7-pin photocell receptacle installed with each luminaire fixture. Provide an LED module comprised of an LED board mounted to a low copper die-cast heat sink system.

Furnish an LED board that can be removed off of the heat sink for serviceability or retrofitting in the future. The LED board is required to have 80 each, 3000K Philips Lumileds Luxeon R12 LED's mounted on the board, utilizing acrylic optical plates over each LED to provide an IES Type 2 distribution pattern. Include a Philips Advance Xitanium LED Programmable driver, Class 1, outdoor rated (IP66), operating at 120-277 VAC, 530mA, 50-60 Hz auto sensing with <3kV built in surge suppression. The combination driver and LED board will run at Maximum 126 watts, with a total output of 12,600 Lumens.

All components including fixture, must be manufactured by one company. Mount the fixture to the arm with a T style easy install method and incorporate electrical quick-connects to the arm and pole.

Provide fixture with an expected life of 80,000 hours at the Missoula, MT latitude and a 7 year warranty.

Provide a decorative appearance of the whole assembly consistent with the plan drawings.

2) Luminaire Pole. Provide a decorative tapered pole design made of fluted steel or aluminum on an anchor base as detailed in the plans.

3) Decorative Two-Piece Clamshell Pole Base. Furnish a modular two-piece clamshell base made of a non-corrosive elastomer/polyurethane material with a minimum thickness of at least one half of an inch, and, with a weight of at least 45 pounds. Match the color of the luminaire pole. Bases made of ABS plastic are not acceptable. Provide a base that fits the pole tightly and accommodates an integrally cast logo or name plate as detailed in the plans.

4) Luminaire Pole Finish. Prime and powder coat all metal components per the Standard Specifications or as approved by the Project Manager. Provide the finish color in semi-gloss black. Paint or tint all other non-metal components to match.

5) Banner Rods. Furnish load-shedding fiberglass banners rods (3/4" diameter minimum) that thread or mechanically connect onto a mounting plate attached to the pole. Supply a mounting plate that allows for vertical adjustment to accommodate the height of the banner which is supplied by others. Provide a round elastomer, aluminum, or wooden end cap.

6) Use structural steel and fasteners meeting the requirements of the Standard Specifications.

C. Submittals. Submit the following for approval prior to fabrication.

1) Submit shop plans for the luminaire pole assembly and attachments. Show manufacturer's name and catalog number for each item, furnish complete catalog cut-sheets and technical data, surface coating specifications, and furnish the manufacturer's recommendations as to method of installation.

2) Include a five (5) year manufacturer warranty on decorative poles and arms, and three (3) year manufacturer warranty on finish.

3) Design the pole assembly, including all appurtenances and connections per the 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, and as indicated on the plans. Provide structural design calculations signed and sealed by a Professional Engineer licensed in Montana.

D. Construction Requirements.

1) The luminaire pole locations shown on the plans are based on numerous factors and constraints. Do not field adjust without the permission of the Project Manager. Verify pole positions with the Project Manager before installation.

2) Erect the luminaires plumb from a level base.

E. Method of Measurement. Measurement for the decorative luminaire pole will be per each and includes the luminaire fixture, pole and arm, clamshell base, and accessories supplied and installed as shown in the plans and specified herein. Measurement and payment for foundation concrete, pull boxes, wiring, and conduits necessary to supply power to the luminaires are described elsewhere in these Special Provisions and the Standard Specifications.

F. Basis of Payment. Payment for all work and materials required for furnishing and installing a workable decorative roadway lighting system is made under the following:

PAY ITEM	PAY UNIT
Decorative Luminaire Pole – Type 1	Each

48. BASE PRICE FOR CONCRETE [551] (ADDED 3-12-15)

Price Reductions for Class Structure, Deck and Overlay items measured by the cubic yard will be calculated using the greater of the contract bid price or $500 per cubic yard. Price Reductions for Class Drilled Shaft item will be calculated using the greater of the contract bid price or $300 per cubic yard.

49. MODIFIED BRIDGE DECK CONCRETE WATER CURE [551] (REVISED 7-11-19)

A. Description. Protect full depth bridge deck concrete from shrinkage and thermal cracking.

B. Materials.

1) Burlap. Furnish burlap in accordance with Subsection 717.01.2.

2) Water. Furnish water in accordance with Subsection 713.01.

3) Data logging probe. Submit for approval a temperature monitoring system having at least 4 channels, capable of measuring internal concrete and ambient temperatures, recording time and temperature at 30-minute intervals or less for a minimum of 14 calendar days, with an accuracy of 1 °F or less.

C. Construction Requirements.

1) For each concrete placement, install 4 probes at 3 locations on the deck (12 probes total per placement) in concrete a minimum of 5 feet away from any edge or joint. For placements that are less than 10 cubic yards, place only 4 probes at one location. Place and secure probes at 4 depths within the deck as follows:

- at least 2 feet above deck surface. This probe may be moved to the edge of deck to facilitate attachment;
- to the top of the top mat of rebar;
- midway between the 2 mats of rebar, and;
- to the bottom of the bottom mat of rebar.

2) Start recording temperatures at least 1 hour prior to concrete placement. Ensure probes read within 3.6 °F (2 °C). Replace probes that do not. Protect probes during concrete placement. Relocate any displaced probes within wet concrete. Monitor and record ambient air temperature while recording probe temperatures. Monitor concrete temperatures until concrete is within 5 °F (2.8 °C) of ambient, and vertical temperatures through the deck thickness are uniform (within 10 °F [5.5 °C]) and concrete is at least 96 hours old (72 hours old if concrete does not contain silica fume).

For cold weather concrete placements, monitor temperatures until cold weather protection is removed.

3) Increase ambient humidity by fogging above finished concrete and concrete forms/rebar using one or more 3000 psi (21MPa) or greater pressure washer powered fogging wands. Do not:

- use low pressure spray nozzles;
- use fogging systems attached to the screed;
- use fogging, or other methods, to add finishing water to unfinished concrete;
- allow water to drip, flow, or puddle on the concrete surface during fog misting, when placing the burlap, or at any time before the concrete has achieved final set.

4) Maintain the forward edge of concrete placement nearly parallel to and not more than 6 feet (1.8 m) ahead of the strike-off.

5) Use catwalk(s) to facilitate uniform application of the fog mist across the entire deck and to facilitate placement of the wet burlap on the fresh concrete surface. Apply a fog mist as necessary to maintain a moist surface on the finished concrete before and after covering with burlap until the water cure process is operational.

6) Start the water cure as soon as possible without damaging the concrete finish by applying pre-moistened burlap to maintain a water-saturated environment on the concrete surface. Meet the following requirements for the water cure.

a) Ensure the temperature of all water used in the water cure is within 20 °F (11 °C) of the in place concrete temperature.

b) Presoak the burlap by immersing it in water for at least 24 hours prior to placement.

c) Apply the wet burlap to the concrete surface no later than 15 minutes after striking off and finishing the surface of deck-slab concrete.

d) Place soaker hoses when the concrete has hardened sufficiently to prevent marring of the surfaces.

e) Keep the entire deck surface saturated for 3 hours (1 hour for cold weather concrete, unless otherwise directed by the Project Manager) after concrete has reached maximum temperature as recorded by the probes. Immediately turn off soaker hoses and apply clear plastic sheeting over the wet burlap to keep concrete moist.

f) Apply cold weather insulation blankets and/or cold weather protection systems to protect concrete and minimize the rate of cooling of concrete immediately following the installation of plastic sheeting.

g) Maintain concrete temperatures between 60 °F and 90 °F during cold weather concrete cure.

h) Remove all curing and allow deck to dry when concrete is within 5 °F (2.8 °C) of ambient, and vertical temperatures through deck thickness are uniform (within 10 °F [5.5 °C]) and the concrete is at least 96 hours old (72 hours old if concrete does not contain silica fume).

For cold weather concrete placements, remove curing and cold weather protection systems as required by 551.03.6

D. Method of Measurement and Basis of Payment. Fogging and water cure will not be measured separately for payment. Include all costs associated with this provision in the concrete receiving the cure.

50. EXPANSION JOINT (REVISED 12-14-12)

A. Description

General. The joint shown on the plans is a strip seal with factory-machined, steel edge members. Use the joint shown or an approved equivalent. Use an expansion joint system capable of accommodating the movements shown. Furnish and install the joint system in accordance with these specifications, the plans and the manufacturer's recommendations subject to the approval of the Project Manager. Use a joint system designed to withstand an HL - 93 truck loading and impact in accordance with AASHTO Specifications.

Use an elastomeric seal with the following minimum requirements:

1) Be supplied as one continuous piece from edge of slab to edge of slab.

2) Have claw-locked edges for a watertight fit.

3) Be installed according to manufacturer's recommendations.

4) Have a shape that promotes self-removal of foreign material and maintains an even surface during normal joint movement.

5) Be recessed below the riding surface throughout the normal limits of joint movement.

B. Materials. Use materials conforming to the following:

Use steel edge members and all other steel plates, studs and shapes meeting the requirements of AASHTO M 270 Grade 36 or grade 50W (AASHTO M 270M Grade 250 or grade 345W). Use edge members anchored by studs or other means that provide at least the minimum area of anchorage steel shown. Provide at least the minimum clearance between the anchor bars and the deck surface shown on the plans. On any alternate method of anchorage, provide for the above requirements and the attachment to two separate planes of the edge members surfaces. Attach half the total number of anchors to each plane with adjacent anchors attached to alternating planes. Alternate edge members submitted for approval and any additional anchorage for alternate edge members determined necessary by the Department to meet the above requirements are made at no cost to the Department.

Elastomer - Use a compound consisting of 100% virgin polychloroprene (neoprene) and conforming to the properties specified by the joint manufacturer, subject to approval by the Project Manager.

C. Submittals. Furnish five sets of shop drawings to the Project Manager indicating all material specifications and dimensions of the fabricated joint assembly. Shop drawings may be submitted on 11” x 17” sheets and may be furnished in Adobe Acrobat Reader (.pdf) format in lieu of hard copies. Show all joint setting data on the drawings. Meet all other requirements of sub-section 556.03.2 of the Standard Specifications. Do not begin fabrication of the joint until the Department has approved all of the information contained on the shop drawings.

D. Construction Requirements. Install the joint to conform to the roadway cross-section.

Paint all AASHTO M 270 (AASHTO M 270M) steel in accordance with the Standard Specifications except that designated with a “W,” indicating weathering steel.

Use only certified welders (See Welding-Bridge Special Provision). All splice welds must develop full strength. Grind smooth all welds in contact with the elastomeric strip seals. Clean any foreign material from the elastomeric strip seals and edge members prior to installation.

Use an assembly with provision for final field adjustment at the time of installation. Perform final adjustment of the assembly as directed. Adjust assembly as required to account for thermal movements immediately prior to casting concrete around the assembly.

E. Measurement. This work will be measured in linear feet along the centerline of the joint, parallel to the plane of the finished joint surface.

Method of Payment. This will be paid for at the contract unit price bid per linear foot for Expansion Joint. Include material, labor, tools, equipment, and incidentals necessary.

51. WATERWAY PASSAGE AND SIGNING (REVISED 2-23-10)

A. General. Provide and sign at all times during the bridge work a passable waterway channel for waterway users.

B. Construction Requirements.

1) Construct falsework and work bridges to provide a minimum 20 ft-wide by 6 ft-high waterway opening. Construct the falsework opening and work bridge piers parallel to the stream flow. Review the site with the Project Manager to determine the best placement of the opening considering channel depth and current. Establish the vertical clearance using hydrological data for the month having the highest flows that the falsework will be in place. Monitor the six foot clearance daily and immediately remove the structure over the 20 ft opening if rising water reduces the clearance to less than six feet.

2) Submit a work barge plan to the Project Manager for approval five days prior to beginning barge work. Detail in the plan the barge mooring, barge dimensions, operations to be performed from the barge, and the period of use including the estimated calendar dates. Do not permit the barge or its moorings to encroach into the channel marked by the buoys as described in this provision.

C. Signing. Sign the waterway for the bridge work as follows:

Install 3 "6-FOOT MAXIMUM CLEARANCE AT HIGGINS AVE BRIDGE" signs at the locations specified by the Project Manager.

Install 5 ½ ft x 3 ft "NAVIGATION RESTRICTION AHEAD" signs on both banks at approximately 500 feet and 1500 feet upstream of the structure work. Sign the downstream side if waterway traffic warrants signing. Attach two Type C Steady burn lights to the top corners of each sign. Place the signs at a point above the high water level, or as directed, facing oncoming waterway users.

Contact the MDT Traffic Section, (406) 444-6222 Missoula for sign design calculations.

D. Channel Marker Buoys. Furnish and install hanging can or anchor buoys to delineate a channel to the falsework opening. Use buoys having the hazard-warning symbol with the "HAZARD AREA" message.

For downstream river traffic only, space the buoys on 25 ft centers starting from the falsework and/or bridge to at least 100 feet upstream, measured normal from the upstream structure face.

For downstream and upstream river traffic, space the buoys on 25 ft centers starting from the falsework and/or bridge to at least 250 feet upstream and downstream, measured normal from the structure faces.

Follow the buoy manufacturer's installation recommendations. Consult with the Project Manager and determine a mutually agreeable date for removing and installing buoys due to river icing. Use buoys and channel markers following the U.S. Aids to Navigation (ATON) system. Contact the U.S. Coast Guard District Aids to Navigation office at (206) 220 – 7270.

1) Hanging Can Buoys. Use an aerial cable to suspend the hanging can buoys approximately two feet from the water's surface.

Flare the cables out from both sides of the falsework/bridge opening to both shorelines.

2) Surface Buoys. Lay and anchor the cables to the river/stream bottom for attaching the buoy mooring lines. Ensure the anchor cable is ballasted to prevent it from rising from the river/stream bottom. Flare the cable out from both sides of the falsework/bridge opening to both shorelines.

E. Falsework and Bridge Opening Lighting. Install Type C Steady burn lights, spaced on maximum 3 ft centers, on the top and sides of the false work opening or bridge opening to be used by waterway users.

F. Public Notice. Submit at the preconstruction conference, one copy of the draft public notice for the Project Manager's approval. Once approved, place the notice in the nearest town newspaper and forward copies to local radio station(s) four weeks and two weeks before work restricts the waterway. Include the following in the notice: name of waterway and

location of the bridge work, the dimensions of the waterway opening, the time period the restricted waterway opening is anticipated to be in place, and the phone number to call for additional information.

G. Method of Measurement and Basis of Payment. Waterway passage and signing is not measured for payment. Include the cost of this work in other contract items.

52. CONSTRUCTION EQUIPMENT ON STRUCTURES

A. Description: Requirements associated with the operation of equipment on structures.

B. Definition. The following definition applies to this special provision:

1) Equipment. Any vehicle or machine weighing more than 5000 pounds.

C. Construction Requirements. Do not use bridges as work platforms, work bridges, or to support or move equipment without the Project Manager's written approval. The Project Manager may require a full Engineering Submittal at their sole discretion.

1) For bridges having no posted load restrictions and no removal of deck concrete (not milled), submit a full Engineering submittal for approval for all equipment utilizing outriggers on the structure and for any equipment not already approved under one of the following conditions:

a) Legal Loads. A vehicle that is a legal load as defined by Montana Code Annotated (MCA).

b) Pre-Approved Equipment. The equipment is currently listed on MDT's Approved Construction Equipment List (ACEL) and will be operated according to any conditions stated in the ACEL.

2) For bridges with a posted load restriction or if bridge deck concrete is partially milled or removed, submit a full Engineering submittal for approval for any of the following cases:

a) Equipment weight exceeds 25 tons.

b) Vehicle weight and configuration does not satisfy the posted load restriction.

c) More than one piece of equipment will be simultaneously located on a span.

d) Concrete removal results in debonding of the top mat of deck reinforcing steel.

e) Repairs to bridge beams or truss members are specified in the contract and repairs are not complete.

f) Equipment outriggers will be used.

3) Full Engineering Submittal requirements. Submit an engineering analysis and report performed by an engineer registered in Montana.

a) Engineering analysis. Clearly describe loading conditions, assumptions, and provide calculations. Investigate an envelope within which the equipment may function without damaging the structure or endangering workers or the public. MDT proposes the following topics, at a minimum. Provide additional information when necessary.

(1) Load Cases.

(a) Minimum suggested live load vehicles are Type 3 and Type 3S2 trucks in live load combinations from AASHTO "Manual for Condition Evaluation of Bridges."

(b) Consider all loads on the bridge including axle loads, outriggers, equipment dynamic forces, and wind forces on the load, the boom, and the equipment. Consider deflection and secondary force effects. Include traffic live load if the structure will carry traffic during equipment operations.

(c) Investigate different loading combinations for all configurations. Include the distribution of dead load and changing center-of-gravity of the equipment with and without load at different boom extensions, rotations, and elevations.

(2) Structural Effects. Identify critical members. Determine any conditions under which the equipment cannot safely operate.

(3) Written Report. Provide a report containing a narrative summarizing the results of the analysis. Describe special measures necessary to protect the structure through all phases of the equipment's positioning and use. Include drawings as necessary and indicate any minimum equipment clearances to relevant portions of the structure and to traffic flow. Estimate the work's duration.

(4) MDT will consider equipment submitted under this contract for addition to the ACEL.

D. Method of Measurement. Work associated with this provision is not measured for payment.

E. Basis of Payment. Include all costs associated with the requirements of this provision in the cost of other items.

53. PROTECTION OF EXISTING ROADWAYS UNDER STRUCTURES (REVISED 5-28-04)

A. Description. Provide complete protection at all times to the traveling public crossing under any structure. Employ positive means such as netting, tarpaulins, wood, or metal covering to prevent tools, materials, etc., from falling onto the roadway below. Positive protection may include traffic control methods, or other approved means to ensure complete protection.

Submit the proposed method and any modifications of the proposed method of traffic protection for approval to the Project Manager a minimum of 2 days prior to the start of this work. Do not begin work until the protection plan is approved and installed to the satisfaction of the Project Manager. Failure to maintain such safeguards in an effective manner may result in an immediate shutdown of work until corrected.

B. Basis of Payment. Include all costs associated with this provision in the costs of other items.

54. GIRDER TEMPERATURE REQUIREMENTS FOR FIXED SHOE WELDING (REVISED 6-4-09)

A. Description. Weld the sole plates of the fixed shoes as specified to reduce thermal stresses at fixed bents. Do not place deck concrete until after completing all girder-to-shoe welds on the bridge.

B. Construction Requirements. Weld each girder composing spans 1,2,6,7,8,9,10 and 11 to its shoes only when the average temperature of each girder has been determined to be between 40 and 70 degrees Fahrenheit. Complete the welding of the shoes at both ends of each girder so that the temperature of the girder, as measured by the method provided herein, does not change between the times the welds are placed. Align and center both plates of the fixed shoes on the anchor bolts and center the girder between bearings when the welds are placed at the fixed shoes. Correct girder or plate location as necessary.

C. Temperature Measurements. Measure girder temperature by surface thermometer, non-contact infrared or other method approved by the Project Manager. Calculate the average temperature from two or more readings taken near the bents at each end of the spans. Take the readings on shaded portions of the members and follow the recommendations of the thermometer manufacturer.

D. Basis of Payment. Consider all costs associated with this provision incidental to the construction of the bridge. Include the cost in the cost of other items.

55. BRIDGE DECK REINFORCING STEEL COVER (REVISED 12-28-09)

A. Description. The Department may measure the depth of the concrete cover over the top reinforcing steel of the bridge deck(s) and the deck thickness, using Ground Penetrating Radar (GPR) equipment.

B. Construction Requirements. Schedule three business days for the Department to access the deck. Ensure the deck is completely bare during the three business-day period, or until the test is complete, to allow full access to the entire surface. The timeframe for access

to the bridge deck is after the water cure has been completed and prior to opening the bridge deck to traffic. The Department will perform the test only on a dry deck. The test may be completed either prior to or after transverse deck grooving or rail construction. If inclement weather prevents the test from being performed within the three business days provided, the test will be cancelled. Provide the Project Manager a minimum of 14 calendar days' notice for the three business-day access period. The project manager will coordinate the test with the MDT Materials Bureau (contact: Anson Moffett 444-5407).

C. Method of Measurement and Basis of Payment. Consider all costs associated with this provision and its requirements incidental to performance of the work. Include the costs in the cost of other items.

56. POLYMER OVERLAY WITH PRIMER

A. Description. This work is the preparation of concrete deck surfaces and concrete approach slabs, application of a polymer overlay primer to the bridge deck, and the furnishing and applying two layers of a two-component polymer overlay system to the bridge deck.

B. Materials. Furnish materials specifically designed for use on concrete bridge decks.

1) Polymer Overlay Primer. Furnish a primer compatible with the polymer overlay that is 100% solids, 100% reactive with the following properties:

Property	Requirements	Test Method
Viscosity [A]	<225 cps	ASTM D2393, Brookfield RVT, Spindle No. 3, 20 rpm
Tensile Elongation [B]	> 30%	ASTM D638
Tensile Strength [B]	>2000 psi @ 7 days	ASTM D638

[A] Uncured, mixed primer

[B] Cured, mixed primer

2) Polymer Resin for Polymer Overlay. Use a polymer resin base and hardener composed of a two-component, 100% solids, 100% reactive, thermosetting compound with the following properties:

Property	Requirements	Test Method
Gel Time [A]	10 - 45 minutes @ 73° to 75° F	ASTM C881
Viscosity [A]	7 - 70 poises	ASTM D2393, Brookfield RVT, Spindle No. 3, 20 rpm
Absorption [B]	1% maximum at 24 hr	ASTM D570
Tensile Elongation [B]	30% - 70% @ 7 days	ASTM D638
Tensile Strength [B]	>2000 psi @ 7 days	ASTM D638
Chloride Permeability [B]	<100 coulombs @ 28 days	AASHTO T277

[A] Uncured, mixed polymer binder

[B] Cured, mixed polymer binder

3) Aggregates. Furnish natural or synthetic aggregates which have a proven record of performance in applications of this type. Furnish aggregates that are non-polishing, clean, free of surface moisture, fractured or angular in shape; free from silt, clay, asphalt, or other organic materials; and meet the following properties and gradation requirements:

Property	Requirement	Test Method
Moisture Content [A]	≤ 0.20%	AASHTO T255
Hardness	≥ 6.5	Mohs Scale
Fine Aggregate Angularity	45% Minimum	AASHTO T304 Method A
Absorption	≤ 1%	AASHTO T84
Aggregate Gradation[B]	100% passing No. 4 15-25% passing No. 8 0-5% passing No. 16 0-1% passing No. 30	MT 202

[A] Sampled and tested at the time of placement.
[B] Or recommended gradation per manufacturer of polymer resin and approved by the Project Manager.

4) Required Properties of the Overlay System.

Property	Requirement [A]	Test Method
Minimum Compressive Strength (psi)	1,000 psi @ 8 hrs 5,000 psi @ 24 hrs	ASTM C 579 Method B, Modified [B]
Thermal Compatibility	No Delaminations	ASTM C 884
Minimum Pull-off Strength	250 psi @ 24 hrs	ACI 503R, Appendix A

[A] Based on samples cured or aged and tested at 75°F
[B] Plastic inserts that will provide 2-inch by 2-inch cubes shall be placed in the oversized brass molds.

C. Construction Requirements.

1) Manufacturer's Representative. Provide a manufacturer's representative on site for the duration of the work, to provide expert assistance on compatibility of materials, storage, mixing, surface preparation, application, clean-up and disposal of materials.

2) Material Delivery and Storage. Store resin materials in their original containers in a dry area. Store and handle materials according to the manufacturer's recommendations. Store all aggregates in a dry environment and protect aggregates from contaminants on the job site.

3) Pre-installation Conference. Conduct a pre-installation conference with the manufacturer's representative prior to construction to establish procedures for maintaining optimum working conditions and coordination of work. Furnish the Project Manager a copy of the recommended procedures and apply the overlay system according to the manufacturer's instructions. Ensure the manufacturer's representative familiar with the overlay system installation procedures is present at all times during surface preparation and overlay placement to provide quality assurance that the work is being performed properly.

4) Sequence of Operations. Use the following sequence of operations when a Polymer Overlay is required:

a) Deck Repair.
b) Surface Preparation
c) Polymer Overlay Primer

d) Polymer Overlay

5) Material Compatibility. Ensure products used for the Deck Repair, Polymer Overlay Primer, and Polymer Overlay are all compatible with each other.

6) Deck Repair. Perform Class A and B deck repair work as specified elsewhere in the contract. Use products for deck repair which are compatible with the polymer overlay primer and polymer overlay system. Follow all manufacturer published recommendations, including recommended substrate cure times.

7) Surface Preparation. Determine an acceptable shotblasting machine operation (size of shot, flow of shot, forward speed, and/or number of passes) that provides a surface profile meeting CSP 5 according to the International Concrete Repair Institute Technical Guideline No. 03732. If the Project Manager requires additional verification of the surface preparation, test the tensile bond strength according to ACI 503R, Appendix A of the ACI *Manual of Concrete Practice*. The surface preparation will be considered acceptable if the tensile bond strength is greater than or equal to 250 psi or the failure area at a depth of ¼ inches or more is greater than 50% of the test area. Continue adjustment of the shotblasting machine and necessary testing until the surface is acceptable to the Project Manager or a passing test result is obtained.

Prepare the entire deck using the final accepted adjustments to the shotblasting machine as determined above. Thoroughly blast-clean with hand-held equipment any areas inaccessible by the shotblasting equipment. Do not perform surface preparation more than 24 hours prior to the application of the overlay system.

Prepare the vertical concrete surfaces adjacent to the deck a minimum of 2” above the overlay according to SSPC-SP 13 by sand blasting, using wire wheels, or other approved method.

Just prior to polymer overlay primer placement, clean all dust, debris, and concrete fines from the prepared surfaces including the vertical surfaces with compressed air. When using compressed air, the air stream must be free of oil. Completely remove any grease, oil, or other foreign matter that rests on or has absorbed into the concrete. If any prepared surfaces (including the polymer overlay primer or the first layer of the polymer overlay) are exposed to rain or dew, lightly sandblast (breeze blast) the exposed surfaces.

Protect drains, expansion joints, access hatches, or other appurtenances on the deck from damage by the shot and sand blasting operations and from materials adhering and entering. Tape or form all construction joints to provide a clean straight edge.

The Project Manager may consider alternate surface preparation methods per the overlay system manufacturer’s recommendations. Do not place the polymer overlay primer or polymer overlay prior to Project Manager approval of the final surface profile and deck cleanliness.

8) Polymer Overlay Primer. Place polymer overlay primer in accordance with Section 552.03.19 of the Standard Specifications, except that the sand requirement is rescinded.

9) Overlay Application. Perform the handling and mixing of the polymer resin and hardening agent in a safe manner to achieve the desired results according to the manufacturer’s instructions. Do not apply the overlay system if any of the following conditions exist:

a) Ambient air temperature is below 50°F;

b) Deck temperature is below 50°F;

c) Moisture content in the deck exceeds 4.5% when measured by an electronic moisture meter or shows visible moisture after 2 hours when measured in accordance with ASTM D4263;

d) Rain is forecast during the minimum curing periods listed under C.5 ;

e) Material component temperatures are below 50°F or above 99°F;

f) Class B repair material concrete age is less than 28 days, unless approved by the Project Manager.

g) The deck temperature exceeds 100ºF.

h) The polymer gel time is less than 10 minutes at the predicted high air temperature for the day.

After the deck has been shotblasted and during the polymer overlay primer and overlay curing periods, only necessary surface preparation and overlay application equipment will be allowed on the deck. Begin the polymer overlay primer placement as soon as possible after surface preparation operations, followed by the polymer overlay placement as soon as possible after placement of the polymer overlay primer placement. A wet on wet application of the polymer overlay primer and polymer overlay is allowed.

Use a polymer overlay consisting of a two course application of polymer and aggregate, consisting of a layer of polymer covered with a layer of aggregate in sufficient quantity to completely cover the polymer. Apply the polymer and aggregate according to the manufacturer's requirements. Apply the overlay using equipment designed for this purpose. Use an application machine that features positive displacement volumetric metering and is capable of storing and mixing the polymer resins at the proper mix ratio. Disperse the aggregate using a standard chip spreader or equivalent machine that can provide a uniform, consistent coverage of aggregate. If the Project manager determines that the course application does not receive enough aggregate before the polymer gels, remove and replace the course.

After completion of the course, cure the overlay according to the manufacturer's instructions. Remove the excess aggregate from the surface treatment by sweeping, blowing, or vacuuming without tearing or damaging the surface; the material may be re-used if approved by the Project Manager and manufacturer. Do not allow traffic on the treated area until directed by the Project Manager.

Prior to opening to traffic, clean expansion joints and joint seals of all debris and polymer. If required by the Project Manager, a minimum of 3 days following opening to traffic, remove loosened aggregates from the deck, expansion joints, and approach pavement.

10) Application Rates. Apply the polymer overlay in accordance with the manufacturer's instructions, but not less than the following rate of application:

Course	Minimum Polymer Application Rate (GAL/100 SF)	Aggregate [A] (LBS/SY)
1	2.5	10+
2	5.0	14+

[A] Apply aggregate in sufficient quantity to completely cover the polymer.

11) Minimum Curing Period. Satisfy the minimum curing period specified by the polymer manufacturer for each course.

12) Repair of Polymer Overlay. Repair all areas of unbonded, uncured, or damaged polymer overlay at no cost to the State. Submit repair procedures from the manufacturer to the Project Manager for approval. Absent a manufacturer's repair procedures and with the approval of the Project Manager, complete repairs according to the following: Saw cut the limits of the area to the top of the concrete; remove the overlay by scarifying, grinding, or other approved methods; shot blast or sand blast and air blast the concrete prior to placement of polymer overlay; place the polymer overlay according to the application procedures required in this special provision.

D. Submittals. Submit two copies of the following to the Project Manager. Do not begin work prior to receiving approval from the Project Manager.

a) Product data sheets and specifications from the manufacturer, and a certified test report. The Project Manager may request samples of the primer, polymer, and aggregate prior to application, for the purpose of acceptance testing by the department. Product data sheets and specifications from the manufacturer consists of literature from the manufacturer showing

general instructions, application recommendations/methods, product properties, general instructions, or any other applicable information.

b) Product history/reference projects and a certified test report from an independent testing laboratory showing compliance with the requirements of the specification. The product history/reference projects consist of a minimum of 5 bridges / locations where the proposed overlay system has been applied in Montana or other locations with a similar climate. Include contact names for the facility owner, current phone number or e-mail address, and a brief description of the project.

E. Method of Measurement. Deck repair is measured and paid for as described in the BRIDGE DECK REPAIR specification. Deck surface preparation is measured by square yard of deck surface area treated. Bridge Polymer Overlay Primer is measured by the square yard of deck surface area. Polymer Overlay is measured by square yard of deck surface area treated.

