Updated 05/15/2020

FEDERAL PROJECT

Effective May 15, 2020
Supersedes April 22, 2020

BIDDING INSTRUCTIONS

FOR ALL PROJECTS:

1. Use pen and ink to complete all paper Bids.
2. As a minimum, the following must be received prior to the time of Bid opening:

For a Paper Bid:

a) a copy of the Notice to Contractors, b) the completed Acknowledgement of Bid Amendments form, c) the completed Schedule of Items, d) two copies of the completed and signed Contract Offer, Agreement & Award form, e) a Bid Guaranty, (if required), and f) any other certifications or Bid requirements listed in the Bid Documents as due by Bid opening.

For an Electronic Bid:

NOTE: Not all projects accept Electronic Bids. Please review the Notice to Contractors and see if it specifically states that Electronic Bids will be accepted.

a) a completed Bid using Expedite® software and submitted via the Bid Express™ web-based service, b) an electronic Bid Guaranty (if required) or a faxed copy of a Bid Bond (with original to be delivered within 72 hours), and c) any other Certifications or Bid requirements listed in the Bid Documents as due by Bid opening.

3. Include prices for all items in the Schedule of Items (excluding non-selected alternates).
4. Bid Guaranty acceptable forms are:
   a) a properly completed and signed Bid Bond on the Department's prescribed form (or on a form that does not contain any significant variations from the Department's form as determined by the Department) for 5% of the Bid Amount or
   b) an Official Bank Check, Cashier's Check, Certified Check, U.S. Postal Money Order or Negotiable Certificate of Deposit in the amount stated in the Notice to Contractors or
   c) an electronic bid bond submitted with an electronic bid.

5. If a paper Bid is to be sent, "FedEx First Overnight" delivery is suggested as the package is delivered directly to the DOT Headquarters Building located at 16 Child Street in Augusta. Other means, such as U.S. Postal Service's Express Mail has proven not to be reliable.

IN ADDITION, FOR FEDERAL AID PROJECTS:

6. Complete the DBE Proposed Utilization form, and submit with your bid. If you are submitting your bid electronically, you must FAX the form to (207) 624-3431. This is a curable defect.

If you need further information regarding Bid preparation, call the DOT Contracts Section at (207) 624-3410.

For complete bidding requirements, refer to Section 102 of the Maine Department of Transportation, Standard Specifications, March 2020 Edition.

April 28, 2017
Supersedes November 05, 2014

NOTICE

The Maine Department of Transportation is attempting to improve the way Bid Amendments/Addendums are handled and allow for an electronic downloading of bid packages from our website, while continuing to maintain an optional plan holders list.

Prospective bidders, subcontractors or suppliers who wish to download a copy of the bid package and receive a courtesy notification of project specific bid amendments must fill out the on-line plan holder registration form and provide an email address to the MDOT Contracts mailbox at: MDOT.contracts@maine.gov. Each bid package will require a separate request.

Additionally, interested parties will be responsible for reviewing and retrieving the Bid Amendments from our web site, and acknowledging receipt and incorporating those Bid Amendments in their bids using the Acknowledgement of Bid Amendment Form.

The downloading of bid packages from the MDOT website is not the same as providing an electronic bid to the Department. Electronic bids must be submitted via http://www.BIDX.com. For information on electronic bidding contact Rebecca Snowden at rebecca.snowden@maine.gov or Diane Barnes at diane.barnes@maine.gov.

NOTICE

For security and other reasons, all Bid Packages which are mailed, shall be provided in double (one envelope inside the other) envelopes. The *Inner Envelope* shall have the following information provided on it:

Bid Enclosed - Do Not Open
PIN:
Town:
Date of Bid Opening:
Name of Contractor with mailing address and telephone number:

In Addition to the usual address information, the *Outer Envelope* should have written or typed on it:

Double Envelope: Bid Enclosed
PIN:
Town:
Date of Bid Opening:
Name of Contractor:
This should not be much of a change for those of you who use Federal Express or similar services.

Hand-carried Bids may be in one envelope as before, and should be marked with the following information:

Bid Enclosed: Do Not Open
PIN:
Town:
Name of Contractor:

October 16, 2001

STATE OF MAINE DEPARTMENT OF TRANSPORTATION

Bid Guaranty-Bid Bond Form

KNOW ALL MEN BY THESE PRESENTS THAT_____

_____, of the City/Town of_____and State of_____

as Principal, and_____as Surety, a

Corporation duly organized under the laws of the State of_____and having a usual place of

Business in_____and hereby held and firmly bound unto the Treasurer of

the State of Maine in the sum of_____,for payment which Principal and Surety bind

themselves, their heirs, executers, administrators, successors and assigns, jointly and severally.

The condition of this obligation is that the Principal has submitted to the Maine Department of Transportation, hereafter Department, a certain bid, attached hereto and incorporated as a part herein, to enter into a written contract for the construction of _____

_____

_____and if the Department shall accept said bid and the Principal shall execute and deliver a contract in the form attached hereto (properly completed in accordance with said bid) and shall furnish bonds for this faithful performance of said contract, and for the payment of all persons performing labor or furnishing material in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be null and void; otherwise it shall remain in full force, and effect.

Signed and sealed this_____day of_____20_____

WITNESS:

_____

_____

_____

PRINCIPAL:

By_____

By:_____

By:_____

WITNESS

_____

_____

_____

SURETY:

By_____

By:_____

Name of Local Agency: _____

SAMPLE

NOTICE

Bidders:

Please use the attached "Request for Information" form when submitting questions concerning specific Contracts that have been advertised for Bid, include additional numbered pages as required. RFI's may be faxed to 207-624-3431, submitted electronically through the Departments web page of advertised projects by selecting the RFI tab on the project details page or via e-mail to RFI-Contracts.MDOT@maine.gov.

These are the only allowable mechanisms for answering Project specific questions. Maine DOT will not be bound to any answers to Project specific questions received during the Bidding phase through other processes.

When submitting RFIs by Email please follow the same guidelines as stated on the "Request for Information" form and include the word "RFI" along with the Project name and Identification number in the subject line.

State of Maine
Department of Transportation

RFI No: _____

REQUEST FOR INFORMATION

Date _____ Time _____

Information Requested for:

WIN(S): _____ Town(s):_____Bid Date: _____

Question(s):_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Request by:

Company Name:_____**Phone:(_____)_____**

Email:_____**Fax: (_____)_____**

Complete this form and fax to 207-624-3431, Attn: Project Manager (name listed on the "Notice to Contractors"), or Email questions to RFI-Contracts.MDOT@maine.gov, Please include the word "RFI" along with the Project Name and Identification Number in the Subject line, or electronically by using the RFI Tab located on the Individual Projects Detail page.

NOTICE

Disadvantaged Business Enterprise Proposed Utilization

The Apparent Low Bidder shall submit the Disadvantaged Business Enterprise Proposed Utilization form with their bid. This is a curable bid defect.

The Contractor's Disadvantaged Business Enterprise Proposed Utilization Plan form contains additional information that is required by USDOT.

The Contractor's Disadvantaged Business Enterprise Proposed Utilization Plan form should be used.

A copy of the new Contractor's Disadvantaged Business Enterprise Proposed Utilization Plan and instructions for completing it are attached.

Note: Questions about DBE firms, or to obtain a printed copy of the DBE Directory, contact The Office of Civil Rights at (207) 624-3066.

MDOTs DBE Directory of Certified firms can also be obtained at https://www.maine.gov/mdot/civilrights/dbe/

INSTRUCTIONS FOR PREPARING THE MaineDOT CONTRACTOR'S DBE/SUBCONTRACTOR UTILIZATION FORM

The Contractor Shall Extend equal opportunity to MaineDOT certified DBE firms (as listed in MaineDOT's DBE Directory of Certified Businesses) in the selection and utilization of Subcontractors and Suppliers.

SPECIFIC INSTRUCTIONS FOR COMPLETING THE FORM:

Insert Contractor name, the name of the person(s) preparing the form, and that person(s) telephone, fax number and e-mail address.

Calculate and provide percentage of your bid that will be allocated to DBE firms, Federal Project Identification Number, and location of the Project work.

In the columns, name each subcontractor, DBE and non-DBE firm to be used, provide the Unit/Item cost of the work/product to be provided by the subcontractor, give a brief description and the dollar value of the work.

Revised 1/12

DBE GOAL NOTICE FFY 2019-2021
Maine Department of Transportation
Disadvantaged Business Enterprise Program

Notice is hereby given that in accordance with US DOT regulation 49 CFR Part 26, the Maine Department of Transportation (MaineDOT) has established a Disadvantaged Business Enterprise Program (DBE) for disadvantaged business participation in the federal-aid highway and bridge construction programs; MaineDOT contracts covered by the program include consulting, construction, supplies, manufacturing, and service contracts.

For FFY 2019-21 (October 1, 2018 through September 30, 2021) MaineDOT has established an annual DBE participation goal of **2.4%** to be achieved through race/gender neutral means. This goal has been approved by the Federal Highway Administration and remains in effect through September 30, 2021. Maine DOT must meet this goal each federal fiscal year. If the goal is not met, MaineDOT must provide a justification for not meeting the goal and provide a plan to ensure the goal is met, which may include placing contract goals on certain projects that contractors will be required to meet.

MaineDOT asks all contractors, consultants and subcontractors to seek certified DBE firms for projects and to work to meet the determined 2.4% goal without the need to impose contract goals. DBE firms are listed on the MaineDOT website at:

https://www.maine.gov/mdot/civilrights/docs/dbe/WeeklyDBEVendorList.pdf

Interested parties may view MaineDOT's DBE goal setting methodology, also posted on this website. If you have questions regarding this goal or the DBE program you may contact Sherry Tompkins at the Maine Department of Transportation, Civil Rights Office by telephone at (207) 624-3066 or by e-mail at: sherry.tompkins@maine.gov

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MaineDOT CONTRACTOR'S DBE/SUBCONTRACTOR PROPOSED UTILIZATION FORM

All Bidders must furnish this form with their bid on Bid Opening day

Contractor: _____ **Telephone:** _____ **Ext** _____

Contact Person: _____ **Fax:** _____

E-mail: _____

BID DATE: _____

FEDERAL PROJECT PIN # _____ **PROJECT LOCATION:** _____

TOTAL ANTICIPATED DBE____% PARTICIPATION FOR THIS CONTRACT

WBE	DBE	Non DBE	Firm Name	Item Number & Description of Work	Quantity	Cost Per Unit/Item	Anticipated $ Value
						Subcontractor Total>	
						DBE Total >	

NOTE: THIS INFORMATION IS USED TO TRACK AND REPORT ANTICIPATED DBE PARTICIPATION IN ALL FEDERALLY FUNDED MAINE DOT CONTRACTS. THE ANTICIPATED DBE AMOUNT IS VOLUNTARY AND WILL NOT BECOME A PART OF THE CONTRACTUAL TERMS.

Equal Opportunity Use:

Form received:___/___/___Verified by: _____

FHWA ☐ FTA ☐ FAA ☐

For a complete list of certified firms and company designation (WBE/DBE) go to http://www.maine.gov/mdot/civilrights/

Rev. 01/15

Maine Department of Transportation Civil Rights Office

Directory of Certified Disadvantaged Business Enterprises

Listing can be found at:

https://www.maine.gov/mdot/civilrights/dbe/

For additional information and guidance contact:

Civil Rights Office at (207) 624-3066

It is the responsibility of the Contractor to access the DBE Directory at this site in order to have the most current listing.

Vendor Registration

Prospective Bidders must register as a vendor with the Department of Administrative & Financial Services if the vendor is awarded a contract. Vendors will not be able to receive payment without first being registered. Vendors/Contractors will find information and register through the following link –
http://www.maine.gov/purchases/venbid/index.shtml

STATE OF MAINE DEPARTMENT OF TRANSPORTATION
NOTICE TO CONTRACTORS

Sealed Bids addressed to the Maine Department of Transportation, Augusta, Maine 04333 and endorsed on the wrapper "Bids for Mattawamkeag Bridge Replacement in the town of **MATTAWAMKEAG**" will be received from contractors at the Reception Desk, MaineDOT Building, Capitol Street, Augusta, Maine, until 11:00 o'clock A.M. (prevailing time) on September 16, 2020 and at that time and place, publicly opened and read. Bids will be accepted from all bidders. The lowest responsive bidder must have completed, or successfully complete, a bridge, or project specific prequalification to be considered for the award of this contract. **We now accept electronic bids for bid packages posted on the bidx.com website. Electronic bids do not have to be accompanied by paper bids. Please note: The Department will accept a facsimile of the bid bond; however, the original bid bond must then be received at the MDOT Contract Section within 72 hours of the bid opening. Until further notice, dual bids (one paper, one electronic) will be accepted, with the paper copy taking precedence.**

Description: Maine Federal Aid Project No. 2262701 WIN 023234.01

Location: In Penobscot County, Mattawamkeag bridge is located on Main Street/ US Route 2 over the Mattawamkeag River approximately 0.2 of a mile southerly of Route 157.

Scope of Work: Mattawamkeag Bridge replacement plus other incidental work.

For general information regarding Bidding and Contracting procedures, contact George Macdougall at (207) 624-3410. Our webpage at http://www.maine.gov/mdot/contractors/ contains a copy of the Schedule of Items, Plan Holders List, written portions of bid amendments, drawings, bid results and an electronic form for RFI submittal. For Project-specific information fax all questions to **Project Manager Andrew Lathe** at (207) 624-3431, use electronic RFI form or email questions to RFI-Contracts.MDOT@maine.gov, project name and identification number should be in the subject line. Questions received after 12:00 noon of Monday (or if that Monday is a state holiday, Friday) prior to bid date will not be answered. Bidders shall not contact any other Departmental staff for clarification of Contract provisions, and the Department will not be responsible for any interpretations so obtained. TTY users call Maine Relay 711.

Plans, specifications and bid forms may be seen at the MaineDOT Building in Augusta, Maine, and at the Department of Transportation's Regional Office in Presque Isle. They may be purchased from the Department between the hours of 8:00 a.m. to 4:30 p.m. by cash, credit card (Visa/Mastercard) or check payable to Treasurer, State of Maine sent to Maine Department of Transportation, Attn.: Mailroom, 16 State House Station, Augusta, Maine 04333-0016. They also may be purchased by telephone at (207) 624-3536 between the hours of 8:00 a.m. to 4:30 p.m. Full size plans $69.00 ($74.50 by mail). Half size plans $34.50 ($37.75 by mail), Bid Book $10 ($13 by mail), Single Sheets $2, payment in advance, all non-refundable.

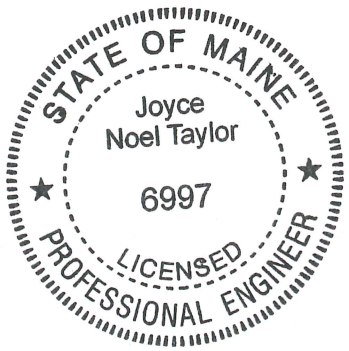
Each Bid must be made upon blank forms provided by the Department and must be accompanied by a bid bond at 5% of the bid amount or an official bank check, cashier's check, certified check, certificate of deposit, or United States postal money order in the amount of $265,000.00 payable to Treasurer, State of Maine as a Bid guarantee. A Contract Performance Surety Bond and a Contract Payment Surety Bond, each in the amount of 100 percent of the Contract price, will be required of the successful Bidder.

This Contract is subject to all applicable Federal Laws. This contract is subject to compliance with the Disadvantaged Business Enterprise program requirements as set forth by the Maine Department of Transportation.

All work shall be governed *by State of Maine, Department of Transportation, Standard Specifications, March 2020 Edition,* price $10 [$15 by mail], and *Standard Details, March 2020 Edition*, price $10 [$15 by mail]. They also may be purchased by telephone at (207) 624-3536 between the hours of 8:00 a.m. to 4:30 p.m. *Standard Detail* updates can be found at http://www.maine.gov/mdot/contractors/publications/ .

The right is hereby reserved to the MaineDOT to reject any or all bids.

Augusta, Maine
August 26, 2020



Joyce Noel Taylor

JOYCE NOEL TAYLOR P. E.
CHIEF ENGINEER

SPECIAL PROVISION 102.7.3
ACKNOWLEDGMENT OF BID AMENDMENTS

With this form, the Bidder acknowledges its responsibility to check for all Amendments to the Bid Package. For each Project under Advertisement, Amendments are located at http://www.maine.gov/mdot/contractors/ . It is the responsibility of the Bidder to determine if there are Amendments to the Project, to download them, to incorporate them into their Bid Package, and to reference the Amendment number and the date on the form below. The Maine DOT will not post Bid Amendments any later than noon the day before Bid opening without individually notifying all the planholders.

Amendment Number	Date

The Contractor, for itself, its successors and assigns, hereby acknowledges that it has received all of the above referenced Amendments to the Bid Package.

CONTRACTOR

_____ _____
Date Signature of authorized representative

_____
(Name and Title Printed)

March 26, 2020

NOTICE

(COVID-19 Pandemic)

The Department considers the COVID-19 Pandemic an Uncontrollable Event as defined in Section 101.2 of the Department's Standard Specifications.

Accordingly, any documented delay to the project's Critical Path due to COVID-19 related issues, such as impacted workforce, subcontracts, or material supply, will be considered an Excusable Delay as defined in Section 109.5(A)(3) of the Department's Supplemental Specifications.

As an Excusable Delay, the Contractor is entitled to an extension of time provided that other associated notification, documentation, and procedural requirements set forth in the Contract are met.

Maine Department of Transportation

Proposal Schedule of Items

Proposal ID: 023234.01 Project(s): 023234.01

SECTION: 1 PROJECT ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
0010	202.13 REMOVING EXISTING RAILINGS (RETAINED BY DEPARTMENT)	706.000 LF				
0020	202.15 REMOVING EXISTING MANHOLE OR CATCH BASIN	2.000 EA				
0030	202.19 REMOVING EXISTING BRIDGE	LUMP SUM	LUMP SUM			
0040	202.202 REMOVING PAVEMENT SURFACE	1,450.000 SY				
0050	202.61 REMOVE STORM DRAIN OR SEWER PIPE, ALL DEPTHS AND SIZES	LUMP SUM	LUMP SUM			
0060	203.20 COMMON EXCAVATION	2,200.000 CY				
0070	203.2312 HEALTH AND SAFETY PLAN	LUMP SUM	LUMP SUM			
0080	203.2333 DISPOSAL TREATMENT OF SPECIAL EXCAVATION	40.000 T				
0090	203.25 GRANULAR BORROW	870.000 CY				
0100	203.33 SPECIAL FILL	12.000 CY				
0110	203.35 CRUSHED STONE FILL	262.000 CY				
0120	206.082 STRUCTURAL EARTH EXCAVATION - MAJOR STRUCTURES	2,340.000 CY				

Proposal ID: 023234.01 Project(s): 023234.01

SECTION: 1 PROJECT ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
0130	304.10 AGGREGATE SUBBASE COURSE - GRAVEL	1,150.000 CY				
0140	403.2081 12.5 MM POLYMER MODIFIED HOT MIX ASPHALT	536.000 T				
0150	403.209 HOT MIX ASPHALT 9.5 MM (SIDEWALKS, DRIVES, INCIDENTALS)	61.000 T				
0160	403.211 HOT MIX ASPHALT (SHIMMING)	40.000 T				
0170	403.2131 12.5 MM POLYMER MODIFIED HMA BASE	370.000 T				
0180	409.15 BITUMINOUS TACK COAT - APPLIED	346.000 G				
0190	461.131 TEMPORARY PAVEMENT	220.000 T				
0200	501.237 NOISE ATTENUATION AND UNDERWATER NOISE MONITORING	LUMP SUM	LUMP SUM			
0210	501.239 DYNAMIC LOADING TESTS - PROVIDING FOR	2.000 EA				
0220	501.50 STEEL H-BEAM PILES 89 LBS/FT, DELIVERED	979.000 LF				
0230	501.501 STEEL H-BEAM PILES 89 LBS/FT, IN PLACE	979.000 LF				

Proposal ID: 023234.01 Project(s): 023234.01

SECTION: 1 PROJECT ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars Cents	Bid Amount Dollars Cents
0240	501.90 PILE TIPS	28.000 EA	_____.____	_____.____
0250	501.91 PILE SPLICES	28.000 EA	_____.____	_____.____
0260	501.92 PILE DRIVING EQUIPMENT MOBILIZATION	LUMP SUM	LUMP SUM	_____.____
0270	502.219 STRUCTURAL CONCRETE, ABUTMENTS AND RETAINING WALLS	LUMP SUM	LUMP SUM	_____.____
0280	502.239 STRUCTURAL CONCRETE PIERS	LUMP SUM	LUMP SUM	_____.____
0290	502.24 STRUCTURAL CONCRETE PIERS (PLACED UNDER WATER)	770.000 CY	_____.____	_____.____
0300	502.26 STRUCTURAL CONCRETE ROADWAY AND SIDEWALK SLABS ON STEEL BRIDGES	LUMP SUM	LUMP SUM	_____.____
0310	502.31 STRUCTURAL CONCRETE APPROACH SLABS	LUMP SUM	LUMP SUM	_____.____
0320	502.49 STRUCTURAL CONCRETE CURBS AND SIDEWALKS	LUMP SUM	LUMP SUM	_____.____
0330	502.77 FIBER REINFORCED POLYMER BRIDGE DRAIN - TYPE: E	4.000 EA	_____.____	_____.____
0340	503.12 REINFORCING STEEL, FABRICATED AND DELIVERED	60,000.000 LB	_____.____	_____.____