F. Basis of Payment. Payment for the completed and accepted quantities is made under the following:

Pay Item	Pay Unit
Prepare Deck	Square Yard
Polymer Overlay	Square Yard
Polymer Overlay Primer	Square Yard

57. AREA III LEVEE EMERGENCY ACTION PLAN (EAP)

A. Description. The Area III Levee is located on the north bank of the Clark Fork River under the existing Higgins Avenue Bridge between Bents No. 6 and No. 7 (Span No. 6). The limits of the Area III levee extend beyond the construction limits in both the East and West directions. On top of the levee is an existing paved shared use path. The proposed work includes widening the existing Bent No. 6 to the west by installing a new shaft through the levee prism to support a new concrete column. Prepare an Emergency Action Plan (EAP) to restore the Area III Levee during construction and provide flood protection in advance of high water events. Monitor water levels and perform construction in accordance with the accepted EAP and contract documents.

B. Materials and Equipment. Provide adequate personnel, equipment and materials necessary to restore the levee in accordance with the EAP.

If necessary, provide new fill material that matches the existing levee soil gradation and as approved by the Project Manager.

C. Submittals. Provide an Emergency Action Plan (EAP) for review at least 20 business days prior to removing any portion of the existing levee. Additional contract time or compensation will not be provided for delays associated with incomplete submittals or rework to the EAP as requested by MDT. Include the following items in the EAP:

a) Sequence of Operations. Provide a written sequence of operations for construction work that impacts the existing levee. At a minimum, placement of the new drilled shaft at Bent No. 6 should be included in the sequence of operations, as well as any other activity that involves the temporary disturbance to the levee or existing riprap protection along the river bank. Provide a construction schedule with dates and durations for work items included in the sequence of operations.

b) Contact Information. Provide contact information for the superintendent responsible for work on the levee and at least two other personnel that can be responsible for executing the EAP in the event the project superintendent is not available. Provide email address, business address, and phone numbers including mobile numbers where these individuals can be contacted 24 hours a day, 7 days per week.

c) Levee Restoration. Include a sequence of operations and timeline for restoring the levee in the event of an emergency. The levee must be restored within 24-hours of initiating

the EAP. Indicate what materials will be used, location of stockpiles, and quantity of material to be stockpiled. Indicate what equipment will be used to move, place, and compact the material. Provide a list of personnel required to operate equipment and complete the levee restoration in accordance with the EAP.

D. Construction Requirements.

1) Notice to Proceed. Do not begin removing any portion of the levee until the Project Manager has issued a written notice to proceed. The Project Manager will provide a notice to proceed with an approved EAP, verification that water levels are not anticipated to exceed the limiting elevations specified herein, and all personnel, equipment, and materials needed to implement the EAP are ready on standby.

2) Equipment and Personnel. Provide the necessary equipment, materials, and personnel to restore the levee in the event water levels trigger the EAP. The Project Manager may order the contractor to stop work until such equipment, personnel, and materials are on site or available per the approved EAP.

3) Daily Water Level Monitoring. Continuously monitor water levels and the extended forecast of future river levels. Record top of water elevations adjacent to the worksite and monitor the USGS National Weather Surface website for River Gauge – USGS 12340500 “Clark Fork above Missoula, MT” (http://waterdata.usgs.gov/mt/nwis/) to identify water level trends.

4) Stop work order. The Project Manager may order work to cease when the water surface elevation is within 2-ft of the bottom of the removed levee riprap, the top of an open drilled shaft hole, or any other excavation adjacent to the river and if in the opinion of the Project Manager there is a risk for flooding. With approval from the Project Manager, work may continue such that no further removal of the levee occurs as part of that work. Do not initiate the EAP unless directed by the Project Manager.

5) Executing the EAP. Upon direction from the Project Manager, initiate the EAP. The Project Manager will initiate the EAP if any of the following conditions are met: the water level in the vicinity of the work reaches 3182-ft, the water elevation at the USGS Gauge 12340500 is within 5 ft. of the flood stage (+10 ft.), if there is excessive seepage or sloughing of the landward side of the levee or within the drilled shaft hole, or if it appears that water levels will rise to that elevation before the work can be complete. Immediately remove any shoring, formwork, equipment, and materials that are in conflict with the levee restoration. Fill and compact any open drilled shaft holes. Include proposed compaction methods in the EAP submittal. Place and compact new material to restore the levee in accordance with the EAP. Provide moderate compaction of backfill material as specified in the accepted EAP. Restore riprap along the levee. Continue to monitor water levels and the stability of the restored levee for seepage, sloughing, or other distress. Provide equipment, personnel and materials to maintain or repair the levee if needed and as directed by the Project Manager throughout the high water event.

Failure to restore the levee to the requirements and within the timeframe specified in the EAP may result in no payment to the Contractor. Any damages to adjacent properties resulting from floodwater and failure to restore the levee per the EAP will be at the Contractor’s expense.

6) Resuming Work. Following a stop work order, do not resume construction until notified by the Project Manager. Construction will resume when the water level drops to an elevation where the need for flood protection is no longer required.

Remove material used to restore the levee. The material may be reused as backfill for the permanent levee if approved by the Project Manager. The material must have the appropriate gradation, and not be contaminated with other soils in order to be reused.

Repair or replace any work that may have been damaged by high water to meet the contract requirements and to the satisfaction of the Project Manager.

E. Method of Measurement and Payment. The EAP is not measured for payment. Include all costs associated with preparing the EAP and providing the appropriate personnel

and equipment needed to implement the EAP incidental to other items. Implementation of the EAP including all materials, labor and incidentals, and restoring work following the EAP, will be paid for on a Force Account basis.

58. AREA III LEVEE EXCAVATION AND BACKFILL

A. Description. Perform activities necessary to install a new drilled shaft in the levee at Bent 6 according to the plans and this special provision. Perform the work to minimize impacts to the levee.

B. Materials.

1) Levee Backfill Material. Use the existing soil excavated from the levee for backfilling. Maintain the existing gradation of soil used for backfill.

2) Levee Scour Protection Measures. Re-use the existing riprap. If additional material is required, use riprap meeting Class III of the Standard Specifications. Provide a permanent erosion control geotextile meeting Class A of the Standard Specifications.

C. Submittals. Submit a minimum of 30 days prior to commencing work, an excavation work plan showing:

1) Description of Work. Limits and description of construction activities near the levee including: the limits of temporary removal of riprap, location of cranes, including crane mats or other equipment and materials. Show and describe temporary means used to protect the levee and shared use path during construction.

2) Emergency Action Plan (EAP). Submit the EAP in accordance with the requirements specified elsewhere in the special provisions.

D. Construction Requirements

1) Drilling and Excavation Requirements. Perform all work in accordance with the Standard Specifications and as follows:

a) Temporary Casing. Provide temporary casing for drilled shaft excavation and during placement of concrete.

b) Do not proceed with drilling or excavations until notified by the Project Manager. The Project Manager will allow work to begin with an accepted EAP, approved work plan, verification that water levels are not anticipated to rise to a flood condition, and all personnel, equipment, and materials needed to implement the EAP are ready on standby.

c) Perform drilling and excavations in levee embankment to the minimum extent necessary to install the new drilled shaft and column.

d) Perform excavation in accordance with the approved EAP specified elsewhere in the contract. Do not excavate more material than can be replaced within the time requirements specified in the EAP. Maintain enough drilled shaft spoils on site to re-fill open drilled shaft hole in the event of a rapid change in river elevation.

2) Backfill and compaction requirements. Backfill and compact the excavation in accordance with the Standard Specifications and additional requirements below.

a) Do not disturb areas of the levee outside the construction impact limits shown in the approved work plan submittal. Repair all areas of the levee, levee scour protection system and shared-use path damaged by construction activities to the satisfaction of the Project Manager at no cost to the State. Exercise care to maintain the existing soil stratification and embankment zoning.

b) Do not place embankment backfill in standing or running water. Should a quick condition develop, dewater by well points, sump pumping or other methods which will nullify the excess gradient.

E. Measurement and Payment. The requirements of this special provision are not measured for payment. Payment for all costs associated with excavation and backfill within the levee prism is incidental to other items.

59. FRP DECK PANELS

A. Description. Design, furnish, and install solid surface, Fiber Reinforced Polymer (FRP) bridge deck panels per the contract.

B. Materials.

1) Use lightweight, prefabricated, FRP deck panels supplied by Composite Advantage:

Composite Advantage
Scott Reeve, President
750 Rosedale Drive
Dayton, OH 45402
Phone: 937.723.9031
Email: sreeve@compositeadvantage.com

2) Provide deck panels composed of synthetic reinforcing fibers and a polymer binder matrix that are intended for exterior use, with high resistance to weathering and ultraviolet (UV) exposure.

3) Provide other components that are integral to the FRP deck system design and performance including steel, grout, adhesives and hardware in accordance with the Standard Specifications and other requirements of the contract.

4) Provide fiber reinforced pads, elastomeric pads, or cotton-duck-reinforced elastomeric pads (CDP) between the FRP deck system and the new concrete deck to provide a uniform bearing surface. Similar materials may be proposed such that the material:

a) Provides for a uniform bearing surface between the FRP panels and concrete deck
b) Resists all applied permanent and transient loads without plastic deformation
c) Exhibits negligible creep under dead load.
d) Provides necessary rotation and translation as required by the FRP design
e) Will not absorb moisture
f) Will not rot or decay.
g) Is stable under UV exposure.

If a pad is used to provide a uniform bearing surface between the FRP panels and the concrete deck, then provide an adhesive or mechanical fastener approved by the FRP panel manufacturer and the pad manufacturer to secure the pad to the FRP panel.

Cementitious or epoxy grout that is compatible with the FRP panel design may also be used to provide a uniform bearing surface between the FRP panels and bridge deck as approved by the Project Manager.

5) Use painted, galvanized or stainless steel hardware per the Standard Specifications whether it is exposed or embedded in the FRP deck panels unless otherwise approved by the Project Manager.

6) Submit test methods and minimum values for all materials used in the FRP panels as described elsewhere in this provision.

7) Limit the weight of panels to 20-psf including all attachments (excluding the pedestrian railing), components, and wearing surface.

8) Provide FRP deck panels having a Class I fire resistance per ASTM E-84 and a Type III rating per NFPA 220 as promulgated by the National Fire Protection Association.

9) Provide the FRP deck panels with all exposed surfaces in a uniform gray in color to match the color of concrete.

10) Non-slip Wearing Surface. Furnish a shop applied, ¼" thick, polymer overlay with aluminum oxide aggregate on the top surface of the FRP deck panels. Provide an aggressive, non-slip wearing surface appropriate for pedestrian and bicycle traffic, maintenance vehicles, and snow removal machines. Provide the wearing surface in a uniform texture and color to match the Polymer Overlay provided on the concrete deck as specified elsewhere in the contract.

11) Joint Filler.

a) Provide a design and panel layout that minimizes the number of joints.

b) Unless otherwise specified, provide watertight joint filler materials compatible with the FRP and adjacent material, as recommended by the FRP panel manufacturer and approved by the Project Manager.

c) Provide joint filler capable of accommodating 50% increase or decrease of the joint width, unless the joint is required to withstand greater movement as recommended by the FRP panel manufacturer and as approved by the Project Manager.

d) For transverse joints where the pathway transitions from FRP to concrete use a joint as shown on the Contract Plans. Joint widths shown on the Contract Plans are based on thermal movements of the steel superstructure using a coefficient of expansion of 6.5×10^{-6} in/in 1/°F. Adjust the joint gap width as required to accommodate the thermal expansion of the FRP deck panels. If the gap width is adjusted:

(1) Update the joint seal, as required, so that the joint seal will accommodate the proposed thermal movement

(2) If gap is increased, provide design calculations stamped and signed by a licensed Montana Professional Engineer for the cover plate spanning the joint. Provide a cover plate that is compliant with ADA requirements.

C. Design Requirements.

1) Design the deck system in accordance with the current AASHTO LRFD Bridge Design Specifications, 8th Edition, the AASHTO Guide Specifications for Design of FRP Pedestrian Bridges, and AASHTO Guide Specifications for the Design of Pedestrian Bridges.

2) Design live loading for the FRP decking is as follows:

a) Pedestrian loading: 90-psf

b) Vehicular load: AASHTO H5. The vehicular load is not simultaneous with the design pedestrian loading.

c) Uplift load of 30-psf

3) Future Wearing Surface. Include a future wearing surface load of 10-psf.

4) Evaluate all relevant loads and load combinations as specified by AASHTO.

5) Provide a design that limits stresses and deflections within the requirements of AASHTO. If appropriate, limit deflections to more stringent criteria if necessary to achieve adequate performance of the wearing surface, joint seals and service life from the FRP. Limit service dead load and live load combined stresses in the FRP materials to no more than 25% of the minimum guaranteed failure stresses that are verifiable by experimental testing.

6) Provide a deck system that will have satisfactory operation in a temperature range from -40°F to 120° F.

7) Comply with the American Disabilities Act (ADA)

8) Account for thermal movement of the panels relative to each other and adjacent or supporting elements. Design joints per AASHTO. Limit the number of expansion joints to the minimum amount possible while satisfying other requirements of the design. The maximum joint width perpendicular to the direction of travel is ½". There will be a longitudinal joint between the FRP panels and the concrete curb. Size this joint width to meet thermal and joint water proofing requirements as described elsewhere in this provision. Otherwise, eliminate longitudinal joints unless otherwise approved by the Project Manager. Avoid differences in height over the walking surface and where necessary, limit height differences between adjacent surfaces to less than ¼".

9) Drainage Design.

a) Drainage Scuppers. Accommodate drainage scuppers that are either integral to the FRP deck panels or post-installed in the field to meet the following requirements.

(1) Design Loading. Furnish deck panels with drainage features that meet the design loading specified elsewhere in this provision.

(2) Scupper Support. Provide the necessary support to the scupper to allow the scupper to safely carry the design loading. Internally or externally reinforce the FRP deck panels as required by FRP design to accommodate the drainage penetrations.

b) Drainage Support. Coordinate the location of drainage system supports with the drainage system supplier. Support the drainage system from the FRP panels and design the panels accordingly. Provide locations of supports and embedded anchors in shop drawing submittal.

10) Connections. Design the connections between the FRP panels and supporting members. Design the connections between the pedestrian railing the FRP panel.

a) Positively attach each FRP panel to each supporting member including cantilever stringers and the concrete deck

b) For each FRP panel provide a minimum of two attachments to each supporting member unless otherwise approved by the FRP supplier and the Project Manager.

c) Design the connections for the braking effect from a single H5 maintenance vehicle on the FRP path.

11) Perform engineering design and detailing for all necessary modifications to the supporting elements as detailed in the contract to accommodate the proposed FRP panels and methods for attachment. Obtain approval for proposed modifications from the Project Manager prior to proceeding with the design.

12) Account for possible variations in elevation between adjacent supporting elements and provide a method for adjusting the panels to the proper elevation and slope.

D. Submittals. Prior to proceeding with the work, submit to the Project Manager for approval the following:

1) Manufacturers Qualifications. Include an organizational chart and resumes for key personnel involved in the design and fabrication showing previous experience of design and fabrication of FRP decking. Provide a direct contact for questions and support during construction.

2) Design Package. Submit the design package for approval prior to fabrication. Provide design calculations and drawings signed and sealed by a licensed Professional Engineer registered in Montana. Provide design calculations for the entire system including fastening systems and any proposed changes to the supporting stringers and cantilever system. Certify that all components and systems have been designed to meet the loading requirements specified.

3) Materials List. Provide details on fiber and resin such as fiber architecture, and mechanical properties to be used in the FRP manufacturing process. Include a table that lists the minimum performance and/or strength value used for the design and the ASTM or other relevant test method used to guarantee the performance value for each material used in the FRP panel.

4) Materials Certification. Provide for random independent testing of materials to verify properties used in the design. Include lot numbers for the FRP materials used in the fabrication of the panels. Reject any panels where the material properties do not meet the minimum values assumed in the design. Provide written certification that all materials used in the fabrication of the panels satisfy the minimum performance criteria assumed in the design, meet standards referenced, and meet other requirements of the contract.

5) Quality Control Plan and Certification. Submit a written quality control plan that will be followed during the design and fabrication of the deck plans. Include the acceptable shop tolerances for constructing the panels. Submit a written certification that the FRP panels were designed and produced in accordance with the quality control plan.

6) Shop Plans. Provide assembly details for both shop and field-assembled components. Provide plans showing location, profile, section, and details of each item including anchorage as well as designated lifting points. Provide panel dimensions, identification numbers for panels, details for connections, drainage scuppers, miscellaneous parts, and joints. Include

details for any proposed modifications to the support structure. Provide shop plans for any proposed modifications to the FRP support stringers, cantilever system, and connections as detailed in the plans. Include listing of all accessory items being provided indicating material, finish, etc. Specify all materials of construction including shop applied coatings.

7) Erection Plan. Provide erection plans. Include, at a minimum, the proposed sequence of installation, means of picking and placing panels, proposed method to provide uniform bearing between concrete deck and steel stringers, as well as proposed method to adjust deck panels to provide smooth transition between panels.

8) Wearing Surface. Provide manufacturer's technical data and installation instructions for the shop applied wearing surface.

9) Delivery, Handling, and Storage Instructions. Deliver and handle each item to preclude damage. Include instructions and recommendations for panel delivery, storage, lifting, and installation. Store all items on skids above ground. Keep free of dirt and other foreign matter which could damage items or finish.

10) Warranty. Provide the manufacturer's warranty that the decking system and wear surface is free from defects in material and workmanship for a period of no less than 10 years from the date of installation.

11) Sample. Prior to beginning fabrication of panels, furnish a sample of FRP deck panel having dimensions of 24" x 24" x proposed design thickness and exhibiting proposed wearing surface, edge and corner treatments of exposed FRP, and color for approval by the Project Manager.

E. Construction Requirements.

1) Manufacturing. Manufacture all members and all work in accordance with approved shop drawings. Approval of the shop drawings does not relieve the manufacturer of responsibility for the adequacy of the design or compliance with the contract.

2) Dimensions and tolerances. Construct panels such that any dimension does not exceed the approved shop plan dimension by ¼" or as per the manufacturer's requirements for manufacturing tolerances.

3) Identification. Label the FRP deck panels with identification numbers consistent with the numbering system shown on the shop drawings.

4) Drainage Scuppers. Coordinate installation of drain scuppers and connections to the longitudinal drainage system between the relevant suppliers.

5) Damage and repair. The Project Manager will determine if an item damaged during installation may be repaired or if the item will be rejected. If the item is to be repaired, follow the manufacturer's procedures for repair. Field cutting or trimming of the FRP panels is not allowed unless an acceptable method has been provided by the supplier and approved by the Project Manager. Replace panels not meeting the requirements of the contract as directed by the Project Manager.

6) Installation. Install and place decking in accordance with the manufacturer's recommendations and approved shop drawings. Provide a qualified technical representative from the manufacturer to facilitate the installation procedure. Accommodate variations in elevation between adjacent supporting elements by shimming or other methods as approved by the Project Manager. Provide for an even finished walking surface such that the top of walkway meets the slope and elevations shown in the plans. Correct any installation where there is a difference in finished grade between adjacent panels greater than ¼". Install watertight expansion joints as detailed in the approved shop plans and per the manufacture's requirements.

F. Method of Measurement. FRP deck panels are measured by square foot of plan surface area as shown in the plans.

G. Basis of Payment. Include all costs associated with designing, fabricating, and installing the deck panels and joints in the unit price bid for FRP Deck Panels. Payment for designing and detailing any modifications to the steel support structure is considered incidental.

Furnishing and installing the scuppers, pedestrian railing and the longitudinal drain system are paid for separately.

60. ULTRA HIGH PERFORMANCE CONCRETE (UHPC)

A. Description. Furnish all materials, tools, and labor necessary for the performance of all work to form, cast, finish, and cure Ultra High Performance Concrete (UHPC) where required per the plans. Use "Ductal" UHPC supplied by Lafarge North America for the longitudinal field cast closure pour joint shown on the plans.

B. Materials. Use Ductal JS1212 or other Ductal product recommended by Lafarge and as approved by the Project Manager. Material supplier for Ductal UHPC concrete:

Lafarge North America Inc.
Gregory Nault, PE, SE
Telephone: 773.230.3069
Email: ductal-na@lafargeholcim.com
8700 W Bryn Mawr Ave., Suite 300
Chicago, IL USA 60631

C. Submittals. Submit the following items for approval

1) Proposed Ductal product information including material properties and certifications

2) Quality control plan that includes the following as a minimum:

- Mixing protocol as required by Lafarge
- Casting procedure
- Sampling and testing procedures including the applicable ASTM standards.
- Curing procedure

3) Quality Control Representative. Provide a resume that includes the credentials and past experience for a quality control representative from Lafarge that is knowledgeable and experienced in the supply, mixing, delivery, placement, curing and finishing of UHPC.

4) Proposed equipment. Provide equipment in accordance with Lafarge's requirements. Use high shear pan mixers, supplied by Lafarge, to produce UHPC. Include proposed mixing equipment, buggies, grinding equipment, and any other equipment that will be used to cast and cure the field joints. Provide backup equipment as necessary and as recommended by Lafarge to maintain continuous casting of the field joints in the event the original equipment fails.

5) Method of forming in accordance with the suppliers recommendations.

6) Pour sequence plan including staging areas for materials and equipment as well as the anticipated total time to complete the pour

7) Grinding procedure

8) Submit Domestic Material certifications per §106.09 of the Standard Specifications.

D. Construction Requirements.

1) Storage. Store materials in accordance with the manufacture's recommendations to prevent loss of physical and mechanical properties.

2) Temperature limitations. Do not place UHPC at air temperatures below 40°F nor above 90°F, or as specified by the supplier and as approved by the Project Manager.

3) Mixing protocol. Mix UHPC in accordance with Lafarge's recommendations.

4) Pre-Pour Meeting. Prior to the initial placement of UHPC, arrange for an onsite meeting with the Lafarge quality control representative and Project Manager.

5) Trial batch and trial placement. Perform at least one trial batch and placement a minimum of 14 days prior to placing the UHPC to verify the mix is in accordance with Lafarge's specifications. Perform the trial batch and trial placement with the Project Manager and Lafarge representative present.

Perform the trial batch under the same ambient conditions (time of day, weather, temperature, etc.) as expected during construction. Construct a full scale trial placement near the project site to simulate not less than 20-ft of the field joint. Provide 4-ft minimum section of cast in place concrete deck on either side of the joint. Reinforce the slab using plain reinforcing steel at the same spacing as the actual joint detailed in the plans. Use the same equipment, forming, casting and curing procedures that will be used for construction. Place the trial batch of UHPC only after adjacent deck sections have reached the required 28-day compressive strength.

Provide the results of temperature, slump, and unit weight for a minimum of two independent samples. Provide 12-hour, and 36-hour compressive strengths for Ductal JS1212. Provide compressive strengths as specified by Lafarge and as approved by the Project Manager for other mix designs. Conduct the compressive strength test on 3-in by 6-in cylinders with three cylinders tested each testing day. Perform the tests in accordance with ASTM C39. Grind the loading surfaces to ensure end planeness within 1/10 of a degree. Cure all test samples using the same method of curing proposed during construction. Test all samples at Lafarge North America or by a testing lab approved by the Project Manager. The compressive strength must meet the minimum strengths specified for the approved mix design.

The trial batch and placement must meet all the requirements of this specification to be considered successful. The Project Manager will approve the trial batch. Repeat additional trial batches if necessary and as direction by the Project Manager. Do not proceed with construction of the closure pour without approval from the Project Manager.

6) Forms. Construct watertight forms that are coated to prevent absorption of water and in accordance with Lafarge's recommendations.

7) Quality control. Provide the approved Lafarge Quality Control Representative on site during placement of the field joints. The Lafarge Representative will be responsible for quality control and will have the authority to direct the production and placement methods. The Lafarge Representative will have the authority to reject any UHPC material.

a) Sample and test each batch in accordance with the approved quality control plan.

b) Maintain a quality control log and submit a copy of the log to the Project Manager after all UHPC placements are completed.

c) Make five sets of 3-in x 6-in compressive strength test samples for each day of placement. Use cylinders provided by Lafarge. Cure all sets in an environment similar to the material they represent. With the exception of the curing requirements, perform the following tests in accordance with ASTM C39. Unless otherwise specified by Lafarge and as approved by the Project Manager:

- Test the first set for compressive strength at 12-hours. These cylinders will be field cured.
- Test the second set for compressive strength at 36-hours. These cylinders will be field cured.
- Test the third set at 28-days. These cylinders will be cured in accordance with Lafarge recommendations
- The fourth and fifth sets will be collected and cured by MDT.

8) Casting process. Comply with the recommendations and procedures provided by Lafarge and accepted by the Project Manager. Limit free fall height to prevent segregation of steel fibers. Fill the joint at a speed comparable to the flow speed of the fresh mix and as directed by Lafarge. Place the UHPC joint in a continuous operation. Cold joints are not permitted. Unless otherwise approved by Lafarge and the Project Manager, fill the joint 0.5-in higher than the top surface of the deck to allow entrapped air to rise in this zone during curing.

9) Curing. Cover the top surface of the UHPC with a layer of transparent or white polyethylene film at least 4-mils thick. Cure the UHPC in accordance with Lafarge's specifications. Do not place any loading on the UHPC joint until the UHPC has achieved a

minimum of 12-ksi compressive strength. Construction loading on the bridge during UHPC placement and curing are the responsibility of the Contractor.

10) Grinding. Once the UHPC has obtained 12-ksi compressive strength, grind the UHPC surface flush with the adjacent deck segments. A 1/8-in variation in the top of the UHPC joint and the adjacent deck surface is considered acceptable if an overlay is provided over the entire deck surface. Suspend grinding operations if significant steel fiber pullout is observed. Do not resume grinding until directed by the Project Manager.

E. Method of Measurement. Concrete – Class UHPC is measured in accordance with Standard Specification 552.04.

F. Basis of Payment. This item and all incidental items required to provide this item per contract documents including labor, materials, equipment, trial batches, and testing to be included in the unit price bid for Concrete – Class UHPC.

61. BRIDGE DRAINAGE STRUCTURE

A. Description. Supply and install deck scupper drains, downspouts, conveyance pipe, supports and all incidentals as shown on the plans and described in this provision.

B. Materials.

1) Structural Steel. Furnish structural steel in accordance with the Standard Specifications. Provide paint or galvanization in accordance with the Standard Specification

a) Use galvanized or painted steel for all applications not in contact with concrete.

b) Use galvanized steel for all steel in contact with or embedded in concrete.

2) Fasteners.

a) Furnish galvanized threaded rods, bolts, washers, and nuts in accordance with the Standard Specifications and as required by the design.

3) Roadway Scupper Drains and Grating. Furnish iron drains and removable slotted iron grates meeting:

a) AASHTO M306 – HS-25

b) The minimum required open area as shown on the Contract Plans

c) The geometry shown on the Contract Plans.

4) Shared Use Pathway Scupper Drains.

a) For Scupper Drains in Concrete Deck. Furnish scupper body composed of Fiber Reinforced Polymer meeting the requirements elsewhere in this special provision. Furnish a scupper body meeting the geometric requirements shown on the Contract Plans. Furnish a grate frame composed of galvanized steel.

b) For Scupper Drains in Fiber Reinforced Polymer Deck. Furnish scupper body and grate frame composed of a single or combination of materials including Fiber Reinforced Polymer, ductile iron, cast iron, or galvanized structural steel. Provide a scupper body and frame able to safely transmit all dead and live loads from the grate frame to the underlying support.

c) Furnish a scupper geometry meeting the requirements shown on the Contract Plans as well as:

(a) A minimum sloped invert of 5%

(b) A nominal 4 inch diameter outlet pipe, with the outside diameter not exceeding 5 inches.

5) Shared Use Pathway Grating. Provide a scupper grating that meets the minimum required intake area as shown on the Contract Plans as well as:

a) Material. Furnish a grate that is compatible with the scupper grate frame and is made from one of the following materials.

(1) Ductile Iron meeting AASHTO M105 Class 35B

(2) Galvanized Steel

(3) Fiber Reinforced Polymer

b) Geometry. Furnish a grate that meets ADA requirements with a maximum opening in the direction of travel of 1/4 inch and with the long dimension of any opening aligned transverse to the direction of travel. Provide a grate that can be securely fastened to the scupper body. Additional geometric requirements are shown on the Contract Plans.

6) Fiber Reinforced Polymer (FRP). Furnish all drainage components identified as FRP including scupper drain bodies, drain pipe, and fittings with:

a) For Pipe and Fittings.

(1) Furnish a reinforced thermosetting resin material meeting the requirements of ASTM D2996 RTRP-12EA1-2122 and meet the accelerated UV weathering performance requirements of ASTM D4329 for UV exposure performed to ASTM G154. Manufacture with a minimum wall thickness of 1/8 inch.

(2) Manufacture all elbows with a smooth radius. Do not miter elbows.

(3) Filament wound pipe is acceptable for tees, laterals and crosses.

(4) Include a minimum liner of 40-mil resin rich 1.5 ounce glass mat in all elbows.

(5) Use pigmented resin for all pipe and fittings throughout the wall. Painting or other exterior coatings are not acceptable. Provide pipe and fittings in the colors indicated on then Contract Plans and provide color samples for approval.

b) For Scupper Drains. Manufacture from polyester fiberglass that has a minimum wall thickness of 1/8 inch, is frost proof, salt proof per ASTM B117, is resistant to both acid and alkali solutions, and meets the following the minimum properties.

Compressive Strength	24,400 psi
Flexural Strength	9,943 psi
Water Absorption	0.33%

c) Joint Adhesive. Use adhesive bonded joints. Butt and wrap, or stab-in joints are not permitted. Use an adhesive composed of a vinyl ester resin with silica filler, polyester pigment and methyl ethyl ketone peroxide catalyst. Provide certification that the adhesive is suitable for intended application and that resin does not contain additives that leach out, catalysts that remain active or ingredients that lead to early deterioration.

d) Clean Out Plugs. Use threaded PVC plugs in a fiberglass female threaded outlet where clean outs are specified on the plans.

C. Submittals. Submit to the Project Manager for approval the following items.

1) Shop Plans. Include shop plans detailing the deck drainage inlets, conveyance system, fittings, connections, and support system. Include color chip samples for the finished color of the drainage pipe and fittings. Provide material designations, manufacturer's recommendations and installation instructions.

2) Material Certifications. Submit material designations and certified test reports or certificates of conformance furnished by the manufacturer's testing laboratory or independent testing agency attesting that the materials meet the project requirements.

3) Support System. Provide design calculations and plans for the drainage support system sealed and signed by a Professional Engineer licensed in Montana. Clearly identify in the calculations:

a) How the support system will accommodate differential longitudinal thermal movement between the bridge superstructure and the conveyance system to prevent binding between the scupper downspouts and collectors, while also precluding excess longitudinal movement under service conditions.

b) The lateral restraint system, and its design loads.

c) Required resistance (factored or working stress) for all attachment points to the superstructure and substructure.

4) Custom Scupper Drain. Where required, provide fabrication drawings as well as stamped and sealed design calculations by a licensed Montana Professional Engineer.

5) Design Loads. Design grate, frame and scupper body to resist all dead loads as well as the following live loads.

a) Roadway Scupper Drains. HS25 Wheel Load + Impact

b) Shared Use Pathway Scupper Drains. Greater of H5 Wheel Load + Impact or 85 psf.

D. Construction Requirements

1) Deck Scupper Drains. Set the deck drains true and plumb and to the lines and grades shown on the plans prior to placing deck concrete.

2) Deck Attachment Points. Furnish attachment points in the deck as required by the drainage support design.

a) Concrete Inserts. Cast inserts for vertical support rods into the deck. Do not use post-installed anchors to support the vertical hanger rods

b) FRP Inserts. Fabricate FRP deck panels with inserts for drainage system. See the FRP Deck Panel special provision for additional requirements.

3) Pipe Supports. Provide supports at the locations and spacing required by the supplier and designer of the support system. Provide at least 120 degrees of contact with pipe at supports. Where straps are used to secure the pipe use a minimum width and thickness of 1 1/2 inch and 3/8 inch respectively.

4) Pipe Installation. Handle and install the pipe, drains, and fittings in accordance with the manufacturer's instructions.

5) Drainage Connections.

a) Use an oversized male-female connection at the following collector connections.

(1) Deck Scupper Drains to Superstructure Longitudinal Conveyance System

(2) Deck Scupper Drains to Substructure Conveyance System

(3) Superstructure Longitudinal Conveyance System to Substructure Conveyance System.

b) Center the male connection and provide adequate annular space to accommodate differential movement.

c) Provide an oversized FRP splash guard.

E. Method of Measurement. The bridge drainage system including all deck scupper drains, downspouts, superstructure longitudinal conveyance system, substructure conveyance system, support elements, attachment points, and other incidentals are not measured for payment.

F. Basis of Payment. Include all costs associated with designing, furnishing and constructing the bridge drainage structure in the lump sum amount for Drainage Structure.

62. EXISTING STRUCTURE REPAIRS

A. Description. Furnish all materials, labor and equipment necessary to perform the repair types listed below on the existing structure at locations shown on the plans or as directed by the Project Manager.

1) Repair and Replace Deteriorated Substructure Concrete

a) Shallow Repair. Areas of removal and replacement of existing deteriorated substructure concrete, no deeper than the top of the existing reinforcing steel.

b) Deep Repair. Areas of removal and replacement of existing deteriorated concrete to a depth necessary to reach sound concrete, but not to exceed 3 inches below the most exterior existing reinforcing.

2) Repair of Cracked Concrete. Seal the cracks by injecting the crack with epoxy and restoring the sealed surface to a flush condition in areas visible to the public.

3) Repair of Beam End. Repair spalled prestressed concrete beam ends. This work includes cleaning laitance and other debris from concrete, the removal of corrosion from exposed steel, and the application of patch concrete material.

B. Materials.

1) Repair and Replace Deteriorated Substructure Concrete.

a) Concrete. Use Concrete – Class Structure or Concrete – Class SCC for Shallow and Deep repair areas unless otherwise approved. Obtain Project Manager approval before using rapid-setting concrete or polymeric concrete.

b) Epoxy Resin Bonding Agent. Use AASHTO M235 Type V bonding agent.

2) Repair of Cracked Concrete.

a) Crack Sealant. Use an epoxy paste as recommended by the manufacturer for this application that completely cures in 4 hours or less and retains the injected epoxy. Any other type of crack sealant is subject to approval by the Project Manager.

b) Low Viscosity Injection Epoxy. Manufacturer certified to meet ASTM C881, Type I or IV, Grade 1, Class B or C (as temperature conditions require).

c) Vertical and Overhead Patching Material. Use a prepackaged dry component: to which water or emulsified compound is added, that is used for concrete repair, contains no metallic expansion aides, to which no aggregate may be added. Use a material that can be placed in layers of at least 1 inch on overhead applications without the use of formwork or anchoring devices. Use a material that meets the following requirements:

Test Requirement	Minimum	Maximum
Initial Set (Minutes)	15	-
Expansion (%)	-	0.4
Contraction (%)	-	0.0
7 Day Compressive Strength (psi)	4000	-
28 Day Compressive Strength (psi)	5000	-
1 Day Bond Strength (psi)	200	-
Freeze-Thaw Loss % (25 Cycles)	-	1.0
Total Chloride Content (% by weight)	-	0.05
Total Sulfate Content (% by weight)	-	5.0

3) Repair of Beam End.

a) Concrete. Use Concrete – Class Structure or Concrete – Class SCC for Shallow and Deep repair areas unless otherwise approved. Obtain Project Manager approval before using rapid-setting concrete or polymeric concrete.

b) Epoxy Resin Bonding Agent. Use AASHTO M235 Type V bonding agent.

C. Submittals. Submit for review a minimum of 20 working days before performing the repair the following:

1) Repair and Replace Deteriorated Substructure Concrete. Material data sheets, description of concrete preparation measures, and proposed equipment to be used to place and consolidate the repair concrete.

2) Repair of Cracked Concrete. Proposed materials, the manufacturer recommended application instructions, and description of the proposed injection equipment.

3) Repair of Beam End. Proposed product data sheets and the proposed sequence and equipment to be used to place and consolidate the repair concrete.

D. Construction Requirements

1) Equipment. Provide equipment in good working order in accordance with the following requirements:

a) Repair and Replace Deteriorated Substructure Concrete.

(1) Power-driven hand tools for removal of concrete with the following requirements:

(a) Jackhammers of a nominal 30 pound class or smaller.

(b) Operate jackhammers and other mechanical chipping tools at an angle of 45° or less from the surface.

(c) To remove concrete from beneath a reinforcing bar in a Deep Repair, use a chipping hammers in a nominal 15 pound class or smaller.

(2) Use hand tools such as hammers and chisels for removing final particles of unsound concrete and to achieve final required depth.

(3) Notify the Project Manager if existing concrete is removed to a depth of 3-inches below reinforcement and sound concrete is still not reached. Do not remove additional concrete until directed by the Project Manager.

b) Repair of Cracked Concrete

(1) Use injection equipment with the following features:

(a) Separate feed lines to the mixing chamber

(b) Automatic mixing and metering pump

(c) Ability to thoroughly mix the epoxy components in the mixing chamber

(d) Operator control of the epoxy flow from the mixing chamber

(e) Clean, legible, accurate pressure gauges easily viewable by the operator

(f) Ability to provide an uninterrupted pressure head to continually force epoxy into the cracks

(g) Injection pressure from 0 to 200 psi

(h) Capable of metering each epoxy component to within 3.0% of the epoxy manufacturer's mix ratio.

(2) Before starting the work, demonstrate to the Project Manager the ability of the equipment to meter and mix epoxy components to the required mix ratio. Ratio accuracy may be determined by simultaneously metering each component into separate, clean, accurately graduated, volumetric containers, or another procedure approved by the Project Manager. Also, activate the automatic mixing and metering pump, mix a small amount of injection epoxy, and waste it into a disposable container. The Project Manager will observe this operation and be satisfied the equipment is working properly, and the epoxy is mixed with no streaks.

c) Repair of Beam End. Use hand tools such as hammers, chisels and wire brushes for removing debris, rust, laitance and other debris.

2) Construction Details

a) Repair and Replace Deteriorated Substructure Concrete.

(1) Concrete Removal. Do not remove an area of concrete greater than 20 SF or to a depth greater than 6 inches unless otherwise approved by the Project Manager. The Project Manager may require repairs to be performed in the phase when there is no live load on the bent and may require repairs to be progressive. Saw cut 1/2 inch deep around the repair area edges. Within the saw cut perimeter using mechanical equipment remove all concrete to the saw cut depth, and remove beyond the saw cut depth all delaminated, cracked, disintegrated, loose, or otherwise unsound concrete. Finish the removal with lightweight hand tools. If the bond between the existing concrete and reinforcing steel breaks, remove concrete around the circumference of the bar at least 1-inch but not exceeding 3 inches into the concrete mass. Remove the remaining loose concrete and clean the area to the satisfaction of the Project Manager. Prevent cutting, stretching, or other damage to exposed reinforcing steel. Replace any reinforcement bar that is corroded, cut, or damaged to the point that it has lost 50% or more of its effective cross-sectional area. Replace such bars with new ones of the same size. The Project Manager will determine splice locations where bars need cutting and splicing. Prior to placing new concrete, remove all rust, dirt, laitance, oil, or other foreign materials from reinforcement surfaces with light sandblasting, wire brushes or other approved means.

(2) Placing and Finishing Concrete. Prepare the surface as necessary in order to ensure a competent bond between the existing and repair concrete. Apply epoxy resin bonding agent to repair area within 30 minutes of placing repair concrete. Use solid forms for new concrete in Deep repair areas. Do not attach forms to existing reinforcing bars unless approved by Project Manager. For rapid setting and polymeric concretes, place and cure in accordance with the manufacturer's recommendations.

b) Repair of Cracked Concrete

(1) The Project Manager will determine the locations and limits of repair. These locations may include the locations shown on the plans, as well as other locations where the visible crack width exceeds 1/32 of an inch and in the opinion of the Project Manager require repair.

(2) Crack and Surface Preparation. Remove all debris or contaminants accessible within the cracks by using hand tools, water blasting or oil-free high pressure air blasting, vacuuming, or other methods approved by the Project Manager. Allow free moisture within the crack to be absorbed before injecting with epoxy. Remove all materials, including moisture, from the surface adjacent to the crack which might interfere with bonding of the crack sealant.

(3) Injection Port Installation. Attach injection ports to the prepared surface by placing them onto (surface adapters) or into the cracks (socket ports) and affixing with crack sealant. Larger cracks may be ported by inserting an anchored tube into the crack.

(a) Use positive connection port designs to connect injection equipment to the ports. Other injection port designs and attachment methods, where worker fatigue would not be a problem, require approval by the Project Manager.

(b) Use the following general guidelines for spacing injection ports when cracks are uniform width through the structure. For cracks that get tighter with depth, double this spacing. Intermediate ports may be placed for observation. To permit maximum flow into the void, position ports on the wider crack sections and at intersections, rather than at an exact spacing. If these guidelines cannot be followed, use port locations approved by the Project Manager.

i) For Cracks Completely Through A Member. Place endmost ports at the ends of the crack to ensure complete filling of the crack. Cracks accessible from one side – space the ports not less than the thickness of the member. Cracks accessible from both sides – space the ports not less than twice the thickness of the member and stagger them relative to the ports on the opposite side. Make the stagger between ports, on opposite sides of the member, at least the thickness of the member.

ii) For Multiple Cracks All Over a Member. Space the ports as far apart as practical, but not less than 8 inches from one another. An 8 inch spacing assumes a 4 inch penetration in each direction, if the adjacent ports are not plugged when epoxy reaches them. For fine cracks that taper to an end, place the endmost ports about 4 inches from the end.

(4) Crack Seal. After port installation, seal the crack opening with crack sealant, being careful not to plug the injection ports. Allow the crack sealant to cure completely before injecting epoxy. Apply crack sealant only when the surface and ambient temperatures are above 50° F.

(5) Port Flushing. Prior to any epoxy injection, flush critical ports with oil-fee compressed air to verify the air exits from all the installed ports, dry the cracks and check for leaks.

(6) Epoxy Injection. Perform epoxy injection only when the surface and ambient temperatures are above 45° F and are not expected to fall below 45° F during the next 24 hours.

(a) Uniform Crack Width. Start toward the middle of a horizontal crack and work outward, or the lowest point of a sloping or vertical crack and work upward.

(b) Variable Crack Width. Start at the widest points of all types of cracks and work outward. Secure the feed line to the first port. Initiate and continue flow until epoxy exits from the adjacent port. Plug observation ports and continue through the same port to achieve maximum penetration. Temporarily stop the injection process, remove the feed line, and seal the port. Attach the feed line to the adjacent port and repeat this procedure along the crack until the last port is sealed.

(c) Generally, use higher pressures when injecting narrow deep cracks and medium to low for wider cracks. Low pressure applied for a longer duration is often more effective than high pressure applied for a shorter duration.

(d) Replenish the epoxy supply in the mixing equipment before it is exhausted. Thoroughly stir each epoxy component both before and after adding it to its respective component in the mixing equipment. Exercise care to assure a continuous injection operation.

(e) In the event of a leak from a crack, stop the injection process until the leak is sealed. When any work stoppage exceeds 15 minutes, clean the mixing chamber and flush the line that carries mixed epoxy. Flush with a suitable solvent, followed by air.

(f) Allow epoxy to fully cure prior to performing subsequent work on the repaired area.

(7) Clean up. In all areas visible to the public, as determined by the Project Manager, remove spillage, the ports and crack sealant until flush with the adjacent surface. Remove stains and repair any damage to the existing structure.

c) Repair of Beam End.

(1) Clean existing concrete surface removing any laitance, dirt or other debris that would negatively impact the bond between the existing concrete and patch material. Clean exposed steel reinforcing or steel prestressing strands of corrosion or other debris. Do not attach any formwork to steel reinforcing or strands unless approved by the Project Manager.

(2) Use formwork or other means to place patching material to match the existing beam geometry.

(3) Apply epoxy bonding agent.

(4) Patch the beam ends using formwork or other means to best match the existing beam geometry.

E. Method of Measurement.

1) Repair and Replace Deteriorated Substructure Concrete. The shallow and deep repair areas are not measured for payment. Replacement of reinforcing bars will be measured and paid for in accordance with Subsection 109.04.

2) Repair of Cracked Concrete. Repair of cracked concrete is not measured for payment.

3) Repair of Beam End. Repairing of beam ends is not measured for payment.

F. Basis of Payment. Include all costs associated with the work items: Repair and Replace Deteriorated Substructure Concrete, Repair of Cracked Concrete and Repair of Beam end in the lump sum amount for Repair Structure.

63. SUPERSTRUCTURE JACKING

A. Description. Furnish all materials, labor and equipment necessary to raise and lower the existing superstructure in order to facilitate bearing replacement at the following locations: Span No. 3 at Bent No. 3, Span No. 5 at Bent No. 6, Span No. 7 at Bent No. 7, Span No. 9 and Span No. 10 at Bent No. 10 as well as Span No. 12 at Bent No. 13. Provide design for any temporary structures used to support the jacks and bridge.

B. Materials and Equipment. Provide jack system, PTFE sheets and other temporary structures or methods to safely lift and support the superstructure for the duration of the work.

1) Jack System. Use hydraulic jacks, hydraulic pumps, and hydraulic control system capable of allowing tandem operation. Provide hydraulic jacks with lock nut, or provide temporary shoring, to hold the superstructure in the raised position in the event of a loss of hydraulic fluid pressure.

2) Polytetrafluoroethylene (PTFE) Sheets. Provide lubricated sheets of PTFE that extend for the full plan dimensions of the larger of the top bearing plate or the bottom flange/bulb of the girder, are capable of resisting the bearing pressure due to the jacking and with a lubrication meeting SAE – AS8660.

C. Design Requirements. The following is a description of the anticipated service dead load per beam or girder. It is based upon the assumption that the concrete deck has been removed, and there is no equipment or materials on the span being jacked. At Bent No. 3 and No. 6 for Girder 1 it assumes the new cantilever beams have not been installed.

Location	Span	Superstructure Member Type	Service Dead Load
Bent No. 3	3	Built-up Steel Girder	40 kips
Bent No. 6	5	Built-up Steel Girder	40 kips
Bent No. 7	7	Type A P/S Beam	16 kips
Bent No. 10	9	Type A P/S Beam	16 kips
Bent No. 10	10	Type A P/S Beam	16 kips
Bent No. 13	12	Type A P/S Beam	16 kips

D. Submittals.

1) Jacking Plan. Submit for review a minimum of 30 calendar days before performing superstructure jacking a jacking plan which includes the sequence of jacking operations, the anticipated total time for the jacking operation and bearing replacement, list of proposed equipment used to perform the work as well as any shoring details and timber or steel blocking.

2) Jack System. Provide manufacturer cut sheets for Safe Working Loads and Ultimate Loads for the jacking system. Include the system's maximum rated pressure, as well as the proposed location of pressure gauges that will be used to monitor the system.

3) Provide Calculations stamped by a licensed Montana Professional Engineer showing the ultimate and safe working capacities for any custom shoring, bracing or blocking used.

E. Construction Requirements

1) The superstructure jacking and bearing replacement are a continuous activity. Keep the time the superstructure is supported on jacks to the minimum necessary to replace the bearings. Have bearing units ready for installation prior to commencing superstructure jacking.

2) Raise and lower the superstructure uniformly at each bent to prevent differential displacement and damage to the existing beams/girders or diaphragms/bracing. Provide the necessary hydraulic pressure gauges, displacement gauges or other appropriate devices to monitor the jacking operation. Repair any damage to the bridge caused by jacking at no cost to the State. The Contractor is responsible for the stability of the structure during the work.

3) Do not jack at Bent No. 3 and Bent No. 6 simultaneously. Complete the jacking operation at one bent before commencing jacking at the other bent.

4) Jack Location.

a) Steel Girders. Center jack under new jacking stiffener as detailed in the contract plans. Use shims and bearing plates as required to provide uniform contact between the jack and the girder bottom flange.

b) Type A Prestressed Concrete Beams. Center the jack on the bottom bulb with-in the limits of the widened end block-out of the beam. Do not position the centerline of the jack more than 1 ft. 6 in. away from the centerline of the bearing.

5) Thermal Expansion. Allow for longitudinal thermal movement of the span, while the superstructure is supported on jacks by placing two sheets of lubricated PTFE between the bottom flange (steel) or bottom bulb (concrete) and the top bearing plate. Alternative methods may be submitted for approval by the Project Manager.

6) Raise the superstructure as required to replace the bearings, but not more than 1/4" for the steel superstructures and not more than 2 1/2" for the concrete superstructure. Estimated service member dead loads are provided elsewhere in this special provision. Provide gauged or other approved means to indicate jacking forces. Monitor jacking forces during the work and immediately notify the Project Manager if jacking forces exceed 125% of the member dead load service values listed above.

7) Sequence of Operations. The following procedures may be used for replacing the existing bearings. The Contractor may submit alternate sequencing for approval.

(1) Steel Girders.
(a) Remove Concrete Deck
(b) Install new jacking stiffeners as detailed on the contract plans.
(c) Provide and install temporary bracing of the superstructure
(d) Raise the superstructure and remove the existing bearing.
(e) Install new bearing block as detailed on the contract plans
(f) Install new sole plate and elastomeric pad as detailed on the contract plans
(g) Lower the structure, and weld the existing girders to the new sole plate and install the threaded rods as detailed on the contract plans.
(h) Remove temporary superstructure bracing after temporary bearing bracing is installed or concrete seat extension is placed.
(2) Type A Prestressed Concrete Beams.
(a) Remove Concrete Deck
(b) Provide and install temporary bracing of the superstructure
(c) Raise the superstructure
(d) Install new sole plate and elastomeric pad as detailed on the contract plans
(e) Lower the structure, and weld the existing bearing plate to the new sole plate as detailed on the contract plans.

F. Method of Measurement. All temporary structures, temporary bracing, hydraulic jacks, associated design, and other incidentals needed to raise and lower the superstructure are not measured for payment. New bearing assemblies including new sole plates, risers, masonry plates, elastomeric pads, threaded rods and associated hardware as well as any field welding of the existing superstructure to the new bearing is considered incidental to the unit Bid Item Elastomeric Bearing Device. Furnishing and installing jacking stiffeners including the removal of the existing fasteners, drilling new holes, and installation of new high strength bolts is considered incidental to Structural Steel – Miscellaneous and is not measured for payment.

G. Basis of Payment. Include all costs associated with raising and lower the superstructure, including the installation of temporary shoring, shims or other hardware in the lump sum bid for Superstructure Jacking. Payment for the bearing assemblies including new sole plates, masonry plates, bearing blocks, elastomeric pads, as well as threaded rods and associated hardware is included in the unit price bid for Elastomeric Bearing Device. Payment for the installation of the new jacking stiffeners is included in the lump sum bid for Structural Steel– Miscellaneous.

64. DRILLED SHAFTS – VIBRATORY METHODS

A. Description. For this project, vibratory methods for drilled shaft casing installation are not allowed due to the close proximity of the proposed drilled shaft locations to historic structures on both the north and south sides of the Higgins Avenue Bridge.

B. Suitable drilled shaft installation methods, in lieu of utilizing vibration to install casings include: casing installed by oscillation, using lean concrete to form a larger diameter mixed-in-place soil-cement column, then re-drilling the plan shaft diameter in the interior of the soil-cement column, or other methods as approved by the Project Manager.

C. Method of Measurement and Basis of Payment. Drilled shaft are measured and paid for per Standard Specification 558. No additional payment is included to comply with this special provision.

65. DRILLED SHAFT SUPPLEMENTAL SPECIAL PROVISION

A. Description. This work consists of constructing Drilled Shafts according to Standard Specification 558, ‘Drilled Shafts’. This Supplemental Special Provision provides additional detail and clarification for this project regarding ‘Obstructions’. The language in this Supplemental Special Provision supersedes Standard Specification 558 for the two items discussed.

B. Obstructions (Standard Specification Item 558.03.9): For this project, boulders that have a maximum dimension that is equal to or less than half of the drilled shaft diameter will not be counted as obstructions. A high percentage of cobbles, and occasional boulders on the order of 1-foot to 5-foot diameter and greater should be anticipated throughout the depth of the shaft excavations. Boulders could be nested in 10-foot or thicker zones. Shaft excavations through these areas will be very difficult. Specialized drilling and casing installation and removal equipment will be necessary on this project, including any or all of the following: vibratory hammer, rotary drive or oscillator, hydraulic grab, coring barrels of varying size, rock augers, chisel bars, cluster drill. Additional compensation will be given to the contractor for cost or time required to remove boulders that have a maximum dimension that is greater than half of the drilled shaft diameter, regardless of their location within the drilled shaft excavations.

C. Basis of Payment. Payment for the items discussed in this special provision will be according to Standard Specification 558, Drilled Shafts.

66. THERMAL INTEGRITY PROFILER (TIP) TEST METHOD FOR DRILLED SHAFTS (WIRE METHOD)

A. Description. This work includes testing cast-in-place drilled shafts using the Thermal Integrity Profiler (TIP) testing method. Use testing procedures and equipment in accordance with ASTM D7949 – Standard Test Methods for Thermal Integrity Profiling of Concrete Deep Foundations, Method B. This method assesses the quality of cast in place concrete drilled shafts using thermal probes in wires cast into the shaft.

B. Materials. Furnish all materials and equipment necessary to perform this work.

C. Construction Requirements.

1) Qualification. Use a TIP testing consultant with documented experience in TIP testing of cast-in-place drilled shafts. Use a technician with documented TIP testing experience for onsite management of thermal wire placement on the reinforcement cage and for data collection. Use a Professional Engineer, licensed in Montana, to supervise the testing and interpret the TIP data.

2) Equipment. Use equipment with the following minimum requirements:

a) A computer based TIP data acquisition system to monitor temperature versus time after casting.

b) Wires with multiple embedded thermal sensors. Use a minimum of 4 wires per shaft or one wire for each 12 inches of shaft diameter, whichever is greater.

3) Submittals. Submit four copies of the following information to the Project Manager a minimum of thirty calendar days before start of drilling operations.

a) TIP consultant qualifications.

b) TIP equipment specifications.

c) Written narrative from the TIP Consultant outlining their procedure, recommendations, requirements, test timing, and schedule for testing the designated shafts.

4) Notification. Notify the Project Manager a minimum of 5 business days prior to the beginning of the testing so a Geotechnical Section representative can observe the test.

5) Timing. Record data at the time intervals recommended by the TIP Consultant based on shaft diameter and concrete mix. Coordinate with the TIP Consultant to be on site to manage the placement of thermal wires and collection of data. Collect data from the beginning of concrete placement through the peak temperature in the concrete.

6) Testing. Perform Thermal Integrity Profiler (TIP) testing on four drilled shafts at the locations shown in the plans.

7) TIP results. Submit four copies of the results in a written report from the TIP Consultant within five working days of completion of testing. The TIP consultant's engineer will stamp all four copies. Include the following within the report:

a) Graphical displays of all temperature measurements versus depth.

b) Indication of unusual temperatures, particularly significantly cooler local deviations of the average at any depth from the overall average over the entire length.

c) Overall average temperature and indication of variation from average that would indicate anomalies, bulges, or necking in the shaft concrete.

d) Indication of variations in temperature between wires at each depth which in turn correspond to variations in cage alignment. The cage misalignment or offset from center should be noted.

e) Indication of shaft specific construction values (e.g. elevations of the top of shaft, bottom of casing, bottom of shaft, etc.) on all pertinent graphical displays.

f) Written summary of the engineer's analysis of the data, conclusions, and recommendations.

8) In the event test results indicate potentially anomalous region(s) in the shaft, the Department may direct additional investigation. If the Engineer determines that the shaft is defective, submit a repair plan per 558.03.15.B.

D. Method of Measurement. TIP testing is measured by the each. Include all costs associated with procurement, preparation and installation, conducting tests, and subsequent reporting of results in the unit bid price for Thermal Integrity Profiler.

E. Basis of Payment. Payment for each completed test is at the unit price bid for Thermal Integrity Profiler. Performance of TIP testing and submittal of TIP results according to this Special Provision constitutes a completed test. If the Engineer determines that the shaft is defective, the contractor is responsible for all costs associated with the additional investigation work, costs associated with design and implementation of repairs, delays, and construction delay costs. The Department will pay the cost of directed additional investigations that do not result in a determination by the Engineer that the shaft is defective.

67. PAINT EXISTING STEEL BRIDGE

A. Description. Furnish all materials, and resources to clean, repair pack rust, and paint the existing steel girders, stringers, floor truss, bearings, and other steel elements on Spans No. 3, No. 4, and No. 5 using an existing paint overcoat system in accordance with the Standard Specifications and as specified herein.

B. Materials

1) Paint. Provide a compatible surface coating per the standard specifications that is intended to be used over existing paint and capable of being applied in various weather conditions including cold and/or damp conditions.

2) Pack Rust Repair.

a) Epoxy Penetrating Sealer. Use one of the following or an approved equal:

(1) Rustbond Penetrating Sealer, as manufactured by the Carboline Company, St. Louis MO

(2) Amerlock Sealer as manufactured by PPG, Montvale NJ

(3) MACROPOXY 920 Pre-Prime as manufactured by The Sherwin Williams Company, Cleveland OH

b) Polyurethane Sealant. Use a sealant meeting the requirements of ASTM C920, Type S, Grade NS, Class 50

c) Preformed, closed-cell foam material meeting the requirements of the table below

Property	Test Method	Specification	
		Minimum	Maximum
Extrusion	ASTM D545 @ 50% Compression 3 Sides Restrained	-	1/4 inch
Compression Deflection	ASTM D3575, Suffix D 50% Deflection @ 80° F	10psi	60 psi

Density	ASTM D3575, Suffix W, Method A	2 pcf	3 pcf
Water Absorption	ASTM D545	-	3%
Compression Set	ASTM D1056, 50% Deflection for 22 hrs. @ 70 ± 5° F	-	15% @ 168 hrs.

C. Submittals. Per the Standard Specifications and as specified below.

1) Sequence of operations. Submit the proposed sequence of painting operations along with task durations. Identify operations that impact traffic, use of the walkways on the bridge, and use of the trails below the bridge. Indicate where materials and equipment are staged and how they are delivered to and from the scaffolding.

2) Containment System. Contain and dispose of lead based paint as described elsewhere in the contract. Submit the proposed containment system details along with written description of how loose and removed paint will be contained and disposed.

3) Scaffolding. Submit for approval the proposed scaffolding plan and containment system and method of erection. Include detailed drawings for the scaffolding including: material types, scaffolding dimensions, support locations, and details for any proposed attachments to the existing structure. Design the scaffolding and containment system under the proposed working conditions. Consider additional loading on the girders that may be present depending on when the painting operation is occurring and the scaffolding is in place. Evaluate reactions and stresses on the existing structure. Limit the total service load reaction due to the proposed containment and scaffolding system on a single girder to within safe operating limits and evenly distribute the loads such that individual point loads do not damage or deform the existing steel. Perform the design in accordance with AASHTO unless approved otherwise by the Project Manager. Submit calculations signed and sealed by a Professional Engineer licensed to practice in Montana.

4) Existing Paint Testing. Submit a proposed sampling and testing plan that will be used to show that the proposed overcoat paint is compatible with the existing paint. Include the number and size of samples 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.

5) Pack Rust Repair. Submit for approval, the proposed methods to remove pack rust, dry the repair area, and proposed sealants with manufacturer's instructions.

D. Construction Requirements.

1) Provide an existing paint overcoat system compatible with the existing paint

2) Provide a finish coat that matches the color of the new steel approach spans and as specified on the plans.

3) Attach scaffolding to the existing main steel girders using mechanical beam clamps or other means that do not damage the existing steel. Do not weld to existing steel members. Evenly distribute the weight of the scaffolding system to all of the existing main girders. Continually monitor the scaffolding and connections to the existing structure. Immediately correct any condition where damage to the existing structure has occurred from the scaffolding or containment system. Repair the structure to the satisfaction of the Project Manager.

4) Avoid impacts to the existing trail system on either side of the river. Comply with requirements specified elsewhere in the contract regarding trail detours and closures.

5) Surface Preparation. Prepare the existing steel surface in accordance with the Standard Specifications and the paint system manufacturer's recommendations.

6) Pack Rust Repair. Repair areas subject to pack rust as shown on the Plans and as identified by the Project Manager. Use the following repair procedures unless otherwise approved by the Project Manager.

a) Notify the Project Manager of locations not identified on the Plans where built-up steel sections are deformed over 3/8" due to pack rust. Repair these areas as directed by the Project Manager.

b) Do not remove existing fasteners and/or disassemble built-up members to remove pack rust.

c) Remove the existing paint in the areas of pack rust removal per the requirements in the Standard Specifications.

d) Remove the pack rust in the deformed area by power tool cleaning to a depth equal to the separation distance between the plies but not less than one-half inch.

e) Pressure washing between steel plies where pack rust is present is prohibited

f) With the pack rust removed, dry the repair area by applying artificial heat until the surface temperature reaches 250° F.

g) Immediately after the surface has been dried, saturate the repair area by applying an epoxy penetrating sealer (sealer). Apply the sealer in accordance with the manufacturer instructions.

h) Encapsulate (caulk) the exposed surface and edges of the repair area with a closed cell foam material and polyurethane sealant. Before encapsulating ensure the area is free of dirt, dust, rust, loose paint and any other material that would interfere with the adhesion of the closed cell foam material. Fill areas of pack rust repair flush with the vertical edges of steel flanges and without voids or air pockets. Apply closed cell foam and polyurethane sealant in accordance with the manufacturer's instructions.

E. Measurement and Payment. Include all costs associated with designing, installing and removing the containment system and scaffolding, surface preparation, pack rust repair, collection and disposal of existing paint, and painting of the existing steel in the lump sum price bid for Paint Structure.

68. CORROSION RESISTANT REINFORCING STEEL

A. Description. Furnish all materials, labor and equipment necessary to furnish, protect and place the reinforcement steel identified as Corrosion Resistant to the dimensions shown on the plans or otherwise established by the Project Manager.