Proposal ID: 023234.01 Project(s): 023234.01

SECTION: 1 PROJECT ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
0350	503.13 REINFORCING STEEL, PLACING	60,000.000 LB				
0360	503.26 STAINLESS STEEL REINFORCEMENT - FABRICATED & DELIVERED	44,000.000 LB				
0370	503.27 STAINLESS STEEL REINFORCEMENT - PLACING	44,000.000 LB				
0380	504.702 STRUCTURAL STEEL FABRICATED AND DELIVERED, WELDED	LUMP SUM	LUMP SUM			
0390	504.71 STRUCTURAL STEEL ERECTION	LUMP SUM	LUMP SUM			
0400	505.08 SHEAR CONNECTORS	LUMP SUM	LUMP SUM			
0410	507.0821 STEEL BRIDGE RAILING, 3 BAR	LUMP SUM	LUMP SUM			
0420	507.0831 STEEL BRIDGE RAILING, 4 BAR	LUMP SUM	LUMP SUM			
0430	508.14 HIGH PERFORMANCE WATERPROOFING MEMBRANE	LUMP SUM	LUMP SUM			
0440	510.12 SPECIAL DETOUR__FOOT ROADWAY WIDTH, VEHICULAR AND PEDESTRIAN TRAFFIC SEPARATED 12 FT	LUMP SUM	LUMP SUM			
0450	511.07 COFFERDAM: ABUT NO.1	LUMP SUM	LUMP SUM			

Proposal ID: 023234.01 Project(s): 023234.01

SECTION: 1 PROJECT ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars Cents	Bid Amount Dollars Cents
0460	511.07 COFFERDAM: ABUT NO.2	LUMP SUM	LUMP SUM	_____.____
0470	511.07 COFFERDAM: PIER NO.1	LUMP SUM	LUMP SUM	_____.____
0480	511.07 COFFERDAM: PIER NO.2	LUMP SUM	LUMP SUM	_____.____
0490	512.081 FRENCH DRAINS	LUMP SUM	LUMP SUM	_____.____
0500	515.21 PROTECTIVE COATING FOR CONCRETE SURFACES	LUMP SUM	LUMP SUM	_____.____
0510	520.22 EXPANSION DEVICE - COMPRESSION SEAL	1.000 EA	_____.____	_____.____
0520	521.23 EXPANSION DEVICE FINGER JOINT	1.000 EA	_____.____	_____.____
0530	523.52 BEARING INSTALLATION	24.000 EA	_____.____	_____.____
0540	523.5551 POT OR DISC BEARINGS, FIXED	6.000 EA	_____.____	_____.____
0550	523.5552 POT OR DISC BEARINGS, EXPANSION	18.000 EA	_____.____	_____.____
0560	526.301 TEMPORARY CONCRETE BARRIER TYPE I	LUMP SUM	LUMP SUM	_____.____
0570	527.34 WORK ZONE CRASH CUSHIONS	4.000 UN	_____.____	_____.____

Proposal ID: 023234.01 Project(s): 023234.01

SECTION: 1 PROJECT ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
0580	530.30 GFRP, REINFORCEMENT BARS, FABRICATED & DELIVERED	139,300.000 LF	_____	_____	_____	_____
0590	530.31 GFRP, REINFORCEMENT BARS, PLACING	139,300.000 LF	_____	_____	_____	_____
0600	603.179 18 INCH CULVERT PIPE OPTION III	160.000 LF	_____	_____	_____	_____
0610	604.072 CATCH BASIN TYPE A1-C	1.000 EA	_____	_____	_____	_____
0620	604.092 CATCH BASIN TYPE B1-C	1.000 EA	_____	_____	_____	_____
0630	604.16 ALTERING CATCH BASIN TO MANHOLES	1.000 EA	_____	_____	_____	_____
0640	604.18 ADJUSTING MANHOLE OR CATCH BASIN TO GRADE	5.000 EA	_____	_____	_____	_____
0650	604.183 MODIFY EXISTING MANHOLE OR CATCH BASIN	1.000 EA	_____	_____	_____	_____
0660	605.09 6 INCH UNDERDRAIN TYPE B	250.000 LF	_____	_____	_____	_____
0670	605.10 6 INCH UNDERDRAIN OUTLET	50.000 LF	_____	_____	_____	_____
0680	606.1301 31” W-BM GR, MID-WAY SPLICE-SGL FACED	260.000 LF	_____	_____	_____	_____

Proposal ID: 023234.01 Project(s): 023234.01

SECTION: 1 PROJECT ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars Cents	Bid Amount Dollars Cents
0690	606.1304 31” W-BM GR, MID-WAY SPLICE-OVER 15' RAD	25.000 LF	_____.____	_____.____
0700	606.1305 31” W-BM GR, MID-WAY SPLICE FLARED TERMINAL	3.000 EA	_____.____	_____.____
0710	606.1721 BRIDGE TRANSITION - TYPE 1	4.000 EA	_____.____	_____.____
0720	606.259 ANCHORAGE ASSEMBLY	1.000 EA	_____.____	_____.____
0730	606.353 REFLECTORIZED FLEXIBLE GUARDRAIL MARKER	8.000 EA	_____.____	_____.____
0740	607.24 REMOVE AND RESET FENCE	25.000 LF	_____.____	_____.____
0750	608.26 CURB RAMP DETECTABLE WARNING FIELD	45.000 SF	_____.____	_____.____
0760	609.11 VERTICAL CURB TYPE 1	100.000 LF	_____.____	_____.____
0770	609.12 VERTICAL CURB TYPE 1 - CIRCULAR	11.000 LF	_____.____	_____.____
0780	609.221 TERMINAL CURB TYPE 1	51.000 LF	_____.____	_____.____
0790	609.222 TERMINAL CURB TYPE 1 - CIRCULAR	50.000 LF	_____.____	_____.____
0800	609.31 CURB TYPE 3	100.000 LF	_____.____	_____.____

Proposal ID: 023234.01 Project(s): 023234.01

SECTION: 1 PROJECT ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
0810	609.38 RESET CURB TYPE 1	200.000 LF				
0820	610.08 PLAIN RIPRAP	1,348.000 CY				
0830	610.18 STONE DITCH PROTECTION	17.000 CY				
0840	610.212 STREAMBED ROCK FEATURES	6.000 CY				
0850	613.319 EROSION CONTROL BLANKET	64.000 SY				
0860	615.07 LOAM	110.000 CY				
0870	618.13 SEEDING METHOD NUMBER 1	6.000 UN				
0880	618.14 SEEDING METHOD NUMBER 2	7.000 UN				
0890	619.12 MULCH	12.000 UN				
0900	620.58 EROSION CONTROL GEOTEXTILE	1,470.000 SY				
0910	620.60 SEPARATION GEOTEXTILE	400.000 SY				
0920	623.10 REMOVE AND RESET MEMORIAL	 LUMP SUM	 LUMP SUM			
0930	626.21 METALLIC CONDUIT	20.000 LF				

Proposal ID: 023234.01 Project(s): 023234.01

SECTION: 1 PROJECT ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
0940	626.22 NON-METALLIC CONDUIT	420.000 LF				
0950	627.733 4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	3,050.000 LF				
0960	627.75 WHITE OR YELLOW PAVEMENT & CURB MARKING	200.000 SF				
0970	627.78 TEMPORARY 4 INCH PAINTED PAVEMENT MARKING LINE, WHITE OR YELLOW	1,600.000 LF				
0980	629.05 HAND LABOR, STRAIGHT TIME	50.000 HR				
0990	631.10 AIR COMPRESSOR (INCLUDING OPERATOR)	20.000 HR				
1000	631.11 AIR TOOL (INCLUDING OPERATOR)	20.000 HR				
1010	631.12 ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	20.000 HR				
1020	631.172 TRUCK - LARGE (INCLUDING OPERATOR)	20.000 HR				
1030	634.160 HIGHWAY LIGHTING	 LUMP SUM	 LUMP SUM			
1040	634.210 CONVENTIONAL LIGHT STANDARD	4.000 EA				

Proposal ID: 023234.01 Project(s): 023234.01

SECTION: 1 PROJECT ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
1050	639.18 FIELD OFFICE TYPE A	1.000 EA				
1060	643.72 TEMPORARY TRAFFIC SIGNAL	LUMP SUM	LUMP SUM			
1070	645.292 REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGNS TYPE II	17.000 SF				
1080	652.312 TYPE III BARRICADE	6.000 EA				
1090	652.33 DRUM	40.000 EA				
1100	652.34 CONE	40.000 EA				
1110	652.35 CONSTRUCTION SIGNS	340.000 SF				
1120	652.361 MAINTENANCE OF TRAFFIC CONTROL DEVICES	LUMP SUM	LUMP SUM			
1130	652.38 FLAGGER	450.000 HR				
1140	655.201 ELECTRICAL WORK	LUMP SUM	LUMP SUM			
1150	656.75 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LUMP SUM	LUMP SUM			
1160	659.10 MOBILIZATION	LUMP SUM	LUMP SUM			

Proposal ID: 023234.01 Project(s): 023234.01

SECTION: 1 PROJECT ITEMS

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price Dollars	 Cents	Bid Amount Dollars	 Cents
1170	801.03 TEST PITS	4.000 EA				
1180	801.071 TEMPORARY SEWER BY-PASS	 LUMP SUM	LUMP SUM			
1190	812.163 MODIFY SEWER MH, ADJUST FRAME & COVER	3.000 EA				
1200	822.321 4 INCH CLASS 52 DUCTILE IRON PIPE	80.000 LF				
1210	822.321 4 INCH CLASS 52 DUCTILE IRON PIPE ON BRIDGE, INSULATED	200.000 LF				
1220	822.33 6 INCH CLASS 52 DUCTILE IRON PIPE	50.000 LF				
1230	822.33 6 INCH CLASS 52 DUCTILE IRON PIPE ON BRIDGE, INSULATED	230.000 LF				
1240	822.38 SEWER FORCE MAIN RELOCATION STA 21+00	1.000 EA				
1250	823.3411 AIR RELEASE VALVE, MANUAL SYSTEM	 LUMP SUM	LUMP SUM			
1260	827.302 UNSUITABLE SOIL EXCAVATION - BELOW GRADE	50.000 CY				
1270	827.331 TRENCH INSULATION 2" RIGID	300.000 SY				
1280	832.07 OWNERS TESTING ALLOWANCE	 LUMP SUM	LUMP SUM			

Proposal ID: 023234.01 Project(s): 023234.01

Section: 1 Total: _____.____

Total Bid: _____.____

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street, Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and

_____

a corporation or other legal entity organized under the laws of the State of _____, with its principal place of business located at _____

_____

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, WIN **023234.01** for the **Mattawamkeag Bridge Replacement** in the town of **Mattawamkeag**, County of **Penobscot**, Maine. The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **June 15, 2023.** Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the *State of Maine Department of Transportation Standard Specifications, April 2020 Edition* and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is _____

_____

$_____ Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, *Standard Specifications, April 2020 Edition, Standard Details April 2020 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in the Federal Contract Provisions Supplement, and the Contract are still complete and accurate as of the date of this Agreement.

2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.

3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, *Standard Specifications April 2020 Edition, Standard Details April 2020 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of: **WIN 023234.01, Mattawamkeag Bridge replacement plus other incidental work,** State of Maine, on which bids will be received until the time specified in the "Notice to Contractors" do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached "Schedule of Items."

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached "Schedule of Items" in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached "Schedule of Items," which may be ordered by the Resident, and to accept as full compensation the amount determined upon a "Force Account" basis as provided in the *Standard Specifications, April 2020 Edition*, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier's check, certificate of deposit or U. S. Postal Money Order in the amount given in the "Notice to Contractors", payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the *Standard Specifications April 2020 Edition* and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: The Contractor will be bound to the Disadvantaged Business Enterprise (DBE) Requirements contained in the attached Notice (Additional Instructions to Bidders) and submit a completed Contractor's Disadvantaged Business Enterprise Utilization Plan with their bid.

Fifth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Sixth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

_____	_____
Date	(Signature of Legally Authorized Representative of the Contractor)
_____	_____
Witness	(Name and Title Printed)

G. Award.

Your offer is hereby accepted. This award consummates the Contract, and the documents referenced herein.

MAINE DEPARTMENT OF TRANSPORTATION

_____	_____
Date	By: Bruce A. Van Note, Commissioner
_____	
Witness	

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street, Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and

_____

a corporation or other legal entity organized under the laws of the State of _____, with its principal place of business located at _____

_____

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, WIN **023234.01** for the **Mattawamkeag Bridge Replacement** in the town of **Mattawamkeag**, County of **Penobscot**, Maine. The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **June 15, 2023.** Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the *State of Maine Department of Transportation Standard Specifications, April 2020 Edition* and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is _____

_____

$_____ Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, *Standard Specifications, April 2020 Edition, Standard Details April 2020 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in the Federal Contract Provisions Supplement, and the Contract are still complete and accurate as of the date of this Agreement.

2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.

3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, *Standard Specifications April 2020 Edition, Standard Details April 2020 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of: **WIN 023234.01, Mattawamkeag Bridge replacement plus other incidental work,** State of Maine, on which bids will be received until the time specified in the "Notice to Contractors" do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached "Schedule of Items."

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached "Schedule of Items" in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

As Offeror also agrees:

First: To do any extra work, not covered by the attached "Schedule of Items," which may be ordered by the Resident, and to accept as full compensation the amount determined upon a "Force Account" basis as provided in the *Standard Specifications, April 2020 Edition,* and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier's check, certificate of deposit or U. S. Postal Money Order in the amount given in the "Notice to Contractors", payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the *Standard Specifications April 2020 Edition* and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: The Contractor will be bound to the Disadvantaged Business Enterprise (DBE) Requirements contained in the attached Notice (Additional Instructions to Bidders) and submit a completed Contractor's Disadvantaged Business Enterprise Utilization Plan with their bid.

Fifth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Sixth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

_____	_____
Date	(Signature of Legally Authorized Representative of the Contractor)
_____	_____
Witness	(Name and Title Printed)

G. Award.

Your offer is hereby accepted. This award consummates the Contract, and the documents referenced herein.

MAINE DEPARTMENT OF TRANSPORTATION

_____	_____
Date	By: Bruce A. Van Note, Commissioner
_____	
Witness	

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the State of Maine, acting through and by its Department of Transportation (Department), an agency of state government with its principal administrative offices located at Child Street Augusta, Maine, with a mailing address at 16 State House Station, Augusta, Maine 04333-0016, and **(Name of the firm bidding the job)** a corporation or other legal entity organized under the laws of the State of Maine, with its principal place of business located at **(address of the firm bidding the job)**

The Department and the Contractor, in consideration of the mutual promises set forth in this Agreement (the "Contract"), hereby agree as follows:

SAMPLE

A. The Work.

The Contractor agrees to complete all Work as specified or indicated in the Contract including Extra Work in conformity with the Contract, PIN No.01**12345.00**, for the **Hot Mix Asphalt Overlay** in the town/city of **South Nowhere,** County of **Washington**, Maine. The Work includes construction, maintenance during construction, warranty as provided in the Contract, and other incidental work.

The Contractor shall be responsible for furnishing all supervision, labor, equipment, tools supplies, permanent materials and temporary materials required to perform the Work including construction quality control including inspection, testing and documentation, all required documentation at the conclusion of the project, warranting its work and performing all other work indicated in the Contract.

The Department shall have the right to alter the nature and extent of the Work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **November 15, 2006.** Further, the Department may deduct from moneys otherwise due the Contractor, not as a penalty, but as Liquidated Damages in accordance with Sections 107.7 and 107.8 of the *State of Maine Department of Transportation Standard Specifications, March 2020 Edition* and related Special Provisions.

C. Price.

The quantities given in the Schedule of Items of the Bid Package will be used as the basis for determining the original Contract amount and for determining the amounts of the required Performance Surety Bond and Payment Surety Bond, and that the amount of this offer is **(Place bid here in alphabetical form such as One Hundred and Two dollars and 10 cents)** **$ (repeat bid here in numerical terms, such as $102.10)** Performance Bond and Payment Bond each being 100% of the amount of this Contract.

D. Contract.

This Contract, which may be amended, modified, or supplemented in writing only, consists of the Contract documents as defined in the Plans, *Standard Specifications, March 2020 Edition, Standard Details March 2020 Edition*, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds. It is agreed and understood that this Contract will be governed by the documents listed above.

SAMPLE

E. Certifications.

By signing below, the Contractor hereby certifies that to the best of the Contractor's knowledge and belief:

1. All of the statements, representations, covenants, and/or certifications required or set forth in the Bid and the Bid Documents, including those in Appendix A to Division 100 of the *Standard Specifications March 2020 Edition* (Federal Contract Provisions Supplement), and the Contract are still complete and accurate as of the date of this Agreement.

2. The Contractor knows of no legal, contractual, or financial impediment to entering into this Contract.

3. The person signing below is legally authorized by the Contractor to sign this Contract on behalf of the Contractor and to legally bind the Contractor to the terms of the Contract.

F. Offer.

The undersigned, having carefully examined the site of work, the Plans, *Standard Specifications, March 2020 Edition, Standard Details March 2020 Edition*, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

PIN 012345.00 South Nowhere, Hot Mix Asphalt Overlay ,

State of Maine, on which bids will be received until the time specified in the "Notice to Contractors" do(es) hereby bid and offer to enter into this contract to supply all the materials, tools, equipment and labor to construct the whole of the Work in strict accordance with the terms and conditions of this Contract at the unit prices in the attached "Schedule of Items."

The Offeror agrees to perform the work required at the price specified above and in accordance with the bids provided in the attached "Schedule of Items" in strict accordance with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Government in writing.

SAMPLE

As Offeror also agrees:

First: To do any extra work, not covered by the attached "Schedule of Items," which may be ordered by the Resident, and to accept as full compensation the amount determined upon a "Force Account" basis as provided in the *Standard Specifications, March 2020 Edition*, and as addressed in the contract documents.

Second: That the bid bond at 5% of the bid amount or the official bank check, cashier's check, certificate of deposit or U. S. Postal Money Order in the amount given in the "Notice to Contractors", payable to the Treasurer of the State of Maine and accompanying this bid, shall be forfeited, as liquidated damages, if in case this bid is accepted, and the undersigned shall fail to abide by the terms and conditions of the offer and fail to furnish satisfactory insurance and Contract bonds under the conditions stipulated in the Specifications within 15 days of notice of intent to award the contract.

Third: To begin the Work as stated in Section 107.2 of the *Standard Specifications March 2020 Edition* and complete the Work within the time limits given in the Special Provisions of this Contract.

Fourth: The Contractor will be bound to the Disadvantaged Business Enterprise (DBE) Requirements contained in the attached Notice (Additional Instructions to Bidders) and submit a completed Contractor's Disadvantaged Business Enterprise Utilization Plan with their bid.

Fifth: That this offer shall remain open for 30 calendar days after the date of opening of bids.

Sixth: The Bidder hereby certifies, to the best of its knowledge and belief that: the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with its bid, and its subsequent contract with the Department.

IN WITNESS WHEREOF, the Contractor, for itself, its successors and assigns, hereby execute two duplicate originals of this Agreement and thereby binds itself to all covenants, terms, and obligations contained in the Contract Documents.

CONTRACTOR

_____	**(Sign Here)**
Date	(Signature of Legally Authorized Representative of the Contractor)
(Witness Sign Here)	**(Print Name Here)**
Witness	(Name and Title Printed)

SAMPLE

G. Award.

Your offer is hereby accepted. This award consummates the Contract, and the documents referenced herein.

MAINE DEPARTMENT OF TRANSPORTATION

_____	_____
Date	By: Bruce A. Van Note, Commissioner
_____	
(Witness)	

BOND # _____

CONTRACT PERFORMANCE BOND
(Surety Company Form)

KNOW ALL MEN BY THESE PRESENTS: That _____ _____ **in the State of** _____, as principal, and……....., a corporation duly organized under the laws of the State of ..... and having a usual place of business ...., as Surety, are held and firmly bound unto the Treasurer of the State of Maine in the sum of _____ **and 00/100 Dollars ($)**, to be paid said Treasurer of the State of Maine or his successors in office, for which payment well and truly to be made, Principal and Surety bind themselves, their heirs, executors and administrators, successors and assigns, jointly and severally by these presents.

The condition of this obligation is such that if the Principal designated as Contractor in the Contract to construct Project Number _____ in the Municipality of _____ promptly and faithfully performs the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the State of Maine.

Signed and sealed this ..... day of ....., 20….. .

WITNESSES:	SIGNATURES:
	CONTRACTOR:
Signature.....	.....….....
Print Name Legibly	Print Name Legibly ...……....
	SURETY:
Signature	....……....
Print Name Legibly	Print Name Legibly .....
SURETY ADDRESS:	NAME OF LOCAL AGENCY:
.....	ADDRESS .....
.....	...……....
.....	.....……....
TELEPHONE.....	.....……....

SAMPLE

BOND # _____

CONTRACT PAYMENT BOND
(Surety Company Form)

KNOW ALL MEN BY THESE PRESENTS: That _____ _____ **in the State of** _____, as principal, and.....…..... a corporation duly organized under the laws of the State of ..... and having a usual place of business in .....……., as Surety, are held and firmly bound unto the Treasurer of the State of Maine for the use and benefit of claimants as herein below defined, in the sum of _____ **and 00/100 Dollars ($)** for the payment whereof Principal and Surety bind themselves, their heirs, executors and administrators, successors and assigns, jointly and severally by these presents.

The condition of this obligation is such that if the Principal designated as Contractor in the Contract to construct Project Number _____ in the Municipality of _____ promptly satisfies all claims and demands incurred for all labor and material, used or required by him in connection with the work contemplated by said Contract, and fully reimburses the obligee for all outlay and expense which the obligee may incur in making good any default of said Principal, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor, material or both, used or reasonably required for use in the performance of the contract.

Signed and sealed this ..... day of ...…….....…., 20 ... .

WITNESS:	SIGNATURES:
	CONTRACTOR:
Signature…….....	.....….....
Print Name Legibly .....……..	Print Name Legibly ….....….....
	SURETY:
Signature.....	...….....….....
Print Name Legibly	Print Name Legibly ….....….....
SURETY ADDRESS:	NAME OF LOCAL AGENCY:
...….....….....	ADDRESS ….....….....
.....….....	…….....….....
TELEPHONE	…….....….....