B. Materials. The second sentence in Subsection 555.02 beginning with "Use reinforcement listed on the QPL and in accordance with Section 711." is rescinded.

Furnish materials meeting the following requirements:

1) Corrosion Resistant Reinforcing Steel – provide reinforcing steel conforming to the requirements of ASTM A1035/A1035M – Standard Specification for Deformed and Plain, Low-Carbon, Chromium, Steel Bars for Concrete Reinforcement – Type A1035 CS Grade 100.

2) Corrosion Resistant Reinforcing Mechanical Couplers – provide in-line mechanical couplers meeting the material requirements of B.1 as well as the Mechanical Rebar Connector requirements of Section 711.18.

3) Tie Wires and Supports-provide tie wires that are plastic coated. Support reinforcement with plastic coated steel bar supports. Do not use precast concrete bar supports, galvanized bar supports, plastic/composite bar supports, or epoxy coated bar supports.

C. Submittals. Provide all documentation required in Subsection 555.03.5. Submit two 3 FT sections of reinforcing steel from each shipment for testing. Reinforcing steel will be tested using MT 414.

D. Construction Requirements. Fabricate, protect and construct corrosion resistant reinforcing steel in compliance with Subsection 555.03 requirements.

E. Method of Measurement. Corrosion Resistant Reinforcing Steel is measured for payment per the requirements of Subsection 555.04.

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

Recalculation of reinforcing steel weight and pay schedules meet the requirements of Subsection 555.05.

Pay Item	Measurement Unit
Reinforcing Steel-CR-Class 1	Pound (lb)

69. EXPANSION JOINT – ADHERED GLAND SEAL

A. Description. The joint shown on the plans is a preformed, elastic gland seal that is adhered to the deck. All components used must belong to a single joint seal system from one manufacturer. Furnish and install the joint seal system in accordance with these specifications, the Contract Plans and the manufacturer's recommendations subject to the approval of the Project Manager.

B. Materials.

1) Furnish a joint seal system that is composed of a system of a preformed elastic gland material that is adhered to the vertical faces of the deck. Furnish a system that is.

a) Capable of the thermal movements on the plans

b) Provides water tight transitions at inside and outside corners throughout the full thermal movement as shown on the Contract Plans

c) Adhesive is compatible with the deck substrate to which it will attach.

2) Use a preformed, elastic gland material comprised of one of the following:

a) Silicone. Furnish a UV resistant, preformed, elastic silicone gland meeting:

	Test Method	Value
Durometer	ASTM D2240	Shore A, 55 +/- 5
Tensile Strength	ASTM D412	1000 psi. Minimum
Elongation	ASTM D412	400% Minimum
Tear (dDe B)	ASTM D624	100 lbs/in Minimum
Compression (Set at 212°F, 70 hrs.)	ASTM D395	30% Maximum
Heat Aged Properties	ASTM D573	5 Point Max. Loss On Durometer
Tensile and Elongation		10% Maximum Loss

b) Rubber. Furnish a UV resistant, preformed, extruded, elastic Ethylene Propylene Diene Terpolymer (EPDM) gland meeting:

	Test Method	Value
Durometer (Shore A)	ASTM D2240	Shore A, 50 +/- 5
Tensile Strength	ASTM D412	1200 psi. Minimum
Elongation	ASTM D412	400% Minimum
Tear (Die C)	ASTM D624	150 lbs/in Minimum
Ozone Resistance	ASTM D1171	100 Min.
Water Resistance 70 Hrs. at 100° C	ASTM D471	10% Max

3) Gland Adhesive. Furnish a high strength adhesive that is part of the joint seal system of the gland manufacturer. Furnish a gland adhesive that meets one of the following.

a) Silicone Adhesive. Furnish a non-sag, high modulus silicone adhesive that meets.

	Test Method	Value
Tensile Strength	ASTM D412	200 psi. Minimum
Elongation	ASTM D412	450% Minimum
Work Life	ASTM C679	20 min. to 30 min.
Cure Time	ASTM C679	24 hrs. Maximum
Resistance to UV	ASTM C793	No cracking, chalking or degradation
VOC	ASTM D3960	0 g/L

b) Epoxy Adhesive. Furnish a high-strength, two component epoxy paste that meets ASTM C881, Type III, Grade 2 with a minimum 30 minute working time.

C. Submittals. Prepare and submit shop drawings showing the name of the manufacturer; material properties for the selected elastic gland, adhesive, and other materials necessary to install the joint system; pertinent dimensions; plan of the joint showing the location and details of field splices; and details of the expansion joint at curbs and sidewalks. Do not begin fabrication of the joint until the Department has approved all of the information contained on the shop drawings.

D. Construction Requirements. Provide accurate dimension of the joint length and opening size to the joint manufacturer so they can appropriately size the joint system. Provide parallel faces along the length of the joint to receive the seal system. Perform joint preparation and installation on the same day. Do not install the seal system if the temperature is below 50° F or if the temperature is expected to fall below 50° F within the adhesive's cure time. Do not install seal system immediately after precipitation or if precipitation is forecast for the day. Do not permit traffic over the joint until the adhesive has fully cured.

1) Manufacturer Representative. Provide a trained manufacturer representative on the job site to provide direction and assistance throughout the installation work.

2) Joint Preparation. Prepare the joint opening according to the manufacturer's recommendations. Remove dust and other contaminants immediately prior to installation with oil free compressed air or other means recommended by the manufacturer and approved by the Project Manager.

3) Installation. Prepare the gland per the manufacturer recommendations. Use an appropriately sized closed cell foam backer rod to hold the gland seal in the manufacturer recommended position. Apply primer (if required) and adhesive per the manufacturer recommendations. Install the gland then apply adhesive over the seals ribs/serrations per the manufacturer recommendations. Tool the gland and/or adhesive per the manufacturer recommendations to ensure adequate bond between the gland and the deck substrate.

E. Method of Measurement. This work will be in linear feet along the centerline of the joint, parallel to the plane of the finished joint surface.

F. Basis of Payment. Include all costs associated with providing all material, labor, tools, equipment, and incidentals necessary to complete the work in the unit price bid for Expansion Joint.

70. <u>EXPANSION JOINT – PRECOMPRESSED JOINT SEAL</u>

A. Description. The joint shown on the plans is a preformed, pre-compressed, self-expanding, sealant system with silicon pre-coated surface. Furnish and install the joint system in accordance with these specifications, the plans and the manufacturer's recommendations subject to the approval of the Project Manager. Use a joint system designed to withstand an HL - 93 truck loading and impact in accordance with AASHTO Specifications.

B. Materials.

1) Use joint seal materials comprised of the following three components.

a) Cellular polyurethane foam impregnated with hydrophobic 100% acrylic, water-based emulsion, factory coated with highway-grade, fuel resistant silicone.

(1) Use an impregnation agent having proven non-migratory characteristics.

(2) Furnish a highway-grade, low modulus, fuel resistant silicone applied to the impregnated foam sealant at a width greater than maximum allowable joint extension and which when cured and compressed will form a bellows.

(3) Furnish expansion joint foam seal having a depth as recommended by the manufacturer.

b) Field-applied epoxy adhesive primer.

c) Field-injected silicone sealant bands.

2) Ensure joint system is capable of movements of +60%, -60% (120% total) of nominal material size. Use factory-fabricated transition assemblies where changes in plane and direction are necessary. Ensure transitions are watertight at inside and outside corners through the full movement capabilities of the product.

3) Certify in writing that the joint material is:

a) Free in composition of any waxes or asphalts, wax compounds or asphalt compounds.

b) Capable of withstanding 150°F (65°C) for 3 hours while compressed down to the minimum of movement capability dimension of the basis of design product (-25% of nominal material size) without evidence of any bleeding of impregnation medium from the material.

c) That the same material after the heat stability test will self-expand to the maximum of movement capability dimension of the basis-of-design product (+30% of nominal material size) within 24 hours at room temperature 68°F (20°C).

4) Structural Steel. Provide structural steel and shear connectors as shown on the Contract Plans meeting the requirements of the Standard Specification.

C. Submittals.

a) Precompressed Joint Seal. Prepare and submit shop drawings showing the name of the manufacturer, pertinent dimensions, plan of the joint showing the location and details of field splices, and details of the expansion joint at curbs and sidewalks. Do not begin fabrication of the joint until the Department has approved all of the information contained on the shop drawings.

b) Structural Steel. Prepare and submit shop drawings showing the proposed cover plate as well as embedded steel shapes. Meet all requirements of sub-section 556.03.2 of the Standard Specifications.

D. Construction Requirements. Provide accurate dimension of the joint length and opening size to the joint manufacturer so they can appropriately size the joint system. Prepare the joint opening according to the manufacturer's recommendations. Ensure all concrete surfaces adjacent to the joint are in sound condition. Repair any un-sound concrete in accordance with the manufacturer recommendations. Install the joint system using the manufacturer's standard field-applied epoxy adhesive. Install the joint system such that when the field-applied injection band of silicone is installed between the substrates and the foam-and-silicone-bellows, the system will be recessed ½" below the substrate surface. Do not permit traffic to travel over the joint for a period of 3 hours after installation is complete.

E. Method of Measurement. This work will be measured in linear feet along the centerline of the joint, parallel to the plane of the finished joint surface.

F. Basis of Payment. Include all costs associated with providing all material, labor, tools, equipment, and incidentals necessary to complete the work in the unit price bid for Expansion Joint – Precompressed.

71. ADHESIVE ANCHOR SYSTEM – SUSTAINED TENSION

A. Description. This work includes installing threaded rods or deformed reinforcing bars into hardened concrete. The adhesive anchor system includes all the labor, adhesive materials, and equipment necessary for proper installation.

B. Materials.

1) Use an adhesive anchor system qualified per ACI 355.4-11 or later editions.
2) Select an appropriate class for the anticipated installation temperature.
3) Select the appropriate grade for the specified anchor position.

C. Design. Design adhesive anchors using ACI 318-14 or later editions for the given loading condition.

D. Submittals. Submit the following documentation for approval:
1) Adhesive anchor product data sheet.
2) Manufacturer's printed installation instructions.
3) Certification of the anchor installer.
4) Contractor's work plan for installing the adhesive anchors.

E. Construction Requirements.
1) Install the adhesive anchor system according to the Manufacturer's Printed Installation Instructions.
2) Use anchor installers that have successfully completed the ACI/CRSI *"adhesive anchor installer"* certification program.
3) Drill the anchor holes at the locations shown on the plans. If reinforcing steel is encountered at the plan locations, then relocate the holes to avoid damaging the reinforcing bars.
a) Reinforcing steel that is damaged while drilling anchor holes may require corrective actions.
b) The Project Manager and Design Engineer will determine the severity of the damage and if corrective actions are warranted.
c) Corrective actions that are required due to anchor drilling will be at no additional cost to the state.

F. Method of Measurement. Adhesive anchors will not be measured directly for payment.

G. Basis of Payment. Payment for all costs associated with Adhesive Anchor System – Sustained Tension is included in the bid price for Concrete Structure Modification.

72. ADHESIVE ANCHOR SYSTEM

A. Description. This work includes installing threaded rods or deformed reinforcing bars into hardened concrete. The adhesive anchor system includes all the labor, adhesive materials, and equipment necessary for proper installation.

B. Materials.
1) Use an adhesive anchor system that meets the requirements of AASHTO M 235 / ASTM C881, Type IV.
2) Select an appropriate class for the anticipated installation temperature.
3) Select the appropriate grade for the specified anchor position.
4) Use a system that is specifically developed for use in anchoring and doweling applications.

C. Submittals. Submit the following documentation for approval:
1) Adhesive anchor product data sheet.
2) Manufacturer's printed installation instructions.
3) Contractor's work plan for installing the adhesive anchors.

D. Construction Requirements.
1) Install the adhesive anchor system according to the Manufacturer's Printed Installation Instructions.
2) Drill the anchor holes at the locations shown on the plans. If reinforcing steel is encountered at the plan locations, then relocate the holes to avoid damaging the reinforcing bars.
a) Reinforcing steel that is damaged while drilling anchor holes may require corrective actions.

b) The Project Manager and Design Engineer will determine the severity of the damage and if corrective actions are warranted.

c) Corrective actions that are required due to anchor drilling will be at no additional cost to the State.

E. Method of Measurement. Adhesive anchors will not be measured directly for payment.

F. Basis of Payment. Include all costs associated with Adhesive Anchor System is included in the bid price for 42 IN Open Rail Parapet – BR.

73. PEDESTRIAN RAIL

A. Description. This provision applies to the pedestrian rail located on the Clark Fork River Bridge and the bridge approach sidewalks. Fabricate and install pedestrian rail including rails, posts, flat bars, base plates, anchor bolt assembly, and other incidentals as shown in plans.

B. Materials:

1) Provide hollow structural sections meeting the requirements of ASTM A500 Grade B.

2) Provide structural steel for plates and bars meetings the requirements of ASTM A36.

3) Provide anchor bolts meeting the requirements of ASTM F1554 Grade 55 and provide washers and heavy hex nuts meeting the requirements of ASTM A563 Grade DH.

C. Steel Finishes:

1) Galvanize and powder coat the hollow structural sections, plates, and bars. Galvanize these members per the requirements of ASTM A123. Use a galvanization method that is compatible with the application of a powder coating system. Do not water quench nor apply a chromate conversion as part of the galvanization operation. Clean and prepare these galvanized surfaces for powder coating to assure complete adhesion of the powder coat finish in accordance with ASTM D6386 and the recommendations of the powder coating manufacturer. Provide a powder coating system consisting of an epoxy powder primer coat and a polyester finish coat. Provide a minimum cumulative coating thickness of 3 mils as measured by ASTM D7091 and a finish color matching the federal standard color number FS 27038, Black. Obtain the epoxy primer coat and the polyester finish coat from the same manufacturer. Use a polyester finish coat that conforms to the American Architectural Manufactures Association Specification 2604 and an epoxy primer coat that conforms to the table below:

Property	ASTM Test Method	Performance Requirements
Adhesion	D3359 – Method B	5B (no failure)
Flexibility	D522 – Method B	Pass 1/8” mandrel bend
Pencil Hardness	D3363	H Plus
Specific Gravity	D792	1.25 minimum

2) Galvanize all bolts, nuts, washers, and pipe sleeves in accordance with AASHTO M232.

D. Packaging. Package and protect the rail, including the powder coating, from damage during handling, transporting, and storage. Replace all members damaged by handling, transporting, or storage at no cost to the State. Damage includes, but is not limited to, damage of the steel members and damage to the paint coating.

E. Submittals. Prior to proceeding with the work, submit to the Project Manager for approval the following:

1) Submit shop drawings in accordance with other requirements of the contract for approval. Do not order any material or begin fabrication prior to receiving approval. Include the following:

a) Shop detail drawings for all fabricated materials showing fully detailed dimensions and sizes of all component parts, connections, and details of all miscellaneous parts.

b) Shop detail drawings fully illustrating the post spacing, picket and bottom rail clear opening, panel layout, top of retaining wall grades, expansion joint locations, and other relevant details. Clearly note any deviation from dimensions shown on the plans.

c) Written description of the coating system. Include the manufacturer's product information about paint characteristics, surface preparation, film thickness requirements, safety data, repair procedures, and applications requirements.

d) Provide certified tests results showing that the powder coat system meets the requirements of the table above and conforms to the American Architectural Manufactures Association Specification 2604.

e) Color samples on 4x4-inch by 24 gauge coupons.

F. Construction Requirements.

1) Fabrication. Fabricated all members and all work in accordance with the plans and approved shop drawings.

2) Damage and repair. The Project Manager will determine if an item damaged during installation may be repaired or if the item will be rejected. If the item is to be repaired, follow the powder coating manufacturer's procedures for maintenance and touchup repair. Provide patching material compatible with the factory coating on site for repairs to the coating damaged by installation. The patching material may be liquid, which hardens to a solid on curing.

3) Installation and alignment. Place all posts plumb and all rails parallel to the adjacent walkway or roadway grade. Correct all misalignment as directed by the Project Manager. Fabricate, install, and place rail in accordance with the plans and approved shop drawings.

G. Method of Measurement. Pedestrian Rail is measured by the horizontal linear foot of rail installed measured between the centerline of end posts or concrete pedestals as shown on plans.

H. Basis of Payment. Include all costs associated with furnishing, handling, and installing the pedestrian rail in the unit bid price for Pedestrian Rail.

74. TEMPORARY PEDESTRIAN RAILING

A. Description. Design, furnish, and install temporary fencing or railing on the bridge and other locations as necessary to provide fall protection for bicycles and pedestrians when the area is occupied by bicycles or pedestrians.

B. Submittals. Submit detailed drawings showing the limits of temporary pedestrian fencing, post spacing, connection details, and material information. Design the temporary railing in accordance with AASHTO LRFD Bridge Design Specifications, or the International Building Code as appropriate. Submit design calculations and detailed drawings signed and sealed by a Professional Engineer licensed in Montana.

C. Construction Requirements. Install the temporary pedestrian fencing on the concrete deck prior to opening the work zone to public events or parades. Temporary pedestrian fencing may be removed once the work zone is closed to bicycles and/or pedestrians.

As a minimum, temporary pedestrian fencing is required on the west side of the existing northbound deck during Phase 1 and the east side of the new southbound deck during Phase 2 when the bridge is opened to public events.

D. Method of Measurement and Payment. Temporary pedestrian fencing is measured per each phase of the project. Include the cost to design, furnish, and install temporary pedestrian fencing in the unit price bid for Temporary Pedestrian Railing.

75. REINFORCED CONCRETE PIPES, BOXES, INLETS AND MANHOLES [603] (ADDED 12-13-18)

Furnish RCB, RCP, inlets, and manholes from a plant listed on the Department's QPL.

76. TRENCH DRAIN

A. Description. This work is furnishing and installing 6-inch Trench Drain and ADA Grates as shown on the plans.

B. Materials. Construct the Trench Drain of polymer concrete, 6-inch internal width and 6-inch outlet pipe. Size the outlet for 6-inch SDR 35 PVC pipe. Slope individual channel units to the lines and grades as shown on the plans. Include all components for making connection to 6-inch outlet pipe per the manufacturer's recommendations. Provide a ductile iron (painted black) top grate, load class B (minimum), ADA compliant design. Embed the Trench Drain in concrete to a minimum depth per the plans and manufacturer's recommendations for load class B (minimum). Concrete is to be Class General Concrete.

C. Submittals. Prior to proceeding with the work, submit to the Project Manager for approval the following:

1) Product Data: Submit manufacturer's data sheets on each product to be used, including preparation instructions and recommendations, storage and handling requirements and recommendations, and installation methods and requirements.

2) Shop drawings: Submit shop drawings indicating Trench Drain layout, dimensions, materials, components, and accessories. Do not order any material prior to receiving approval.

D. Construction Requirements. Install the Trench Drains in accordance with the manufacturer's recommendations and to the lines and grades shown on the plans. Provide excavation and backfill materials meeting the requirements of Section 207 and concrete meeting the requirements of Section 551.

E. Method of Measurement. This work is measured by the linear foot of drain installed. Excavation, backfill, and concrete for concrete embedment is not measured for payment.

F. Basis of Payment. Payment for the completed work is made under the following:

PAY ITEM	PAY UNIT
Trench Drain	Foot

Payment at the contract unit price is full compensation for all resources necessary to complete those items of work under the contract.

77. RESET AND ADJUST IN-PLACE MANHOLES AND UTILITY BOXES

A. Description. This work consists of the maintenance of in-place manholes, street monuments and boxes, inlets, gas and water shut-offs, utility pull boxes, and similar partially buried items.

B. Materials. Vacant.

C. Construction.

1) Verify the type and location of all existing facilities within the limits of the project. Locations shown in the plans are considered approximate.

2) Completely remove all existing pavement around the appurtenances to the depth of the overlay. Verify locations of all existing manholes and utility boxes prior to construction. If the contractor elects to lower manholes and utility boxes in the roadway prior to cold milling and raise them back to original elevation after the overlay, there is no additional measurement or payment considered for the item. Concrete aprons will be used for all manhole and utility box adjustments. See detailed drawing 621-05.

3) Maintain all appurtenances including street monuments and monument boxes during the course of the work through final acceptance.

4) Furnish new frames, lids, rings, utility boxes, inlet castings, castings, monuments and/or monument boxes and associated appurtenances, as required, and reset to original conditions if they become damaged, misaligned or unusable as a result of contractor negligence.

5) Adjust all curb stops, utility pull boxes and controller boxes to finished grade of new sidewalk.

6) Obtain permission from the owner of the utility prior to adjusting any manholes, valve boxes, fire hydrants, utility pull boxes or controller boxes. Adjustment to take place after paving activities are complete.

D. Measurement and Payment. Cost of materials, handling, tools, equipment and labor necessary for lowering and raising manholes and valve boxes is included in the unit bid per each.

78. IMPACT ATTENUATOR – TEMPORARY [606] (REVISED 2-28-13)

A. Description. This work is furnishing, installation, maintenance, and removal of temporary impact attenuator and crash cushion devices when construction activities expose blunt ends, ends of barriers, fixed objects, or other obstacles within the clear zone.

B. Materials. Furnish devices, including required transition sections that meet the National Cooperative Highway Research Program Test Report 350 (NCHRP 350) or the AASHTO Manual for Assessing Safety Hardware (MASH) crash test requirements.

C. Construction Requirements. Submit the manufacturer's installation instructions and proof of NCHRP 350 or MASH compliance 14 calendar days prior to any work that will require the installation of devices.

Install devices at the locations shown of blunt or exposed ends of barriers or fixed objects in accordance with the manufacturer's installation instructions. The device must be installed within 12 hours from the time the obstacle is exposed.

Maintain at least one complete set of repair parts on the project at all times to repair or replace attenuators, which may be damaged during construction.

Attach the impact attenuator to the concrete barrier rail or other fixed objects using the manufacturer's approved transition section. Follow all manufacturers' instructions and guidance during the installation. Furnish and install all transitions, mounting hardware, and other necessary items.

Repair or replace damaged attenuators within 12 hours.

Remove the device within 48 hours of when the obstacle no longer exists. The devices remain the property of the Contractor after completion of the project.

D. Method of Measurement. Temporary impact attenuators are measured for each complete installation shown on the plans. Installations required by the Contractor's operations and not shown on plans or the repair or replacement of temporary impact attenuators damaged by the Contractor will not be measured for payment. Removal and replacement of planned installations damaged by traffic will be measured for payment.

E. Basis of Payment. Payment for the completed and accepted quantities is made under the following:

PAY ITEM	PAY UNIT
Temp Impact Attenuator	Each
Reset Impact Attenuator – Temporary	Each

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

79. CONCRETE CURB, GUTTER AND SIDEWALK

A. Description. Remove and replace the existing concrete curb, gutter, and sidewalk at the locations shown in the plans.

B. Materials. Replace concrete curb, gutter, and sidewalk using materials in conformance with the Specifications.

C. Construction. Remove and replace concrete curb, gutter, and sidewalk in accordance with the MDT Detailed Drawings at the locations shown in the plans. Sever all roots that lie within the trench of the new sidewalk section. Ensure proper drainage is maintained and that water does not pond. Do not damage any inlet or outlet grates, signs, poles, buildings, or any other existing utilities. Any of these damaged features will be replaced at the Contractor's expense. Do not disturb existing fences, retaining walls, buildings, or other privately owned features without the express written permission of the owner. The Contractor is responsible for coordinating with adjacent landowners regarding any disturbances to existing features that are required to replace existing curb, gutter, and sidewalk. Any minor pavement tapers into existing drives will be included in the unit bid price of new sidewalk. Install sidewalk retaining walls as required to meet the MDT Detailed Drawings slopes, grades, and lines and the retaining wall detail. Install MDT prequalified Type I detectable warning devices (truncated domes) at the new ADA curb ramps shown in the plans.

D. Measurement. Saw cutting existing pavement and removal of existing curb, gutter, and sidewalk is included in the bid price of new curb, gutter, and sidewalk. ADA curb ramp retaining walls, thickened edge sidewalk, and thickened curb will be included in the price of sidewalk.

E. Basis of Payment. Payment for the completed and accepted quantities is made under the following:

PAY ITEM	PAY UNIT
Curb and Gutter – Concrete	Linear Foot
Curb – Special Design	Linear Foot
Concrete Valley Gutter	Square Yard
Sidewalk – Concrete 4 in	Square Yard
Sidewalk – Concrete 8 in	Square Yard
Sidewalk – Concrete 4 in Colored	Square Yard
Detectable Warning Devices – Type I	Square Yard

80. COLORED CONCRETE

A. Description.

1) Higgins Avenue and 3rd Street Intersection. Construct 4-inch (minimum) thick pigment-dyed colored concrete sidewalk and Curb – Special Design at locations shown in the plans. Construct in accordance with the applicable sections of the Standard Specifications and the Detailed Drawings. Use integral colors. No staining of concrete is allowed.

2) Higgins Avenue – North Bridge Approach. Construct 4-inch (minimum) thick pigment-dyed patterned and colored concrete sidewalk at the locations shown in the plans. Construct in accordance with the applicable sections of the Standard Specifications and the Detailed Drawings. Use integral colors. No staining of concrete is allowed.

B. Materials.

1) Use Concrete – Class General Concrete for Colored Concrete.

2) Integral Colored Concrete.

a) Higgins Avenue and 3rd Street Intersection. Furnish integral colored concrete that is dark grey in color and contrasts with plain colored concrete. Submit color chip samples of pigment to the Project Manager for written approval prior to placing as described in this special provision.

b) Higgins Avenue - North Bridge Approach. Furnish integral colored concrete that matches the existing patterned and colored concrete adjacent to the new sidewalk. Submit color chip samples of pigment to the Project Manager for written approval prior to placing as described in this special provision.

3) Concrete Cure and Seal. Furnish a clear sealer for curing and furnishing meeting color manufacturer's recommendations.

C. Construction. Furnish and install 4-inch (minimum) concrete sidewalk and Curb – Special Design on 2-1/2-inch (minimum) of crushed aggregate course following the requirements for Sections 608 and 609 of the Standard Specifications. For sidewalk color and texture concrete follow the professional standards of the manufacturer and the American Concrete Institute.

1) Higgins Avenue and 3rd Street Intersection. Construct 4-inch colored concrete sidewalk with 4' x 4' joint spacing at locations shown in the plans or as approved by the Project Manager. Hand tool joints – do not sawcut joints unless approved by the Project Manager.

2) Higgins Avenue – North Bridge Approach concrete pattern to match the existing Colored Concrete or as approved by the Project Manager.

3) Submit the following to the Project Manager for approval at least 30 calendar days prior to colored concrete placement.

a) Color and pattern samples.

b) A list of all materials to be used in the construction of the colored concrete and the manufacturer's specifications and recommendations for use of materials.

c) A descriptive procedure for how the colored, patterned concrete will be constructed, incorporating the jointing layout required per the Special Provisions and Detailed Drawings.

d) Document that all materials are compatible and will not cause unsightly discoloration or other undesirable effects in the finished work.

D. Measure and Payment. 4-inch colored concrete is measured for payment at the unit bid price per square yard of Sidewalk – Concrete 4 in Colored. Colored Curb – Special Design is measured for payment at the unit bid price per linear foot of Curb – Special Design. Payment is full compensation for preparation, materials, coloring, placing, finishing and hand-tooling.

81. CONCRETE WARRANTY [608] (ADDED 4-23-20)

Concrete sidewalk, curb and gutter, median curb, and median cap are subject to a 1-year performance warranty.

The Project Manager has sole authority to determine concrete performance following the 1-year warranty period. The 1-year warranty period starts on the date of the completion of the final concrete placement in each calendar year and ends one year from that defined date. The Project Manager will give written notice to the Contractor of the beginning of the warranty period.

Defective concrete is defined as the presence of scaling, cracking, pop-outs, spalling, or any other deficiency identified by the Project Manager. Deficient Concrete is referenced in the Department's Concrete Warranty Administration Guide. The Project Manager will notify the Contractor in writing of observed deficiencies that occur within the warranty period. Submit a detailed repair plan to the Project Manager within 14 calendar days of the notification of required repairs.

Damage from Department or local maintenance activities, vandalism or other causes beyond the control of the Contractor is not subject to the warranty.

Replace deficient concrete to the nearest contraction joint or as approved in the repair plan. Acceptance of repair work will be in accordance with Subsection 105.03.1. Restore pavement markings and furnish traffic control at no additional cost to the Department.

Complete warranty work within 30 calendar days of the approved repair plan unless otherwise approved in writing by the Project Manager.

82. LANDSCAPING

A. Description. Furnish all materials and perform all work in accordance with these specifications and drawings so that the intended vegetative cover, plants, trees, etc. flourish beyond the time limits set by their guarantee. Include everything shown in the project plans and required by the specifications as well as all incidental items required to complete the work in an acceptable manner.

1) Perform all work in conformance with the MDT and the City of Missoula Landscape Specifications and Details. If there are discrepancies follow the MDT specifications.

2) Contact the City of Missoula Development Services and Missoula Parks and Recreation prior to excavating near City facilities. Take precautions not to damage any existing trees and facilities including underground utilities, pipes and structures. Use any means available to avoid damage to the roots of trees or underground facilities. Such methods include, but are not limited to, hand trenching, pneumatic or hydraulic excavation, tunneling, probing or equipment substitution. It is the Contractor's responsibility to replace or repair such trees and facilities at his own expense if damage occurs.

3) Keep all planting, paving and curb areas free from weeds, debris and trash throughout the duration of the contract. Apply pre-emergent herbicides per the specifications. Broad spectrum weed control herbicides may be applied if the Project Manager deems it necessary. Use type of herbicides and application method as approved by the Project Manager.

Do not apply chemical herbicides within the project limits during events that serve food and beverages.

4) 90 days is the minimum plant establishment and maintenance period and includes all watering weeding, staking and plant replacement. The plant establishment and maintenance period may be longer where called for in these specifications.

B. Coordination and Meetings.

1) The Contractor is responsible for coordinating a pre-construction meeting. Include the Contractor, all sub-contractors, the Project Manager and the City Forester in the meeting.

2) Provide access and cooperation with the City of Missoula inspectors that may be present during landscape installation. The City inspectors will perform inspection work under the oversight of the MDT Project Manager. Any changes made to the planned quantities must be approved by the Project Manager. All final decision will be made by the Project Manager.

3) Coordinate progress meetings to discuss work completed to date, future work, and construction issues. The invitees include the Contractor, all sub-contractors, the Project Manager, and the City Forester. Conduct meetings weekly, or as agreed to with the Project Manager.

C. Submittals.

1) Provide submittals or samples for materials and processes approval before purchasing materials or equipment for the project. The submittals must be approved by the Project Manager. Any deviation from the approved plans or specifications must be approved by the Project Manager.

2) Materials not conforming to the approved submittals will be rejected.

3) Provide off-site samples of completed work product for pre-inspection and approval where specific construction processes are called for on the plans or in these specifications.

D. Reference Standards. Provide plant material that at a minimum conforms with requirements of the American Standard for Nursery Stock latest versions of rules and grading adopted by the American Association of Nurserymen, Inc., unless upgraded as required to meet

the additional requirements as presented in these specifications and on the drawings. Plant materials and landscaping in public right-of-ways are also subject to the City of Missoula Street Tree List and the adopted City Landscape Design Manual and Landscape Design Standards.

E. Quality Assurance.

1) Conduct all work and furnish and install materials of the best quality and in strict accordance with the intention of the drawings, specifications and samples. Cooperate with the Project Manager so that no error or discrepancy in the drawings or specifications causes defective or inappropriate materials to be used or poor workmanship to be allowed and so that the work proceeds in the most efficient and effective manner.

2) If there is a discrepancy between the graphic count of plants and the drawing list count of plants on the landscape drawing, the graphic count rules.

3) Carry out work only during weather conditions favorable to landscape construction and to the health and welfare of plants.

4) Before commencing work, protect all trees and shrubs which are to be saved from damage by placing fencing flagged for visibility or some other suitable protective procedure approved by the Project Manager. Do not begin work until this requirement is fulfilled.

5) In order to avoid damage to roots, bark or lower branches, do not drive or park within the drip line of any tree unless the tree overspreads a paved way.

6) Use any and all precautionary measures when performing work around trees, walks, pavements, buildings, utilities, and any other features either existing or previously installed under this contract.

7) Cover plants transported to the project in open vehicles with tarpaulins or other suitable covers securely fastened to the body of the vehicle to prevent injury to the plants. Ventilate closed vehicles adequately to prevent overheating of the plants. Evidence of inadequate protection following digging, carelessness while in transit, or improper handling or storage is cause for rejection. Keep all plants moist, fresh, and protected. Protect all plants during the entire period which the plants are in transit, being handled, or are in temporary storage.

F. Quality of Plants.

1) Provide all plants in conformance with the requirements of the most current American National Standards Institute (ANSI) Z60.1 Standards for Nursery Stock.

2) Unless specifically noted otherwise, provide all plants of selected specimen quality, symmetrical, tightly knit, so trained or favored in their development and appearance as to be superior in form, number of branches, compactness and symmetry. Provide all plants that have a normal habit or sound, healthy, vigorous plants with well-developed root system free from circling and girdling roots.

3) Provide plants free of disease, insect pests, eggs or larvae.

4) Do not prune plants before delivery.

5) Trees with abrasion of the bark, sunscalds, disfiguring knots or fresh cuts of limbs over ½ inch, which have not completely calloused, will be rejected.

6) Provide all plants typical of their species or variety and with a normal habit of growth, legibly tagged with the proper name. Provide all plants that have been grown under climatic conditions similar to those in the locality of the site of the project under construction or have been acclimated to such condition for at least 2 years.

7) Provide plants with root systems with substantial fibrous roots free from circling and girdling roots. Provide plants that are sound, healthy, vigorous, well branched and densely foliated when in leaf.

8) Move all plants designated ball and burlap (B&B) with the root systems as solid units with balls of earth firmly wrapped with burlap. Ensure that the diameter and depth of the balls of earth are sufficient to encompass the fibrous root feeding systems necessary for the healthy development of the plant. Plants are unacceptable when the root crown is greater than 6 inches below the top of nursery rootball or the ball of earth surrounding its roots have been

badly cracked or broken preparatory to or during the process of planting. Keep all balls intact during all operations. All plants that cannot be planted at once must be heeled-in by setting in the ground and covering the balls with soil or mulch and then watering. All twine is to be cut from around trunk and all wire basket and burlap is to be removed.

9) Provide trees with a single trunk growing from a single un-mutilated crown of roots. No part of the trunk may be conspicuously crooked as compared with normal trees of the same variety

10) Provide shrubs with thickness corresponding to the trade classification No. 1. Single stemmed or thin plants will not be accepted. The side branches must be generous, well twigged, and the plant as a whole well branched to the ground. The plants must be in moist condition, free from dead wood, bruises, circling and girdling roots or other root or branch injuries.

G. Plant Sizes.

1) Measure plants when branches are in their normal position.

2) Provide shrubs meeting the requirements for spread, height or container size stated in the plant list. The measurements are to be taken from the ground level to the average height of the shrub and not to the longest branch. Height and spread dimensions specified refer to the main body of the trees (measured from the crown of the roots to the tip of the top branch). Provide plants not less than the minimum size designated.

3) Take caliper measurements at a point on the trunk 6 inches above graft union for trees up to 4 inches in caliper, and at a point 12 inches above graft union for trees exceeding 4 inches in caliper or 6 inches above root crown if the tree is on own root stock.

4) If a range of size is given, provide plants not less than the minimum size. Provide 50% or more of the plants in the upper half of the range specified.

5) The measurements specified are the minimum size acceptable and, where pruning is required, are the measurements after pruning.

H. Maintenance Prior to Acceptance.

1) Maintain for a 90 calendar day maintenance period. 90-Day maintenance activities include, but at not limited to:

a) Weed and pest control

b) Pruning and mowing

c) Plant replacement

2) Commencement of the 90 calendar day maintenance period after acceptance of the landscaping by the Project Manager. Acceptance can be completed individually for a delineated contiguous area.

3) All plant material must be in a healthy growing condition and all areas weed free before acceptance for 90 calendar day maintenance period and before final acceptance of maintenance and operations by the City of Missoula.

4) Maintain the walks, drives and pavement free of hazardous materials and conditions resulting from the planting work.

5) The general requirements of the 90 calendar day maintenance period are intended to keep all planting weed free, and to repair any damage to site improvements; replace any dead trees and shrubs with comparable healthy plant specimens; and, keep the project area neat and orderly.

6) Begin plant care immediately after each plant is satisfactorily installed and continue care throughout the life of the contract until final acceptance of the project.

7) Care includes, but is not limited to, replacing mulch that has been displaced by erosion or other means, repairing and reshaping water rings or saucers, maintaining stakes and guys as originally installed, watering when needed or directed, and performing any other work required to keep the plants in a healthy condition.

8) Remove and replace all dead, defective and/or rejected plants as required before final acceptance.

9) Restore grassed areas damaged during the process of the work to a condition satisfactory to the Project Manager. This may include filling to grade, fertilizing, seeding and mulching.

I. Material Requirements and Placement.

1) Weed Mat

a) Place three-ounce minimum spun weed barrier under all planting areas not to be seeded, or as directed on the project plans. Cover the mat with mulch and secure in place with a soil anchor.

2) Planter Mulch

a) Install medium bark mulch in all planting beds.

b) Place the bark mulch at a depth of 3 inches.

c) Adjust grades allowing for thickness of mulch by cutting or filling. Assure 2% pitch away from the building. Rake surface smooth and even and roll or tamp so that subgrade is uniformly firm.

d) Lay 3 ounce weed barrier fabric, on the settled subgrade before placing bark mulch, with a minimum overlap of 6 inches. Perforate fabric in plant beds before placing bark mulch.

3) Edging

a) Tree rings: Use 3/16" x 5.5" interlocking aluminum edge, staked with metal stakes sufficiently to hold in place.

b) Shrub Beds: Use 3/16" x 5.5" interlocking aluminum edge as per drawing, details and specifications.

c) Install edging so that water is not impounded between the edging and building perimeters.

d) Place mulches and weed barriers after edging has been installed.

4) Miscellaneous Products.

a) Root Barrier – Black, molded, modular panels manufactured with 50 percent recycled polyethylene plastic with ultraviolet inhibitors, 85 mils thick, with vertical root deflecting ribs protruding 1/2 inch out from panel, and each panel 24 inches wide.

b) Antidesiccant – If used, use Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.

c) Burlap – Non-synthetic, biodegradable.

J. Plant Maintenance

1) Begin maintenance after each plant and each portion of the site is planted, and continue until work has been accepted by a final acceptance inspection. This includes pruning, watering, cultivating, weeding, keeping trees erect, staking repair, raising tree balls which settle below grade, furnishing and applying such sprays as necessary to keep plantings free of insects and diseases, repair of erosion, and incidental work necessary to establish the groundcover and lawn satisfactory to the Project Manager.

2) Warranty. Warrant trees to be in a healthy and flourishing condition of active growth one year from date of acceptance of all plant materials. Warrant trees to live and grow in an acceptable upright position for a period of one year from the date of acceptance of all planting materials.

3) Final Acceptance. Schedule final review for acceptance no less than one year after written acceptance of all plant materials.

4) Final Inspections. In addition to delivery and site inspections described above, schedule and conduct inspections, giving the Project Manager at least 48 hours prior written notice of readiness, as follows:

5) Plant Acceptance. Upon completion of the landscape planting work, all planted areas will be inspected for acceptance at one time (and not in areas or sections) for the beginning of the warranty period. Correct items on the punch list within 15 days.

6) Cleanup. After planting operations are complete, remove trash, excess soil, empty plant containers, and rubbish from the property. Repair scars, ruts, or other marks in the ground caused by this work and leave the ground in a neat and orderly condition throughout the site.

7) Final Inspection. No less than one year after written acceptance of all plant materials, the entire project will be inspected for final acceptance, provided that all previous deficiencies have been corrected.

8) Replacements. At the final inspection, all plant material must be in a healthy growing condition. Within fifteen days of written notification by Owner, remove and replace guaranteed plant materials that for any reason fail to meet the requirements of the guarantee. Make replacements with plant materials originally specified and meeting original guarantees without additional cost to the Owner. When final inspection is made and deficiencies noted, care and replacement must continue until such deficiencies have been corrected at no cost to the Owner.

K. Method of Measure. All trees, furnished and planted, inclusive of all necessary materials and associated work including tree removal, tree grate, tree guard, root guard assembly, guying, edging, mulching, maintenance and warranty, weed fabric, irrigation sleeves and as shown in the plans are measured as lump sum.

L. Basis of Payment. Payment for the completed work is made under the following:

PAY ITEM	PAY UNIT
Landscaping	Lump Sum

Payment at the contract unit price is full compensation for all materials, equipment, and resources necessary to furnish and place the specified items including all meetings and coordination as well as submittals, maintenance and warranty related expenses.

83. DECOMPOSED GRANITE

A. Description. This work consists of installation of decomposed granite as shown in the Plans and as specified herein.

B. Materials

1) Use decomposed granite and crushed rock graded between #4 and #200 sieve. Rock shall be high quality and well-graded.

2) Decomposed granite shall consist of inert materials that are hard and durable, with stone free from surface coatings and deleterious materials. Gradation requirements shall be as follows:

MT 202 Sieve Analysis for Fine and Coarse Aggregate.

U.S. Sieve	Percent Passing by
#3/8”	100
#4	90-100
#8	75-80
#16	55-65
#30	40-50
#50	25-35
#100	15-20
#200 to	10-15

3) Perform gradation of decomposed granite material in accordance with MT 202 Sieve Analysis for Fine and Coarse Aggregate.

4) Provide a one-pound sample for review and approval prior to placement of material.

5) Include binding material that is non-toxic, colorless, odorless, and organic as distributed by "Stabilizer", Phoenix Arizona (800) 336-2468 or accepted equal.

6) Include Trifluralin or approved equivalent soil sterilant that is standard, quick-acting, short-lived and a non-selective weed and grass killer that is commonly used under roadway/transportation projects. Apply in a way that does not pose any short or long term health threats to the installer or the general public. Do not apply within project limits during events that serve food and beverages. Submit analysis for acceptance prior to applying.

C. Construction Requirements

1) Upon completion of grading operations, compact the subgrade at the required elevation to a relative compaction density of 95%, unless otherwise noted on the plans.

2) Apply soil sterilant per manufacturer's directions. Limit the work zone of the sterilant application to the area to receive decomposed granite plus 3-ft on each side.

3) Do not place material in muddy conditions or immediately after inclement weather (i.e. rain storms).

4) Provide a 10-ft by specified width test sample to be approved prior to installation.

5) Prior to placement of crushed granite material, thoroughly combine binder into granite fines as a concentrated powder, uniformly and thoroughly rototilled to achieve a uniform mixture at this distributor's plant.

6) Spread crushed granite fine/binder material in two 1½" lifts.

7) Wet and roll each lift to a uniform, smooth surface with a cross slope of 2%. Compact each lift to a 95% compaction rate.

8) Upon completion of the first lift, fill any depressions, holes or divots and re-roll using the above process.

9) Provide a Certificate of Compliance verifying that the binder/stabilizer has been mixed per manufacturer's recommendations.

10) Thoroughly clean all areas where work has occurred. Remove excess material, debris and rubbish from site.

11) Take all precautions to protect completed work. Immediately repair or replace all damaged areas due to tire ruts, erosion, compaction failure, etc.

D. Method of Measure. Decomposed Granite is measured by the square yard.

E. Basis of Pavement. Payment for the completed and accepted quantities is made under the following:

PAY ITEM	PAY UNIT
Landscaping	Lump Sum

Payment at the contract unit price is full compensation for all resources necessary to complete those items of work under the contract.

84. SODDING

A. Description. Meet the requirements contained in these provisions which supplement Standard Specifications 610.03.3 – Sodding.

B. Materials. In addition to the requirements of Specification 610.03.3.B – Source of Materials, sod must be locally grown. Sod must be composed of varieties of Kentucky bluegrass, fescue and/or perennial rye that is adapted to the climate and soils of the project area. Provide documentation of the species/variety composition in addition to the source(s) to the Project Manager.

C. Construction Requirements. Refer to Standard Specification 610.03.3 – Sodding. Ensure that all grassed, lawn or public right of way grassed boulevards, which become disturbed during the course of construction, are topsoiled and sodded. Obtain the Project Manager's approval of each location prior to preparing areas for topsoiling and sodding. Ensure

that finished surfaces are smooth and closely match existing contours of the surrounding installation.

D. Measurement and Payment. Measurement and payment for furnishing and placing topsoil and sod within approved grassed areas are made under the lump sum bid item for Landscaping. Areas outside of the approved working construction limits that require topsoiling and sod to mitigate contractor negligence are not measured for payment.

85. REVEGETATION

A. Description. This work consists of providing the necessary equipment and materials to accomplish revegetation of ground disturbed by construction activities, and/or as directed by the project manager.

B. Construction Requirements. Salvage and/or furnish sufficient quantities of topsoil in accordance with Subsection 713.05 and/or 610.03.1 of the Standard Specifications to place 4 inches over all disturbed areas. Immediately following grading, place the topsoil in accordance with Subsection 203.03.6. Broadcast seed in accordance with Subsection 610.03.2.D with the following seed mix and equivalent rates. Following broadcast seeding, scarify the areas to the incorporate the seed into the upper ¼ to ½ inch soil.

Install a Short Term erosion blanket complying with Subsection 713.12.A. Use blankets constructed entirely with 100% biodegradable natural fiber stitching and netting. Install immediately following seeding/scarification.

Species	Lbs of PLS per acre Broadcast
Critana thickspike wheatgrass	8.0
Pryor slender wheatgrass	4.0
Nezpurs Idaho fescue	4.0
Goldar bluebunch wheatgrass	10.0
Western yarrow	0.2
Meriwether blanketflower	2.0
Stillwater prairie coneflower	1.0

C. Basis of Payment. Payment to complete all tasks will be made as lump sum Revegetation.

86. RECLAMATION SEED [610] (ADDED 1-23-20)

Furnish reclamation seed from Suppliers listed on the QPL. Seed used for landscaping is not required to be on the QPL. All the requirements of Subsection 713.08 apply.

87. TREE REMOVAL

A. Description. This work consists of cutting trees/timber larger than 6-inches in diameter within the proposed easement and construction permit areas.

B. Construction Requirements.

1) Stake proposed construction limits, new easements and construction permit areas.

2) Make all efforts to limit disturbance and preserve as many trees as possible within the new easement and construction limit areas. Coordinate tree preservation efforts with the Project Manager.

3) Removal of all remaining vegetation and debris within the new easement and construction permit areas is considered clearing and grubbing.

4) Migratory Bird Treaty Act. Remove trees prior to or outside of nesting season.

C. Measurement and Payment. Measurement and payment for Tree Removal and all associated work will be included in the lump sum cost for Landscaping. This will include equipment, materials, or other incidentals associated with completion of this work

88. EXISTING SPRINKLER SYSTEM

A. Description. This work consists of excavation, removal, capping, relocation, and marking of existing sprinkler systems located within the excavation, embankment, or construction limits of the project.

B. Construction Requirements.

1) Search for and become aware of any sprinkler systems located within or infringing on the public right-of-way and/or within the proposed construction limits. Before work is started near a sprinkler system, contact the owner of the system to shut the water supply off and mark the sprinkler system lines in conflict with the proposed construction limits.

2) Use care to avoid damage to the existing sprinkler system.

3) Repair, replace, or reroute any part of an underground sprinkler system that is in conflict with the proposed work.

4) Do not damage sprinkler heads or supply lines. Replace damaged sprinkler heads and supply lines with identical materials at no cost to the property owner or the Department.

C. Method of Measurement. Measurement of this item and all associated work will be included in the lump sum measurement for Landscaping

D. Basis of Payment. Include all costs associated with this item in the lump sum cost for Landscaping. This will include equipment, materials, or other incidentals associated with completion of this work.

89. CAMERA SYSTEM, INSTALL AND REMOVE [618] (REVISED 9-11-14)

A. Description. This work involves the installation, maintenance, removal and repacking of a Department-owned, solar powered, remote camera system. Additional information about the webcam may be accessed at the following link: ftp://ftp.mdt.mt.gov/contract/contractors/WEBCAMERA_INFO/

B. Materials. Furnish a 40-foot (12 m) machine peeled wood mounting pole with a minimum diameter of 10 inches, in good condition. Furnish a ⅝-inch by 8-foot (16 mm by 2.4 m) copper clad grounding rod, 45 feet (13.7 m) of #8 AWG solid copper ground wire and clamps. Furnish cable ties or clamps for securing cables and wire to the mounting pole.

C. Construction Requirements.

1) Delivery. The Department will furnish the camera system. The camera system includes the camera housing and contents, solar panel, battery, battery box, mounting brackets, cables, and associated hardware, except as noted under Materials.

The Project Manager will deliver the camera system to the project site. Coordinate delivery of the system with the Project Manager. Provide for secure storage of the camera system unless it is immediately installed. After installation, return the original packing and shipping materials in good condition to the Project Manager for storage.

2) Installation. Unless otherwise approved by the Project Manager, install the camera system prior to performing any other work on the project. Install according to the diagram found at the link above.

a) Erect the mounting pole at the location specified by the Project Manager. Embed the pole 6 feet (1.8 m) into the ground. Seat, backfill and compact around the pole. Compact the backfill in 9-inch (225 mm) lifts. Ensure the pole is installed plumb. After erection, install the camera system on the pole according to the drawings and instructions.

3) Service and Maintenance. Provide the Project Manager access to the camera as necessary for adjustments. Clean the camera lens and solar panels as directed by the Project Manager. The camera system components are covered under warranty by the manufacturer. In

the event a component or a part of a component requires replacement, hire a qualified technician to remove and replace the part(s). Coordinate all shipping of components or parts necessary for the repair(s).

4) Insurance. Provide insurance for the camera system to cover repair or replacement if it is damaged in any way for any reason. The minimum insured value of the camera system is $10,000.

5) Removal. Upon notification from the Project Manager, remove the camera system and repackage it in the original packing materials. After removal, retain responsibility for the camera system. Provide up to 14 days of secure storage for the camera system until it is transferred back to the Project Manager. The Department will retain ownership of the camera system. Remove the mounting pole, backfill, and re-grade to the original conditions, or as specified elsewhere in the contract. The pole, grounding rod and ground wire will become property of the Contractor upon completion of the project.

D. Method of Measurement. Measurement will be made at 50 percent of Lump Sum bid upon completion of the installation and 50 percent of Lump Sum bid upon the transfer of the system back to the Project Manager. Camera service or maintenance requirements will be measured under the force account basis as described in Subsection 109.04.2.

E. Basis of Payment. Payment for the completed and accepted quantities is made under the following:

PAY ITEM	PAY UNIT
Install, Remove Camera System	Lump Sum

Costs associated with Service and Maintenance will be paid under Miscellaneous Work.

90. TEMPORARY BARRIER RAIL [618] (REVISED 12-7-17)

A. Description. This work includes furnishing, installing, maintaining, and removing temporary barrier rail used for lane separation or protection of construction work zones from traffic.

B. Materials. Furnish concrete barrier rail in accordance with Section 605 and the Detailed Drawings. Alternative barrier design meeting NCHRP 350 TL-3 or MASH TL-3 crash testing may be used. Submit proof of crash testing compliance 14 calendar days prior to installation.

C. Construction Requirements. Furnish, install, maintain, and remove temporary barrier as required by the contract or manufacturer's instructions. Terminate the ends of temporary concrete barrier with a temporary impact attenuator or with approved blunt end protection as stated in the contract. Blunt end protection not shown on the plans is at Contractor expense.

D. Method of Measurement. Temporary barrier rail will be measured by the foot (m) of barrier placed to protect or channelize traffic as specified in the plans. Transition pieces and terminal ends will be measured for payment. Installation or resetting of barrier rail; required by the Contractor's operations and not shown on plans or the repair or replacement of temporary barrier rail damaged by the Contractor will not be measured for payment. Removal and replacement of installations damaged by traffic will be measured for payment.

E. Basis of Payment. Payment for the completed and accepted quantities is made under the following:

PAY ITEM	PAY UNIT
Temp Barrier Rail	Foot (m)
Reset Temp Barrier Rail	Foot (m)

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

91. TRAFFIC CONTROL PLASTIC DRUMS [618] (REVISED 8-15-19)

Beginning on April 1, 2021, ensure all plastic drums include 6-inch retro-reflective white and retro-reflective fluorescent orange sheeting. All other requirements of Detailed Drawing 618-00 still apply.

92. GREEN EPOXY PAVEMENT MARKINGS

A. Description. Provide and apply green epoxy pavement markings at all the location(s) shown on the pavement marking plans. Comply with the requirements of Section 620 and Subsection 714.06 with the following additional/exception.

1) The daytime chromaticity coordinates for the color used for green epoxy pavement markings shall be as follows:

1		2		3		4	
x	y	x	y	x	y	x	y
0.230	0.754	0.266	0.500	0.367	0.500	0.444	0.555

The daytime luminance factory (Y) shall be at least 7, but no more than 35.

2) The nighttime chromaticity coordinates for the color used for the green epoxy pavement markings shall be as follows:

1		2		3		4	
x	y	x	y	x	y	x	y
0.230	0.754	0.3366	0.540	0.450	0.500	0.479	0.520

3) Do not use glass beads with the green epoxy pavement markings.

B. Measure and Payment. Payment for all work and materials required for furnishing and installing Green Epoxy Pavement Marking will be made under the following:

PAY ITEM	PAY UNIT
Words and Symbols – Green Epoxy	Gallon

93. 48-INCH SUMP

A. Description. This work is furnishing and installing 48-inch Sumps as shown on the plans.

B. Materials. Sumps are to be constructed of precast concrete with a 48-inch nominal diameter and a manhole frame and grate meeting the dimensions shown on the plans.

1) Washed drain rock to be 3 to 8 inch sub-rounded washed rock, free of deleterious material.

2) Filter fabric to be in accordance with City of Missoula Standard Drawings STD – 604.

C. Construction Requirements. Install the Sumps as shown on the plans and to the lines and grades specified, and in accordance with City of Missoula Standard Drawings STD – 604. Excavate and backfill with materials meeting the requirements of Section 207.

D. Method of Measurement. This work is measured as per each. Excavation, backfill, washed drain rock, and filter fabric, is not measured for payment.

E. Basis of Payment. Payment for the completed work is made under the following:

PAY ITEM	PAY UNIT
Sump	Each

Payment at the contract unit price is full compensation for all resources necessary to complete those items of work under the contract, including furnishing and placing washed drain rock and filter fabric

END OF SECTION I

MDT NONDISCRIMINATION
AND
DISABILITY ACCOMMODATION NOTICE

Montana Department of Transportation ("MDT") is committed to conducting all of its business in an environment free from discrimination, harassment, and retaliation. In accordance with State and Federal law MDT prohibits any and all discrimination and protections are all inclusive (hereafter "protected classes") by its employees or anyone with whom MDT does business:

Federal protected classes	State protected classes
Race, color, national origin, sex, sexual orientation, gender identity, age, disability, & Limited English Proficiency	Race, color, national origin, parental/marital status, pregnancy, childbirth, or medical conditions related to pregnancy or childbirth, religion/ creed, social origin or condition, genetic information, sex, sexual orientation, gender identification or expression, national origin, ancestry, age, disability mental or physical, political or religious affiliations or ideas, military service or veteran status

For the duration of this contract/agreement, the PARTY agrees as follows:

(1) Compliance with Regulations: The PARTY (hereinafter includes consultant) will comply with all Acts and Regulations of the United States and the State of Montana relative to Non-Discrimination in Federally and State-assisted programs of the U.S. Department of Transportation and the State of Montana, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

(2) Non-discrimination:

a. The PARTY, with regard to the work performed by it during the contract, will not discriminate, directly or indirectly, on the grounds of any of the protected classes in the selection and retention of subcontractors, including procurements of materials and leases of equipment, employment, and all other activities being performed under this contract/agreement.
b. PARTY will provide notice to its employees and the members of the public that it serves that will include the following:
    i. Statement that PARTY does not discriminate on the grounds of any protected classes.
    ii. Statement that PARTY will provide employees and members of the public that it serves with reasonable accommodations for any known disability, upon request, pursuant to the Americans with Disabilities Act as Amended (ADA).
    iii. Contact information for PARTY's representative tasked with handling non-discrimination complaints and providing reasonable accommodations under the ADA.

iv. Information on how to request information in alternative accessible formats.

c. In accordance with Mont. Code Ann. § 49-3-207, PARTY will include a provision, in all of its hiring/subcontracting notices, that all hiring/subcontracting will be on the basis of merit and qualifications and that PARTY does not discriminate on the grounds of any protected class.

(3) Participation by Disadvantaged Business Enterprises (DBEs):

a. If the PARTY receives federal financial assistance as part of this contract/agreement, the PARTY will make all reasonable efforts to utilize DBE firms certified by MDT for its subcontracting services. The list of all currently certified DBE firms is located on the MDT website at mdt.mt.gov/business/contracting/civil/dbe.shtml

b. By signing this agreement, the PARTY assures that:

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

c. PARTY must include the above assurance in each contract/agreement the PARTY enters.

(4) Solicitation for Subcontracts, Including Procurement of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation, made by the PARTY for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the PARTY of the PARTY's obligation under this contract/agreement and all Acts and Regulations of the United States and the State of Montana related to Non-Discrimination.

(5) Information and Reports: The PARTY will provide all information and reports required by the Acts, Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information and its facilities as may be determined by MDT or relevant US DOT Administration to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the PARTY will so certify to MDT or relevant US DOT Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

(6) Sanctions for Noncompliance: In the event of a PARTY's noncompliance with the Non- discrimination provisions of this contract/agreement, MDT will impose such sanctions as it or the relevant US DOT Administration may determine to be appropriate, including, but not limited to:

a. Withholding payments to the PARTY under the contract/agreement until the PARTY complies; and/or

b. Cancelling, terminating, or suspending the contract/agreement, in whole or in part.

(7) Pertinent Non-Discrimination Authorities:

During the performance of this contract/agreement, the PARTY, for itself, its assignees, and successor in interest, agrees to comply with the following non-discrimination statues and authorities; including but not limited to:

Federal

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21;
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airways Improvement Act of 1982, (49 U.S.C. § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (broadened the scope, coverage, and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975, and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients, and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibits discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Non-Discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which prevents discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of Limited English Proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);

- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. § 1681 *et seq.*).

- Executive Order 13672 prohibits discrimination in the civilian federal workforce on the basis of gender identity and in hiring by federal contractors on the basis of both sexual orientation and gender identity.

State

- Mont. Code Ann. § 49-3-205 Governmental services;

- Mont. Code Ann. § 49-3-206 Distribution of governmental funds;

- Mont. Code Ann. § 49-3-207 Nondiscrimination provision in all public contracts.

(8) Incorporation of Provisions: The PARTY will include the provisions of paragraph one through seven in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and/or directives issued pursuant thereto. The PARTY will take action with respect to any subcontract or procurement as MDT or the relevant US DOT Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the PARTY becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the PARTY may request MDT to enter into any litigation to protect the interests of MDT. In addition, the PARTY may request the United States to enter into the litigation to protect the interests of the United States.

MDT Boring Log Descriptive Terminology

Key to Soil Symbols and Terms

01/18/12

MONTANA MDT DEPARTMENT OF TRANSPORTATION
Geotechnical Section

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS (MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE)	GRAVEL AND GRAVELLY SOILS (MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE)	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	Well-graded gravels, gravel sand mixtures, little or no fines.
				GP	Poorly graded gravels, gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	Silty gravels, gravel-sand-silt mixtures.
				GC	Clayey gravels, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS (MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE)	CLEAN SANDS (LITTLE OR NO FINES)		SW	Well-graded sands, gravelly sands, little or no fines.
				SP	Poorly graded sands, gravelly sands, little or no fines.
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	Silty sands, sand-silt mixtures.
				SC	Clayey sands, sand-clay mixures.
FINE GRAINED SOILS (MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE)	SILTS AND CLAYS (LIQUID LIMIT LESS THAN 50)			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
				OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (LIQUID LIMIT GREATER THAN 50)			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
				CH	Inorganic clays of high plasticity, fat clays.
				OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS				PT	Peat and other highly organic soils.

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

Order of Descriptors

- Group Name
- Consistency or Relative Density
- Moisture Condition
- Color
- Particle size descriptor(s) (coarse grained soils only)
- Angularity of coarse grained soils
- Other relevant notes

Criteria For Descriptors

Consistency of Fine Grained Soils

Consistency	N-Value (uncorrected)
Very Soft	< 2
Soft	2 - 4
Medium Stiff	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	> 30

Apparent Density of Coarse Grained Soils

Relative Density	N-Value (uncorrected)
Very Loose	< 4
Loose	4 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

Moisture Condition

Dry	-Absence of moisture, dusty, dry to the touch.
Moist	-Damp, but no visible water.
Wet	-Visible free water.

Definition of Particle Size Ranges

Soil Component	Size Range
Boulder	> 12 in (300 mm)
Cobble	3 in (75 mm) - 12 in (300 mm)
Gravel	No. 4 Sieve (4.75 mm) to 3 in (75 mm)
Sand	No. 200 (0.075 mm) to No. 4 Sieves (4.75 mm)
Silt	< No. 200 Sieve (0.075 mm)*
Clay	< No. 200 Sieve (0.075 mm)*

*Atterberg limits and chart below to differentiate between silt and clay.

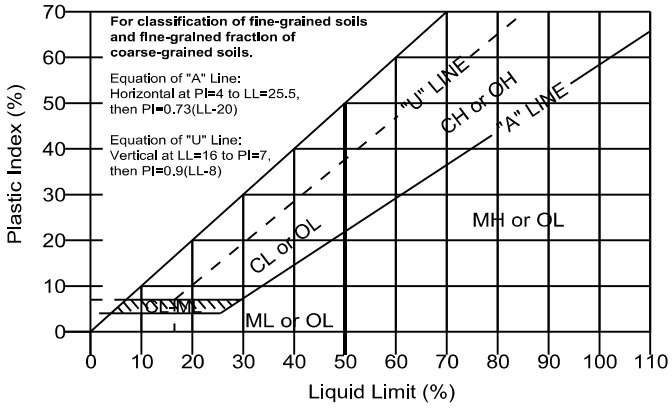
Notes

See Soil Boring Information Special Provision.