SAMPLE

BRIDGE NO. 2522

The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch.

0.5 Miles

1 inch = 0.57 miles

Date: 5/27/2020
Time: 7:21:45 AM

"General Decision Number: ME20200047 05/08/2020

Superseded General Decision Number: ME20190047

State: Maine

Construction Type: Highway

County: Penobscot County in Maine.

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 www.dol.gov/whd/govcontracts.

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Modification Number     Publication Date
          0              01/03/2020
          1              04/17/2020
          2              05/08/2020

* ENGI0004-004 04/01/2018

                                    Rates          Fringes

POWER EQUIPMENT OPERATOR:
     Grader/Blade, Mechanic,
     Paver (Asphalt, Aggregate,
     and Concrete), Roller
     Asphalt.....................$ 22.61            12.50
----------------------------------------------------------------
 TEAM0340-003 01/01/2017

                                    Rates          Fringes

TRUCK DRIVER (Vacuum Truck)......$ 14.84            13.08
----------------------------------------------------------------
  SUME2014-042 06/23/2017

                                    Rates          Fringes

CARPENTER, Includes Form Work....$ 18.95             3.23

CEMENT MASON/CONCRETE FINISHER...$ 19.27             1.13

ELECTRICIAN.....................$ 25.78             6.83

IRONWORKER, REINFORCING.........$ 21.85             0.00

IRONWORKER, STRUCTURAL..........$ 22.33             4.50
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LABORER:  Asphalt, Includes
Raker, Shoveler, Spreader and
Distributor.....................$ 17.08            2.48

LABORER:  Common or General.....$ 12.83            2.20

LABORER:  Landscape.............$ 17.03            2.81

OPERATOR:
Backhoe/Excavator/Trackhoe.......$ 16.33           2.78

OPERATOR:  Bobcat/Skid
Steer/Skid Loader...............$ 19.26            5.57

OPERATOR:  Broom/Sweeper.........$ 18.77            0.00

OPERATOR:  Bulldozer............$ 21.71            5.67

OPERATOR:  Loader...............$ 18.94            7.66

OPERATOR:  Milling Machine.......$ 26.83           7.05

OPERATOR: Roller (Earth).........$ 17.61           2.97

TRAFFIC CONTROL:   Flagger.......$  9.00           0.00

TRAFFIC CONTROL:
Laborer-Cones/
Barricades/Barrels -
Setter/Mover/Sweeper............$ 17.02            5.37

TRUCK DRIVER:  Dump Truck........$ 14.56           6.32
---------------------------------------------------------------

WELDERS - Receive rate prescribed for craft performing
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operation to which welding is incidental.

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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.

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END OF GENERAL DECISION"

THIS DOCUMENT MUST BE CLEARLY POSTED AT ALL CONSTRUCTION SITES FUNDED IN PART WITH STATE FUNDS

State of Maine
Department of Labor
Bureau of Labor Standards
Augusta, Maine 04333-0045
Telephone (207) 623-7906

Wage Determination - In accordance with 26 MRS §1301 et. seq., this is a determination by the Bureau of Labor Standards, of the fair minimum wage rate to be paid to laborers and workers employed on the below titled project.

2020 Fair Minimum Wage Rates
Heavy & Bridge Penobscot County

Occupation Title	Minimum Wage	Minimum Benefit	Total	Occupation Title	Minimum Wage	Minimum Benefit	Total
Asphalt Raker	$16.00	$0.00	$16.00	Laborers (Helpers & Tenders)	$17.75	$3.19	$20.94
Backhoe Loader Operator	$26.00	$8.61	$34.61	Laborer - Skilled	$20.00	$4.16	$24.16
Boom Truck (Truck Crane) Operator	$28.13	$6.39	$34.52	Line Erector Power/Cable Splicer	$35.00	$0.75	$35.75
Bricklayer	$24.50	$4.47	$28.97	Loader Operator - Front-End	$20.00	$0.58	$20.58
Bulldozer Operator	$22.00	$4.70	$26.70	Mechanic- Maintenance	$19.25	$3.77	$23.02
Carpenter	$26.00	$5.30	$31.30	Mechanic- Refrigeration	$27.00	$4.21	$31.21
Carpenter - Rough	$21.07	$3.53	$24.60	Millwright	$31.40	$6.89	$38.29
Cement Mason/Finisher	$16.88	$0.52	$17.40	Painter	$26.50	$5.53	$32.03
Communication Equip Installer	$25.00	$0.87	$25.87	Pipe/Steam/Sprinkler Fitter	$29.09	$17.36	$46.45
Comm Trans Microwave & Cell	$22.00	$1.47	$23.47	Pipelayer	$28.00	$6.76	$34.76
Crane Operator =>15 Tons)	$32.50	$7.61	$40.11	Plumber (Licensed)	$26.00	$4.50	$30.50
Diver	$24.00	$3.12	$27.12	Plumber Helper/Trainee	$19.00	$2.98	$21.98
Earth Auger Operator	$26.65	$6.12	$32.77	Propane/Natural Gas Serv/Install	$32.00	$9.23	$41.23
Electrician - Licensed	$32.71	$8.23	$40.94	Rigger	$23.00	$7.10	$30.10
Electrician Helper/Cable Puller	$19.00	$5.16	$24.16	Roller Operator - Earth	$16.43	$2.69	$19.12
Excavator Operator	$22.50	$3.36	$25.86	Roller Operator - Pavement	$20.25	$3.56	$23.81
Fence Setter	$18.00	$1.30	$19.30	Screed/Wheelman	$18.50	$2.45	$20.95
Flagger	$13.00	$0.00	$13.00	Sheet Metal Worker	$26.56	$6.03	$32.59
Grader/Scraper Operator	$22.00	$2.16	$24.16	Truck Driver - Light	$16.00	$0.44	$16.44
Industrial Truck (Forklift) Operator	$29.07	$6.63	$35.70	Truck Driver - Medium	$19.00	$1.97	$20.97
Ironworker - Ornamental	$22.30	$22.37	$44.67	Truck Driver - Heavy	$18.86	$1.16	$20.02
Ironworker - Reinforcing	$29.45	$6.47	$35.92	Truck Driver - Tractor Trailer	$26.78	$6.42	$33.20
Ironworker - Structural	$20.50	$4.55	$25.05				

The Laborer classifications include a wide range of work duties. Therefore, if any specific occupation to be employed on this project is not listed in this determination, call the Bureau of Labor Standards at the above number for further clarification.

Welders are classified in the trade to which the welding is incidental.

Apprentices – The minimum wage rate for registered apprentices are those set forth in the standards and policies of the Maine State Apprenticeship and Training Council for approved apprenticeship programs.

Title 26 §1310 requires that a clearly legible statement of all fair minimum wage and benefits rates to be paid the several classes of laborers, workers and mechanics employed on the construction on the public work must be kept posted in a prominent and easily accessible place at the site by each contractor and subcontractor subject to sections 1304 to 1313.

Appeal – Any person affected by the determination of these rates may appeal to the Commissioner of Labor by filing a written notice with the Commissioner stating the specific grounds of the objection within ten (10) days from the filing of these rates.

A true copy

Attest: Scott R. Cotnoir
Scott R. Cotnoir
Wage & Hour Director
Bureau of Labor Standards

Expiration Date: 12-31-2020

MaineDOT DBE Project Attainment Target (PAT)
for this Project is **.022 %**

The MaineDOT seeks to meet the specified annual Disadvantaged Business Enterprise (DBE) usage goal set out by 49 CFR 26.45 through the efforts of contractors seeking to employ qualified DBE subcontractors. We seek to meet this goal by race neutral means and do not, at this time, use contract specific requirements for each project. We do however, understand the capacity of Maine's DBE community and the unique characteristics a project may have that would differ from the broad annual goal.

Taking this into consideration, the MaineDOT will review each project and develop an anticipated attainment or Project Attainment Target (PAT) based on several factors that are project specific. Those factors include:

- ☐ Scope of Work
- ☐ DBE availability according to Specification Item
- ☐ Geographic location
- ☐ DBE capacity

This PAT is developed to assist contractors to better understand the DBE participation that the MaineDOT can reasonably expect for a specific project. The PAT is NOT a mandate but an assessment of the DBE opportunities that this project could meet or exceed. MaineDOT anticipates that each contractor will make the best effort to reach or exceed the PAT for this project.

SPECIAL PROVISIONS
SECTION 104
Utilities

UTILITY COORDINATION

The Contractor has primary responsibility for coordinating their work with utilities after contract award. The Contractor shall communicate directly with the utilities regarding any utility work necessary to maintain the Contractor's schedule and prevent project construction delays. The Contractor shall notify the resident of any issues.

THE CONTRACTOR SHALL PLAN AND CONDUCT WORK ACCORDINGLY.

MEETING

A Preconstruction Utility Conference, as defined in Subsection 104.4.6 of the Standard Specifications **Is** required.

GENERAL INFORMATION

These Special Provisions outline the arrangements that have been made by the Department for utility and/or railroad work to be undertaken in conjunction with this project. The following list identifies all known utilities or railroads having facilities presently located within the limits of this project or intending to install facilities during project construction.

Utilities have been notified and will be furnished a project specification.

Overview:

Utility/Railroad	Aerial	Underground
Charter Communications	X	
Consolidated Communications	X	X
Versant Power	X	
FairPoint Communications – Northern Telephone	X	X
Firstlight	X	
Town of Mattawamkeag		X

Utility Contact Information		
Utility/Railroad	**Contact Person**	**Contact Phone**
Charter Communications	Ralph Dow	207-458-8034
Consolidated Communications	Stephen Ogden	207-735-8602
Versant Power	Dave Perkins	207-949-3918
Fairpoint Communications – Northern Telephone	Dwayne Hartin	207-446-5370
Firstlight	Tim LaBreck	207-650-0702
Town of Mattawamkeag	John Whitehouse	207-736-4576 cell 207-290-0685

Temporary utility adjustments **are** anticipated. If any unexpected utility relocations become necessary, they shall be scheduled in accordance with Section 104 of the Standard Specifications and shall be performed by the appropriate utility company in conjunction with the work by the Contractor. Should the Contractor choose to have any poles temporarily relocated, all work shall be done at the Contractor's request and expense, with no additional cost or schedule impacts to the Department.

Unless otherwise specified, any underground utility facilities shown on the project plans represent approximate locations gathered from available information. The Department cannot certify the level of accuracy of this data. Underground facilities indicated on the topographic sheets (plan views) have been collected from historical records and/or on-site designations provided by the respective utility companies. Underground facilities indicated on the cross-sections have been carried over from the plan view data and may also include further approximations of the elevations (depths) based upon straight-line interpolation from the nearest manholes, gate valves, or test pits.

All adjustments are to be made by the respective utility/railroad unless otherwise specified herein.

Fire hydrants shall not be disturbed until all necessary work has been accomplished to provide proper fire protection.

All clearing and tree removal in areas where utilities are involved must be completed before the utilities are able to relocate their facilities.

It is the responsibility of the Contractor with the Utility Pole owner, to layout all of the proposed pole locations in the field prior to the start of utility relocations. Should any adjustments be needed, the Utility will document adjustments and inform the Department prior to utility relocations.

The Contractor shall provide the utilities access to the Proposed Pole locations. Construction of any spot cuts or fills in excess of 2 feet must be completed prior to utility relocations. The Contractor shall prepare a plan for how access and the spot cuts and fills will be accomplished and what the schedule will be for performing the work. This plan will be discussed at the pre-construction utility meeting.

***** Specific information regarding the line voltage can be requested from Versant Power*****

Utility working days are Monday through Friday. Times are estimated on the basis of a single crew for each utility. Any times and dates mentioned are **estimates only** and are dependent upon favorable weather, working conditions, and freedom from emergencies. The Contractor shall have no claim against the Department if they are exceeded.

AERIAL

Summary:

Utility	Pole Set	New Wires/ Cables	Trans. Wires/ Cables	Remove Poles	Estimated Working Days
Charter Communications		7			7
Consolidated Communications		10			10
Versant Power	5	5		5	15
Fairpoint Communications Northern Telephone		17		3	20
Firstlight		3			3
				Total:	55

Utility Specific Issues:

Versant Power
Versant Power will be constructing a new aerial utility facility that will be combining the pole lines. Construction will start on the south end of the project limits with Proposed Poles to the river crossing and continuing north to the intersection of Hathaway and River Road. Utility work is also planned for Hathaway and River Road. The work will include Proposed Poles, framing the poles and placing new wire. The removal of old poles will be shared with other utility companies (see pole list provided within this provision.) Versant Power will require 15 days to complete their work

Charter Communications
Once Versant Power has completed their work, Charter Communications will transfer / splice their facilities to the Proposed Pole locations.
Charter Communications requires 7 days to complete their work.

Firstlight
Once Charter Communications has completed their work, Firstlight will transfer/splice their facilities to the Proposed Pole locations.
Firstlight requires 3 days to complete their work.

Fairpoint Communications Northern Telephone
Once Firstlight has completed their work, FairPoint Communications Northern Telephone will transfer/splice their facilities to the Proposed Pole locations. Once all utility companies attached to FairPoint Northern Telephone poles have transferred to the Proposed Pole locations, FairPoint Northern Telephone will remove their old poles. Fairpoint Communications Northern Telephone requires 20 days to complete their work.

Consolidated Communications
Once Fairpoint Communications Northern Telephone has completed their work, Consolidated Communications will transfer/splice their facilities to the Proposed Pole locations. Consolidated Communications requires 10 days to complete their work.

Note:
All utilities will be responsible for traffic control while performing their work unless an agreement has been reached with the Contractor to work within the project limits.

10 working day notice is required to utilities before the start of their work for mobilization.

Special note to Contractor: Due to large number of working days required to complete utility relocations, the Contractor is encouraged to schedule a pre-construction utility meeting, layout the proposed utility pole locations, and complete all necessary tree removal for the proposed utility relocations as soon as the contract is awarded.

Pole List: Mattawamkeag 23234.01

Existing Pole #	Existing Station	Left/ Right		Existing Offset	Proposed Station	Left/ Right		Proposed Offset	Comments
		LT	RT			LT	RT		
					10+95		X	29’	Proposed Pole
242870	11+00		X	28’					Remove existing pole Versant Power
242863	12+79		X	26’					Remove Exiting Pole Versant Power
					12+79		X	31’	Proposed Pole
					12+79		X	31’	Temporary push brace
242886	13+25	X		41’					Remove Existing Pole Versant Power
					13+25	X		39’	Proposed Pole
					13+80		X	26’	Proposed Pole (installed after bridge construction)
					14+00	X		50’	Proposed Pole
245885	14+12	X		35’					Remove existing pole FairPoint
	14+13	X		60’					Remove existing stub pole Versant Power

242884	14+17		X	23’					Remove existing pole FairPoint
242844	14+32	X		24’					Remove Utility Pole by Contractor
236942	17+72	X		46’					Remove existing pole Fairpoint
245/450	17+77		X	26’					Remove existing pole Versant Power
					18+60	X		37’	Proposed Pole
236945	19+72	X		26’					Remove existing pole Fairpoint
241/451	19+72		X	28’					Remove existing pole Versant Power
					20+20	X		25’	Proposed Pole
236930	20+21	X		26’					Remove existing pole FairPoint
	21+69	X		24’					Pole to Remain
236722	21+93		X	20’					Remove existing pole Versant Power
					21+93		X	21’	Proposed Pole
					101+08		X	16’	Proposed Pole
					101+08	X		30’	Proposed Pole
236946	101+12		X	15’					Remove existing pole Versant Power
236947	101+13		X	15’					Remove existing pole FairPoint

SUBSURFACE

Summary:

Utility	Summary of Work	Estimated Working Days
Consolidated Communications	Abandoned conduit bridge/ approaches	1
Fairpoint Communications – Northern Telephone	Underground facilities to be relocated	26
Town of Mattawamkeag	Removal and installation of sanitary Sewer	-
	Total:	27

Utility Specific Issues:

Consolidated Communications

Consolidated Communications has a conduit attached to the bridge and in the approaches of the existing bridge. The lines are abandoned and out of service. The conduit shall be wrecked out by the Contractor with the bridge demolition. The lines in the conduit will be cut by the utility. The conduit shall be filled and capped at the limits of excavation by the Contractor. This will be incidental to the project.

Fairpoint Communications – Northern Telephone

FairPoint Communication Northern Telephone has underground facilities in the vicinity of station 13+00. The pole at this location is being relocated. The utility will be splicing their facilities to relocate to the Proposed Pole location.

Town of Mattawamkeag

The Town of Mattawamkeag has entered into an agreement with the State to have the Contractor to install new forced sewer main and all necessary structures. The main will be attached to the new bridge and built to specifications contained within the project bid book. The existing sewer main must remain in operation during the construction of the bridge project. It shall be the responsibility of the Contractor to construct a temporary crossing for the existing sewer main.

Note:

All utilities will be responsible for traffic control while performing their work unless an agreement has been reached with the Contractor to work within the project limits.

10 working day notice is required for all utilities before the start of relocations.

MAINTAINING UTILITY LOCATION MARKINGS

The Contractor will be responsible for maintaining the buried utility location markings following the initial locating by the appropriate utility or their designated representative.

UTILITY SIGNING

Any utility working within the construction limits of this project shall ensure that the traveling public is adequately protected at all times. All work areas shall be signed, lighted, and traffic flaggers employed as determined by field conditions. All traffic controls shall be in accordance with the latest edition of the Manual on Uniform Traffic Control Devices for Streets and Highways, as issued by the Federal Highway Administration.

SPECIAL PROVISION
SECTION 104
GENERAL RIGHTS & RESPONSIBILITIES
(Bridge Closure Notification)

Section 104, General Rights and Responsibilities, of the Standard Specifications is amended as follows:

104.4.10 Coordination of Bridge Closure/Bridge Width Restriction Notification:

Paragraph 2 is removed and replaced with the following:

A public notice shall be published in a local newspaper ten day prior to the closure.

SPECIAL PROVISION
SECTION 104
(WAGE RATES)

When two or more wage rate schedules appear in the bid Book, the highest rate shall prevail for each classification.

December 5, 2011
Supersedes December 1, 2010

SPECIAL PROVISION
SECTION 105
GENERAL SCOPE OF WORK
(Buy America Certification)

105.11 Federal Requirements Add the following as the third and subsequent paragraphs:

"Prior to payment by the Department, the Contractor shall provide a certification from the producer of steel or iron, or any product containing steel or iron as a component, stating that all steel or iron furnished or incorporated into the furnished product was manufactured in the United States in accordance with the requirements of the Buy America provisions of 23 CFR 635.410, as amended. Such certification shall also include (1) a statement that the iron or steel product or component was produced entirely within the United States, or (2) a statement that the iron or steel product or component was produced within the United States except for minimal quantities of foreign steel and iron valued at $ (actual value).

All manufacturing processes must take place domestically. Manufacturing begins with the initial melting and mixing, and continues through the coating stage. Any process which modifies the chemical content, the physical size and shape, or the final finish is considered a manufacturing process. These processes include rolling, extruding, machining, bending, grinding, drilling, and coating. "Coating" includes epoxy coating, galvanizing, painting, or any other coating that protects or enhances the value of the material.

A Buy America Certification is required from each manufacturer, fabricator, supplier, subcontractor, etc. that meets the "manufacturing" definition above.

Buy America does not apply to raw materials (iron ore and alloys), scrap, pig iron, or processed, pelletized, and reduced iron ore."

SPECIAL PROVISION
SECTION 105
General Scope of Work
(Environmental Requirements)

In-Water work consists of any activity conducted below the normal highwater mark of a river, stream, brook, lake, pond or "Coastal Wetland" areas that are subject to tidal action during the highest tide level for the year which an activity is proposed as identified in the tide tables published by the National Ocean Service. http://www.oceanservice.noaa.gov/ For the full definition of "Coastal Wetlands", please refer to 38 MRSA 480-B(2)

I. In-Water Work is allowed for the following activities as follows:

Activity	**In-Water Work Window**
Fill placement for temporary bridge	July 15 to April 15
Installation of work trestle	July 15 to April 15
Pier demolition	July 15 to April 15
Pile driving	July 15 to April 15
Cofferdam construction	July 15 to April 15
Work within cofferdam	Any time
Cofferdam removal	Any time
Temporary fill removal	Any time
Temporary structure removal	Any time

II. In-Water work window applies to the following water bodies at the following station #'s:
1. Mattawamkeag River at proposed bridge replacement

III. MaineDOT will conduct Atlantic salmon redd surveys at Mattawamkeag Bridge during the spawning season (October 1 start) of each construction year. Salmon redds were not located within the work area during the Fall 2019 survey. In the event that a salmon redd is found during the Fall 2020 or subsequent years, all in-water work in the vicinity of the redd shall be delayed while consultation with U.S. Fish & Wildlife determines appropriate mitigation methods **or** until July 15 of the following year. Delay resulting from the presence of redds shall be considered an Excusable Delay.

IV. Additional Requirements for In-water Pile Driving
1. Piles driven by impact hammer may not exceed the following pile sizes:
    i. Pipe pile: 30 inch
    ii. Steel H-pile: 14-inch
2. Installation of piles with an impact hammer shall be limited to no more than 3 piles per day.
3. The contractor shall use a vibratory hammer for pile installation as much as practicable.
4. Pile driving shall occur during the day.
5. Any use of an impact hammer during pile driving shall require the use of passive attenuation measures (changing hammer type, reducing driving duration, reducing force settings) and active measures (cushions and bubble curtains).
6. **The contractor shall employ a bubble curtain for all in-water impact pile driving. The bubble curtain shall meet the design specifications and performance requirements in the attached**

Bubble Curtain Specification. The contractor shall complete a performance test of the bubble curtain prior to any impact pile driving. The performance test shall confirm the calculated pressures and flow rates at each manifold ring.