SPT (Standard Penetration Test-ASTM D1586):
The number of blows of a 140 lb (63.6 kg) hammer falling 2.5 ft (750 mm) used to drive a 2 in (50 mm) O.D. Split Spoon sampler for a total of 1.5 ft (0.45 m) of penetration.
Written as follows:
first 0.5 ft (0.15 m) - second 0.5 ft (0.15 m) - third 0.5 ft (0.15 m) (ex: 1-3-9)
Note: if the number of blows exceeds 50 before 0.5 ft (0.15 m) of penetration is achieved, the actual penetration rounded to the nearest 0.1 ft (0.03 m) follows the number of blows in parentheses (ex: 12-24-50 (0.09 m), 34-50 (0.4 ft), or 100 (0.3 ft)).WR denotes a zero blow count with the weight of the rods only.
WH denotes a zero blow count with the weight of the rods plus the weight of the hammer.

MC=Moisture Content, LL=Liquid limit, PL=Plastic Limit
-200%=percent soil passing 200 sieve, DD=Dry Density

Soil Classifications are Based on the Unified Soil Classification System, ASTM D2487 and D2488. Also included are the AASHTO group classifications (M145). Descriptions are based on visual observation, except where they have been modified to reflect results of laboratory tests as deemed appropriate.



Angularity of Coarse-Grained Particles

Angular	-Particles have sharp edges and relative plane sides with unpolished surfaces.
Subangular	-Particles are similar to angular description, but have rounded edges.
Subrounded	-Particles have nearly plane sides, but have no edges.
Rounded	-Particles have smoothly curved sides and well-rounded corners and edges.

Example soil description: Sandy FAT CLAY (CH), soft, wet, brown. (A-7)

Page 1 of 2

MDT Boring Log Descriptive Terminology
Key to Rock Symbols and Terms

01/18/12

MONTANA MDT DEPARTMENT OF TRANSPORTATION
Geotechnical Section

Rock Type	Symbol	Rock Type	Symbol	Rock Type	Symbol
Argillite		Dolomite		Quartzite	
Basalt		Gneiss		Rhyolite	
Bedrock (other)		Granitic		Sandstone	
Breccia		Limestone		Schist	
Claystone		Siltstone		Shale	
		Conglomerate			

Order of Descriptors

- Rock Type
- Color
- Grain size (if applicable)
- Stratification/Foliation (as applicable)
- Field Hardness
- Other relevant notes

Criteria For Descriptors
Grain Size

Description	Characteristic
Coarse Grained	-Individual grains can be easily distinguished by eye
Fine Grained	-Individual grains can be distinguished with difficulty

Stratum Thickness

Thickly Bedded	3-10 ft (1-3 m)
Medium Bedded	1-3 ft (300 mm - 1 m)
Thinly Bedded	2-12 in (50-300 mm)
Very Thinly Bedded	< 2 in (50 mm)

Rock Field Hardness

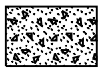
Very Soft	-Can be carved with knife. Can be excavated readily with point of rock hammer. Can be scratched readily by fingernail.
Soft	-Can be grooved or gouged readily by knife or point of rock hammer. Can be excavated in fragments from chips to several inches in size by moderate blows of the point of a rock hammer.
Medium	-Can be grooved or gouged 0.05 in (2 mm) deep by firm pressure of knife or rock hammer point. Can be excavated in small chips to pieces about 1 in (25 mm) maximum size by hard blows of the point of a rock hammer.
Moderately hard	-Can be scratched with knife or pick. Gouges or grooves to 0.25 in (6 mm) can be excavated by hard blow of rock hammer. Hand specimen can be detached by moderate blows.
Hard	-Can be scratched with knife or pick only with difficulty. Hard hammer blows required to detach hand specimen.
Very Hard	-Cannot be scratched with knife or sharp rock hammer point. Breaking of hand specimens requires several hard blows of a rock hammer.

Notes:

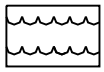
UCS = Unconfined Compressive Strength obtained from laboratory testing at the given depth.

See Soil Boring Information Special Provision.

Miscellaneous Soil/Rock Symbols and Terms

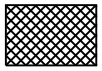

Concrete

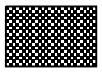

Asphalt

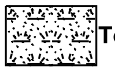

Water


Boulders and Cobbles


Coal


Fill


Millings


Topsoil

-Soil and Rock descriptions are based on visual observation, except where they have been modified to reflect results of laboratory tests as deemed appropriate.

Explanation of Text Fields in Boring Logs:

Material Description: Lithologic Description of soil or rock encountered.

Remarks: Comments on drilling, including method, bit type, and problems encountered.
Unless stated on logs as being surveyed by district survey, all locations are considered approximate.

General Notes

- Descriptions on these boring logs apply only at the specific boring, and at the time the borings were made. These logs are not warranted to be representative of subsurface conditions at other locations or times.
- Water level observations apply only at the specific boring, and at the time the borings were made. Due to the variability of groundwater measurements given the type of drilling used, and the stratification of the soil in the boring, these logs are not warranted to be representative of groundwater conditions at other locations or times.
- Other terms may be used as descriptors, as defined by the profession.

Operation Types: Auger, Casing Advancer, Core Barrel, Drive Casing

Sample Types: Split Spoon, Shelby, Bulk Sample, Grab Sample, Cone Penetrometer, Vane Shear, Special Samplers, Testpit

Example Rock Log

SANDSTONE, gray, fine grained, thickly bedded, hard field hardness.

Page 2 of 2

2525 Palmer Street, Suite 2
Missoula, MT 59808
Phone: (406)543-3045
Fax: (406)543-3088

LOG OF BORING

Boring 8807000-DH-1

TETRA TECH

Project: Higgins St. Bridge		**Rig:** Diedrich D50 **Hammer:** Auto	**Boring Location** N: 987152.739 ft **Coordinates** E: 845202.653 ft	**Station:** **Offset:**
Project Number: STPU 8113 (8)	**UPN:** 8807000	**Boring Diameter:** 8"	**System:** MT S.P. (E) **Datum:** WGS84	**Top of Boring Elevation:** 3182.2 ft
Date Started: 8/28/17	**Date Finished:** 8/28/17	**Drilling Fluid:** Bentonite/Polymer	**Location Source:**	**Elevation Source:**
Driller: Interstate Drilling **Logger:** Ted Geilen		**Abandonment Method:** Backfilled with Cuttings	**Township, Range, and Section:** S	

Depth (ft) / Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) / Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
							Asphalt.	0.4 3181.8	3	19	17	9		
			15		14 - 40 - 23		FILL, Poorly-Graded GRAVEL with silt and sand (GP-GM), [A-1]. slightly moist to moist, brown, fine to coarse grained, subangular to angular, contains metal, wood debris, and pieces of concrete..							
5 3177.2			25		17 - 12 - 12				3					
10 3172.2			20		36 - 13 - 12				4					
15 3167.2			40		30 - 20 - 50/0.1ft				1					very hard drilling, significant obstructions, steel pipe, creosote timber, took 40 minutes to auger from 15 to 20 feet.
			50		5 - 7 - 9				24					
20 3162.2							Poorly-Graded GRAVEL with sand (GP), [A-1]. moist to wet, multi-colored, fine to coarse grained, subangular, occasional cobbles and boulders.	20.0 3162.2						
25 3157.2			30		9 - 11 - 7									
30 3152.2			50		11 - 31 - 35									
35 3147.2			35		17 - 19 - 15		Poorly-Graded SAND with gravel (SP), [A-1]. wet, multi-colored, fine to coarse grained, subangular to subrounded.	35.0 3147.2						
							Well-Graded GRAVEL with silt and sand (GW-GM), [A-1]. wet, multi-colored, fine to coarse grained,	38.0 3144.2		NV	NP	6		
40 3142.2														

Water Level Observations

- **During Drilling:** Not Recorded
- **After Drilling:** Not Recorded
- **After Drilling:** Not Recorded

Remarks: **water levels were not recorded due to mud rotary drilling techniques**

MDT_LOG OF BORING - MDT_REVISED_2009+.GDT - 11/17/17 16:49 - N:\GEOTECH\REPORTS\REPORT 2017\MDT PROJECTS\HIGGINS AVENUE BRIDGE\LOGS & LAB TESTING\LOGS.GPJ

2525 Palmer Street, Suite 2
Missoula, MT 59808
Phone: (406)543-3045
Fax: (406)543-3088

LOG OF BORING

Boring 8807000-DH-1

TETRA TECH

Project: Higgins St. Bridge		**Rig:** Diedrich D50 **Hammer:** Auto	**Boring Location** N: 987152.739 ft **Coordinates** E: 845202.653 ft	**Station:** **Offset:**
Project Number: STPU 8113 (8)	**UPN:** 8807000	**Boring Diameter:** 8"	**System:** MT S.P. (E) **Datum:** WGS84	**Top of Boring Elevation:** 3182.2 ft
Date Started: 8/28/17	**Date Finished:** 8/28/17	**Drilling Fluid:** Bentonite/Polymer	**Location Source:**	**Elevation Source:**
Driller: Interstate Drilling **Logger:** Ted Geilen		**Abandonment Method:** Backfilled with Cuttings	**Township, Range, and Section:** S	

Depth (ft) / Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) / Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
			50		17 - 31 - 36		subangular, occasional cobbles and boulders.							
45 3137.2			30		2 - 11 - 9									
50 3132.2			50		25 - 29 - 4									
55 3127.2			30		12 - 19 - 21									
60 3122.2			50		14 - 21 - 23									
65 3117.2			50		11 - 15 - 14									
70 3112.2			60		11 - 19 - 24			71.0 3111.2						

Boring Depth: 71.0 ft, *Elevation: 3111.2 ft*

Water Level Observations		Remarks: **water levels were not recorded due to mud rotary drilling techniques**
During Drilling: Not Recorded	**After Drilling:** Not Recorded	
After Drilling: Not Recorded		

MDT_LOG OF BORING - MDT_REVISED_2009+.GDT - 11/17/17 16:49 - N:\GEOTECH\REPORTS\REPORT 2017\MDT PROJECTS\HIGGINS AVENUE BRIDGE\LOGS & LAB TESTING\LOGS.GPJ

2525 Palmer Street, Suite 2
Missoula, MT 59808
Phone: (406)543-3045
Fax: (406)543-3088

LOG OF BORING

Boring 8807000-DH-2

TETRA TECH

Project: Higgins St. Bridge		**Rig:** Diedrich D50 **Hammer:** Auto	**Boring Location** N: 987052.164 ft **Coordinates** E: 845142.741 ft	**Station:** **Offset:**
Project Number: STPU 8113 (8)	**UPN:** 8807000	**Boring Diameter:** 8"	**System:** MT S.P. (E) **Datum:** WGS84	**Top of Boring Elevation:** 3183.8 ft
Date Started: 8/29/17	**Date Finished:** 8/29/17	**Drilling Fluid:** Bentonite/Polymer	**Location Source:**	**Elevation Source:**
Driller: Interstate Drilling **Logger:** Ted Geilen		**Abandonment Method:** Backfilled with Cuttings	**Township, Range, and Section:** S	

Depth (ft) / Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) / Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
			60		5 - 10 - 8		FILL, Poorly-Graded GRAVEL with silty clay and sand (GP-GC), [A-1]. slightly moist to very moist, brown, fine to coarse grained, angular to subrounded, occasional cobbles and boulders.		11	16	12	11		pH = 8.8 Resistivity = 4,950 ohm-cm
5 3178.8			40		5 - 50/0.5ft				2					
10 3173.8			15		15 - 45 - 50/0.2ft		FILL, Silty GRAVEL with sand (GM), [A-4]. slightly moist to very moist, brown, fine to coarse grained, angular to subrounded, occasional cobbles and boulders.	10.0 3173.8	8	NV	NP	41		
15 3168.8			5		16 - 12 - 26				7					
							Poorly-Graded GRAVEL with sand (GP), [A-1]. moist to wet, multi-colored, fine to coarse grained, subangular to rounded, occasional cobbles and boulders.	18.0 3165.8						
20 3163.8			60		19 - 19 - 33				10					
25 3158.8														
30 3153.8			20		9 - 19 - 32									
35 3148.8			30		5 - 30 - 32					17	14	1		
40														
3143.8														

Water Level Observations

- During Drilling: Not Recorded
- After Drilling: Not Recorded
- After Drilling: Not Recorded

Remarks: **water levels were not recorded due to mud rotary drilling techniques**

MDT_LOG OF BORING - MDT_REVISED_2009+.GDT - 11/17/17 16:49 - N:\GEOTECH\REPORTS\REPORT 2017\MDT PROJECTS\HIGGINS AVENUE BRIDGE\LOGS & LAB TESTING\LOGS.GPJ

2525 Palmer Street, Suite 2
Missoula, MT 59808
Phone: (406)543-3045
Fax: (406)543-3088

LOG OF BORING

Boring 8807000-DH-2

TETRA TECH

Project: Higgins St. Bridge		**Rig:** Diedrich D50 **Hammer:** Auto	**Boring Location** N: 987052.164 ft **Coordinates** E: 845142.741 ft	**Station:** **Offset:**
Project Number: STPU 8113 (8)	**UPN:** 8807000	**Boring Diameter:** 8"	**System:** MT S.P. (E) **Datum:** WGS84	**Top of Boring Elevation:** 3183.8 ft
Date Started: 8/29/17	**Date Finished:** 8/29/17	**Drilling Fluid:** Bentonite/Polymer	**Location Source:**	**Elevation Source:**
Driller: Interstate Drilling **Logger:** Ted Geilen		**Abandonment Method:** Backfilled with Cuttings	**Township, Range, and Section:** S	

Depth (ft) / Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) / Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
			30		17 - 21 - 14									
45 3138.8			15		20 - 24 - 25									
50 3133.8			40		13 - 15 - 10		Poorly-Graded SAND with gravel (SP), [A-1]. wet, multi-colored, fine to medium grained, subangular.	50.0 3133.8						
55 3128.8			40		12 - 17 - 23		Poorly-Graded GRAVEL with sand (GP), [A-1]. wet, multi-colored, fine to coarse grained, subangular to subrounded, occasional cobbles and boulders.	55.0 3128.8						
60 3123.8			60		32 - 20 - 50/0.3ft									
65 3118.8			60		16 - 15 - 17					16	15	19		
70 3113.8			0		13 - 15 - 15			71.0 3112.8						

Boring Depth: 71.0 ft, *Elevation: 3112.8 ft*

Water Level Observations		
During Drilling: Not Recorded	**After Drilling:** Not Recorded	**After Drilling:** Not Recorded

Remarks: **water levels were not recorded due to mud rotary drilling techniques**

MDT_LOG OF BORING - MDT_REVISED_2009+.GDT - 11/17/17 16:49 - N:\GEOTECH\REPORTS\REPORT 2017\MDT PROJECTS\HIGGINS AVENUE BRIDGE\LOGS & LAB TESTING\LOGS.GPJ

2525 Palmer Street, Suite 2
Missoula, MT 59808
Phone: (406)543-3045
Fax: (406)543-3088

LOG OF BORING

Boring 8807000-DH-3

TETRA TECH

Project: Higgins St. Bridge		**Rig:** Diedrich D50 **Hammer:** Auto	**Boring Location** N: 986913.288 ft **Coordinates** E: 845078.258 ft	**Station:** **Offset:**
Project Number: STPU 8113 (8)	**UPN:** 8807000	**Boring Diameter:** 8"	**System:** MT S.P. (E) **Datum:** WGS84	**Top of Boring Elevation:** 3189.3 ft
Date Started: 8/31/17	**Date Finished:** 8/31/17	**Drilling Fluid:** Bentonite/Polymer	**Location Source:**	**Elevation Source:**
Driller: Interstate Drilling **Logger:** Ted Geilen		**Abandonment Method:** Backfilled with Cuttings	**Township, Range, and Section:** S	

Depth (ft) / Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) / Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
							FILL, Poorly-Graded GRAVEL with silty clay and sand (GP-GC), [A-1]. moist to wet, brown, fine to coarse grained, angular to subangular, occasional cobbles and boulders.			21	17	7		pH = 8.8 Resistivity = 3,100 ohm-cm
5 3184.3			30		12 - 26 - 23				3					
10 3179.3			30		30 - 32 - 39				2					
15 3174.3			5		4 - 5 - 7				1					
							Poorly-Graded GRAVEL with sand (GP), [A-1]. moist to wet, multi-colored, fine to coarse grained, subangular to subrounded, occasional cobbles and boulders.	15.0 3174.3						
20 3169.3			40		14 - 32 - 21				1					
			65		43 - 40 - 50/0.4ft									
25 3164.3			70		35 - 30 - 50/0.4ft									
30 3159.3			60		18 - 36 - 50/0.3ft									
35 3154.3			5		50/0.3ft			36.0 3153.3						

Boring Depth: 36.0 ft, *Elevation: 3153.3 ft*

Water Level Observations		Remarks: **water levels were not recorded due to mud rotary drilling techniques**
During Drilling: Not Recorded	**After Drilling:** Not Recorded	
After Drilling: Not Recorded		

MDT_LOG OF BORING - MDT_REVISED_2009+.GDT - 11/17/17 16:49 - N:\GEOTECH\REPORTS\REPORT 2017\MDT PROJECTS\HIGGINS AVENUE BRIDGE\LOGS & LAB TESTING\LOGS.GPJ

2525 Palmer Street, Suite 2
Missoula, MT 59808
Phone: (406)543-3045
Fax: (406)543-3088

LOG OF BORING

Boring 8807000-DH-4

TETRA TECH

Project: Higgins St. Bridge		**Rig:** Diedrich D50 **Hammer:** Auto	**Boring Location** N: 986475.085 ft **Coordinates** E: 844851.972 ft	**Station:** **Offset:**
Project Number: STPU 8113 (8)	**UPN:** 8807000	**Boring Diameter:** 8"	**System:** MT S.P. (E) **Datum:** WGS84	**Top of Boring Elevation:** 3184.8 ft
Date Started: 8/30/17	**Date Finished:** 8/30/17	**Drilling Fluid:** Bentonite/Polymer	**Location Source:**	**Elevation Source:**
Driller: Interstate Drilling **Logger:** Ted Geilen		**Abandonment Method:** Backfilled with Cuttings	**Township, Range, and Section:** S	

Depth (ft) / Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) / Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
			40		8 - 10 - 9		FILL, Poorly-Graded GRAVEL with silty clay and sand (GP-GC), [A-1]. slightly moist to very moist, brown, fine to coarse grained, angular to subrounded, occasional cobbles and boulders.		4					
5 *3179.8*			15		8 - 5 - 6				1					
10 *3174.8*			15		12 - 8 - 8				5					
15 *3169.8*			50		50/0.5ft		Poorly-Graded GRAVEL with sand (GP), [A-1]. very moist to wet, multi-colored, fine to coarse grained, subangular to subrounded, occasional cobbles and boulders.	13.0 *3171.8*	3					
20 *3164.8*			60		3 - 25 - 33									
25 *3159.8*														
30 *3154.8*			40		8 - 28 - 37									
35 *3149.8*			50		23 - 32 - 36									
40														
3144.8														

Water Level Observations

- During Drilling: Not Recorded
- After Drilling: Not Recorded
- After Drilling: Not Recorded

Remarks: **water levels were not recorded due to mud rotary drilling techniques**

MDT_LOG OF BORING - MDT_REVISED_2009+.GDT - 11/17/17 16:49 - N:\GEOTECH\REPORTS\REPORT 2017\MDT PROJECTS\HIGGINS AVENUE BRIDGE\LOGS & LAB TESTING\LOGS.GPJ

2525 Palmer Street, Suite 2
Missoula, MT 59808
Phone: (406)543-3045
Fax: (406)543-3088

LOG OF BORING

Boring 8807000-DH-4

TETRA TECH

Project: Higgins St. Bridge		**Rig:** Diedrich D50 **Hammer:** Auto	**Boring Location** N: 986475.085 ft **Coordinates** E: 844851.972 ft	**Station:** **Offset:**
Project Number: STPU 8113 (8)	**UPN:** 8807000	**Boring Diameter:** 8"	**System:** MT S.P. (E) **Datum:** WGS84	**Top of Boring Elevation:** 3184.8 ft
Date Started: 8/30/17	**Date Finished:** 8/30/17	**Drilling Fluid:** Bentonite/Polymer	**Location Source:**	**Elevation Source:**
Driller: Interstate Drilling **Logger:** Ted Geilen		**Abandonment Method:** Backfilled with Cuttings	**Township, Range, and Section:** S	

Depth (ft) / Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) / Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
			50		29 - 30 - 43									
45 3139.8			80		8 - 50/0.3ft									
50 3134.8			60		20 - 16 - 14									
55 3129.8			30		27 - 38 - 24					NV	NP	4		
60 3124.8			50		18 - 40 - 45									
65 3119.8			50		23 - 27 - 25									
70 3114.8			40		32 - 28 - 21			70.5 3114.3						

Boring Depth: 70.5 ft, *Elevation: 3114.3 ft*

Water Level Observations		
During Drilling: Not Recorded	**After Drilling:** Not Recorded	**After Drilling:** Not Recorded

Remarks: **water levels were not recorded due to mud rotary drilling techniques**

MDT_LOG OF BORING - MDT_REVISED_2009+.GDT - 11/17/17 16:49 - N:\GEOTECH\REPORTS\REPORT 2017\MDT PROJECTS\HIGGINS AVENUE BRIDGE\LOGS & LAB TESTING\LOGS.GPJ

2525 Palmer Street, Suite 2
Missoula, MT 59808
Phone: (406)543-3045
Fax: (406)543-3088

LOG OF BORING

Boring 8807000-DH-5

TETRA TECH

Project: Higgins St. Bridge		**Rig:** Mobile B-59 **Hammer:** Auto	**Boring Location** N: 987240.15 ft **Coordinates** E: 845299.4 ft	**Station:** **Offset:**
Project Number: STPU 8113 (8)	**UPN:** 8807000	**Boring Diameter:** 6"	**System:** MT S.P. (E) **Datum:** WGS84	**Top of Boring Elevation:** 3200.0 ft
Date Started: 11/13/17	**Date Finished:** 11/13/17	**Drilling Fluid:** None	**Location Source:**	**Elevation Source:**
Driller: Boland **Logger:** A. Hotaling		**Abandonment Method:** Backfilled with Cuttings	**Township, Range, and Section:** S	

Depth (ft) / Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) / Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
							Asphalt.	0.3 *3199.7*						
							Concrete, Auger refusal on concrete.	0.5 *3199.5*						
							Boring Depth: 0.5 ft, *Elevation: 3199.5 ft*							

Water Level Observations		Remarks:
After Drilling: Not Recorded	During Drilling: Not Recorded	
	After Drilling: Not Recorded	

MDT_LOG OF BORING - MDT_REVISED_2009+.GDT - 11/17/17 16:49 - N:\GEOTECH\REPORTS\REPORT 2017\MDT PROJECTS\HIGGINS AVENUE BRIDGE\LOGS & LAB TESTING\LOGS.GPJ

2525 Palmer Street, Suite 2
Missoula, MT 59808
Phone: (406)543-3045
Fax: (406)543-3088

LOG OF BORING

Boring 8807000-DH-6

TETRA TECH

Project: Higgins St. Bridge		**Rig:** Mobile B-59 **Hammer:** Auto	**Boring Location** N: 986367 ft **Coordinates** E: 844825.6 ft	**Station:** **Offset:**
Project Number: STPU 8113 (8)	**UPN:** 8807000	**Boring Diameter:** 6"	**System:** MT S.P. (E) **Datum:** WGS84	**Top of Boring Elevation:** 3200.0 ft
Date Started: 11/13/17	**Date Finished:** 11/13/17	**Drilling Fluid:** None	**Location Source:**	**Elevation Source:**
Driller: Boland **Logger:** A. Hotaling		**Abandonment Method:** Backfilled with Cuttings	**Township, Range, and Section:** S	

Depth (ft) Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
							Asphalt.	0.3 *3199.7*						
							Concrete, Auger refusal on concrete.	0.5 *3199.5*						
							Boring Depth: 0.5 ft, *Elevation: 3199.5 ft*							

Water Level Observations		Remarks:
After Drilling: Not Recorded	During Drilling: Not Recorded	
	After Drilling: Not Recorded	

MDT_LOG OF BORING - MDT_REVISED_2009+.GDT - 11/17/17 16:49 - N:\GEOTECH\REPORTS\REPORT 2017\MDT PROJECTS\HIGGINS AVENUE BRIDGE\LOGS & LAB TESTING\LOGS.GPJ

AWARD COPY

2525 Palmer Street, Suite 2
Missoula, MT 59808
Phone: (406) 543-3045
Fax: (406) 543-3088

Figure No. 1

LOG OF BORING

Boring 8807000-BH-5

TETRA TECH

Project: Higgins Avenue Bridge Rehabilitation - Missoula		**Rig:** Mobile B-61 **Hammer:** Auto	**Boring Location** N: 987233.844 ft **Coordinates** E: 845294.804 ft	**Station:** **Offset:**
Project Number: 114-571190A	**UPN:** 8807000	**Boring Diameter:** 8 in	**System:** MT S.P. (E) **Datum:** WGS84	**Top of Boring Elevation:** 3200.9 ft
Date Started: 12/12/18	**Date Finished:** 12/12/18	**Drilling Fluid:** None	**Location Source:** Handheld GPS, Uncorrected	**Elevation Source:**
Driller: O'Keefe **Logger:** Aric Hotaling		**Abandonment Method:** Backfilled with Cuttings	**Township, Range, and Section:** 13N 19W S22	

Depth (ft) Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
							ASPHALT, 4 inches.	0.3 *3200.6*						
							CONCRETE, 12 inches.	1.3 *3199.6*	5	20	18	12		
			47		6 - 13 - 13		BASE COURSE, Poorly-Graded GRAVEL with sand (GP), [A-1]. medium dense, moist, brown, fine to coarse grained, subrounded, Recovered in auger cuttings as poorly graded sand with silt and gravel (SP-SM); AASHTO A-1-a(0).							
5 *3195.9*			47		10 - 16 - 8		FILL, Poorly-Graded GRAVEL with sand (GP), [A-1]. loose to medium dense, slightly moist, gray to brown, fine to coarse grained, angular to subrounded, Recovered in auger cuttings as poorly graded sand with silt and gravel (SP-SM); AASHTO A-1-a(0).	4.3 *3196.6*	5					
10 *3190.9*			20		10 - 6 - 3		FILL, Poorly-Graded SAND with gravel (SP), [A-2]. very loose to loose, slightly moist to moist, brown to brown, fine to coarse grained, subrounded.	9.5 *3191.4*	1					
15 *3185.9*			13		2 - 2 - 1				0					
20 *3180.9*			20		2 - 2 - 1		FILL, Silty, Clayey SAND with gravel (SC-SM), [A-2]. very loose to medium dense, moist to very moist, brown to brown, fine to coarse grained, subrounded.	18.5 *3182.4*	14	23	17	31		
25 *3175.9*			67		2 - 10 - 7				18					
							Poorly-Graded GRAVEL with sand (GP), [A-1]. medium dense to very dense, slightly moist to moist, brown to gray, fine to coarse grained, subrounded to subangular.	25.5 *3175.4*						
			0		50/0.2ft			29.2 *3171.7*						

Boring Depth: 29.2 ft, *Elevation: 3171.7 ft*

Water Level Observations		Remarks:
During Drilling: Not Encountered	**After Drilling:** Not Recorded	
After Drilling: Not Recorded		

MDT_LOG OF BORING - MDT_REVISED_2009+.GDT - 03/22/19 10:39 - N:\GEOTECH\REPORTS\REPORT 2019\MDT PROJECTS\HIGGINS AVE BRIDGE\ACTIVITY 158 FIELD WORK\DRILLING\HIGGINS BRIDGE BORINGS 5-6.GPJ

2525 Palmer Street, Suite 2
Missoula, MT 59808
Phone: (406) 543-3045
Fax: (406) 543-3088

AWARD COPY

Figure No. 2

LOG OF BORING

Boring 8807000-BH-6

TETRA TECH

Project: Higgins Avenue Bridge Rehabilitation - Missoula		**Rig:** Mobile B-61 **Hammer:** Auto	**Boring Location** N: 986367.09 ft **Coordinates** E: 844824.569 ft	**Station:** **Offset:**
Project Number: 114-571190A	**UPN:** 8807000	**Boring Diameter:** 8 in	**System:** MT S.P. (E) **Datum:** WGS84	**Top of Boring Elevation:** 3209.5 ft
Date Started: 12/13/18	**Date Finished:** 12/14/18	**Drilling Fluid:** None	**Location Source:** Handheld GPS, Uncorrected	**Elevation Source:**
Driller: O'Keefe **Logger:** Aric Hotaling		**Abandonment Method:** Backfilled with Cuttings	**Township, Range, and Section:** 13N 19W S22	

Depth (ft) Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
							ASPHALT, 4 inches.	0.3						
							CONCRETE, 12 inches.	*3209.2* 1.3	11					
			20		7 - 12 - 12		BASE COURSE, Poorly-Graded GRAVEL with sand (GP), [A-1]. medium dense, moist, brown, fine to coarse grained, subrounded.	*3208.2* 2.0						
5 *3204.5*			67		8 - 6 - 7		FILL, Silty GRAVEL with sand (GM), [A-2]. medium dense to dense, moist, brown to gray, fine to coarse grained, subangular to subrounded, occasional cobbles, recovered from auger cuttings as clayey sand with gravel (SC); AASHTO: A-2-4(0).	*3207.5*	5	20	12	20		pH= 8.47 Resistivity= 1,200 ohm-cm Sulfate Content= 0.0039 %
10 *3199.5*			67		24 - 12 - 13				7					
15 *3194.5*			53		20 - 18 - 25				6					
20 *3189.5*			67		14 - 14 - 19				6					
25 *3184.5*			80		8 - 9 - 11				9					
30 *3179.5*			0		12 - 14 - 14				12					
							Boring Depth: 30.5 ft, *Elevation: 3179.0 ft*	30.5 *3179.0*						

Water Level Observations		Remarks:
During Drilling: Not Encountered	After Drilling: Not Recorded	
After Drilling: Not Recorded		

MDT_LOG OF BORING - MDT_REVISED_2009+.GDT - 03/22/19 10:39 - N:\GEOTECH\REPORTS\REPORT 2019\MDT PROJECTS\HIGGINS AVE BRIDGE\ACTIVITY 158 FIELD WORK\DRILLING\HIGGINS BRIDGE BORINGS 5-6.GPJ

2525 Palmer Street, Suite 2
Missoula, MT 59808
Phone: (406) 543-3045
Fax: (406) 543-3088

AWARD COPY

Figure No. 3

LOG OF BORING

Boring 8807000-PT-1

TETRA TECH

Project: Higgins Avenue Bridge Rehabilitation - Missoula		**Rig:** Mobile B-61 **Hammer:** Auto	**Boring Location** N: 986463.598 ft **Coordinates** E: 844847.895 ft	**Station:** **Offset:**
Project Number: 114-571190A	**UPN:** 8807000	**Boring Diameter:** 8 in	**System:** MT S.P. (E) **Datum:** WGS84	**Top of Boring Elevation:** 3184.8 ft
Date Started: 12/12/18	**Date Finished:** 12/12/18	**Drilling Fluid:** None	**Location Source:** Handheld GPS, Uncorrected	**Elevation Source:**
Driller: O'Keefe **Logger:** Aric Hotaling		**Abandonment Method:** Backfilled with Cuttings	**Township, Range, and Section:** 13N 19W S22	

Depth (ft) Elev. (ft)	Operation	Sample Type	Recovery (%)	RQD (%)	Blow Count	Lithology	Material Description	Depth (ft) Elev. (ft)	MC (%)	LL	PL	-200 (%)	DD	Remarks and Other Tests
							Asphalt.	0.2 *3184.6*						
5 *3179.8*							Poorly-Graded GRAVEL with sand (GP), [A-1]. slightly moist, brown, fine to coarse grained, subrounded.							
							Boring Depth: 6.0 ft, *Elevation: 3178.8 ft*	6.0 *3178.8*						

Water Level Observations		Remarks:
During Drilling: Not Encountered	After Drilling: Not Recorded	
After Drilling: Not Recorded		

MDT_LOG OF BORING - MDT_REVISED_2009+.GDT - 03/22/19 10:39 - N:\GEOTECH\REPORTS\REPORT 2019\MDT PROJECTS\HIGGINS AVE BRIDGE\ACTIVITY 158 FIELD WORK\DRILLING\HIGGINS BRIDGE BORINGS 5-6.GPJ

STANDARD PROVISIONS INDEX

FEDERAL AID PROJECTS CONTAINS

Traffic Control Rate Schedule ..... 3 Pages

Erosion & Sediment Control Rate Schedule ..... 2 Pages

Federal Wage Rates (Rev. 1-3-2020) ..... 9 Pages

Requirements & Acknowledgement for Working on Railroad R/W ..... 1 Page

Table of Contractor Submittals ..... 10 Pages

Materials Manual Index ..... 9 Pages

Required Contract Provisions Federal-Aid Const. Contracts (FORM FHWA-1273) [Rev.5-1-2012] ..... 12 Pages

Supplemental Revisions for Required Contract Provisions Federal-Aid Const. Contracts (FORM FHWA-1273) [Added 2-4-2016] ..... 1 Page

EEO Affirmative Action Req. on Federal-Aid Construction ..... 1 Page

TRAFFIC CONTROL RATE SCHEDULE

(Subsections 618.04.1 & 618.05.1 of the Specifications)
(Traffic Control – Fixed will be at $1 per unit)

Group No.	Traffic Control Device Description	Value in Units of Each Traffic Control Device
1. Any Size Sign	Signs on Portable Mounts	34/each
2. Sign Faces up to 15.9 square feet (1.48 square meter)	Signs Mounted on Single Post	130/each
3. 16.0 up to 19.9 square feet (1.49 up to 1.85 square meter)	Signs Mounted on Single Post	136/each
4. 20.0 up to 29.9 square feet (1.86 up to 2.78 square meter)	Signs Mounted on Single Post	148/each
5. 30.0 up to 40.0 square feet (2.79 up to 3.72 square meter)	Signs Mounted on Single Post	216/each
6. 10.0 up to 18.1 square feet (0.93 up to 1.68 square meter)	Signs Mounted on Two Posts	238/each
7. 18.2 up to 19.9 square feet (1.69 up to 1.85 square meter)	Signs Mounted on Two Posts	248/each
8. 20.0 up to 29.9 square feet (1.86 up to 2.78 square meter)	Signs Mounted on Two Posts	268/each
9. 30.0 up to 39.9 square feet (2.79 up to 3.71 square meter)	Signs Mounted on Two Posts	332/each
10. 40.0 up to 49.9 square feet (3.72 up to 4.64 square meter)	Signs Mounted on Two Posts	350/each
11. 50.0 up to 59.9 square feet (4.65 up to 5.57 square meter)	Signs Mounted on Two Posts	512/each
12. Sign Faces up to 20.0 square feet (1.82 square meter) mounted on Type III Barricade (sign only)	Signs Mounted on Barricade	26/each
13. 4'-0" (1.2 m) to 10'-0" (3.0 m) B (III)	Barricade (reflectorized on one side)	180/each
14. 4'-0" (1.2 m) to 10'-0" (3.0 m) B (III)	Barricade (reflectorized both sides)	188/each
15. Portable Barricade		
(1) 2’-0” (0.6 m) to 6’-0” (1.8 m) B (I)	Portable Barricade	22/each
(2) 2’-0” (0.6 m) to 6’-0” (1.8 m) B (II)	Portable Barricade	22/each
(3) Type II w/ 24”x12” R9-9,R9-10, or R9-11a Pedestrian Sign	Portable Barricade	24/each

TRAFFIC CONTROL RATE SCHEDULE

(Subsections 618.04.1 & 618.05.1 of the Specifications)
(Traffic Control – Fixed will be at $1 per unit)

Group No.	Traffic Control Device Description	Value in Units of Each Traffic Control Device
16.	Barricade Warning Lights	
	(1) Type A - Low Intensity	10/each/day
	(2) Type B - High Intensity	14/each/day
	(3) Type C - Steady Burn	10/each/day
17.	Drums Plastic	21/each
18.	Object Markers	
	(1) Type 2 Object Markers	26/each
19.	Portable Vertical Panel	14/each
20.	Delineators	
	(1) Design B Delineators	24/each
	(2) Design G Delineators	24/each
	(3) Design A Delineators	24/each
21.	Deleted	
22.	Flexible guide posts	8/each
23.	Portable Arrow Board	
	(1) Set up/take down each shift	12/each/hour
	(2) Long term use	202/each/day
	(2a) Initial Install (only for long term use)	40/each/install
24.	W20-7a and W3-3 Signs with LED Flashers	
	(1) Set up/take down each shift	18/each/hour
	(2) Long term use	172/each/day
	(2a) Initial Install (only for long term use)	18/each/install
25.	Raised rigid pavement markers	6/each
26.	Deleted	
27.	Hinged flexible guide posts 36" (914mm) height	56/each
28.	Deleted	
29.	Temporary traffic control signals (with dual lights and adjustable mast arms)	
	(1) Set up/take down each shift	36/each/hour
	(2) Long term use with initial install	646/each/day
	(2a) Initial Install (only for long term use)	52/each/install
30.	Temporary traffic tape yellow or white 4" (102mm)	4/foot 13/m

TRAFFIC CONTROL RATE SCHEDULE

(Subsections 618.04.1 & 618.05.1 of the Specifications)
(Traffic Control – Fixed will be at $1 per unit)

Group No.	Traffic Control Device Description		Value in Units of Each Traffic Control Device
31.	Changeable Message Signs, 3 line 8'x8' (2.7m x 2.7m) size		
	(1) Set up/take down each shift		18/each/hour
	(2) Long term use with initial install		300/each/day
	(2a) Initial Install (only for long term use)		44/each/install
32.	Install or remove signs on existing post mount		6/each
33.	Deleted		
34.	Flag Person	Zone 1	56/each/hour
		Zone 2	60/each/hour
		Zone 3	62/each/hour
35.	Pilot Car	Zone 1	86/each/hour
		Zone 2	90/each/hour
		Zone 3	90/each/hour
36.	Flagger Illumination		
	(1) Portable Light Tower		14/each/hour
	(2) Non-Glare (Balloon) Lighting		18/each/hour
37.	Alternative Devices: Items not covered under this rate schedule may be included as alternate devices. The rate will be determined in accordance with Subsection 109.04.1 or 109.04.2		Agreed upon prices converted to number of units
38.	Deleted		
39.	Pedestrian temporary curb ramp		284/each
40.	Pedestrian barricade		24/ft 78/m
41.	Deleted		
42.	Temporary Portable Transverse Rumble Strips 11ft (3.4 m) length		246/each
43.	Illuminated Flagger Paddle		6/each/hour
44.	Business Access Signs (including business name)		44/sq ft (478/ sq m)

2015 Erosion & Sediment Control Rate Schedule
Rev. 10/8/15

Group No.	Erosion/Sediment Control Device	Value in Units per Each English (metric)
SS-2 Mulch Cover		
	Mulch, Hydraulic Wood – 1000 ft^2 (100 m^2)	60 (65)
	Mulch, Dry Straw, Hand Sown – 1000 ft^2 (100 m^2)	120 (129)
	Mulch, Composting – 1000 ft^2 (100 m^2)	150 (162)
SS-4 Erosion Seeding		
	Erosion Seeding by Hand – Acre (ha)	200 (494)
SS-5 Soil Binder		
	Guar – Acre (ha)	380 (938)
SS-6 Rolled Erosion Control Blankets		
	Non-biodegradable	
	Class I & 2 Geotextiles – 1000 ft^2 (100 m^2)	380 (409)
	Class 3 Geotextiles – 1000 ft^2 (100 m^2)	480 (517)
	Plastic Cover – 1000 ft^2 (100 m^2)	300 (323)
	Biodegradable	
	Straw/Coconut (70/30) Erosion Control Blankets – 1000 ft^2 (100 m^2)	225 (242)
	Coconut (Coir) Erosion Control Blankets – 1000 ft^2 (100 m^2)	390 (420)
SC-1 Silt Fence		
	Unstabilized Silt Fence – 100 ft (30 m)	230 (226)
	Stabilized Silt Fence – 100 ft (30 m)	540 (532)
SC-4 Check Dams		
	Rock Check Dam – 1 yd^3 (1 m^3)	100 (132)
	Triangular 10” Silt Dike – 25 ft (1 m)	240 (32)
SC-5 Dugout Ditch Basin – each		20
SC-6 Fiber Rolls (Not used for inlet/outlet protection)		
	8” Fiber Rolls – 100 ft (30 m)	290 (285)
	12” Fiber Rolls – 100 ft (30 m)	350 (345)
SC-7 Compost Socks		
	8” Compost Socks – 100 ft (30 m)	260 (256)
	12” Compost Socks – 100 ft (30 m)	320 (315)
SC-8 Brush Barrier – 100 ft (30 m)		270 (266)
SC-9 Sandbag Barrier (Not used for inlet/outlet protection) – 100 ft (30 m)		180 (177)
SC-10 Gravel Bag Berm – 100 ft (30 m)		310 (305)

SC-12 Inlet/Outlet Protection	
Silt Fence Barrier – each	70
Straw Bale Barrier – each	110
Sandbag Barrier – each	110
Gravel and Mesh Barrier – each	160
8” Fiber Roll – 100 ft (30 m)	340 (335)
Wire Wrapped Rock Wattles – each	100
Curb Socks – each	100
Below Inlet Grate Device – each	140

General Decision Number: MT20200079 01/03/2020

MT79 Superseded General Decision Number:

MT20190079 State: Montana

Construction Type: Highway

Counties: Montana Statewide.

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.80 for calendar year 2020 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.80 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2020. If this contract is covered by the EO and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must pay workers in that classification at least the wage rate determined through the conformance process set forth in 29 CFR 5.5(a)(1)(ii) (or the EO minimum wage rate, if it is higher than the conformed wage rate). The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60). Additional information on contractor requirements and worker protections under the EO is available at ww.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	01/03/2020

* SUMT2014-001 02/19/2014

	Rates	Fringes
CARPENTER		
Carpenter/Piledriverman....	$ 29.00	11.82
Millwright.....	$ 32.00	11.82

Zone 1: 0 to 25 miles - Free
Zone 2: 25 to 50 miles - Base Pay +$2.50
Zone 3: Over 50 miles - Base Pay +$3.00

The Carpenter zone hourly rate applicable to each project shall be determined by measuring the road miles over the shortest practical maintained route from the County Courthouse of the following cities to the center of the job: Billings, Bozeman, Butte, Great Falls, Helena, Missoula, Kalispell

The agency shall calculate the mileage and include it in the special provisions of the bid documents and awarded contract.

CEMENT MASON/CONCRETE FINISHER...$ 24.87 10.80

Zone 1: 0 to 25 miles - Free
Zone 2: 25 to 50 miles - Base + $2.50
Zone 3: Over 50 miles -Base + $3.00

The Cement Mason/Concrete Finisher zone hourly rate applicable to each project shall be determined by measuring the road miles over the shortest practical maintained route from the County Courthouse of the following cities to the center of the job: Billings, Bozeman, Butte, Great Falls, Helena, Missoula, Kalispell

The agency shall calculate the mileage and include it in the special provisions of the bid documents and awarded contract

DIVER

Diver Tender.....$ 37.16 14.52
Diving.....$ 76.32 14.52
Stand-By.....$ 38.16 14.52

The tender shall receive 2 hours at the straight time pay rate per shift for dressing and/or undressing a Diver when work is done under hyperbaric conditions.

Depth Pay (Surface Diving):

0-20 ft.: Free zone
>20-100 ft.: $2.00 per ft.
>100-150 ft.: $3.00 per ft.
>150-220 ft.: $4 00 per ft.
>220 ft.: $5.00 per ft.

Diving in Enclosures (Diver Only):
0-25 ft.: Free zone
>25-300 ft.: $1.00 per ft.

DIVER ZONE PAY:

The hourly wage rates applicable to each project shall be determined by measuring the road miles over the shortest practical maintained route from the County Court House of the following cities only to the center of the job: Billings, Bozeman, Butte, Great Falls, Helena, Kalispell, Missoula

Zone 1: 0 to 25 miles - Free
Zone 2: 25 to 50 miles - Base Pay +$2.50
Zone 3: Over 50 miles - Base Pay +$3.00

The agency shall calculate the mileage and include it in the special provisions of the bid documents and awarded contract

ELECTRICIAN (LINE CONSTRUCTION)

Equipment Operator.....$ 33.27 14.16
Groundman.....$ 25.98 13.25
Lineman.....$ 43.43 15.38

TRAVEL PAY:

$50.00 per day - 0-25 Miles from the County Courthouse of the following cities: Billings, Bozeman, Butte, Great Falls, Helena, Kalispell and Missoula

$60.00 per day - Over 25 Miles

The agency shall calculate the mileage and include it in the special provisions of the bid documents and awarded contract

ELECTRICIAN

All Areas.....$ 32.74 13.42

TRAVEL PAY:

Zone 1: 0 to 10 miles – Free
Zone 2: 10 to 60 miles - Federal mileage both ways/day
Zone 3: Over 60 miles - $75.00 per day

The Electrician zone hourly rate applicable to each project shall be determined by measuring the road miles over the shortest practical maintained route from the County Courthouse of the following cities to the center of the job: Billings, Bozeman, Butte, Great Falls, Helena, Kalispell, Missoula

The agency shall calculate the mileage and include it in the special provisions of the bid documents and awarded contract

IRONWORKER.....$ 27.25 20.98

TRAVEL PAY:

0 to 45 miles - Free
45-85 miles - $55.00 per day
Over 85 miles - $85.00 per day

The Ironworker zone hourly rate applicable to each project shall be determined by measuring the road miles over the shortest practical maintained route from the County Courthouse of the following cities to the center of the job: Billings, Bozeman, Butte, Great Falls, Helena, Kalispell, Missoula

Zone 1: 0 to 25 miles - Free
Zone 2: 25 to 50 miles - Base + $2.50
Zone 3: Over 50 miles - Base + $3.00

The agency shall calculate the mileage and include it in the special provisions of the bid documents and awarded contract

LABORER

Group 1.....$ 20.90 9.60
Group 2.....$ 23.97 9.60
Group 3.....$ 24.19 9.60
Group 4.....$ 25.18 9.60

GROUP 1: Flag Person
GROUP 2: All General Labor work; Burning Bar; Bucket Man; Carpenter Tender; Caisson Worker; Cement Mason Tender; Cement Handler (dry); Chuck Tender; Choker Setter; Concrete Worker; Curb Machine-Lay Down; Crusher and Batch Plant Worker; Fence Erector; Form Setter; Form Stripper; Heater Tender; Landscaper; Pipe Wrapper; Pot Tender; Powderman Tender; Rail and Truck Loaders and Unloaders; Rip rapper; Sealants for Concrete and other materials; Sign Erection, Guard Rail and Jersey Rail; Stake Jumper; Spike Driver; Signalman; Tail Hose man; Tool Checker and Houseman; Traffic Control Worker

GROUP 3: Concrete Vibrator; Dumpman (Grademan); Equipment Handler; Geotextile and Liners; High-Pressure Nozzleman; Jackhammer (Pavement Breaker); Laser Equipment; Non-riding Rollers; Pipelayer; Posthole Digger (power); Power Driven Wheelbarrow; Rigger; Sandblaster; Sod- Cutter-power; Tampers

GROUP 4: Asphalt Raker; Cutting Torch; Grade Setter; High-Scaler; Power Saws (Faller & Concrete); Powderman ($1.00 per hour above Group 4 rate); Rock & Core Drill; Track or Truck Mounted Wagon Drill; Welder including Air Arc

LABORERS ZONE PAY:

The hourly wage rates applicable to each project shall be determined by measuring the road miles over the shortest practical maintained route from the County Court House of the following cities only to the center of the job: Billings, Bozeman, Butte, Great Falls, Helena, Kalispell, Missoula

Zone 1: 0 to 25 miles - Free
Zone 2: 25 to 50 miles - Base Pay +$2.50
Zone 3: Over 50 miles - Base Pay +$3.00

The agency shall calculate the mileage and include it in the special provisions of the bid documents and awarded contract

PAINTER (Pavement Marking/Milling and related work. Includes operating marking and all other equipment and all work involved in application of pavement markings including epoxies, paints, tape, buttons, thermo-plastics and any other products applied for traffic marking purposes and for directing and regulating traffic and cutting rumble strips) .....$ 28.00 10.30

PAINTER ZONE PAY:

The hourly wage rates applicable to each project shall be determined by measuring the road miles over the shortest practical maintained route from the County Court House of the following cities only to the center of the job: Billings, Bozeman, Butte, Great Falls, Helena, Kalispell, Missoula

ZONE 1: 0 to 25 miles - Free
ZONE 2: 25 to 50 miles - Base Pay +$2.50
ZONE 3: Over 50 miles - Base Pay +$3.00

The agency shall calculate the mileage and include it in the special provisions of the bid documents and awarded contract.

POWER EQUIPMENT OPERATOR:

Group 1.....	$ 26.52	10.40
Group 2.....	$ 28.55	10.40
Group 3.....	$ 29.41	10.40
Group 4.....	$ 30.10	10.40
Group 5.....	$ 31.44	10.40
Group 6.....	$ 32.13	10.40
Group 7.....	$ 34.23	10.40

GROUP 1: Air Compressor; Auto Fine Graders; Belt Finishing Machine; Boring Machine (small); Cement Silo; Crane, A-Frame Truck Crane; Crusher Conveyor; DW-10, 15, and 20 Tractor Roller; Farm Tractor; Forklift; Form Grader; Front End Loader Under 1 CU Yard; Heavy Duty Drills; Herman Nelson Heater; Mulching Machine; Oiler, All Except Cranes & Shovels; Pump man

GROUP 2: Air Doctor; Backhoe/Excavator/Shovel to and including 3 CU Yard; Bit Grinder; Bituminous Paving Travel Plant; Boring Machine Large; Broom, Self-Propelled; Concrete Travel Batcher; Concrete Float & Spreader; Concrete Bucket Dispatcher; Concrete Finish Machine; Concrete Conveyor; Distributor; Dozer; Rubber-Tired, Push & Side Boom; Elevating Grader/Gradall; Field Equipment Serviceman; Front End Loader 1 CU Yard to including 5 CU Yard; Grade Setter; Heavy Duty Drills, All Types; Hoist/Tugger, All; Hydralift & Similar; Industrial Locomotive; Motor Patrol, Except Finish; Mountain Skidder; Oiler - Cranes & Shovels; Pavement Breaker, EMSCO; Power Saw, Self-Propelled; Pugmill; Pumpcrete/Grout Machine; Punch Truck; Roller, Other Than Asphalt; Roller, Sheepsfoot, Self-Propelled; Roller, 25 Tons and Over; Ross Carrier; Rotomill Under 6 Ft; Trenching Machine; Washing/Screening Plant

GROUP 3: Asphalt Paving Machine; Asphalt Screed; Backhoe/Excavator/Shovel Over 3 CU Yard; Cableway Highline; Concrete Batch Plant; Concrete Curing Machine; Concrete Pump; Cranes; Creter; Cranes, Electric Overhead; Cranes 24 Tons and Under; Curb Machine/Slip Form Paver; Finish Dozer; Front End Loader Over 5 CU Yard; Mechanic/Welder; Pioneer Dozer; Roller Asphalt (Breakdown & Finish); Rotomill, Over 6 FT; Scraper, Single, Twin or Pulling Belly Dump; Yo-Yo Cat

GROUP 4: Asphalt/Hot Plant Operator, Cranes, 25 Tons to 44 Tons; Crusher Operator; Finish Motor Patrol; Finish Scraper

GROUP 5: Cranes, 45 Tons to Including 74 Tons

GROUP 6: Cranes, 75 Tons to Including 149 Tons; Crane, Whirley (All)

GROUP 7: Cranes, 150 Tons to Including 250 Tons (Add $ 1.00 for Every 100 Tons Over 250 Tons; Crane, Tower (All)

POWER EQUIPMENT OPERATOR ZONE PAY:

The hourly wage rates applicable to each project shall be determined by measuring the road miles over the shortest practical maintained route from the County Court House of the following cities only to the center of the job: Billings, Bozeman, Butte, Great Falls, Helena, Kalispell, Missoula

Zone 1: 0 to 25 miles - Free
Zone 2: 25 to 50 miles - Base Pay +$2.50
Zone 3: Over 50 miles - Base Pay +$3.00

The agency shall calculate the mileage and include it in the special provisions of the bid documents and awarded contract

TRUCK DRIVER

Group 1.....$ 22.39 10.16
Group 2.....$ 28.06 10.16

GROUP 1: Pilot Car

GROUP 2: Combination Truck and Concrete Mixer and Transit Mixer; Dry Batch Trucks; Distributor Driver; Dumpman; Dump Trucks and Similar Equipment; Dumpster; Flat Trucks; Lumber Carriers; Lowboys; Pickup; Powder Truck Driver; Power Boom; Serviceman; Service Truck/Fuel Truck/ Tireperson; Truck Mechanic; Trucks with Power Equipment; Warehouseman, Partsman, Cardex and Warehouse Expeditor; Water Trucks

TRUCK DRIVER ZONE PAY:

The hourly wage rates applicable to each project shall be determined by measuring the road miles over the shortest practical maintained route from the County Court House of the following cities only to the center of the job: Billings, Bozeman, Butte, Great Falls, Helena, Kalispell, Missoula

Zone 1: 0 To 25 Miles - Free
Zone 2: 25 To 50 Miles - Base Pay +$2.50
Zone 3: Over 50 Miles - Base Pay +$3.00

The agency shall calculate the mileage and include it in the special provisions of the bid documents and awarded contract

---

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

==========

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive

care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier. A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can

be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed. With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations.

Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7).

Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board).

Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.

Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

==========

END OF GENERAL DECISION

Effective 02/13/2020

"CONTRACTOR REQUIREMENTS AND ACKNOWLEDGMENT FOR WORKING ON RAILROAD RIGHT-OF-WAY"

This document must be dated and signed by the Contractor and submitted to the State before occupying or working on Railroad right-of-way.

1) No change, which has a direct effect on the Railroad, will be made to construction plans without submitting revised plans and receiving approval from the Railroad. Work covered by the plans, that requires flagging, will be covered by the Railroad/Highway Agreement. For work that is a result of the contractor's discretion, flagging protection will be required when equipment crosses or is working within 25 feet (7.62 meters) of center of any live track. When deemed necessary by local Railroad officers, a flagman may be required at all times while working on Railroad right-of-way in high density rail traffic area.

2) Crossing of any Railroad tracks must be done at approved locations and must be full depth timber, rubber, etc. Any equipment with steel wheels, lugs or tracks must not cross steel rails without the use of rubber tires or other approved protection. This shall apply specifically to, but not be limited to, access for Contractor furnished gravel, borrow or waste sites. The Contractor will be required to obtain a permit from the Railroad, and comply with any provisions thereof, before using any private Railroad crossings. All track crossing locations must be covered by a Private Roadway and Crossing Agreement. This does not apply to any public crossing.

3) Costs of flagging or planking protection of the tracks, which are a direct result of the planned construction, will be paid for by the State. Costs of flagging, planking for protection of the tracks, installation of new crossings or other work caused by the Contractor's discretion, will be paid by the Contractor.

4) When work to be performed by the Contractor is not covered in the Railroad/Highway agreement, the Contractor must furnish a plan to the Railroad for approval showing details as to how any work that may affect the Railroad will be accomplished.

5) Storing of construction materials or any other material, including dirt, sand, etc., within the Railroad right-of-way, will not be allowed unless covered by an easement, construction permit, or Contractor's permit/lease.

6) Construction within 25 feet (7.62 meters) of the center of any track not covered by the Railroad/Highway agreement will require plan approval and authorization by the Railroad Superintendent Maintenance and Engineering. This includes, but is not limited to, any excavation, slope work and driving of sheet piling.

7) No vehicles, equipment or machines shall be parked or stored unattended within 25 feet (7.62 meters) of any track, on railroad right-of-way, without specific written approval of the Railroad.

8) When any work is to be performed on Railroad property by the Contractor that is not shown in the construction plans, the Contractor must submit a detailed plan of the work to the Railroad for their approval.

CONTRACTOR'S ACKNOWLEDGMENT:

_____
Company

By: _____
Name

_____
Title

_____
Date

WORK SITE LOCATION:

_____
Town

_____
State

_____
Project #

Rev. 01/01/04

SPECIAL PROVISION
TABLE OF CONTRACTOR SUBMITTALS
(Revised 3-12-20)

This Table of Contractor Submittals summarizes the minimum required submittals. The table references and notes any revisions to the Standard and Supplemental Specifications and clarifies the submittal process. The table may not be all-inclusive and does not include submittals required by other Special Provisions. Provide all submittals required by the contract, including those not listed in the table. If a discrepancy exists, submittals required by other Special Provisions in the Contract supersede this Table of Contractor Submittals.

All submittals go to the Project Manager. (.PDF) documents and electronic storage devices are encouraged in lieu of hard copies. Submit copies as a complete document for each type submitted. Contractors may also use MDT's FTP site for documental submittals. Contact the Project Manager for information on using the FTP site and documents requiring signatures.

Submittals to Contract Plans and required as part of the bidding and award process are not included in this Table. Refer to Subsections 105.03.4 and 105.04 for more information.

The forms required below can be obtained from the MDT Internet Website (http://www.mdt.mt.gov/publications/forms/const_forms.shtml) or from the Project Manager.