7. **Hydroacoustic monitoring for impact pile driving shall be completed as follows for at least <u>one pile</u>:**
    i. **Largest pile driven in-water (in at least two feet of water)**
    ii. **A minimum of three hydrophones must be used, located approximately 33, 66, and 100 feet from the in-water sound producing activity.**
8. The Contractor shall retain the services of a qualified person or firm to prepare and implement a hydroacoustic monitoring plan following the attached "Underwater Noise Monitoring Plan" template. The Contractor shall provide MaineDOT a completed draft hydroacoustic monitoring plan at least 45 days prior to implementation for review. **No in-stream noise-generating activities may commence until MaineDOT has approved the monitoring protocol.**
9. The Contractor shall provide Hydroacoustic monitoring data to the Department. A preliminary data report shall be submitted within 5 business days of pile driving activity. A final summary report of all of the data must be submitted within 2 months of completion of in-water construction.
10. The contractor shall be responsible for implementing noise monitoring and noise attenuation as described above. Payment shall be made as a lump sum under Pay Item 501.237.

V. Special Conditions:

1. Special Conditions of Army Corps of Engineers (ACOE) Individual permit apply (see permit and conditions in SP 105).
2. Special Conditions of Formal Endangered Species Act (Section 7) Consultation with U.S. Fish and Wildlife Service apply (summarized in this Special Provision 105 and ACOE permit).
3. The MaineDOT will conduct Atlantic salmon red surveys during the spawning season prior to start of construction and each year during construction.
4. The Contractor shall hold a pre-construction meeting with appropriate MaineDOT Environmental Office staff, other MaineDOT staff, and the Contractor(s) to review all procedures and requirements for avoiding and minimizing effects to Atlantic salmon (ATS). The following individuals/agencies shall be invited: ACOE (Jay Clement, jay.l.clement@usace.army.mil); FHWA (Eva Birk, eva.birk@dot.gov); and U.S. Fish and Wildlife Service (Patrick Dockens, patrick_dockens@fws.gov).
5. The contractor shall contact Eric Ham of MaineDOT Environmental Office (207-215-7356, eric.ham@maine.gov) at least two weeks prior to installation of cofferdams to coordinate fish evacuation. Fish evacuation includes electrofishing. Electrofishing activities are prohibited when water temperatures is greater than or equal to 22 degrees Celsius (71.6 degrees Fahrenheit).
6. If adult Atlantic salmon are observed during active construction, all activities shall cease and the MaineDOT shall immediately contact the Service's Maine Field Office at 207-902-1586 (Patrick Dockens) within 48 hours of occurrence.
7. The MaineDOT will implement their BMPs in accordance with the MaineDOT: Best Management Practices for Erosion and Sedimentation Control. This BMP manual outlines means and methods to prevent sedimentation into streams from construction activities or storm events. These BMP measures include many filtering and sedimentation control techniques designed to dissipate water discharge energy (flow), filtering out sediments, and allowing particulate matter to settle out from suspension to the greatest extent practicable.

8. When cofferdams are placed within the water column, they shall be installed in a manner so as to avoid trapping fish. A pre-installation "sweep" of the area will be conducted to ensure there are no fish in the enclosed area. If cofferdams trap water during installation and project personnel determine that they need to be dewatered, then MaineDOT (or approved consultants) will capture and carefully remove as many fish species as possible from within the dam prior to dewatering. The MaineDOT will inspect the cofferdams after installation for adult Atlantic salmon.
9. All Atlantic salmon mortalities from electrofishing or any other project related activities shall be reported to the Service's Maine Field Office at 207-902-1586 (Patrick Dockens) within 48 hours of occurrence. Any Atlantic salmon death(s) shall be immediately preserved (refrigerate or freeze) for delivery to the Service's office in East Orland, Maine. If the Service is not available, contact the National Marine Fisheries Service in Orono Maine at 207-867-3755 (Dan Tierney) at arrange for delivery.
10. Fish passage through the project area shall be available at all times. Cofferdams or netting shall never close off the stream, and flow will continue between the devices on either side of the stream.
11. For any required pumping operations, the contractor shall use a screen on each pump intake sufficiently large enough so that the approach velocity does not exceed 6.10 m sec-1 (0.20 ft sec-1). Square or round screen face openings are not to exceed 2.38 mm (3/32 in) on a diagonal. Criteria for slotted face openings must not exceed 1.75 mm (approximately 1/16 in) in the narrow direction. These screen criteria follow NMFS guidance (2008). Intake hoses shall be regularly monitored while pumping to minimize adverse effects to Atlantic salmon.
12. During construction, any disturbed soils shall be temporary stabilized with BMPs, such as straw mulch, plastic sheeting, erosions control mix, or other appropriate BMPs.
13. All areas of temporary waterways or wetland fill shall be restored to their original contour and character upon completion of the project.
14. The contractor shall minimize vegetation clearing adjacent to the river to the maximum extent practicable. Areas of disturbed soil adjacent to the waterways shall be stabilized and re-vegetated with a seed mix appropriate for riparian areas in Maine.
15. Hoe ram removal of the existing abutment shall occur behind dewatered cofferdams.
16. The Contractor shall contact Eric Ham of MaineDOT Environmental Office (207-215-7356) at least two weeks prior to in-water activities to coordinate turbidity monitoring during cofferdam installation and pile driving.
17. Construction impacts shall be confined to the minimum area necessary to complete the project.
18. Construction of temporary approaches and abutments shall be contained within turbidity curtains. Temporary fill shall consist of non-erodible material.Fill for temporary approaches shall limited to no more than 25 percent of the width of the river.
19. Temporary fill shall extend no more than 25 feet from the shoreline from each side of the river. The allowable fill represents less than 25 percent of the width of the river, which is approximately 335 feet at the location of the temporary bridge. .
20. Demolition of concrete piers of existing bridge shall occur within containment such as turbidity curtains.
21. Movement effects and other effects created from cofferdam use will be minimized by limiting cofferdam placement to the time necessary to complete instream activities, assuring that the cofferdam will be placed in the stream as shown in submitted drawings, and by maintaining a flow channel throughout the instream construction period. Cofferdams shall be removed from the

stream within 2 days of completion of instream construction, allowing for minor delays due to high stream flows following heavy precipitation.

22. To minimize the spread of noxious weeds into the riparian zone, all off-road equipment and vehicles (operating off of existing open and maintained roads) shall be cleaned prior to entering the construction site to remove all soil, seeds, vegetation, or other debris that could contain seeds or reproductive portions of plants. All equipment shall be inspected prior to off-loading to ensure that they are clean.
23. All concrete shall be poured in the dry, or within confined waters not being dewatered to surface waters. Prior to release to a natural resource, any impounded water that has been in contact with concrete placed during construction shall have a pH between 6.0 and 8.5, shall be within one pH unit of the background pH level of the resource and shall have a turbidity level no greater than the receiving resource. This requirement is applicable to concrete that is placed or spilled (including leakage from forms) as well as indirect contact via tools or equipment.
24. As a component of the SEWPCP required for each project, MaineDOT or their contractor will develop and implement a Spill Prevention Control and Countermeasure Plan (SPCCP) designed to avoid any stream impacts from hazardous chemicals, such as diesel fuel, oil, lubricants, and other hazardous materials. All refueling or equipment maintenance will take place away from the stream and in a careful manner that prohibits chemical or other hazardous materials from entering the stream. These measures include the following:
    a. All vehicle and equipment refueling activities shall occur more than 100 feet from any water course.
    b. All vehicles carrying fuel shall have specific equipment and materials needed to contain or clean up any incidental spills at the Project site. Equipment and materials would include spill kits appropriately sized for specific quantities of fuel, shovels, absorbent pads, straw bales, containment structures and liners, and/or booms.
    c. During use, all pumps and generators shall have appropriate spill containment structures and/or absorbent pads in place.
    d. All equipment used for in-stream work shall be cleaned of external oil, grease, dirt, and mud. Any leaks or accumulations of these materials would be corrected before entering areas that drain directly to streams or wetlands.

V. Approvals:
1. Temporary Soil Erosion and Water Pollution Control Plan
2. Permitted Resource Impacts (square feet), see ACOE permit for locations:

Stream (RUS):	*Wetland (PEM):*
Permanent: 3,230	*Permanent: 710*
Temporary: 4,425	*Temporary 2,060*

VI. All activities are prohibited (including placement and removal of cofferdams unless otherwise permitted by Regulatory Agencies) below the normal highwater mark if outside the prescribed in-water work window, except for the following:

1. Work within a cofferdam constructed according to MaineDOT's Standard Specifications and in adherence with the contractors approved "Soil Erosion and Water Pollution Control Plan".

VII. No work is allowed that completely blocks a river, stream, or brook without providing downstream flow.

NOTE: Regulatory Review and Approval is required to modify the existing In-Water work window. Requests for work window extensions must be submitted to the MaineDOT Environmental Office. Approval of requests for work window extensions is not guaranteed and may result in delays in construction schedule that are the sole responsibility of the contractor.

UNDERWATER NOISE MONITORING PLAN

****TEMPLATE*****

Replace underlined blue italic text with project information.
Blue italic text is guidance.
Plain, black text ***is template language.***
All blue italic text should be replaced or omitted for final production.

Prepared by:
Name and full contact information
Signature Block

Date

INTRODUCTION *(This section will be project specific)*

The *full agency name* proposes to *detailed project description*. See vicinity map (Figure 1).

Figure 1. Vicinity map of *name project*.

PROJECT AREA *(This section will be project specific)*

Describe the location of the project, including all water bodies that are affected. Identify the USGS hydrologic unit, both the name and code, where the project is located. Include detailed maps and figures, when available, relative to environmental features that influence monitoring (e.g., geology, bathymetry, etc.).

PERMIT/ESA CONDITIONS *(This section will be project specific and is applicable only when the ESA consultation is complete or Federal/State/local permits have been issued. Each agency should modify this section to reflect the various types of permit/ESA conditions that they see.)*

> *Summarize the Federal/State/local permit conditions and the ESA requirements that relate to the underwater noise. Permit conditions include monitoring requirements, timing restrictions, etc. The ESA requirements are found in the Incidental Take Statement and Terms and Conditions sections of the biological opinion. These requirements vary between biological opinions, but can include monitoring requirements, timing restrictions, limits on cumulative sound exposure level (cSEL) at a given distance, description of the area where the thresholds must not be exceeded, the allowable number of piles driven per day, the allowable number of pile strikes per day, or a limit on the single strike SEL.*

PILE INSTALLATION LOCATION *(This section will be project specific)*

Figure 2 indicates the location of the *provide location of the structure(s) in need of pile driving*. There will be a total of *XX* piles driven as part of the *name structure(s)*.

Figure 2. Location of *name structure(s)* where pile driving activity will take place. *This information must be in enough detail to allow the reader to assess the monitoring locations.*

PILE INSTALLATION

Impact Pile Driving for Fish Consultations

Provide pile installation information. For example:

Hydroacoustic monitoring will be conducted for *X* piles struck with an impact hammer. Piles chosen to be monitored are driven in water depths that are representative of mid-channel or typical water depths at the project location where piles will be driven.

The number of piles to be monitored will depend on a variety of factors – some projects may require that all piles be monitored, while others may require a representative sample of piles be monitored. If a sample of piles is to be monitored, provide the considerations taken and the rationale used in choosing a representative number of piles, such as, bathymetry, total number of piles to be driven, substrate type, depth of water, distance from shore, river, or stream bank, and any other considerations, as appropriate. When monitoring a subset, a minimum of 5 piles should be monitored. Additional monitoring to produce a representative sample may be warranted when projects are

driving a large number of piles, driving multiple piles of varying diameters in differing substrates, driving different types of piles, or driving piles in widely differing depths.

Hydroacoustic monitoring of *type of pile* with impact driving will include:

- Monitoring *X piles, out of a total of Y piles driven for the project*.
- Testing sound attenuation system effectiveness.

Figure 3 indicates the location of the piles to be monitored and the approximate hydrophone locations for each pile being monitored. All hydrophones will be placed at least 1 m (3.3 feet) below the surface. *If only one hydrophone at one distance is to be used it is acceptable for the hydrophone to be placed 10 meters from the pile at midwater depth. If hydrophones will be placed at more than one distance from the pile and used to calculate transmission loss over distance, water depth should be at least 4m (13 ft) and it is suggested that the additional hydrophone nearest the pile be placed at least 3H from the pile where H is the water depth at the pile and at 0.7 to 0.85H depth from the surface. In waters less than 4m (13 ft) deep, a single hydrophone at midwater depth is sufficient*[1]. Hydrophones will be located *X* meters from each pile with a clear acoustic line-of-sight between the pile and the hydrophone. *Additional distances measured concurrently are desirable, if possible, to estimate the site specific range to the threshold boundary. Include any additional distances or depths where hydrophones will be located. If airborne noise monitoring is required, the primary measurement microphone shall be placed 50 feet (e.g. 15 meters) from the pile at least 6 feet above the ground or water, and shall have an unobstructed view of the length of the pile.*

[1] Some projects may need or require more than one hydrophone to collect real time measurements at multiple locations or multiple distances. In these situations multiple hydrophones can be placed at midwater depths.

Figure 3. Location of the piles that will be monitored on the *name structure(s)*.

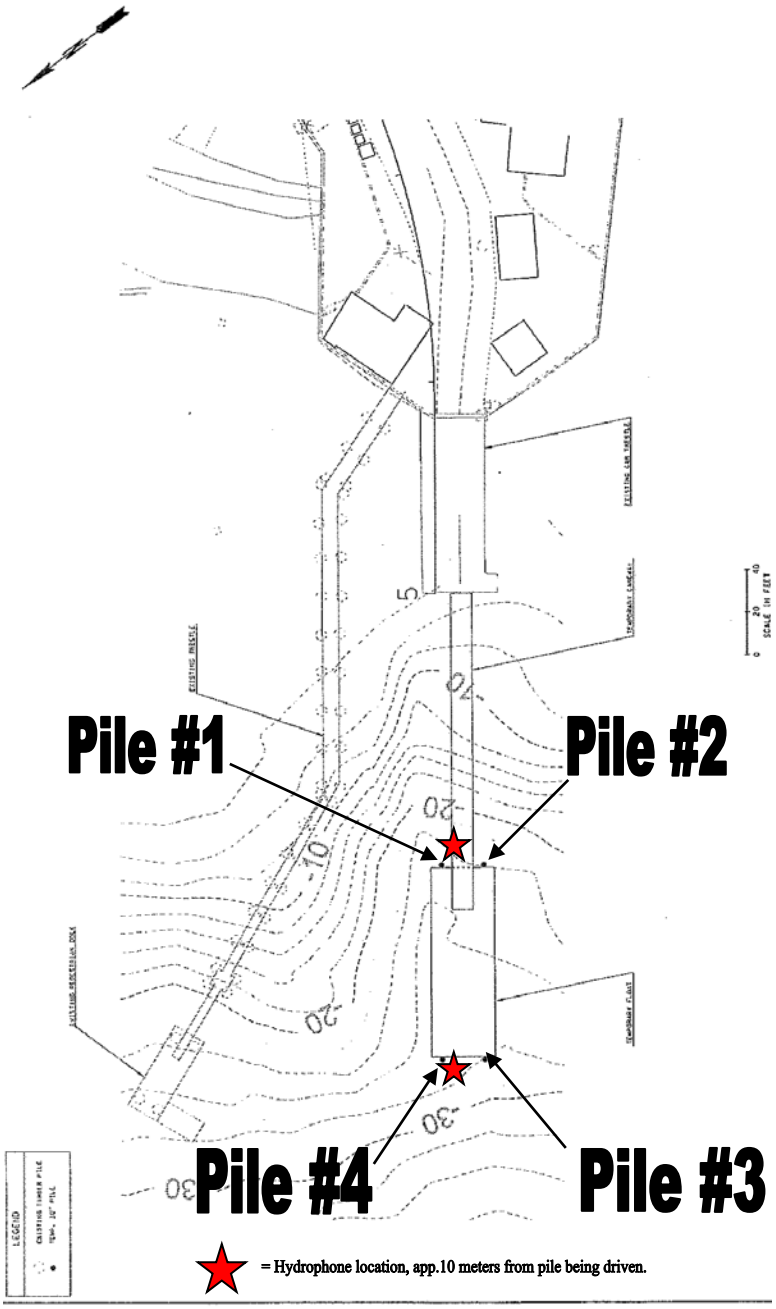


Table 1 lists the *name structure(s)* to be installed, the water depth, and the number and size of piles that will be installed.

Table 1
Depth, Number Piles to be Monitored

Structure	Water Depth	Structural Components Installed
Name structure	*X feet to X feet*	*X - XX-inch diameter type of pile*

CONTRACTOR REQUIREMENTS

The contractor will submit a detailed description of their qualifications, which must include a minimum of a bachelor's degree in a related field[2] and 3 years' experience in noise monitoring and analysis, and monitoring plan based on this template for approval by [INSERT AGENCY NAME]. A list of the contractors' proposed sound level monitoring equipment shall be included along with specifications and a description of the purpose. The measurement range in terms of amplitude (in dB referenced to one micropascal (re: 1 uPa)), sensitivity and frequency shall be stated. A minimum frequency range of 20 Hz to 20 kHz and a minimum sampling rate of 48,000 Hz will be used when monitoring. Sampling rates higher than 48 kHz are preferred. Table 2 describes the minimum requirements of the equipment to be used. In addition to the equipment selection, quality control/quality assurance procedures should be described (e.g., how will system responses be verified and how will data be managed).

Table 2.

Equipment for underwater sound monitoring (hydrophone, signal amplifier, and calibrator). All have current National Institute of Standards and Technology (NIST) traceable calibration. *This table is intended as a guideline and exact specifications can be adjusted to meet the needs of the individual project or contractors' equipment.*

Item	Specifications	Minimum Quantity	Usage
Hydrophone	*Receiving Sensitivity- -211dB re 1V/µPa*	*1*	*Capture underwater sound pressures near the source and convert to voltages that can be recorded/analyzed by other equipment.*
Hydrophone	*Receiving Sensitivity – -200dB re 1/µPa*	*1*	*Capture underwater sound pressures for background levels and convert to voltages that can be recorded/analyzed by other equipment.*
Signal Conditioning Amplifier	*Amplifier Gain- 0.1 mV/pC to 10 V/pC Transducer Sensitivity Range- 10-12 to 103 C/MU*	*1*	*Adjust signals from hydrophone to levels compatible with recording equipment.*
Calibrator (pistonphone-type)	*Accuracy- IEC 942 (1988) Class 1*	*1*	*Calibration check of hydrophone in the field.*

[2] This can include Institute of Noise Control Engineering of the USA (INCE/USA) certification or related fields such as acoustics, physics, oceanography, geology or other physical sciences that have required coursework in physics.

Digital Signal Analyzer	*Sampling Rate-* *48kHz or greater*	*1*	*Analyzes and transfers digital data to laptop hard drive.*
Microphone (free field type)	*Range- 30 – 120 dBA* *Sensitivity-* *-29 dB ± 3 dB (0 dB = 1 V/Pa)* *Wind Screen*	*1*	*Monitoring airborne sounds from pile driving activities (if not raining).*
If water velocity ~> 1m/s, Flow shield	*Open cell foam cover or functional equivalent*	*1/hydrophone*	*Eliminate flow noise contamination.*
Laptop computer *or* *Digital Audio Recorder*	*Compatible with digital signal analyzer*	*1*	*Record digital data on hard drive or digital tape.*
Real Time and Post-analysis software	-	*1*	*Monitor real-time signal and post-analysis of sound signals.*

To facilitate further analysis of data full bandwidth, time-series underwater signal shall be recorded as a text file (.txt) or wave file (.wav) or similar format. Recorded data shall not use data compression algorithms or technologies (e.g. MP3, compressed .wav, etc.).

METHODOLOGY

Impact Pile Driving for Fish Consultations (and listed US FWS, diving sea bird, if relevant)

Underwater background sound level measurements are optional, however, if desired then the NMFS (2012a) guidance should be followed.

If one hydrophone at one distance is to be used it is acceptable for the hydrophone to be placed 10 meters from the pile and at midwater depth. If hydrophones will be placed at more than one distance from the pile it is suggested that the hydrophone nearest the pile be placed at least 3H from the pile where H is the water depth at the pile and 0.7 to 0.85H depth from the surface. The hydrophone*(s)* will be placed at *X meters* depth at a distance of *X meters* from each pile being monitored, in waters of *X meters* depth. *If water velocity is 1 meter/second or greater, 1-3 meters off the bottom may be recommended for near field hydrophones and greater than 5 meters from the surface may be recommended for any far field hydrophones.* A weighted tape measure will be used to determine the depth of the water. The hydrophone*(s)* will be attached to a nylon cord, a steel chain, or other proven anti-strum features if the current is swift enough to cause strumming of the line. The nylon cord or chain will be attached to an anchor that will keep the line the appropriate distance from each pile. The nylon cord or chain will be attached to a float or tied to a static line at the surface. The distances will be measured by a tape measure, where possible, or a range-finder. The acoustic path (line of sight) between the pile and the hydrophone*(s)* should be unobstructed in all cases.

When collecting sound measurements in an area with currents (i.e., in rivers or tidally influenced areas), appropriate measures will be taken, when necessary, to ensure that the flow-induced noise at the hydrophone will not interfere with the recording and analysis of the relevant sounds (NMFS, 2012a). As a general rule, current speeds of 1.5 meters/second or greater are expected to generate significant flow-induced noise, which may interfere

with the detection and analysis of low-level sounds such as the sounds from a distant pile driver or background sounds. If such measures are necessary, include a description of those measures. For example:

> *If it becomes necessary to reduce the flow-induced noise at the hydrophone, a flow shield will be described and installed around the hydrophone to provide a barrier between the irregular, turbulent flow and the hydrophone. If no flow shield is used in these situations, the current velocity will be measured and a correlation between the levels of the relevant sounds (background or pile driving) and current speed will be made to determine whether the data is valid and can be included in the analysis.*

The hydrophone calibration*(s)* will be checked at the beginning of each day of monitoring activity. *The method of calibration and calibration equipment used will be described.* NIST traceable calibration forms shall be provided for all relevant monitoring equipment. Prior to the initiation of pile driving, the hydrophone will be placed at the appropriate distance and depth as described above.

The onsite inspector/contractor will inform the acoustics specialist when pile driving is about to start to ensure that the monitoring equipment is operational. Underwater sound levels will be continuously monitored during the entire duration of each pile being driven with a minimum one-third octave band frequency resolution. The wideband instantaneous absolute peak pressure and Sound Exposure Level (SEL) values of each strike, and daily cumulative SEL should be monitored in real time during construction to ensure that the project does not exceed its authorized take level. Peak and rms pressures will be reported in dB (re:1 µPa). SEL will be reported in dB (re: 1 $\mu Pa^2 \cdot sec$). Wideband time series recording is strongly recommended during all impact pile driving.

Prior to, and during, the pile driving activity, environmental data will be gathered, such as water depth and tidal level, wave height, and other factors that could contribute to influencing the underwater sound levels (e.g. aircraft, boats, etc.). Start and stop time of each pile driving event and the time at which the bubble curtain or functional equivalent[3] is turned on and off will be logged.

The contractor or agency will provide the following information, in writing, to the contractor conducting the hydroacoustic monitoring for inclusion in the final monitoring report: a description of the substrate composition, approximate depth of significant substrate layers, hammer model and size, pile cap or cushion type, hammer energy settingsand any changes to those settings during the piles being monitored, depth pile driven, blows per foot for the piles monitored, and total number of strikes to drive each pile that is monitored.

Sound Attenuation Monitoring

All monitored piles may be tested with the sound attenuation system on and off (or presence and absence) to test its effectiveness[4]. To account for varying resistance as the pile is driven; the sound attenuation device will be turned off for *(describe schedule for turning on and off)* periods during the beginning, the middle third, and near the end of the drive. After turning off the attenuation system, pile driving should not resume for at least 2 minutes to allow time for air bubbles to completely disperse. *For piles that require less than 5 minutes to drive, pile driving should occur for only two periods with the bubbles off, one near the beginning and once near the end of the drive.*

---

[3] A functional equivalent must function as well as or better than the attenuation device that was proposed during consultation or required by the ESA consultation or applicable permits. It must achieve the same or better sound level reductions that were used in the calculations during ESA consultation or the permitting process.

[4] Note: There may be circumstances where the U.S. Fish and Wildlife Service determines that unattenuated pile driving (striking the pile with the bubble curtain turned off) would pose a significant risk of injury to species. In those situations, the Service may request that unattenuated pile driving does not occur and that hydroacoustic monitoring be conducted to determine the extent at which certain thresholds are met instead. This will need to be determined on a case by case basis for projects that may affect listed species.

SIGNAL PROCESSING

Impact Pile Driving for Fish Consultations (and any US FWS listed, diving sea bird)

Post-analysis of the underwater pile driving sounds will include:

- Number of pile strikes per pile and per day.
- For each recorded strike (or each strike from a subset), determine the following:
    - The peak pressure, defined as the maximum absolute value of the instantaneous pressure (overpressure or underpressure).
    - The root mean squared sound pressure across 90% of the strikes energy ($RMS_{90\%}$).
    - Sound exposure level, measured across 90% of the accumulated sound energy ($SEL_{90\%}$). Calculation methodology is provided in Appendix A.
- Maximum, mean, and range of the peak pressure, with, and if applicable, without attenuation.
- Maximum, mean, range, and Cumulative Distribution Function (CDF) of the $RMS_{90\%}$, both with and if applicable, without attenuation where the CDF is used to report the percentage of $RMS_{90\%}$ values above the thresholds.
- Maximum, mean, and range of the $SEL_{90\%}$, both with and if applicable, without attenuation.
- Cumulative SEL (cSEL) across all of the pile strikes. If SEL was calculated for all strikes, cSEL is estimated as indicated in Appendix A. If SEL was calculated for a subset of strikes, cSEL is estimated as follows: $cSEL = SEL_{mean} + 10*\log(\text{total \# strikes})$.
- Where surrogate piles are monitored to represent a larger project, an estimate of the cSEL during a typical day of construction driving must be reported by summing the SEL over the expected number of pile strikes in a typical day for the larger project: $cSEL = SEL_{mean} + 10*\log(\#\text{strikes})$. The SEL_{mean} used in this calculation must correspond with the actual sound attenuation measures that will be used during construction of the larger project.
- A frequency spectrum both with and, *if applicable*, without attenuation, between a minimum of 20 and 20 kHz for up to eight successive strikes with similar sound levels.

If airborne noise monitoring is required, both A-weighted and unweighted measurements will be acquired. Broadband back-to-back RMS L_{max} (peak) and L_{eq} (average) 5-minute measurements will be made over the duration of pile driving,. L_{max} measurements should be taken with a portable analyzer set for "fast" response (125 msec). For at least one full pile sequence of each pile size and substrate type, frequency spectrum measurements (L_{max} and L_{eq}) using a minimum resolution of one-third octave bands shall be taken to show the spectral content of the impact pile. If measuring background sound levels in the absence of construction is not possible, then report the L_{95} statistic.

ANALYSIS

Impact Pile Driving for Fish Consultations

Analysis of the data from the San Francisco-Oakland Bay Bridge Pile Installation Demonstration project (PIDP) indicated that 90 percent of the acoustic energy for most pile driving impulses occurred over a 50 to 100 millisecond period with most of the energy concentrated in the first 30 to 50 milliseconds (Illingworth and Rodkin, 2001). The RMS values computed for this project will be computed over the duration between where 5% and 95% of the energy of the pulse occurs. The SEL energy plot will assist in interpretation of the single strike waveform. The single strike SEL associated with the highest absolute peak strike along with the total number of strikes per pile and per day will be used to calculate the cumulative SEL for each pile and each 24-hour period.

In addition a waveform analysis of the individual absolute peak pile strikes will be performed to determine any changes to the waveform with the *name type of noise attenuation device*. A comparison of the frequency content

with and without noise attenuation will be conducted. Units of underwater sound pressure levels will be dB (re:1 µPa)and units of SEL will be re:1 μPa^2•sec.

REPORTING

If sound attenuation devices are used during the monitoring, include the following text and analysis:

An analysis of the change in the waveform and sound levels with and without the *name type of noise attenuation device for impact driving* operating will be conducted.

Preliminary results for the daily monitoring activities, if required, will be submitted/reported to the primary point of contact[5] at each of the Services within *X hours* after monitoring concludes for the day. In addition a final draft report including data collected and summarized from all monitoring locations will be submitted to the Services within 90 days of the completion of hydroacoustic monitoring. The results will be summarized in graphical form and include summary statistics and time histories of impact sound values for each pile. A final report will be prepared and submitted to the Services within 30 days following receipt of comments on the draft report from the Services. The report shall include:

1. Size and type of piles.
2. A detailed description of the *name type of noise attenuation device*, including design specifications *(if applicable)*.
3. The impact hammer energy rating used to drive the piles, make and model of the hammer.
4. A description of the sound monitoring equipment.
5. The distance between hydrophone*(s) or microphone(s)* and pile.
6. The depth of the hydrophone*(s)* and depth of water at hydrophone locations.
7. The distance from the pile to the water's edge.
8. The depth of water in which the pile was driven.
9. The depth into the substrate that the pile was driven.
10. The physical characteristics of the bottom substrate into which the piles were driven.
11. The total number of strikes to drive each pile and for all piles driven during a 24-hour period.
12. The underwater wideband background sound pressure level reported as the 50% CDF *(if applicable)*.
13. The results of the hydroacoustic monitoring, as described under Signal Processing. An example table is provided in Appendix C for reporting the results of the monitoring.
14. The distance at which peak, cSEL, and rms values exceed the respective threshold values.
15. A description of any observable fish, marine mammal, or bird behavior in the immediate area will and, if possible, correlation to underwater sound levels occurring at that time.
16. *If airborne noise monitoring is required, broadband A-weighted and unweighted maximum, minimum, and average Lmax and Leq levels shall be tabulated for every pile. For each pile size and substrate type frequency spectra (one-third octave minimum frequency resolution) charts will be included to show the frequency content of Lmax and Leq signatures. The frequency content of airborne noise background levels shall also be shown. Background sound levels or L95 surrogate for background sound shall be reported.*

[5] The primary point of contact is the biologist that conducted the Section 7 consultation for the Service(s). In the event that the consulting biologist is not available, communication regarding monitoring results and reports should be addressed to the manager of the consultation branch or division with a reference to the consultation title.

REFERENCES

Illingworth and Rodkin, Inc. 2001. Noise and Vibration Measurements Associated with the Pile Installation Demonstration Project for the San Francisco-Oakland Bay Bridge East Span, Final Data Report, Task Order 2, Contract No. 43A0063.

NMFS, 2012a. Guidance Document: Data Collection Methods to Characterize Underwater Background Sound Relevant to Marine Mammals in Coastal Nearshore Waters and Rivers of Washington and Oregon. Memorandum: NMFS Northwest Fisheries Science Center – Conservation Biology Division and Northwest Regional Office – Protected Resources Division, January 31, 2012.

NMFS, 2012b. Guidance Document: Data Collection Methods to Characterize Impact and Vibratory Pile Driving Source Levels Relevant to Marine Mammals. Memorandum: NMFS Northwest Fisheries Science Center – Conservation Biology Division and Northwest Regional Office – Protected Resources Division, January 31, 2012.

NMFS, 2012c. Guidance Document: Sound Propagation Modeling to Characterize Pile Driving Sounds Relevant to Marine Mammals. Memorandum: NMFS Northwest Fisheries Science Center – Conservation Biology Division and Northwest Regional Office – Protected Resources Division, January 31, 2012.

Southall, B.L., A.E. Bowles, W.T. Ellison, J.J. Finneran, R.L. Gentry, C.R. Greene, D. Kastak, D.R. Ketten, J.H. Miller, P.E. Nachtigall, W.J. Richardson, J.A. Thomas, and P.L. Tyack. 2007. Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations. Aquatic Mammals 33(4): 411-521.

APPENDIX A

Calculation of Cumulative SEL

An estimation of individual SEL values can be calculated for each pile strike by calculating the following integral, where T is T_{90}, the period containing 90% of the cumulative energy of the pulse (eq. 1).

$$SEL = 10\log\left(\int_0^T \frac{p^2(t)}{p_0^{\,2}}\,dt\right) \quad dB \qquad \text{(eq. 1)}$$

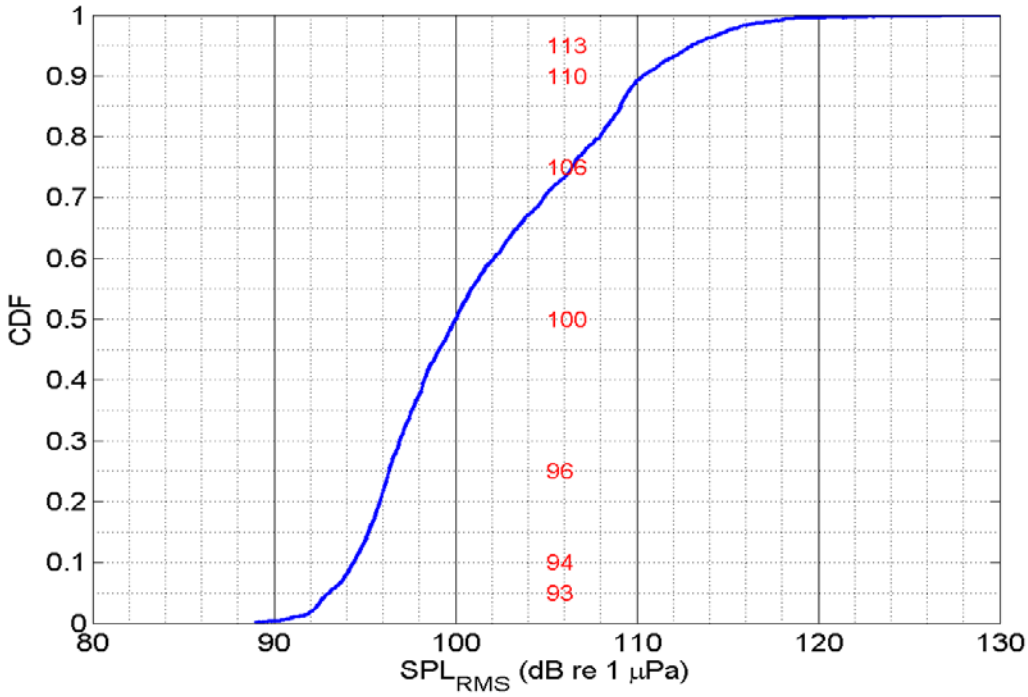
Calculating a cumulative SEL from individual SEL values cannot be accomplished simply by adding each SEL decibel level arithmetically. Because these values are logarithms they must first be converted to antilogs and then accumulated. Note, first, that if the single strike SEL is very close to a constant value (within 1 dB), then cumulative SEL = single strike SEL + 10 times log base 10 of the number of strikes N, i.e, $10\text{Log}_{10}(N)$. However if the single strike SEL varies over the sequence of strikes, then a linear sum of the energies for all the different strikes needs to be computed. This is done as follows: divide each SEL decibel level by 10 and then take the antilog. This will convert the decibels to linear units (or $uPa^2 \bullet s$). Next compute the sum of the linear units and convert this sum back into dB by taking 10Log_{10} of the value. This will be the cumulative SEL for all of the pile strikes.

APPENDIX B

Calculation of a Cumulative Distribution Function and Plot for Background Sound Level Analysis

Data from three full 24-hour underwater measurement cycles (minimum) are used to calculate a 30-second Root Mean Square (RMS) value for each 30-second period for the entire dataset. The RMS should be calculated for both the full frequency range recorded as well as a separate dataset which has been passed through a high pass filter thus eliminating those frequencies below 1000 Hz. These datasets are then grouped into 24-hour periods. To determine if the data is approximately log-normal in distribution, each 24-hour period is plotted as a Probability Density Function (PDF). Each 24-hour period can be plotted on the same PDF plot. The plots should be approximately log normal in distribution and thus can be used in the further analysis. Each day of data should have an approximately Gaussian sigmoid shape, the differences between them and the ideal might be hard to spot, but the sigmoid from day to day will show noticeable variation. Data which does not approximate a log normal distribution should be excluded from further analysis.

The Cumulative Distribution Function (CDF) plot is obtained by plotting the normalized cumulative sum vs. the bin location. You can also get the PDF from plotting the normalized bin count vs. the bin location. The normalized bin count is obtained by dividing the count column by (number of data points multiplied by the space between 2 consecutive bins). This provides the integral of the PDF equal to 1. For instructions on creating a histogram in Microsoft Excel, see: http://www.vertex42.com/ExcelArticles/mc/Histogram.html



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Date: 8/13/20

APPENDIX C

Table 1. Example table for required information for reporting the results of hydroacoustic monitoring of pile driving.

Date and Time	Pile ID	Hammer Impact or Vibratory	# Strikes or Vibratory Seconds	Distance to Pile from Hydrophone (m)	Water Depth (m)		Peak (dB)			SEL$_{90\%}$ (dB)				RMS$_{90\%}$ (dB)			Notes
					At Pile	At H-phone	Max	Min	Mean	Max	Min	Mean	cSEL$_{90\%}$	Max	Min	Mean	

Appendix I–Bubble Curtain Specification

These specifications are verbatim from National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS), Western Washington Fish and Wildlife Office Impact Pile Driving Sound Attenuation Specification

Unconfined Bubble Curtain Specifications:

1. General - An unconfined bubble curtain is composed of an air compressor(s), supply lines to deliver the air, distribution manifolds or headers, perforated aeration pipe, and a frame. The frame facilitates transport and placement of the system, keeps the aeration pipes stable, and provides ballast to counteract the buoyancy of the aeration pipes in operation.

2. The aeration pipe system shall consist of multiple layers of perforated pipe rings, stacked vertically in accordance with the following:

Water Depth (m)	No. of Layers
0 to less than 5	2
5 to less than 10	4
10 to less than 15	7
15 to less than 20	10
20 to less than 25	13

3. The pipes in all layers shall be arranged in a geometric pattern which shall allow for the pile being driven to be completely enclosed by bubbles for the full depth of the water column and with a radial dimension such that the rings are no more than 0.5 meters from the outside surface of the pile.

4. The lowest layer of perforated aeration pipe shall be designed to ensure contact with the substrate without burial and shall accommodate sloped conditions.

5. Air holes shall be 1.6 mm (1/16-inch) in diameter and shall be spaced approximately 20 mm (3/4 inch) apart. Air holes with this size and spacing shall be placed in four adjacent rows along the pipe to provide uniform bubble flux.
6. The system shall provide a bubble flux of 3.0 cubic meters per minute per linear meter of pipe in each layer (32.91 cubic feet per minute per linear foot of pipe in each layer). The total volume of air per layer is the product of the bubble flux and the circumference of the ring:

   $V_t = 3.0\ m^3/min/m$ * Circum of the aeration ring in m

   or

   $V_t = 32.91\ ft^3/min/ft$ * Circum of the aeration ring in ft

7. Meters shall be provided as follows:

a. Pressure meters shall be installed at all inlets to aeration pipelines and at points of lowest pressure in each branch of the aeration pipeline.

b. Flow meters shall be installed in the main line at each compressor and at each branch of the aeration pipelines at each inlet. In applications where the feed line from the compressor is continuous from the compressor to the aeration pipe inlet the flow meter at the compressor can be eliminated.

c. Flow meters shall be installed according to the manufactures recommendation based on either laminar flow or non-laminar flow.

Confined Bubble Curtain Specifications:

1. General - A confined bubble curtain is composed of an air compressor(s), supply lines to deliver the air, distribution manifolds or headers, perforated aeration pipe(s), and a means of confining the bubbles.

   a. The confinement (e.g. fabric, plastic or metal sleeve, or equivalent) shall extend from the substrate to a sufficient elevation above the maximum water level expected during pile installation such that when the air delivery system is adjusted properly, the bubble curtain does not act as a water pump (i.e., little or no water should be pumped out of the top of the confinement system).

   b. The confinement shall contain resilient pile guides that prevent the pile and the confinement from coming into contact with each other and do not transmit vibrations to the confinement sleeve and into the water column (e.g. rubber spacers, air filled cushions).

2. In water less than 15 meters deep, the system shall have a single aeration ring at the substrate level. In waters greater than 15 meters deep, the system shall have at least two rings, one at the substrate level and the other at mid-depth.

3. The lowest layer of perforated aeration pipe shall be designed to ensure contact with the substrate without sinking into the substrate and shall accommodate for sloped conditions.

4. Air holes shall be 1.6 mm (1/16-inch) in diameter and shall be spaced approximately 20 mm (3/4 inch) apart. Air holes with this size and spacing shall be placed in four adjacent rows along the pipe to provide uniform bubble flux.

8. The system shall provide a bubble flux of 3.0 cubic meters per minute per linear meter of pipe in each layer (32.91 cubic feet per minute per linear foot of pipe in each layer). The total volume of air per layer is the product of the bubble flux and the circumference of the ring:

   $V_t = 3.0\ m^3/min/m$ * Circ of the aeration ring in m

or

$V_t = 32.91\ ft^3/min/ft$ * Circ of the aeration ring in ft

5. Meters shall be provided as follows:

   a. Pressure meters shall be installed at all inlets to aeration pipelines and at points of lowest pressure in each branch of the aeration pipeline.

   b. Flow meters shall be installed in the main line at each compressor and at each branch of the aeration pipelines at each inlet. In applications where the feed line from the compressor is continuous from the compressor to the aeration pipe inlet the flow meter at the compressor can be eliminated.

   c. Flow meters shall be installed according to the manufactures recommendation based on either laminar flow or non-laminar flow.

SPECIAL PROVISION 105
CONSTRUCTION AREA

A Construction Area located in the **Town of Mattawamkeag** has been established by the Maine Department of Transportation (MDOT) in accordance with provisions of 29-A § 2382 Maine Revised Statutes Annotated (MRSA).

(a) The section of highway under construction in the town of Mattawamkeag, Penobscot County on US Route 2 over the Mattawamkeag River and on Hathaway Road.

(b) (Main Street) over Mattawamkeag River station 12+00.00 to station 22+06.00 of the construction plus approaches.

(c) (Hathaway Road) station 101+09.00 to station 101+89.03 of the construction plus approaches.

Per 29-A § 2382 (7) MRSA, the MDOT may "*issue permits for stated periods of time for loads and equipment employed on public way construction projects, United States Government projects or construction of private ways, when within construction areas established by the Department of Transportation. The permit:*

A. Must be procured from the municipal officers for a construction area within that municipality;

B. May require the contractor to be responsible for damage to ways used in the construction areas and may provide for:

(1) Withholding by the agency contracting the work of final payment under contract; or

(2) The furnishing of a bond by the contractor to guarantee suitable repair or payment of damages.

The suitability of repairs or the amount of damage is to be determined by the Department of Transportation on state-maintained ways and bridges, otherwise by the municipal officers;

C. May be granted by the Department of Transportation or by the state engineer in charge of the construction contract; and

D. For construction areas, carries no fee and does not come within the scope of this section."

The Municipal Officers for the **Town of Mattawamkeag** agreed that an Overlimit Permit will be issued to the Contractor for the purpose of using loads and equipment on municipal ways in excess of the limits as specified in 29-A MRSA, on the municipal ways as described in the "Construction Area".

As noted above, a bond may be required by the municipality, the exact amount of said bond to be determined prior to use of any municipal way. The MDOT will assist in determining the bond amount if requested by the municipality.

The maximum speed limits for trucks on any town way will be 25 mph (40 km per hour) unless a higher legal limit is specifically agreed upon in writing by the Municipal Officers concerned.

SPECIAL PROVISION
SECTION 107
TIME
(Contract Time)

The Contract Completion Date for this contract is June 15, 2023.