SPECIFICATION REFERENCE	DESCRIPTION	TIMING
103.07	Contract Recipients Form link: https://www.mdt.mt.gov/publications/forms/contract-recipients.shtml	5 calendars days after date of bid opening
103.09	Bid Documentation Inventory Affidavit and Escrow Agreement	7 business days after date of bid opening
103.10	Subcontractor Report (form MDT-CON-102-8)	6 calendar days after date of bid opening
104.05.3	Approval of detour bridge	20 business days before starting the work
104.05.4(B)	Winter shutdown inspection (form MDT-CON-104-05-4)	3 calendar days after inspection
104.06.2	Encroachment permit (form MDT-MAI-007)	See Subsection 105.02
104.08	Value Engineering Proposal	Specified in proposal
105.02	Working drawings for required work not included in the contract plans	20 business days before starting work
105.08	Request for staking (form MDT-CON-105-08-1)	48 hours before staking
105.08.2(A)	Survey plan	14 calendar days prior to survey work
105.08.2(C)	Culvert length notes (form MDT-CON-603-03-1)	See Subsection 105.02

AWARD COPY

SPECIFICATION REFERENCE	DESCRIPTION	TIMING
105.08.2(G)	Notes of layout, primary controls and references	10 business days upon completion of function
105.08.4	Original bridge survey notes	Upon request
105.08.4	Structure excavation cross section notes	24 hours before excavation
105.08.4	Corrections due to Contractor errors	2 business days before performing corrective work
105.08.6	Notification of a completed section, to request finish grade check	The day a section is completed
105.15	Component inspection (form MDT-CON-105-15-1)	10 business days from inspection
105.16.1	Notice of claim (form MDT-CON-105-16-1A)	1 business day as described in Subsection 105.16.1
105.16.2	Submission of certified claim (form MDT-CON-105-16-2)	7 calendar days after response from Project Manager
105.17.1	Final walk-through request (form MDT-CON-105-17-1B)	See Subsection 105.17.1
	Final walk-through verification request (form MDT-CON-105-17-1D)	
105.17.2	Contractor's certificate of work complete (form MDT-CON-17-2)	See Subsection 105.17.2
106.01.1	Source of supply	20 business days before incorporating
106.02	Proposed Aggregate Source (form MDT-CON-106-02-3)	7 calendar days after bid opening
106.02.2	Contractor/Landowner agreements	Before crushing or placing borrow
106.02.5(B)	Open Cut Mining Permit	Before removing regulated material
106.06	Documentation required by the QPL	Prior to incorporating into work
106.09	Domestic materials (form 406)	Before incorporation into work
107.06	Public safety	2 calendar days before starting that type of work
107.07(A)	Contractor's requirements and acknowledgement for working on RR ROW	Before entering or using RR ROW
107.08	Bridge formula calculations, drawing of axle spacing, tare weight and overall length of trucks	Before transporting material or equipment
107.11.1	Copies of approved environmental permits or authorizations	Before starting work requiring permit
	Correspondence to or from regulatory agencies	7 calendar days of sending or receiving noncompliance
107.11.2	404 Permit and/or SPA 124	3 copies; 60 calendar days before starting regulated work
	Tribal Water Quality Permit	3 copies; 60 calendar days before starting regulated work

AWARD COPY

SPECIFICATION REFERENCE	DESCRIPTION	TIMING
107.11.2	Completed contractor's borrow source worksheet, when the project involves a U.S. Army Corps of Engineers Nationwide Permit.	Before placing borrow
	Montana DEQ for Clean Water Act Section 401 Certification, when project Involves a U.S. Army Corps of Engineers Nationwide Permit.	Concurrent with submittal to DEQ
107.22	Contractor furnished material sites outside of Department R/W	Concurrent with permitting process.
108.01.3	Payment information for all subcontractors to Civil Rights (https://app.mdt.mt.gov/spr//)	Within time frames stated in Special Provision
108.03.1	Copies of completed applications for all permits, approvals, clearances	Upon receipt of notice of award
	Approved permits, reclamation plans, and clearances	Upon receipt of approved permits
	Request to perform night work	24 hours before starting work
108.03.2	Activities schedule chart / written narrative	Upon receipt of Notice of Award, and updates required in accordance with Subsection108.03.2
108.03.3	CPM electronic and printed schedule	Upon receipt of Notice of Award, and updates required in accordance with Subsection 108.03.2
	Electronic schedule monthly update	One week before the end of prior estimate cycle
108.07.3	Protest of time assessment	5 business days upon receipt of Time Assessment
108.07.5	Request for time extension	10 Business days from time of alleged delay
108.07.6	Request for delay compensation, daily records, reports, summaries	30 calendar days from time of alleged delay
108.08	Objections of the assessment of Liquidated Damages	Within 30 calendar days of receipt of Departments notification
108.10.2	Claim for termination costs	60 calendar days after termination date
109.11	Fuel price adjustments is optional, if participation is requested, submit the fuel price adjustment worksheet (form MDT-CON-109-11)	At the preconstruction conference or by Notice to Proceed Date, whichever comes first
201.03.5	Disposal location of non-salvageable treated timber	Upon request
201.03.5(A)	Approval of burning pit locations within ROW	
201.03.5(B)	Approval to incorporate non-hazardous solid material into the work	
202.03(B)	Removal or salvage of bridges	20 business days prior to removal
203.03.2(B)	Certified laboratory test for field cured cylinders	After 10-day cure or 70% strength
	Method to support structure / early embankment placement	Before early placement
204.03.1	Blasting Consultant	7 calendar days before the pre-construction conference

AWARD COPY

SPECIFICATION REFERENCE	DESCRIPTION	TIMING
204.03.3	Master Blasting Plan (form MDT-CON-204-03-3)	Min. 10 business days before test or production operations.
204.03.3(A)	Report of Blasting (form MDT-CON-204-03-3A)	Min. 10 business days before test or production operations.
	Individual Production Blast Plan for subsequent blasts	Min. 4 business days prior to planned blast day
204.03.3(B)	Safety Plan	Min. 10 business days before test or production operations.
	Blast log, explosive consumption and loss report	Daily during blasting operations
204.03.3(B)9(b)	Contact list	Min. 10 business days before test or production operations
204.03.5(C)	Misfires	Within 24 hours of blast
204.03.7(B)	Discrepancies	Submit with the Weekly Blasting Logs
204.03.9(A)	Drilling Logs	Daily
204.03.9(B)	Blasting Logs	Weekly
204.03.10(A)	Pre-Blast Condition Survey	Prior to the start of blasting operations
204.03.10(B)	Post Blast Condition Survey	Within 48 hours of completing the survey
204.03.10(C)	Vibration Control Monitoring	Min. 10 business days before test or production operations
206.03.3	Detour bridge design and calculations	20 business days before constructing detour bridge
207.03.6	Foundation preparation, use of CLSM	Min. 5 business prior to use
208.03	Completed SWPPP inspection reports	Per permit requirements
	Non-compliance reports (self-reporting) to DEQ and all related correspondence to and from DEQ	Within 14 calendar days of date of correspondence
208.03	Completed MPDES permit transfer package	3 copies; Within 14 calendar days of receipt of DEQ notification
208.03.2	signed NOI for the DEQ Stormwater Permit and NOI confirmation	3 copies; Before earth disturbing activities
	signed SWPPP for EPA Stormwater Permit and NOI confirmation	
208.03.2(D)	Erosion control plan	Before earth disturbing activities
208.03.3(C)	Bridge removal plans	45 calendar days before removal
209.03.3	Drawings and calculations for cofferdam and dewatering	20 business days before start of cofferdam work
	Request to increase seal depth	Before starting work
209.03.5	Footing rod soundings	Upon request

AWARD COPY

SPECIFICATION REFERENCE	DESCRIPTION	TIMING
301.03.7	Traffic gravel- use of millings	Before starting placement
301.03.8	Aggregate treatment	
304.02.5	CTB mix design	10 business days before starting production
401.02.4	Additives for Warm mix	20 business days before warm mix production
401.03	Job mix targets (form MDT-CON-401-03)	Prior to 2000 tons production of plant mix,
401.03.1	Plant mix design	Min. 30 calendar days prior to production
401.03.8	Approve weighing equipment	Upon request
401.03.10	use of EPA-UOF, certified test results	Per load delivered to the project
401.03.12	Calibration Checks with asphalt specific gravity test report	During calibration
401.03.13	Print of permanent record - submitted daily	Daily
401.03.18	Approval to pave between November 1st and April 15th	Before paving after November 1st
402.03.5	Acceptance of bituminous materials, bill of lading	Upon receipt of shipment
402.03.6	Temperature viscosity of each asphalt used on project	Before starting production
402.03.8	Notification of change to PGAB components	Before making changes
402.03.8(A)	PGAB shipping, handling & storage requirements	Before delivery
403.03.1	Blotter Material – type and application rate	10 calendar days before starting operations
409.01.1	Notification of seal coat work prior to July 4 and from August 21st through August 31st	Before starting work
409.02.1	Compatibility tests for each aggregate source	Before starting, for information only
409.03.2	Application rates, conditions and changes	Before starting, for information only
409.03.8	Detailed repair plan	14 calendar days of notification of required repairs
501.03.21	Accelerated paving techniques	7 calendar days before use
551.03.2(A)	Proposed concrete mix design (form MDT-MAT-008)	15 business days before use
551.03.2(B)	Batching sequence for deck and overlay class concrete	Submit with mix design
551.03.2(E)	CLSM mix design	14 calendar days before start of production
551.03.3(A)	Quality Control	Upon request

AWARD COPY

SPECIFICATION REFERENCE	DESCRIPTION	TIMING
551.03.6(A)	Hot weather concrete plan	15 calendar days prior to placement
551.03.6(B)	Cold weather concrete plan	15 calendar days prior to placement
551.03.6(B)(3)	Protection of concrete – temperature recording device	daily
551.03.7	Alternate curing methods	Before start of production
551.03.8(C)	Procedure to evaluate failed in-place concrete	3 calendar days of notification of required repairs
551.03.8(B)(4)	Concrete-small quantities - batch proportion sheet	Before start of production
553.02.2	Reinforcing steel substitutions	Before starting production
553.02.4	Certified copy of typical load - elongation curves	Before starting production
553.03.1	Fabrication plant certification for pre-stressed concrete members	Min. 20 business days prior to production
553.03.1	Approval to change pre-stressing details	Refer to Subsection 105.02
553.03.2	Fabrication drawings and design	
553.03.3	Submit concrete mix design for girders	
553.03.7	Alternate pre-tensioning initial loading proposals	
	Elongation calculations	Before starting production
553.03.8(C)	Method of tensioning draped strands	Refer to Subsection 105.02
553.03.9(A)1	Concrete batch sheets	Before starting production
553.03.12	Post tensioning records	During production
554.03.1	Fabrication drawings-precast concrete products excludes box culverts	Refer to Subsection 105.02
554.03.2	Proposed mix design	Before starting fabrication. Refer to Subsection 551.03.2
554.03.6	Procedure for curing by other methods	Before use
555.03.2	Special fabrication or bends exceeding 90 degrees for #14S and #18S	Before fabrication (See Subsection 106.09)
555.03.3	Request to weld reinforcing steel	Before starting placement

AWARD COPY

SPECIFICATION REFERENCE	DESCRIPTION	TIMING
555.03.5	Shipping invoice	Each shipment & before placement (See Subsection 106.09)
	Certified mill test reports	
	Fabricator certification statement for mill tests	
	Certificate of compliance for epoxy coating	
556.03.1	Modifications to quality assurance and control program	20 business days prior to beginning fabrication
556.03.2	Fabrication drawings for steel structures	Refer to Subsection 105.02
556.03.2(B)	Certificate of compliance, for all bolts, nuts and washers	Before placement into work (See Subsection 106.09)
556.03.3(4)	Mill test reports	
556.03.5	Quality control plan	20 business days prior to fabrication
556.03.8(B)(1)	Pre-installation verification	Before placement into work
556.03.12	Erection diagram	Each shipment
556.03.14	Steel erection plan	14 calendar days prior to construction of superstructure
556.03.15	Falsework plans	Refer to Subsection 105.02
557.03.1	Fabrication drawing for steel bridge railing	
558.03.1	Drilled shaft ASC and WN	20 business days before start of drilling
558.03.7	Field welding permanent casing	20 business days prior to welding
558.03.9	Obstruction removal	Within 2 business days of encountering obstruction
558.03.13	Concrete placement record	After completion of the pour
558.03.15(B)	Drilled shaft corrective action	14 calendar days after notification
559.02.1	Mill tests for steel piles	Each shipment & before driving (See Subsection 106.09)
559.03.1(A)	Hammer manufacturers chart	20 business days before driving
	Calibrated chart	14 calendar days before use
559.03.2	Wave equation analysis	20 business days before driving
	Pile driving equipment (form MDT-CON-559-03-2)	
559.03.3(B)(1)	Plans for proposed loading system	20 business days before test

AWARD COPY

SPECIFICATION REFERENCE	DESCRIPTION	TIMING
559.03.3(B)(2)	Pile specialty consultant resume (Dynamic Load testing)	20 business days before load testing
	Graph and report	Within 48 hours of completion of test
559.03.4	Plan for correcting pile out of alignment	Within 2 working days after driving
561.03.1	Bridge deck milling plan	14 calendar days before starting work
561.03.3	Hydrodemolition records and settings	Prior to beginning work
562.03.1	Bridge deck repair requirements	14 calendar days before starting work
562.03.6(A)	Description for sequence and equipment for repair concrete	
563.03.1	Modified concrete overlay submittals	10 business days before concrete placement
564.03	Corrective action - tolerances	Before proceeding after deficiency is found
565.03.1	Bearing devices shop drawings	20 business days before fabrication
603.03.1	Optional pipe material	7 calendar days before the pre-construction conference
605.03.1	Fabrication submittals	10 business days before casting members
606.03.1	Manufacture's installation instruction for guardrail terminal sections and impact attenuators.	15 calendar days prior to installation, if requested
	Submit form MDT-CON-606-03	Prior to installing items (See Subsection 106.09)
611.02.4	Fabrication drawings for cattle guards	20 business days before fabrication
612.02	Product data sheets	20 business days before starting work
612.03.1(A)	Description of coating system	
612.03.1(B)	Pollution controls (Per OSHA & EPA)	7 calendar days before the pre-construction conference
616.03.1	CLSM mix design for trenching	14 calendar days before start of production
617.03.2	Equipment list and drawings	20 business days before beginning work
617.03.17	Accessible pedestrian signals, voice message detail sheet	Submit with electrical submittals
618.03.2	Traffic control plan	7 calendar days before the pre-construction conference
618.03.2(A)	Documentation for NCHRP 350 or MASH requirements (form MDT-CON-618-02)	With the traffic control plan
618.03.2(A)(9)	Written narrative	7 calendar days before the pre-construction conference.
618.03.2(B)	Traffic control updates	As described in Subsection 618.03.2 B

AWARD COPY

SPECIFICATION REFERENCE	DESCRIPTION	TIMING
618.03.4	Name of person responsible for traffic control	At the pre-con conference
618.03.6	Request for access break approval (form MDT-CON-618-03-6)	Before starting work
618.03.7(B)	Temporary crossing proposal	With traffic control plan and written narrative
618.03.13	Contractor's proposed speed limits (if different than Table 618-5)	5 calendar days before installation
619.03.2	Shop drawings / weld procedures/design calculations for, sign bridges, overhead cantilever sign structures, and overhead sign structural components and mounting hardware	Refer to Subsection 105.02
	Manufacturers installation instructions for square tubular sign posts	15 calendar days before installation
	Weld procedures, every 6 months or whenever changed or modified	Upon request
619.03.3	Manufacturer’s installation instructions	15 calendar days before installation
620.03.1	Manufacturer's material certifications	Before application
620.03.3	Calibration certification	
620.03.7(A)	Manufacturer’s instructions	24 hours before application
620.03.10	Proposed method for pavement marking removal	10 calendar days before use
622.02.2	Geotextile information	Before Installation
622.02.4	Manufacturer's certificate of compliance	Upon arrival on the project
622.03.1	Seam assembly description	With sample, before installation
623.02	NCHRP 350 or MASH compliant support certification	Before installation
624.03.3	Welding certification	20 business days before welding
701.11	Glass cullet certification	Upon request
704.01.10(C)	Manufacturer's certification	Each shipment, before application
707.03.2	Manufacturer's certification for rubber waterstops	Upon request
707.03.3	Manufacturer's certification	Each shipment, before application
709.02	Water tightness test method	Before testing
709.03	Supplier's itemized statement of plate sizes	Each shipment, before installation

AWARD COPY

SPECIFICATION REFERENCE	DESCRIPTION	TIMING
710.02	Manufacturer’s MSDS	Before applying
710.03	Manufacturer’s certification for powder coating	
711.15	Manufacturer's certification for preformed joint seal	Before installation
711.16	Manufacturer's certification for fiber reinforced pads	
711.18	Mechanical rebar connectors product data sheet	
712.02.2	Certification that wire meets AASHTO M 280 requirements	
713.08	Written waiver, notification of seed source and approximate start date	Before application
713.11	Product data sheet	Before installation

AWARD COPY

CURRENT DATE OF REVISION
MT 100 SECTION
CONCRETE

Test Method No.	Title	Pages	Date of Publication or Revision
MT 100	Contractor Submitted Concrete Mix Design	3 pp	Dec 2017
MT 101	Making and Curing Compressive and Flexural Strength Test Specimens in the Field	1 pp	Dec 2015
MT 102	Eliminated *(Use AASHTO T 152 Air Content of Freshly Mixed Concrete by the Pressure Method)*		
MT 103	Measuring the Thickness of In-Place Concrete by Use of Concrete Thickness Gauge	3 pp	Mar 2007
MT 104	Eliminated *(Use AASHTO T 119 Slump of Hydraulic Cement Concrete)*		
MT 105	Eliminated *(Use AASHTO R 60 Sampling Freshly Mixed Concrete)*		
MT 106	Eliminated *(Use AASHTO T 148 Measuring Length of Drilled Concrete Cores)*		
MT 107	Eliminated *(Use AASHTO T 196 Air Content of Freshly Mixed Concrete by the Volumetric Method)*		
MT 108	Sampling and Certification of Portland Cement	2 pp	Jun 2004
MT 109	Method for Sampling Water	1 pp	Jun 2004
MT 110	Reinforced Concrete Pipe and Other Precast Items	4 pp	Jan 2012
MT 111	Sampling, Inspection and Reporting on Prestressed Structural Members	3 pp	Jan 2012
MT 112	Eliminated *(Use AASHTO T 24 Obtaining and Testing Drilled Cores and Sawed Beams of Concrete)*		
MT 113	Eliminated *(Use ASTM E965 Measuring Pavement Macrotexture Depth Using a Volumetric Technique)*		
MT 114	Sampling for Chloride Content of Bridge Deck Concrete	3 pp	Feb 2010
MT 115	Eliminated *(Use AASHTO T 121 Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete)*		
MT 116	Eliminated *(Use AASHTO T 347 Slump Flow of Self-Consolidating Concrete (SCC))*		
MT 117	Making and Curing Concrete Compressive and Flexural Strength Specimens in the Field for Self-Consolidating Concrete (SCC)	1 pp	Jun 2017
MT 118	Eliminated *(Use AASHTO T 152 Air Content of Freshly Mixed Concrete by the Pressure Method)*		
MT 119	Moisture Correction for Concrete Mix Designs (formerly MT 506)	1 pp	Jun 2004
MT 120	Vacant		
MT 121	Effect of Organic Impurities in Fine Aggregate on Strength of Mortar	1 pp	Jun 2016
MT 122	Optimized Aggregate Gradation for Hydraulic Cement Concrete Mix Designs (formerly MT 215)	6 pp	Jan 2017

CURRENT DATE OF REVISION
MT 200 SECTION
SOIL AND AGGREGATE

Test Method No.	Title	Pages	Date of Publication or Revision
MT 200	Vacant *(Use AASHTO R 58 Dry Preparation of Disturbed Soil and Soil-Aggregate Samples for Test)*		
MT 201	Sampling Roadway Materials	7 pp	Oct 2013
MT 202	Sieve Analysis for Fine and Coarse Aggregate	9 pp	Nov 2011
MT 203	Eliminated *(Use AASHTO T 19 Bulk Density (Unit Weight) and Voids in Aggregate)*		
MT 204	Eliminated *(Use AASHTO T 84 Specific Gravity and Absorption of Fine Aggregate)*		
MT 205	Eliminated *(Use AASHTO T 85 Specific Gravity and Absorption of Coarse Aggregate)*		
MT 206	Vacant (ELIMINATED)		
MT 207	Centerline Soil Survey	10 pp	Jun 2004
MT 208	Eliminated *(Use AASHTO T 89 Determining the Liquid Limit of Soils and AASHTO T 90 Determining the Plastic Limit and Plasticity Index of Soils)*		
MT 209	Eliminated *(Use AASHTO T 96 Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine)*		
MT 210	Moisture-Density Relations of Soils Using 5.5 lb. Rammer and 12 In. Drop	1 pp	Dec 2016
MT 211	Eliminated *(Use AASHTO T 134 Moisture-Density Relations of Soil-Cement Mixtures)*		
MT 212	Determination of Moisture and Density of In-Place Materials	5 pp	Sep 2018
MT 213	Eliminated *(Use AASHTO T 176 Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test)*		
MT 214	Eliminated *(Use AASHTO M 145 Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes)*		
MT 215	Vacant (moved to MT 122)		
MT 216	Method of Sampling and Testing Cement Treated Base	5 pp	Oct 2013
MT 217	Eliminated *(Use AASHTO T 335 Determining the Percentage of Fracture in Coarse Aggregate)*		
MT 218	Determining Relative Compaction and Percent Moisture	2 pp	Jun 2004
MT 219	Controlling Compaction Using a Control-Strip Test-Section Technique with Nuclear Gauges	3 pp	Aug 2019
MT 220	Eliminated *(Use AASHTO T 100 Specific Gravity of Soils)*		
MT 221	Eliminated *(Use AASHTO T 255 Total Evaporable Moisture Content of Aggregate by Drying)*		
MT 222	Eliminated *(Use AASHTO T 191 Density of Soil In-Place by the Sand-Cone Method)*		
MT 223	Eliminated *(Use AASHTO T 112 Clay Lumps and Friable Particles in Aggregate)*		
MT 224	Vacant (ELIMINATED)		
MT 225	Vacant (ELIMINATED)		
MT 226	Maximum Acceptable Deviations in Sieve Analysis of IA Samples	1 pp	Dec 2016
MT 227	Eliminated *(Use AASHTO T 265 Laboratory Determination of Moisture Content of Soils)*		

CURRENT DATE OF REVISION
MT 200 SECTION
SOIL AND AGGREGATE

Test Method No.	Title	Pages	Date of Publication or Revision
MT 228	Method of Establishing Field Target Density for Cement Treated Base Density Control	1 pp	Oct 2013
MT 229	Procedure for Solids-Water-Voids Relations of Soil Masses	12 pp	Sep 2015
MT 230	Moisture-Density Relation of Soils Using a 10 lb Rammer and 18 In. Drop	1 pp	Dec 2016
MT 231	Vacant (ELIMINATED)		
MT 232	Soil Corrosion Test	3 pp	Dec 2016
MT 233	Eliminated *(Use AASHTO T 327 Resistance of Coarse Aggregate to Degradation by Abrasion in the Micro-Deval Apparatus)*		

CURRENT DATE OF REVISION
MT 300 SECTION
HOT MIX PAVEMENT

Test Method No.	Title	Pages	Date of Publication or Revision
MT 301	Vacant		
MT 302	Sampling and Testing Bituminous Materials	2 pp	Jul 2014
MT 303	Sampling Bituminous Paving Mixtures	3 pp	Jul 2014
MT 304	Moisture Test on Plant Mix Bituminous Surfacing Aggregates	2 pp	Jul 2014
MT 305	Volume Swell of Bituminous Mixtures	6 pp	May 2009
MT 306	Vacant		
MT 307	Vacant		
MT 308	Vacant		
MT 309	Eliminated *(Use AASHTO R 47 Reducing Samples of Hot Mix Asphalt to Testing Size)*		
MT 310	Determining the Macro-Texture of a Pavement Surface	6 pp	Dec 2017
MT 311	Vacant		
MT 312	Eliminated *(Use AASHTO T 329 Moisture Content of Asphalt Mixtures by Oven Method)*		
MT 313	Vacant		
MT 314	Eliminated *(Use AASHTO T 166 Bulk Specific Gravity (Gmb) of Compacted Asphalt Mixtures Using Saturated Surface-Dry Specimens)*		
MT 315	Vacant		
MT 316	Method of Sampling Recycled Pavement and Field Control of Recycle Paving	5 pp	Jun 2004
MT 317	Vacant		
MT 318	Vacant		
MT 319	Determining the Asphalt Binder Content of Plant Mix Surfacing (PMS) by the Ignition Method	6 pp	Sep 2017
MT 320	Mechanical Analysis of Aggregate Recovered from Ignition Oven Burn	1 pp	Jun 2017
MT 321	Determining Theoretical Maximum Specific Gravity of Bituminous Paving Mixtures - "Rice Gravity"	4 pp	Jun 2017
MT 322	Method of Determining the Percent of Adhesion of Bituminous Materials to Aggregate	2 pp	Oct 2004
MT 323	Vacant		
MT 324	Vacant		
MT 325	Vacant (ELIMINATED)		
MT 326	Vacant		
MT 327	Vacant		

CURRENT DATE OF REVISION
MT 300 SECTION
HOT MIX PAVEMENT

Test Method No.	Title	Pages	Date of Publication or Revision
MT 328	Establishing Field Target Density for Plant Mix Surfacing Density Control	1 pp	Jul 2014
MT 329	Procedure for Evaluating Plant Mix Surfacing Failures	5 pp	Jun 2004
MT 330	Vacant		
MT 331	Sampling and Evaluating Stripping Pavements	7 pp	Jul 2014
MT 332	Gyratory Compaction of Bituminous Mixtures.	2 pp	Jun 2017
MT 333	Method of Test for the Torsional Recovery of Latex Modified Asphalt Emulsion Residue	3 pp	Jun 2004
MT 334	Method of Test for Hamburg Wheel-Track Testing of Compacted Bituminous Mixtures	4 pp	Dec 2017
MT 335	Linear Kneading Compaction of Bituminous Mixtures	2 pp	Jul 2014
MT 336	Vacant		
MT 337	Vacant (ELIMINATED)		
MT 338	Eliminated *(Use ASTM D6390 Determination of Draindown Characteristics in Uncompacted Asphalt Mixtures*)		

CURRENT DATE OF REVISION
MT 400 SECTION
MISCELLANEOUS MATERIALS AND TEST METHODS

Test Method No.	Title	Pages	Date of Publication or Revision
MT 401	Sampling and Inspecting Corrugated Aluminum Pipe	pp 1-2	May 2007
MT 402	Sampling and Testing Corrugated Steel Pipe	pp 1-2	Jun 2004
MT 403	Sampling and Inspection of Seeding and Landscaping Materials	pp 1-3	Jun 2004
MT 404	Inspecting Wood Products	pp 1	Jun 2004
MT 405	Wire Cloth Sieves for Testing Purposes	pp 1-4	Jun 2004
MT 406	Sampling and Inspection of Signing Material and Signs	pp 1-5	Jun 2004
MT 407	Method of Test for High Strength Bolts	pp 1-4	Sep 2005
MT 408	Method of Sampling and Field Testing Liquid Deicing Material	pp 1-4	Feb 2010
MT 409	Welded Stud Shear Connectors		Under Development
MT 410	Inspection, Sampling, Testing and Acceptance of Paint	pp 1-3	Jun 2004
MT 411	Vacant		
MT 412	Topsoil Sampling, Sample Preparation and Testing	pp 1-2	Sep 2018
MT 413	Inspection of Fencing Materials	pp 1-2	Sep 2005
MT 414	Method of Acceptance for Reinforcing Steel	pp 1-5	Jun 2009
MT 415	Structural Steel		Under Development
MT 416	Vacant		
MT 417	Vacant		
MT 418	Method of Acceptance for Miscellaneous Welded Items	pp 1	Jun 2004
MT 419	Vacant		
MT 420	Procedure to Check for Leaks Under Hydrostatic Pressure	pp 1-3	Jun 2004
MT 421	Sampling Construction Fabrics	pp 1-2	Jun 2009
MT 422	Method of Test for Surface Smoothness and Profile	pp 1-4	Apr 2012

CURRENT DATE OF REVISION
MT 500 SECTION
CHEMISTRY

Test Method No.	Title	Pages	Date of Publication or Revision
MT 501	pH, Insoluble Materials, Corrosion Rate, Percent Settleable Solids and Percent Passing a #10 Sieve of Brine Materials	1 pp	Jun 2016
MT 502	Elemental Chemical Analysis Of Brine Materials	7 pp	Sep 2016
MT 503	Vacant		
MT 504	Cyanide In Brine Material		Under Development
MT 505	Vacant		
MT 506	Vacant		
MT 507	Vacant		
MT 508	Vacant		
MT 509	Vacant		
MT 510	Vacant		
MT 511	Vacant		
MT 512	Vacant		
MT 513	Vacant		
MT 514	Vacant		
MT 515	Vacant		
MT 516	Vacant		
MT 517	Vacant		
MT 518	Vacant		
MT 519	Vacant		
MT 520	Determination of Wear Metals in Engine Oil		Under Development
MT 521	Determination of Red Dye #26 in Diesel Fuel	1 pp	Sep 2016
MT 522	Vacant		
MT 523	Vacant		
MT 524	Vacant		
MT 525	Mechanical Rocker Test for Ice Melting Capacity for Deicing Material	5 pp	Aug 2019
MT 526	Moisture Analysis of PNS Category 8A, 8B, and 8C Solid Sodium Chloride	2 pp	Jun 2016
MT 527	Vacant		
MT 528	Vacant		
MT 529	Vacant		

CURRENT DATE OF REVISION
MT 500 SECTION
CHEMISTRY

Test Method No.	Title	Pages	Date of Publication or Revision
MT 530	Determination of Chloride in Bridge Deck Cement by Ion Chromatography	5 pp	Dec 2016
MT 531	Vacant		
MT 532	Determination of Sulfate Content in Soils by Ion Chromatography	4 pp	Dec 2016
MT 533	Chemical Analysis of Fly Ash and Pozzolans	9 pp	Sep 2016
MT 534	Chemical Analysis of Portland Cement	8 pp	Jun 2016
MT 535	Bridge Deck Crack Sealant IR Test		Under Development
MT 536	Chemical Analysis of Silica Fume	1 pp	Jun 2016
MT 537	Chemical Analysis of Ground Granulated Blast-Furnace Slag (GGBFS)	4 pp	Sep 2016
MT 538	Chemical Analysis of Blended Cement	9 pp	Sep 2018
MT 539	Vacant		
MT 540	Vacant		
MT 541	Vacant		
MT 542	Vacant		
MT 543	Vacant		
MT 544	Vacant		
MT 545	Vacant		
MT 546	Vacant		
MT 547	Vacant		
MT 548	Analysis of Traffic Paint	7 pp	Jun 2016

CURRENT DATE OF REVISION
MT 600 SECTION
INFORMATION AND FIELD SAMPLING PROCEDURES

Test Method No.	Title	Pages	Date of Publication or Revision
MT 601	Materials Sampling, Testing and Acceptance Guide Index	117 pp	Dec 2019
MT 602	Independent Assurance and Final Record Sampling	6 pp	Jun 2017
MT 603	Definitions	7 pp	Dec 2016
MT 604	Conversion Tables	1 pp	Jun 2004
MT 605	Samples and Certifications	1 pp	Jun 2004
MT 606	Random Sampling Techniques	8 pp	Jun 2004
MT 607	Procedure for Reducing Field Samples to Testing Size	3 pp	Jun 2004
MT 608	Voids Table	1 pp	Jun 2004
MT 609	Field Numbering Concrete Cylinders	2 pp	Feb 2016
MT 610	Numbering Subgrade Material, Surfacing Material, Bituminous Treated Material and Liquid Asphalt	1 pp	Jun 2004
MT 611	A Guide for Laboratory Forms	2 pp	Jun 2004

FHWA-1273 -- Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

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

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

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

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

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

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

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

II. NONDISCRIMINATION

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

6. Training and Promotion:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

III. NONSEGREGATED FACILITIES

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

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

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

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

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

1. Minimum wages

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

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

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

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

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

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

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

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

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

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

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

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

2. Withholding

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

3. Payrolls and basic records

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

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

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

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

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

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

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

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

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

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

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

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

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

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

b. Trainees (programs of the USDOL).

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

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

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

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

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

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

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

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

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

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

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

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

10. Certification of eligibility.

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

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

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

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

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

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

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

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

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

VI. SUBLETTING OR ASSIGNING THE CONTRACT

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

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

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

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

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

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

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

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

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

VII. SAFETY: ACCIDENT PREVENTION

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

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

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

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

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

* * * * *

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the

department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

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

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

Supplemental Revisions for FHWA Form-1273 (Dated May 1, 2012)
Required Contract Provisions
Federal-Aid Construction Contracts

The following are supplementary or amendatory to the May 1, 2012, FHWA Form-1273 insofar as they apply to this contract:

Add the following provisions in accordance with the FHWA memo dated December 11, 2015:

Utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

Furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in above paragraph to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

SPECIAL PROVISIONS
Rev. 3-15-02
EEO AFFIRMATIVE ACTION REQUIREMENTS ON
FEDERAL & FEDERAL-AID CONSTRUCTION CONTRACTS

Federal-aid contractors are hereby notified they are subject to the OFCCP goals and timetables for minority and female participation expressed below. Compliance with the goals and OFCCP affirmative action efforts for contracts and subcontracts consisting of $10,000 or more will be determined by OFCCP officials.

APPENDIX A

Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246)

1. The Offeror's or Bidder's attention is called to the Equal Opportunity Clause and "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

GOALS FOR FEMALE PARTICIPATION EACH TRADE	6.9%
TIMETABLES	GOALS FOR MINORITY PARTICIPATION IN EACH TRADE
153 Great Falls, MT	
SMSA (Standard Metropolitan Statistical Area) Counties	
3040 Great Falls, MT	3.2%
Cascade County	
Non-SMSA Counties	4.1%
Blaine, Broadwater, Chouteau, Fergus, Glacier, Hill, Jefferson, Judith Basin, Lewis & Clark, Liberty, Meagher, Petroleum, Phillips, Pondera, Teton, Toole, Valley, Wheatland	
154 Missoula, MT	
Non-SMSA Counties	2.7%
Beaverhead, Deer Lodge, Flathead, Granite, Lincoln, Madison, Mineral, Lake Missoula, Powell, Ravalli, Sanders, Silver Bow	
155 Billings, MT	
SMSA Counties	
0880 Billings, MT	3.3%
Yellowstone County	
Non-SMSA Counties	3.3%
Big Horn, Carbon, Carter, Custer, Dawson, Fallon, Gallatin, Garfield, Golden Valley, McCone, Musselshell, Park, Powder River, Prairie, Rosebud, Stillwater, Sweet Grass, Treasure, Wibaux, Yellowstone Nat'l Park	
Non-SMSA Counties	
Daniels, Sheridan, Richland, Roosevelt	4.4%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.