Special Provision
Section 107
Time
(Supplemental Liquidated Damages for Fabrication Time)

107.8.1 Fabrication Time The Department has budgeted for the following amounts of continuous full time fabrication/shop QA inspection for the following Work components:

Element	Time	Supplemental LD
Structural Plate Girders	115 Calendar Days	$1,000 per Calendar Day

The Contractor is responsible for requiring their fabricators and suppliers to produce these products for the Work continuously until finished, including any needed actions to correct unacceptable workmanship or materials. If the Department determines that QA inspection beyond these times is required, then the corresponding Supplemental Liquidated Damages will be deducted as they occur from the amounts otherwise due to the Contractor. These allowed Fabrication Time begins on the first day of fabrication and runs consecutively until expiration.

If a fabricator or supplier works more than one shift per day and the Department determines that inspection is required for each shift, each shift will count as a calendar day and the LD rate will be the noted amount per shift per Calendar Day in lieu of per Calendar Day.

QA inspector presence is required but not limited to the following activities:

> For metal fabrication work: welding, including tack welding, heat correcting, non-destructive examination, assembly verification, and hold points in the approved Thermal Spray Coating procedure and any other times as required in the Standard Specifications or Special Provisions.

SPECIAL PROVISION
SECTION 202
REMOVING STRUCTURES AND OBSTRUCTIONS
(Removing Existing Railings Retained by Department)

The following item on the existing bridge shall be removed by the Contractor and remain property of the Department:

1. 2 bar metal bridge rail including post

The bridge rail and bridge rail posts shall be removed by the Contractor and transported from the project site to the following location:

Maine Department of Transportation
Carmel Bridge Lot 1542 Fuller Road in Carmel, Maine

The Contractor shall contact the Resident and Derek Williams, MaineDOT at (207) 592-3647 a minimum of 72 hours in advance of delivery of the bridge rail and posts. MaineDOT shall be responsible for unloading any materials.

The aluminum rail and posts shall be adequately secured to wooden pallets before being returned to the Department. Base plates, rail caps, splice bars, clamp bars and miscellaneous hardware shall be placed in wooden boxes on wooden pallets. The wooden boxes shall have wooden covers attached with two hinges and a clasp. The clasp shall be secured in the closed position by a method approved by the Resident. The size of the pallets and boxes shall be approved by the Resident. The weight limit on the pallets shall be such that no damage will occur to the pallets or the materials stored on the pallets.

SPECIAL PROVISIONS
SECTION 202
REMOVING STRUCTURES AND OBSTRUCTIONS
(Removing Pavement Surface)

The November 2014 Revision of the Standard Specifications, Section 202-Removing Structures and Obstructions, subsection 202.061-Removing Pavement Surface, has been removed and replaced in its entirety by the following:

202.061 Removing Pavement Surface The equipment for removing the bituminous surface shall be a power operated milling machine or grinder capable of removing bituminous concrete pavement to the required depth, transverse cross slope, and profile grade using an automated grade and slope control system. The controls shall automatically increase or decrease the pavement removal depth as required, and readily maintain desired cross slope, to compensate for surface irregularities in the existing pavement course. The equipment shall be capable of accurately establishing profile grades by referencing from a fixed reference such as a 30 foot minimum contact ski (floating beam), 24 foot non-contact ski (floating beam) with 3 or more sensors; or 3 non-contact sensors directly affixed at the fore, mid, and aft points of the milling machine. Systems designed to incorporate a contact sensor located at the mid-point of the milling machine in lieu of the non-contact sensor will be permitted. Grade control sensors shall all be located on the same side. A single sensor, contact or otherwise, shall not be permitted unless otherwise approved by the Department.

The rotary drum shall be a minimum of 7 feet in width and utilize carbide tip tools at a minimum triple wrap configuration. The difference in height from the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed ¼ inch. The forward speed of the milling machine shall be adjusted to produce a milled surface meeting the groove spacing, groove depth, and surface tolerance requirements of this specification. The tools on the revolving cutting drum must be continually maintained and shall be replaced as warranted to provide a uniform pavement texture. The Department may evaluate the texture of the milled surface for information purposes by performing the Sand Patch test according to ASTM E 965.

The Contractor shall locate and remove all objects in the pavement through the work area that would be detrimental to the milling or grinding machine. Any structures or obstructions left within the travel lane or shoulders shall have tapers installed according to Standard Detail 202(01). The finished milled surface will be inspected before being accepted, and any deviations in the profile exceeding ½ inch under a 16 foot string line or straightedge placed parallel to the centerline will be corrected. Any deviations in the cross-slope that exceed $^{3}/_{8}$ inch under a 10 foot string line or straightedge placed transversely to centerline will be corrected. All corrections will be made with approved methods and materials. Any areas that require corrective measures will be subject to the same acceptance tolerances. Excess material that becomes bonded to the milled surface will be removed to the Resident's satisfaction before the area is accepted.

On roadways with adjoining lanes carrying traffic, the Contractor shall remove the pavement surface in each lane per the conditions in Table 1, unless otherwise noted by the Department in Special Provision, Section 105 – Limitations of Operations.

TABLE 1: MILLING CONDITIONS FOR ADJOINING LANES

Depth (At Centerline)	Milling Conditions
Vertical Longitudinal Joint	
2” and less	The Contractor may remove the pavement on a single travel lane width for each production day and will be required to mill the adjacent section of travel lane before the end of the following calendar day.
Greater than 2”	The Contractor shall remove the pavement over the full width of the traveled way section being paved that day.
12:1 Tapered Centerline Joint	
1 ½” to 2”	The Contractor may remove the pavement on a single travel lane width for each production day and will be required to mill the adjacent section of travel lane before weekend or holiday suspension. A maximum unmatched centerline joint length of 0.5 miles will be permitted over the weekend.
Greater than 2”	The Contractor shall remove the pavement on a single travel lane width for each production day and will be required to mill the adjacent section of travel lane before the end of the following calendar day.

The Contractor will be required to remove the pavement over the full width of the mainline traveled way, regardless of highway type, cut depth, or longitudinal joint type prior to Memorial Day, July 4th, Labor Day, suspensions exceeding three days, or other dates as specified by Special Provision, Section 105 – Limitations of Operations.

The Contractor will also be responsible for installing additional warning signage that clearly defines the centerline elevation differential hazard. Unless otherwise addressed in the contract, the Contractor shall install additional centerline delineation such as a double RPM application, or temporary painted line. The Traffic Control Plan shall be amended to include this option and the additional requirements. All signs and traffic control devices will conform to Section 719.01, and Section 652, and will be installed prior to the work, at a maximum spacing of 0.50 mile for the entire length of effected roadway section. If this option is utilized, all additional signing, labor, traffic control devices, or incidentals will not be paid for directly, will be considered incidental to the appropriate 652 items.

On roadways with immediately adjacent shoulders, the Contractor shall remove the pavement surface in each lane per the conditions in Table 2, unless otherwise noted by the Department in Special Provision, Section 105 – Limitations of Operations.

TABLE 2: MILLING CONDITIONS FOR THE EDGE OF TRAVELED WAY

Depth (At Edge of Traveled Way)	Conditions
2” and less	The Contractor may leave a vertical edge joint exposed for up to **21 days** after milling is performed. The Contractor shall treat vertical edge joints exposed beyond 21 days per the criteria below.
Greater than 2”	The Contractor shall treat vertical edge joints exposed per the criteria below.

When required by Table 2, the Contractor shall treat vertical edge joints through one of the options below:

1. The vertical edge shall be tapered to a zero edge by means of milling a 12:1 transition from the edge of traveled way onto the shoulder before opening the lane to traffic. Tapers shall be removed to form a vertical edge prior to the placement of the new pavement course. No additional payment will be made for tapers, or taper removal.
2. An additional 2 feet of pavement shall be removed from the shoulder to eliminate the vertical edge at the edge of travelway before opening the lane to traffic. Unless otherwise authorized by the Department, no additional payment will be made for the additional milling.
3. A pavement layer shall be placed to reduce the vertical edge to 1 inch or less before opening the lane to traffic.

As a minimum, the use of temporary painted line, or RPMs placed along the edge of traveled way at 200 foot intervals is required for all elevation differentials. When pavement milling is extended into the shoulder (including milled tapers), appropriate channelization devices shall be placed 2 feet outside the edge of the vertical face at intervals not exceeding 600 feet, and RPMs shall be placed on the remaining pavement surface along the vertical edge at 200 foot intervals. Uneven pavement signs shall be placed at a maximum spacing of ½ mile when any pavement milling operations leaves an exposed uneven pavement surface.

Weepers shall be ground across the full width sections adjacent shoulders or remaining pavement surface matching the milled travel way or shoulder milled depth to minimize water ponding in any lanes carrying traffic. Weepers shall typically be 18 - 24” inches in width, installed along each lane, at a frequency of approximately one per half mile at locations as directed by the Resident or in areas that will provide drainage for the milled areas. Installation of weepers will not be paid for directly but will be considered incidental to the contracts pavement removal item. The replacement of mix in the weeper locations shall be performed concurrently within the pavement placement operation closure using the appropriate HMA item produced for the Contract or a MaineDOT approved 9.5mm HMA. There will be no separate payment for repaving the weeper locations as they are considered incidental to the square yard price of the contracts pavement removal item.

Any areas of concern, such as de-lamination or pot-holing shall be identified on a continuous basis as milling progresses. Proper corrective action will be determined by the Resident and paid for under the appropriate contract items, and if required, completed prior to opening lane to traffic. Any issues that arise up to 7 calendar days after being milled will be the responsibility of the MaineDOT unless otherwise noted in Special Provision Section 105 – Limitations Of Operations.

Basis of Payment

The square yard or hourly rental contract price will be full compensation for mobilizing to the site, de-mobilizing from the site, labor, supervision, cleaning of the milled surface, and all other incidentals required to complete the work. Hauling and stockpiling of the material will not be paid for directly, but will be considered incidental to the milling items.

Square Yard: Payment will be made at the contract unit price for the number of square yards removed.

Hourly: Payment will be made at the contract unit price for the number of hours of operation removing pavement surface as directed by the Resident. The equipment used for pavement removal shall be operated at the minimum speed of 50 fpm, unless the Resident directs otherwise for milled surface quality reasons, or traffic control limitations impact pavement removal operations, or site conditions make operations at the prescribed rate unreasonable. Trimming to create a vertical face along curb line, guardrail, or around structures will be considered incidental to the 202.202 items. Additional trimming beyond the incidental work described will be paid under the appropriate rental items as listed in the Contract.

Pay Item	Pay Unit
202.202 Removing Pavement Surface	S.Y.
202.20201 Removing Pavement Surface (Hourly)	Hour

SPECIAL PROVISION
SECTION 203
(Special Fill - Streambed Material)

203.01 Description This work shall consist of furnishing and placing a cobble-gravel into the reconstructed channel to form a nature-like streambed.

203.02 Materials Special fill shall be a well graded mix of cobble, gravel, sand and fines similar in size and shape to those found in natural channels and may be obtained as bank run or screening materials from earth borrow pits. Unwashed stone, and stone with naturally fractured faces will be allowed. Material from blasting or crushing operations will not be allowed unless approved by the Resident.

Where applicable, suitable material excavated on-site within the limits of the stream channel in accordance with Special Provision Section 203, Excavation and Embankment - Dredge Materials, may be used to meet the gradation requirements, or as filler material with the approval of the Resident.

Special fill shall conform to the following requirements:

A. Approximately 1 part by volume shall be a well graded mix of cobble with a maximum size of 6 inches average dimension. Fifty percent of the stones by volume shall have an average dimension greater than 2 inches.

B. Approximately 1 part by volume shall be well graded aggregate (hereafter referred to as streambed gravel). The gradation of the part that passes a 3-inch sieve shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
½ inch	35 – 80
¼ inch	25 – 65
No. 40	5.0 – 30
No. 200	5.0 – 15

Streambed gravel shall not contain particles of rock that not will pass a 6-inch square mesh sieve.

The Contractor shall identify the source and proposed mix for inspection and shall furnish to the Resident a copy of gradation test results from a certified laboratory for the streambed gravel portion, at least ten (10) working days prior to the start of streambed construction. The Department will obtain samples of the streambed gravel for testing prior

to placement. The grading of cobble shall be determined by the Resident in accordance with the Standard Specifications, Section 610.032.d Inspection.

Mix proportions and material gradations shall be within the above limits or as otherwise adjusted by the Resident. Acceptance will be based on the test results, and visual inspection by the Resident. Special fill shall conform to the gradation requirements at the time it is placed to form the streambed.

Filler material shall consist of a well graded mix of gravel, sand and fines free from vegetable matter, debris, peat and other unsuitable material. Streambed gravel, as previously described, may be used as filler material, or the material may be obtained from earth borrow pits, dredge, on-site excavation or other sources approved by the Resident. Filler material shall not contain oversized stones larger than 6 inches and the fines content shall be adequate to fill and seal the voids so that water ponds on the surface of the streambed. The Resident will determine the suitability of the material by visual inspection.

203.03 Construction Requirements

1. Construct a roughly trapezoidal-shaped channel and a streambed surface as shown on the plans or established with banklines and rockbands in accordance with Special Provision 610 – Streambed Rock Features.

2. Place special fill in well mixed layers without pockets of either fine or coarse material and with an average compacted thickness not to exceed 12 inches unless otherwise approved by the Resident. Larger stones may protrude above the average surface but shall be well embedded in the mix. Some handwork may be required to attain the specified shape and thickness.

3. Special fill shall be compacted and thoroughly washed-in with water immediately after placement of each layer. After the initial compaction, place filler material on the surface as required to fill remaining voids. Wash-in filler material until the voids are filled and water remains on the surface with minimal infiltration before placing the next layer.

4. Mechanical methods of compaction may be used with the approval of the Resident. If the Contractor uses mechanical methods the void-filling and washing-in requirements shall still apply.

5. Prior to exposure to natural flow conditions the streambed shall be thoroughly wetted and compacted with voids filled and the surface sealed, checked and approved by the Resident. After washing-in, the minimum thickness of the special fill shall be as called for on the plans with an allowable surcharge of up to 3 inches above the design grade.

203.04 Method of Measurement Special fill will be measured in place by the cubic yard.

203.05 Basis of Payment The accepted quantity of special fill will be paid for at the contract price per cubic yard complete in place. Payment shall be full compensation for furnishing all materials, equipment, and labor and washing-in with water.

Pay Item	Pay Unit
203.33 Special Fill – Streambed Material	CY

Mattawamkeag Bridge (#2522) – Route 2
Mattawamkeag, Maine
Project No. 23234.01
August 12, 2020

SPECIAL PROVISION
SECTION 203
EXCAVATION AND EMBANKMENT
(CONTAMINATED SOIL AND GROUNDWATER MANAGEMENT)

General. The work under this specification shall be performed in conformance with all the procedures and requirements described herein for the following activities: contaminated soil handling, reuse, temporary stockpiling, transportation, storage and disposal and, contaminated water handling, storage, treatment and disposal. This specification also addresses contaminated soil location, identification, and classification. The intent of this specification is to ensure that any contaminated soil and/or water encountered during construction will be managed in a manner that protects worker health and safety, public welfare and the environment.

Environmental Site Conditions. The Maine Department of Transportation's Environmental Office (MaineDOT's-ENV.) has conducted a series of assessments related to the Mattawamkeag Bridge (#2522) Replacement Project. An initial Phase I Environmental Assessment for the project area was completed to obtain a general understanding of the environmental conditions along the project corridor. Data garnered from this assessment was used to design a Modified, Phase II Contamination Assessment for the project. The primary focus of the assessments was to evaluate the type and extent of subsurface contamination along the project corridor. The Phase I Assessment included a review of relevant Maine Department of Environmental Protection (MaineDEP) and Environmental Protection Agency (EPA's) databases, and field reconnaissance of the project area. During Phase II, borings were advanced at select locations for investigative purposes. Using data gathered from the advancement of these borings and previous work by others, one area with impacted soil was identified. A photo-ionization detector (PID) was used to test soil grab samples from the borings for Volatile Organic Compound (VOC) concentrations indicative of petroleum products. (See *Identified Areas of Contamination* below). Select samples for laboratory testing were also taken to further aid in evaluating subsurface conditions. The results of these investigations are available for review from the Senior Geologist at MaineDOT's-ENV in Augusta (207-624-3100).

Identified Area of Contamination MaineDOT's-ENV investigation identified one area of soil contamination associated with the Mattawamkeag Bridge Replacement Project. For reference, this area is designated as "**Area A"**. The location of **Area A** is

defined as located in the vicinity of the former Madden's Store located roughly between MaineDOT Survey Station 20+60 to roughly MaineDOT Survey Station 21+25 right and left of centerline. Within **Area A**, poly-bag field samples screened with a PID were below detection limits (BDL). However, field observations indicated a distinct "weathered" petroleum odor. Laboratory results for the following: **Extractable Petroleum Hydrocarbons (EPH);** C9-C18 <20 mg/kg, C11-C22 at 180 mg/kg, C19-C36 <20 mg/kg, Phenanthrene at 3.9 mg/kg, Fluoranthene at 4.1 mg/kg, Pyrene at 4.7 mg/kg, Benzo(a)anthracene at 2.0 mg/kg, Chrysene at 2.1 mg/kg, Benzo(b)fluoranthene at 2.8 mg/kg, Benzo(k) fluoranthene at 0.96 mg/kg, Benzo(a)pyrene at 2.7 mg/kg, Naphthalene at 0.26 mg/kg, 2-Methylnaphthalene at 0.57 mg/kg, Acenaphthene at 0.35 mg/kg, Acenaphthylene at 0.87 mg/kg, Fluorene at 0.87 mg/kg, Anthracene at 1.1 mg/kg and Benzo(g,h,i) perylene at 2.6 mg/kg. For **Volatile Petroleum Hydrocarbons (VPH)** the following were detected; Naphthalene at 0.26 mg/kg. Laboratory results indicate the following VOCs were detected: Naphthalene at 0.23 mg/kg. Total lead was 11 mg/kg. Although none of these concentrations define collected soils as potential special waste per State remedial guidelines following Soil Remediation Guideline Concentrations (mg/kg) Based on Petroleum Leaching to Groundwater for Sand & Gravel Aquifers, there is the potential for excavation within **Area A** to the threshold. Soil contamination in **Area A** appears to be related to the past use and storage of gasoline.

Identifying and Screening Contaminated Soil and Groundwater Within the contaminated sections designated **Area A**, excavated soils will be classified by the Resident (or a MaineDOT-ENV representative) based on PID field screening measurements following the Leaching to Groundwater/Notification Cleanup Scenario as prescribed in Table 1 – Approved PID Field Cleanup and Notification Guidelines in MaineDEP Standard Operating Procedure (SOP) TS004 – COMPENDIUM of FIELD TESTING of SOIL SAMPLES for GASOLINE and FUEL OIL (10/15/2012) .

Excavated soils within **Area A** shall be classified as Group 1, Group 2, or Group 3.

Group 1 soils shall have PID field screening measurements indicating relative concentrations of volatile organic compounds (VOCs) less than or equal to 20 parts per million (ppm) as measured in the soil headspace.

Group 2 soils shall have PID field screening measurements indicating VOC concentrations greater than 20 ppm and less than the value indicated in Table 1 of SOP-TS004 when screened in accordance with the "Leaching to Groundwater/Notification" clean-up scenario. Field screening will also be done using an oleophilic dye test.

Group 3 soils shall exceed the threshold limit stated in the TS004 Compendium of Field Testing of soil samples exceeding "Leaching to Groundwater/Notification" clean-up scenario or indicate a "positive" result using the oleophilic dye test.

Handling and Disposition of Soil Materials Within **Area A** soil material excavated during construction shall be handled as follows:

Group 1 soils are not considered contaminated. Thus, special handling and disposal are not required for Group 1 soils.

Group 2 soils shall be placed back into their excavation section of origin. The Contractor shall make every attempt to side cast any Group 2 soils next to their excavation site. Upon completion of the given constructional feature, the Group 2 soils shall be placed back into the excavation up to 2 feet below ground surface. Group 2 materials not handled in this manner shall be considered Surplus Group 2 soils. Surplus Group 2 soils must be disposed of or treated at a facility licensed by the MDEP to accept petroleum contaminated special waste. The Contractor is solely responsible for obtaining the associated permits and approvals for the disposal or treatment of the Surplus Group 2 soils from all relevant Municipal, State, and Federal agencies at no additional cost to the State. Notification shall be given to the Resident once approval is granted for the acceptance of this material at the off-site facility. No removal of Surplus Group 2 soils from the project shall occur without prior approval by the Resident. If any Surplus Group 2 soils cannot be transported to the pre-approved, properly licensed facility within 8 hours of their excavation, they must be placed in a Temporary Secure Stockpile Area somewhere within the project limits (See Temporary Secured Stockpile Area below).

Group 3 soils shall not be excavated without prior approval by the Resident. The Contractor shall arrange and undertake disposal of all Group 3 soils at a landfill or treatment facility licensed to accept petroleum contaminated special waste. The Contractor is responsible for all additional testing required by the receiving facility. Group 3 soils that cannot be disposed of within 8 hours of excavation shall be stored in a Temporary Secured Stockpile area. If the Contractor proposes other disposal or treatment options, the Contractor is solely responsible for obtaining the associated permits and approvals from all relevant Municipal, State, and Federal agencies at no additional cost to the State.

The Resident is responsible for signing any manifests or bills of lading required to transport and dispose of contaminated soil. The Resident will send all manifests and bills of lading to MaineDOT, Environmental Office, Station 16, Augusta, Maine 04333.

Trench and Underdrain/Stormdrain Design in Contaminated Sections In **Area A,** solid, Option III, non-perforated pipe shall be used in replacement of perforated underdrain pipe to help prevent the infiltration and transportation of potentially contaminated groundwater within the underdrain/stormdrain system. The Contractor shall backfill around the pipe and trenches in this section with uncontaminated material. Backfilling of the trench shall be in accordance with Section 206.03. All stones larger than 3 inches, frozen lumps, dry chunks of clay or any other objectionable matter shall be removed before backfilling.

Seepage control dikes (SCD) shall be installed roughly every 60 feet along the stormwater pipe trench

SCDs shall consist of a mineral clay material with a liquid limit of equal to or greater than 24 and a natural moisture content of at least 20 percent. The clay should be placed in dry excavations in 6-inch maximum, thick lifts and compacted to 90% of the maximum dry unit weight as determined by AASHTO T99 (Standard Proctor). The SCDs shall be 5 feet long, be in intimate contact with the trench floor, trench walls and circumference of the pipe and extend up to the bottom of the road base. The excavated existing road base or similar material may be placed on top of the SCDs. The Contractor shall take care to ensure that no voids or uncompacted soil is left beside or beneath the Option III culvert pipe.

Secured Stockpile Area Direct transport of Surplus Group 2 or Group 3 soils to a pre-approved management facility is recommended. However, should the Contractor temporarily store any Surplus Group 2 or Group 3 soils at the site for more than 8 hours following excavation, they must be placed into a properly constructed Temporary Secured Stockpile Area. The Temporary Secured Stockpile Area must be constructed as defined herein and must be approved by the Resident prior to its use.

Should the Contractor utilize a Temporary Secured Stockpile Area, they shall install a continuous 0.3-meter-high compacted soil berm around the Secured Stockpile. The Secured Stockpile shall be placed on a liner of 20-mil polyethylene and securely covered with 20-mil polyethylene. The polyethylene liner and cover shall be placed over the soil berm and be installed to ensure that precipitation water drains directly to the outside of the berm perimeter while leachate from the contaminated soil is retained within the stockpile. The Secured Stockpile and soil berm shall be enclosed within a perimeter of concrete Jersey barriers or wooden barricades. The area within the Jersey barriers (or wooden barricades) shall be identified as a "restricted area" to prevent unauthorized access to the contaminated soils.

Secured Stockpile Area - Materials

A. Polyethylene. Polyethylene used for liner in the Secured Stockpile Area shall have a minimum of 20-mil thickness and shall meet the requirements of ASTM D3020.

B. Common Borrow. Fill used in the construction of the Temporary Secured Stockpile Area soil berm shall consist of Common Borrow and meet the requirements of Section 703.18

C. Concrete Barriers or Wooden Barricades. Concrete barriers or Wooden Barricades to form the sides of the Temporary Secured Stockpile Area shall meet the requirements of Section 526 or 652.05.

Health and Safety/Right-to-Know Contractors and subcontractors are required to notify their workers of the history of the site and contamination that may be present and to be alert for evidence of contaminated soil and groundwater. The Contractor shall notify the Resident **at least three business days** prior to commencing any excavation in **Area A**.

The Contractor shall prepare a site-specific Health and Safety Plan (HASP) for its workers and subcontractors who may work in the contaminated areas of the site. A Qualified Health and Safety Professional shall complete the HASP. The Qualified Health and Safety Professional will be an expert in field implementation of the following federal regulations:

29 CFR 1910.120 or 29 CFR 1926.65	Hazardous Waste Operations and Emergency Response
29 CFR 1910.134	Respiratory Protection
29 CFR 1926.650	Subpart D - Excavations
29 CFR 1926.651	General Requirements
29 CFR 1926.652	Requirements for Protective Systems

MaineDOT is voluntarily ameliorating the contamination in **Area A.** The remedial efforts defined herein have been reviewed and approved by MaineDEP. Given that this is a voluntary clean up effort approved by a regulatory agency, the OSHA requirements as defined in 29 CFR 1910.120 apply. These requirements mandate that workers and any subcontractors working in the contaminated areas shall comply with all OSHA regulations for Hazardous Waste Operations and Emergency Response including a 40-hour initial hazardous waste operations certification [OSHA 1910.120(e)], annual 8-hour refresher course within the last 12 months and medical surveillance [OSHA 1910.120(f)] within the last 12 months.

The contractor shall designate a person to provide direct on-site supervision of the work in the contaminated areas. This person shall have the training under OSHA 1910.120 (e) as above and in addition be qualified as a construction Competent Person. It is the responsibility of the competent person to make those inspections necessary to identify situations that could result in hazardous conditions (e.g., possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions), and then to ensure that corrective measures are taken.

Submittals The Contractor shall submit a site-specific Health and Safety Plan (HASP) to the Resident at least two weeks in advance of any excavation work on the

project. The Contractor shall not proceed with work until MaineDOT has reviewed the plan and notified the Contractor that it is acceptable.

Health and Safety Monitoring Within the contaminated areas of the project, the Contractor's designated on-site person shall monitor the worker breathing zone for those constituents specified in the Contractor's HASP. The Contractor shall provide all required health and safety monitoring equipment.

Dewatering Groundwater may be encountered and its removal necessary to complete work within **Area A.** It will be treated as "contaminated" water. The Contractor shall inform the Resident before any dewatering commences. The "contaminated" water shall be pumped into a temporary holding tank(s). The Contractor will be responsible for the procurement of any holding tank(s). Any testing, treatment and/or disposal of the stored, petroleum-contaminated water shall be undertaken by the Contractor in accordance with applicable Federal, State and local regulatory requirements.

On-Site Water Storage Tanks - Materials If dewatering within the identified contaminated area becomes necessary, the holding tanks used for temporary storage of contaminated water pumped from excavations shall be contamination free and have a minimum capacity of 2,000 gallons.

Dust Control The Contractor shall employ dust control measures to minimize the creation of airborne dust during the construction process in potentially contaminated areas. As a minimum, standard dust control techniques shall be employed where heavy equipment and the public will be traveling. These may include techniques such as watering-down the site or spreading hygroscopic salts.

Unanticipated Contamination If the Contractor encounters previously undiscovered contamination or potentially hazardous conditions related to contamination, the Contractor shall immediately suspend work and secure the area. The Contractor will then notify the Resident immediately. These potentially hazardous conditions include, but are not limited to, buried containers, drums, tanks, "oil saturated soils", strong odors, or the presence of petroleum sufficient to cause a sheen on the groundwater. The area of potential hazard shall be secured to minimize health risks to workers and the public and to prevent a release of contaminants into the environment. The source of any suspected contamination shall be evaluated by the Resident (or MaineDOT's -ENV representative). As appropriate, the Resident will notify the MDEP's Response Services Unit in Augusta and MaineDOT-ENV. The Kingfield Fire Department must also be notified prior to removal of buried storage tanks and associated piping. The Contractor will evaluate the impact of the hazard on construction, amend the HASP if necessary, and with the Resident's approval, recommence work in accordance with the procedures of this Special Provision.

Method of Measurement There will be no measurement for identification and environmental screening of contaminated soil material (this will be done by the Resident or MaineDOT-ENV representative).

Measurement for the development of a Health and Safety Plan (HASP) and providing health and safety equipment and personnel shall be by lump sum.

Measurement of the off-site treatment or disposal of Surplus Group 2 and all Group 3 soils will be by the ton of Special Excavation.

There will be no measurement for construction of a Temporary Secured Stockpile Area. Construction of a Temporary Secured Stockpile Area, if necessary, is considered incidental to project construction. There will be no measurement for hauling Surplus Group 2 material or Group 3 soils to the Temporary Secure Stockpile area or placement and removal of Surplus Group 2 or Group 3 soils in or out of the Temporary Secure Stockpile area. All hauling and any subsequent management/placement of contaminated soils are considered incidental to project construction.

There will be no measurement for additional laboratory testing of contaminated soil that is required by the landfill or treatment facility. Testing is incidental to the disposal of Special Excavation.

Measurement for the following items shall be according to Subsection 109:04 ("Change Order"/Force Account): any necessary contaminated water holding tank(s); and treatment or disposal of any contaminated groundwater.

Basis of Payment There will be no payment for the identification and environmental screening of contaminated soil material (this will be done by the Resident or MaineDOT-ENV representative).

Payment for the development of a Health and Safety Plan (HASP) and providing health and safety equipment and personnel shall be by the lump sum

Payment for off site disposal or treatment of contaminated Surplus Group 2 and all Group 3 soils at a MDEP licensed facility shall be by the ton of Special Excavation.

There will be no payment for the construction of the Temporary Secured Stockpile Area or hauling/management/placement of contaminated soils to the Temporary Secured Stockpile Area. The Temporary Secured Stockpile Area shall be considered incidental to project construction.

Payment for the following items shall be according to Subsection 109:04 ("Change Order"/Force Account): any necessary contaminated water holding tank(s); and treatment or disposal of any contaminated groundwater.

Pay Item	Pay Unit

203.2312	Health and Safety Plan (HASP)	L.S.
203.2333	Disposal/Treatment of Special Excavation	Ton

SPECIAL PROVISION
SECTION 203
EXCAVATION AND EMBANKMENT
(Dredge Materials)

Description: Dredge Material (See MaineDOT Standard Specifications § 101.2 Definitions) is regulated as a Special Waste. This material can be reused with a Beneficial Use Permit issued by the Maine Department of Environmental Protection (MDEP). Further, the Beneficial Use of Dredge Material from Class A, Class AA and Class SA water bodies is exempt from Beneficial Use Permits. Work associated with the Mattawamkeag Bridge Replacement Project in Mattawamkeag will occur in a Class AA water body (Mattawamkeag River); therefore, the Beneficial Use of Dredge Material from this initiative is exempt from Beneficial Use Permits.

CONSTRUCTION REQUIREMENTS

Management: The Contractor shall ensure that all Dredge Material excavated from the Mattawamkeag Bridge Replacement Project in Mattawamkeag is Beneficially Used in the area(s) specified by MaineDOT.

Method of Measurement: Dredge Material will be measured by the cubic yard of material removed.

Basis of Payment: Payment for the Beneficial Use of Dredge Material will be incidental to the Contract Pay Items.

Payment shall be full compensation for excavation, dewatering, managing, transporting, and placement of the Dredge Materials.

SECTION 401 - HOT MIX ASPHALT PAVEMENT

401.01 Description The Contractor shall furnish a uniformly blended, homogeneous mixture placed as one or more courses of Hot Mix Asphalt Pavement (HMA) on an approved base in accordance with the contract documents and in reasonably close conformity with the lines, grades, thickness, and typical cross sections shown on the plans or established by the Resident. The Department will accept this work under Quality Assurance provisions, in accordance with these specifications and the requirements of Section 106 – Quality, the provisions of AASHTO M 323 except where otherwise noted in sections 401 and 703 of these specifications, and the MaineDOT Policies and Procedures for HMA Sampling and Testing.

401.02 Materials Materials shall meet the requirements specified in Section 700 - Materials:

Asphalt Cement	702.01
Aggregates for HMA Pavement	703.07
RAP for HMA Pavement	703.08
HMA Mixture Composition	703.09

401.03 Composition of Mixtures The Contractor shall compose the Hot Mix Asphalt Pavement with aggregate, Performance Graded Asphalt Binder (PGAB), and mineral filler if required. HMA shall be designed and tested according to AASHTO R35 and the volumetric criteria in Table 1. The Contractor shall size, uniformly grade, and combine the aggregate fractions in proportions that provide a mixture meeting the grading requirements of the Job Mix Formula (JMF). Unless otherwise noted in Special Provision 403 - Hot Mix Asphalt Pavement, the design, verification, Quality Control, and Acceptance tests for this mix will be performed at 65 gyrations.

TABLE 1: VOLUMETRIC DESIGN CRITERIA

Design ESAL's (Millions)	**Required Density (Percent of G_{mm})**			**Voids in the Mineral Aggregate (VMA)(Minimum Percent)**					**Voids Filled with Binder (VFB) (Minimum %)**	**Fines/Eff. Binder Ratio**
				Nominal Maximum Aggregate Size (mm)						
	$N_{initial}$	**N_{design}**	**N_{max}**	**25**	**19**	**12.5**	**9.5**	**4.75**		
<0.3	≤91.5	96.0	≤98.0	13.0	14.0	15.0	16.0	16.0	70-80	0.6-1.2
0.3 to <3	≤90.5								65-80	
3 to <10	≤89.0								65-80*	
10 to <30										
≥ 30										

*For 9.5 mm nominal maximum aggregate size mixtures, the maximum VFB is 82. For 4.75 mm nominal maximum aggregate size mixtures, the maximum VFB is 84.

The Contractor shall submit for Department approval a JMF to the Asphalt Pavement Engineer for each mixture to be supplied. The JMF will be approved by the Department in accordance with the MaineDOT HMA Policies and Procedures for HMA Sampling and Testing Manual. At the time of JMF submittal, the Contractor shall identify and make available the stockpiles of all proposed aggregates at the plant site. There must be a minimum of 150 ton for coarse aggregate stockpiles and 75 ton for fine aggregate stockpiles before the JMF may be submitted. The Contractor shall provide aggregate samples to the Department unless otherwise required. The Contractor shall also make available to the Department the PGAB proposed for use in the mix in sufficient quantity to test the properties of the asphalt and to produce samples for testing of the mixture. The first day's production shall be monitored, and the approval may be withdrawn if the mixture exhibits undesirable characteristics such as checking, shoving or displacement. The Contractor shall be allowed to submit aim changes for a JMF as outlined in the MaineDOT HMA Policies and Procedures for HMA Sampling and Testing Manual: Mix Design Approval Section.

The Contractor shall submit a new JMF for approval each time a change in material source or materials properties is proposed. The same approval process shall be followed. The cold feed percentage of any aggregate may be adjusted up to 10 percentage points from the amount listed on the JMF, however no aggregate listed on the JMF shall be eliminated. The cold feed percentage for RAP may be reduced up to 10 percentage points from the amount listed on the JMF and shall not exceed the percentage of RAP approved in the JMF or for the specific application under any circumstances.

401.031 Warm Mix Technology The Contractor may place Hot Mix Asphalt Pavement produced with an accepted WMA technology if approved by the Department. Methods or technologies shall generally be at the Contractors option, but will be limited to proven, Agency and Industry accepted practice. Mixture production, placement and volumetric testing details, including temperatures, shall be included in the project specific QCP, and submitted to the Department for approval prior to any work.

401.04 Temperature Requirements The temperature of the mixture shall conform to the tolerances in Table 2 as measured at the truck at the mixing plant and at the paver unless otherwise authorized by the Department.

TABLE 2: ALLOWABLE TEMPERATURE RANGES

PGAB Grade(s)	Temperature Range (°F)
PG58-28 / PG64-28	275-325
PG64E-28 / PG70E-28	285-335

401.05 Performance Graded Asphalt Binder The Contractor shall utilize either a PG58-28, PG64-28, PG64E-28, PG70E-28, or other grade as specified in the 403 Special Provision. The Contractor shall utilize a PG64-28 if no liquid grade is specified within the 403 Special Provision.

401.06 Weather and Seasonal Limitations The State is divided into two paving zones as follows:

a. Zone 1 Areas north of US Route 2 from Gilead to Bangor and north of Route 9 from Bangor to Calais.
b. Zone 2 Areas south of Zone 1 including the US Route 2 and Route 9 boundaries.

TABLE 3: SEASONAL AND TEMPERATURE LIMITATIONS

Use	Minimum Ambient Air Temperature	Zone 1 Allowable Placement Dates	Zone 2 Allowable Placement Dates
Surface course (travelway & adjacent shoulders) less than 1 in. thick placed during conditions defined as "night work"	50°F	June 1 to Saturday following September 1	
Surface course (travelway & adjacent shoulders) less than 1 in. thick	50°F	May 15 to Saturday following September 15	
Travelway surface course greater than or equal to 1 in. thick	50°F	May 1 to Saturday following October 1	April 15 to Saturday following October 15
HMA for surface course on bridge decks	50°F	May 1 to Saturday following October 1	April 15 to Saturday following October 15
HMA for base or shim course on bridge decks	50°F	April 15 to November 15	
HMA for use other than travelway surface course	40°F	April 15 to November 15	
HMA for curb, driveways, sidewalks, islands, or other incidentals	40°F	N/A	N/A
HMA produced with an approved WMA technology for base or shim course	35°F	April 15 to November 15	

The ambient air temperature shall be determined by an approved thermometer placed in the shade at the paving location. Unless otherwise specified, the Contractor shall not place Hot Mix Asphalt Pavement on a wet or frozen surface regardless of the ambient air temperature. The Hot Mix Asphalt Pavement produced with an approved WMA technology shall meet the requirements of section 401.04 - Temperature Requirements, unless otherwise approved by the Department. For the purposes of this Section, the traveled way includes truck lanes, ramps, approach roads and auxiliary lanes.

401.07 Hot Mix Asphalt Plant

401.071 General Requirements HMA plants shall conform to AASHTO M156, Standard Specification for Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures with exception of Section 4.2.1, 4.2.2, 4.3.4, 4.3.5, and 4.12.2.

All HMA plants will be inspected annually by the Department prior to producing HMA for Department projects. The Contractor shall provide the Department at least 72 hour's notice that the plant is ready for inspection. The HMA plant will be equipped with ladders and platforms that are accessible and safe to obtain belt and binder samples. The HMA plant will have a sampling platform to perform HMA sampling from the back of haul units. Silo storage time of mixtures shall not exceed 36 hours.

401.072 Stockpiles HMA plants shall have sufficient space for stockpiles, with a minimum of supply for 2 days production of all aggregate products used in MaineDOT approved mix designs currently under production for the facility at all times. A minimum stockpile supply of 100 ton (70 yards) shall be maintained always no matter the production rate for the HMA plant. Stockpiles shall be separated and built to minimize segregation. All aggregate stockpiles of products used in MaineDOT approved mix designs shall be labelled with signage made of weather-proof material. Stockpile identification signs shall be a minimum size of 12" high and 24" wide with reflective lettering that is a minimum of 2" in height. The sign shall be placed so that it is easily readable from outside the stockpile area.

401.073 Cold Feeds Cold Feed Bins will have bin dividers to keep aggregate from intermingling between bins. Adequate means must be provided for obtaining samples of the complete and combined flow of all Cold feed bins. Cold feed bins will not be required to have individual sampling locations.

401.074 Dryer Dryer shall be capable of heating aggregate to required mixing temperature and shall be in good operation and condition. Dryer shall be subject to annual inspection prior to start-up. The Contractor shall dry and heat the aggregates for the HMA to the required temperature. The Contractor shall properly adjust flames to avoid physical damage to the aggregate and to avoid depositing soot on the aggregate. The Contractor shall provide the Department the opportunity to inspect the dryer prior to the annual inspection. The Contractor shall provide the Department a minimum period of 72 hours to inspect the dryer and provide at least 24 hour's notice that the dryer is ready for inspection.

401.075 Asphalt Binder Asphalt binder heating system shall heat binder to proper mixing temperature. A thermometer shall be provided in the asphalt binder line. Indirect asphalt binder heating system shall be used and no direct flame may come in contact with tank. The temperature of asphalt binder shall be uniformly maintained using insulation or another approved method. An asphalt binder sampling valve shall be provided in the circulation line. The sampling valve shall be provided downstream of any binder additive used. The use of a different sampling location may be approved by the Department. The Contractor shall drain down the asphalt as low as safely possible in any tank that will be switched to a new source or grade prior to adding the new PGAB.

401.076 Additives Additives (WMA, anti-strip, etc.) not directly introduced into the binder at the terminal shall be introduced into the HMA plant per the supplier's recommendations and shall be approved by the Asphalt Pavement Engineer, Pavement Quality Manager, or their authorized representative. The system for introducing additives shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all rates of production and batch sizes. Additive introduction systems shall be controlled by a proportioning device to the amount required on the JMF plus or minus 0.1% of the target. Additive introduction systems shall be interlocked with the plant and the recordation (batch tickets or drum recordation) shall display the additive and the weight and percentage added. A means for sampling any mixture additives will be provided. The sampling point shall be after the additive is mixed with the PGAB before entering the drum or mixer unit.

401.077 Batch Plants

Hot Bins
Hot bins shall provide uniform continuous operation and be in good working condition. The plant shall be able to provide samples of hot bins upon request. Overflow shall be provided for each hot bin. Hot bin gates shall close without leaking. Bin walls must prevent intermingling between bins. Each hot bin shall have telltale devices ("low level indicator") which will alter the operator when the bin is empty.

Mixer Unit
Clearance between blades and liner shall be adjusted to 1" maximum, unless the aggregate exceeds 1 ¼" then the clearance shall be 1 ½". The spray bar length shall be at least 75% of the mixer length. The mixer unit shall be a twin pug mill-type mixer capable of mixing continuously for at least 45 seconds after all materials have been introduced into the mixer. The blades in the mixer shall be of sufficient number and size, capable of producing a homogenous mixture. If the mixer is not enclosed, it shall be equipped with an adjustable hood to prevent loss of dust by dispersion. The mixer unit shall be subject to annual inspection prior to removal of safety features and being readied for service. The Contractor shall provide the Department the opportunity to inspect the mixer unit prior to the annual inspection. The Contractor shall provide the Department a minimum period of 72 hours to inspect the mixer unit and provide at least 24 hour's notice that the mixer unit is ready for inspection.

Mineral Filler

Mineral filler and fiber shall utilize separate bins and feed systems to store and proportion the required quantity into the mixture. The feed systems shall be accurate to no more than 10% of the required weight with a convenient and accurate means of calibration. Mineral filler and fiber shall be introduced in the weigh hopper and uniformly distributed prior to the injection of the asphalt binder.

Automation

The HMA batch plant shall automatically batch materials, mixes and discharges mixes. The batch plant shall accurately proportion the various materials in the proper order by weight. The entire batching and mixing cycle shall be continuous and shall not require any manual operations. The batch plant shall use auxiliary interlock circuits to trigger an audible alarm whenever an error exceeding the acceptable tolerance occurs. Along with the alarm, the printer shall print an asterisk on the delivery slip in the same row containing the out-of-tolerance weight. The automatic proportioning system shall be capable of consistently delivering material within the full range of batch sizes. When RAP is being used, the plant must be capable of automatically compensating for the moisture content of the RAP.

The HMA batch plant shall be operated within the following tolerances:

Each aggregate component	+/-1.5% cumulative, per bin
Mineral Filler	+/- 0.5%
Bituminous Material	+/- 0.1%
Zero return (aggregate)	+/- 0.5%
Zero Return (AC)	+/- 0.1%
Additives	+/- 0.1%

Recordation

All plants shall be equipped with an approved digital recording device. The printer shall mark any weight on the ticket that exceeds tolerance. The delivery slip load ticket shall contain information required under Section 108.1.3 - Provisions Relating to Certain Measurements, Mass and paragraphs a, b, and c of Section 401.078.

401.078 Drum Plants

Cold Feeds and Delivery System

A scalper screen shall be used to remove oversize material. The accuracy of the belt scale shall be within +/- 1.0% of the actual weight being measured. The HMA drum plant shall be capable of correcting for aggregate moisture. Mineral filler and fiber shall utilize separate bin(s) and feeder systems to store and proportion the required quantity into the mixture. The feed systems shall be accurate to no more than +/- 10% of the required weight with a convenient and accurate means of calibration. The plant shall be equipped with a single control to change all feed rates. Mineral filler and fiber shall be introduced such that dry mixing is accomplished no less than 18 inches prior to the injection of the asphalt binder. The Contractor shall ensure that the mineral filler does not become entrained in the exhaust stream of the dryer.

Binder System

The flow of asphalt binder shall adjust automatically with dry aggregate weights. The Department will conduct an asphalt flow meter check annually and after each plant change of location. The flow meter check must be performed prior to receiving approval to produce for Department projects. The plant must be configured to provide a convenient means to check accuracy of the flow meter. The flow meter will be considered accurate if the measured weight is within 1% of actual weight.

Drum Mixer

The HMA drum plant shall be equipped with a diversion system where mix can be diverted at startup/shutdown and any time. The drum mixer shall be subject to annual inspection prior to removal of safety features and being readied for service. The Contractor shall provide the Department a minimum period of 72 hours to inspect the drum mixer while providing at least 72 hour's notice that the drum mixer is ready for inspection.

Recordation An approved automatic ticket printer system shall be used with all approved HMA drum plants. The requirements for delivery slips for payment of materials measured by weight, as given in the following Sections, shall be waived: 108.1.3 a., 108.1.3 b., 108.1.3 c., and 108.1.3 d. The automatic printed ticket will be considered as the Weight Certificate. The dry aggregate weights and binder flow shall be recorded as well as mineral filler and all binder additives. The recordation of materials shall be printed a minimum of every ten minutes while in production.

The requirements of Section 108.1.3 f. - Delivery Slips, shall be met by the weigh slip or ticket, printed by the automatic system, which accompanies each truckload, except for the following changes:

a. The quantity information required shall be individual weights of each batch or total net weight of each truckload.
b. Signatures (legible initials acceptable) of Weighmaster (required only in the event of a malfunction as described in 401.074 c.).
c. The MaineDOT designation for the JMF.

401.079 Scales and Weight Checks When the HMA is to be weighed on scales meeting the requirements of Section 108 - Payment, the scales shall be inspected and sealed by the State Sealer (or approved alternative) as often as the Department deems necessary to verify their accuracy. Plant scales shall be checked prior to the start of the paving season, and each time a plant is moved to a new location. Subsequent checks will be made as determined by the Resident. The Contractor will have at least ten 50 pound masses for scale testing at batch plants. At Contractor's option, the Contractor can use one single test weight that has been checked on sealed scales. This weight shall be 1,000 lbs. or greater. At least twice during each 5 days of production either of the following checks will be performed:

a. A loaded truck may be intercepted and weighed on a platform scale that has been sealed by the State Sealer of Weights and Measures within the past 12 months. The inspector will notify the producer to take corrective action on any discrepancy over 1.0%. The producer may continue to operate for 48 hours under the following conditions.

1. If the discrepancy does not exceed 1.5%; payment will still be governed by the printed ticket.
2. If the discrepancy exceeds 1.5%, the plant will be allowed to operate as long as payment is determined by truck platform scale net weight.

If, after 48 hours the discrepancy has not been addressed and reduced below 1.0%, than plant operations will cease. Plant operation may resume after the discrepancy has been brought within 1.0%.

b. Where platform scales are not readily available, a check will be made to verify the accuracy and sensitivity of each scale within the normal weighing range and to assure that the interlocking devices and automatic printer system are functioning properly. If platform scales are not readily available, a weight with a known mass-verified and sealed annually by a licensed scale company, may be used by hanging weight from silo or surge hopper, at lower middle and upper third levels upon request to verify scale accuracy.

c. In the event of a malfunction of the automatic printer system, production may be continued without the use of platform truck scales for a period not to exceed the next two working days, providing total weights of each batch are recorded on weight tickets and certified by a Licensed Public Weighmaster.

401.08 Hauling Equipment Units hauling HMA shall have tight, clean, and smooth metal bodies, which have been thinly coated with a small amount of approved release agent to prevent the mixture from adhering to the bodies. Release agents that dissolve or strip asphalts, including diesel fuel, will not be allowed.

All mix haul units shall have a cover of canvas or other water repellent material capable of heat retention, which completely covers the mixture. The cover shall be securely fastened on the truck, unless unloading. All mix haul units shall have an opening on both sides, which will accommodate a thermometer stem. The opening shall be located near the midpoint of the body, at least 12 in above the bed.

401.09 Pavers The Contractor shall use pavers meeting the requirements of this section unless otherwise authorized by the Department. Pavers shall be self-contained, self-propelled units with an activated heated screed capable of placing courses of Hot Mix Asphalt Pavement in full lane widths specified in the contract on the main line, shoulder, or similar construction.

Pavers shall be of sufficient class and size to place Hot Mix Asphalt Pavement over the full width of the mainline travel way with a 10 ft minimum main screed with activated extensions. The Contractor shall place Hot Mix Asphalt Pavement on the main line with a paver using an automatic grade and slope controlled screed, unless otherwise authorized by the Department. The controls shall automatically adjust the screed and increase or decrease the layer thickness to compensate for irregularities in the preceding course. The controls shall maintain the proper transverse slope and be readily adjustable so that transitions and superelevated curves can be properly paved. The controls shall operate from a fixed or moving reference such as a grade wire or ski type device (floating beam) with a minimum length of 30 ft, a non-contact grade control with a minimum span of 24 ft, except that a 40 ft reference shall be used on Expressway projects.

The Contractor shall operate the paver in such a manner as to produce a visually uniform surface texture and a thickness within the requirements of Section 401.11 - Surface Tolerances. The paver shall have a receiving hopper with sufficient capacity for a uniform spreading operation and a distribution system to place the mixture uniformly, without segregation in front of the screed. The screed assembly shall produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture. Pavers with extendible screeds shall have auger extensions and tunnel extenders as per the manufacturer's recommendations, a copy of which shall be available if requested.

The Contractor shall have the paver at the project site sufficiently before the start of paving operations to be inspected and approved by the Department. The Contractor shall repair or replace any paver found worn or defective, either before or during placement, to the satisfaction of the Department. Pavers that produce an unevenly textured or non-uniform mat will be repaired or replaced before continuing to place HMA on MaineDOT projects. On a daily basis, the Contractor shall perform density testing across that mat as detailed in Section 401.191 Quality Control - Method A, B & C.

401.10 Rollers Rollers shall be static steel, pneumatic tire, oscillatory, or approved vibrator type. Rollers shall be in good mechanical condition, capable of starting and stopping smoothly, and be free from backlash when reversing direction. Rollers shall be equipped and operated in such a way as to prevent the picking up of hot mixed material by the roller surface. The use of rollers, which result in crushing of the aggregate or in displacement of the HMA will not be permitted. Any Hot Mix Asphalt Pavement that becomes loose, broken, contaminated, shows an excess or deficiency of Performance Graded Asphalt Binder, or is in any other way

defective shall be removed and replaced at no additional cost with fresh Hot Mix Asphalt Pavement, which shall be immediately compacted to conform to the adjacent area.

The Contractor shall repair or replace any roller found to be worn or defective, either before or during placement, to the satisfaction of the Department. Rollers that produce grooved, unevenly textured or non-uniform mat will be repaired or replaced before continuing to place HMA on MaineDOT projects. The type of rollers to be used and their relative position in the compaction sequence shall generally be the Contractor's option, provided specification densities are attained and with the following requirements:

a. On variable-depth courses, the first lift of pavement over gravel, reclaimed pavement, on irregular or milled surfaces, or on bridges, at least one roller shall be 16 ton pneumatic-tired. Pneumatic-tired rollers shall be equipped with skirting to minimize the pickup of HMA materials from the paved surface. When required by the Resident, the roller shall be ballasted to 20 ton.
b. Compaction with a vibratory or steel wheel roller shall precede pneumatic-tired rolling, unless otherwise authorized by the Department.
c. Vibratory rollers shall not be operated in the vibratory mode when checking or cracking of the mat occurs, or on bridge decks.
d. Any method, which results in cracking or checking of the mat, will be discontinued and corrective action taken.
e. The use of an oscillating steel roller shall be required to compact all mixtures placed on bridge decks.

The maximum operating speed for a steel wheel or pneumatic roller shall not exceed the manufacturer's recommendations, a copy of which shall be available if requested.

401.11 Surface Tolerances The Department will check the following surface tolerances:

a.) Longitudinally: The pavement surface profile shall be free of deviations in excess of +/- ¼ inches from the required pavement surface profile grade. To verify the surface tolerance a straight plane shall be established using 16 foot straight edge or a taught string line placed parallel to the direction of travel and checked continuously across the width of the lane.
b.) Transversely: The pavement surface profile shall be free of deviations in excess of 0 inches below and ¼ inches above the required cross sectional profile grade. To verify the surface tolerance a straight plane shall be established using a 10 foot straight edge or taught string line placed perpendicular to the direction of travel and checked continuously along the length of the lane.

The Contractor shall correct defective areas by removing defective work and replacing it with new material as directed by the Department. The Contractor shall furnish a 10 foot straightedge for the Department's use.

401.12 Preparation of Existing Surface The Contractor shall thoroughly clean the surface upon which Hot Mix Asphalt Pavement is to be placed of all objectionable material. When the surface of the existing base or pavement is irregular, the Contractor shall bring it to uniform grade and cross section. All surfaces shall have a tack coat applied prior to placing any new HMA course. Tack coat shall conform to the requirements of Section 409 – Bituminous Tack Coat, Section 702 – Bituminous Material, and all applicable sections of the contract.

401.13 Spreading and Finishing On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impracticable, the Contractor shall spread, rake, and lute the HMA with hand tools to provide the required compacted thickness. Release agents that dissolve or strip asphalts, including diesel fuel, will not be allowed. On roadways with adjoining lanes carrying traffic, the Contractor shall

place each course per the conditions in Table 4, unless otherwise noted by the Department in Section 403 - Hot Mix Asphalt Pavement.

TABLE 4: PLACEMENT CONDITIONS FOR ADJOINING LANES

Depth (at centerline)	**Placement Conditions**
Vertical Longitudinal Joint	
¾" and less (incl. shim)	The Contractor may place the HMA course over the full single travel lane width for each production day.
1" to 1 ¼"	The Contractor may place the HMA course over the full single travel lane width for each production day and will be required to place a matching course of HMA over the adjacent section of travel lane before weekend or holiday suspension.
1 ½" to 2"	The Contractor may place the HMA course over the full single travel lane width for each production day and will be required to place a matching course of HMA over the adjacent section of travel lane before the end of the following calendar day.
Greater than 2"	The Contractor shall place each course over the full width of the traveled way section being paved that day.
Notched-Wedge Longitudinal Joint	
1 ½" to 2"	The Contractor may place the HMA course over the full single travel lane width for each production day and will be required to place a matching course of HMA over the adjacent section of travel lane before weekend or holiday suspension. A maximum unmatched centerline joint length of 0.5 miles will be permitted over the weekend.
Greater than 2"	The Contractor may place the HMA course over the full single travel lane width for each production day and will be required to place a matching course of HMA over the adjacent section of travel lane before the end of the following calendar day.

The Contractor will be required to place the specified course over the full width of the mainline traveled way being paved, regardless of use, depth, or longitudinal joint type prior to Memorial Day, July 4th, Labor Day, paving suspensions exceeding three days, or other dates as specified by special provision.

The Contractor shall install additional warning signage that clearly defines the centerline elevation differential hazard. Unless otherwise addressed in the contract, the Contractor shall install additional centerline delineation such as a double RPM application at 100 foot intervals, or temporary painted line. For any exposed vertical edge between the shoulder and traveled way, at a minimum, the use of temporary painted line, or RPMs placed along the edge of traveled way at 200 foot intervals is required. The Traffic Control Plan shall be amended to include this option and the additional requirements. All signs and traffic control devices will conform to Section 719.01, and Section 652, and will be installed prior to the work, at a maximum spacing of 0.50 mile for the entire length of effected roadway section. If this option is utilized, all additional signing, labor, traffic control devices, or incidentals will not be paid for directly, will be considered incidental to the appropriate 652 items.

401.14 Hot Mix Asphalt Placement on Bridge Decks Hot mix asphalt pavement placed on bridges shall also conform to Section 508.04 and the following requirements.

a. The bottom course shall be placed with an approved rubber mounted paver of such type and operated in such a manner that the membrane waterproofing will not be damaged in any way.
b. The top course shall not be placed until the bottom course has cooled sufficiently to provide stability.
c. The Contractor will not be required to cut sample cores from the compacted pavement on the bridge deck, unless otherwise directed by Special Provision.

d. After the top course has been placed, the shoulder areas shall be sealed 3 ft wide with two applications of an emulsified bituminous sealer meeting the requirements of Section 612.03 – Sealing and Section 702.12 - Emulsified Bituminous Sealing Compound. The first application shall be pre-mixed with fine, sharp sand, similar to mortar sand, as needed to fill all voids in the mix in the area being sealed. The second application may be applied without sand. The sealer shall be carried to the curb at the gutter line in sufficient quantity to leave a bead or fillet of material at the face of the curb. The area to be sealed shall be clean, dry and the surface shall be at ambient temperature.
e. The furnishing and applying of the required quantity of sealer for the bridge shoulder areas shall be incidental to placing the hot mix asphalt pavement.
f. The minimum production and placement temperature for the Hot Mix Asphalt placed over membrane shall conform to the manufacturer's recommendations.

The area between the edge of the membrane and the vertical surface shall be completely sealed with hot-applied rubberized asphalt material, meeting the requirements of Type 4 crack seal; shall be applied to form a complete seal between the membrane and the vertical surface and shall extend up the vertical surface to within ½ inch of the top of the HMA wearing surface. This work shall be considered incidental to the contract pavement items unless 508 membrane items are included in the contract.

401.15 Compaction Immediately after the Hot Mix Asphalt Pavement has been spread, struck off, and any surface irregularities adjusted, the Contractor shall thoroughly and uniformly compact the HMA by rolling.

The Contractor shall roll the surface when the mixture is in the proper condition and when the rolling does not cause undue displacement, cracking, or shoving. The Contractor shall prevent adhesion of the HMA to the rollers or vibrating compactors without the use of fuel oil or other petroleum based release agents. Solvents designed to strip asphalt binders from aggregates will not be permitted as release agents on equipment, tools, or pavement surfaces.

The Contractor shall immediately correct any displacement occurring as a result of the reversing of the direction of a roller or from other causes to the satisfaction of the Department. Any operation other than placement of variable depth shim course that results in breakdown of the aggregate shall be discontinued. Any new pavement that shows obvious cracking, checking, or displacement shall be removed and replaced for the full lane width as directed by the Resident at no cost to the Department.

Along forms, curbs, headers, walls, and other places not accessible to the rollers, the Contractor shall thoroughly compact the HMA with mechanical vibrating compactors. The Contractor shall only use hand tamping in areas inaccessible to all other compaction equipment. On depressed areas, the Contractor may use a trench roller or cleated compression strips under a roller to transmit compression to the depressed area.

Any HMA that becomes unacceptable due to cooling, cracking, checking, segregation or deformation as a result of an interruption in mix delivery shall be removed and replaced with material that meets contract specifications at no cost to the Department.

401.16 Joints The Contractor shall construct wearing course transverse and longitudinal joints in such a manner that minimum tolerances shown in Section 401.11 - Surface Tolerances are met when measured with a straightedge. The paver screed shall maintain a uniform head of HMA during transverse and longitudinal joint construction. The HMA shall be free of segregation and meet temperature requirements outlined in Section 401.04. Transverse joints of the wearing course shall be straight and neatly trimmed. The Contractor may form a vertical face exposing the full depth of the course by inserting a header, by breaking the bond with the underlying course, or by cutting back with hand tools. The Contractor shall apply a coating of emulsified asphalt

immediately before paving all joints to the vertical face and 3 in of the adjacent portion of any pavement being overlaid except those formed by pavers operating in echelon. The Contractor shall use an approved spray apparatus designed for covering a narrow surface. The Department may approve application by a brush for small surfaces, or in the event of a malfunction of the spray apparatus, but for a period of not more than one working day.

Where pavement under this contract joins an existing pavement, or when the Department directs, the Contractor shall cut the existing pavement along a smooth line, producing a neat, even, vertical joint. The Department will not permit broken or raveled edges. The cost of all work necessary for the preparation of joints is incidental to related contract pay items. Longitudinal joints shall be generally straight to the line of travel and constructed in a manner that best ensure joint integrity. Methods or activities that prove detrimental to the construction of straight, sound longitudinal joints will be discontinued.

The Contractor may utilize an approved notched wedge joint device on all HMA layers 1 ½ inches in depth or greater. A notched wedge joint shall be constructed as shown in Figure 1 using a device that is attached to the paver screed and is capable of independently adjusting the top and bottom vertical notches.

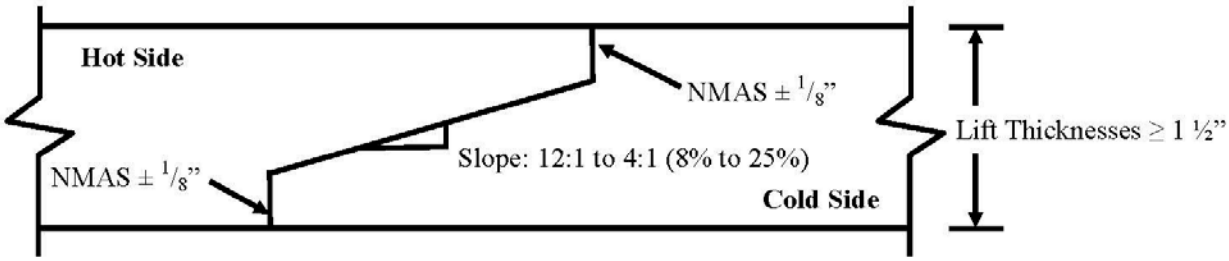


FIGURE 1: Notched Wedge Joint

Notes

1. An emulsified tack coat shall be applied to the vertical edges and the wedge surface so that the total rate is 0.05 G/SY plus the normal specified rate prior to placing the adjacent layer. The Contractor may elect to apply the emulsified tack coat in one or multiple passes.
2. Dimensions shown are compacted depths (after rolling is complete).

The Department reserves the right to have centerline cores cut by the Contractor's QC personnel for informational purposes to monitor the density along the joint. Informational cores at the centerline joint will be taken centered over the tapered part of the wedge joint.

Any notched wedge joint constructed areas that become cracked or broken shall be trimmed back to the limits affected prior to placing the adjoining lane. Any materials that become unbound or separated from the wedge or tapered joint section, or contaminated by materials determined by the Department as being detrimental to the construction of a sound construction joint, shall be removed by sweeping, compressed air and lance, or by hand tools as required. This work, if necessary, will not be paid for directly, but shall be considered incidental to the related contract items.

The Contractor shall apply a coating of emulsified asphalt on the vertical and tapered surface of the longitudinal centerline joint immediately before paving if the notched wedge joint device is used. The total rate of application shall be 0.050 G/SY plus the normal specified tack coat rate. The Contractor shall use an approved spray apparatus designed for covering a narrow surface. The Department may approve application by a brush for small surfaces.

401.17 Hot Mix Asphalt Documentation The Contractor and the Department shall agree on the amount of Hot Mix Asphalt Pavement that has been placed each day. All delivery slips shall conform to the requirements of 401.078.

401.18 Prepave Meeting Prior to placing any mix, the Department and the Contractor shall hold a Pre-paving conference to discuss the paving schedule, source of mix, type and amount of equipment to be used, sequence of paving pattern, rate of mix supply, random sampling, project lots and sublots and traffic control. A copy of the density QC random numbers to be used on the project shall be provided to the Resident. The Departments' random numbers for Acceptance testing shall be generated and on file with the Resident and the Project Manager. All personnel of the Department and the Contractor who have significant information relevant to the paving items shall attend, including the responsible onsite paving supervisor for the Contractor. The Resident will prepare minutes of the conference and distribute them to all attendees. Any requests to revise the minutes must be made to the Resident within 7 Days of Receipt. These minutes will constitute the final record of the Pre-paving conference. On the first day of paving and whenever there is a change in the onsite paving foreman or paving inspector, the Department and the Contractor shall hold an informal onsite meeting to review the minutes of the Pre-paving conference, Project Specific QCP, Plans, Typicals, Special Provisions and communication process. This meeting shall be held prior to placing any mix. The onsite paving supervisor, QCT, Superintendent, Resident and/or paving inspector shall attend. Prepave meetings shall not be required on projects designated as Acceptance Method D unless otherwise noted in Section 403 - Hot Mix Asphalt Pavement.

401.19 Contractor Quality Control The Contractor shall operate in accordance with the approved Quality Control Plan (QCP) to assure a product meeting the contract requirements. The Contractor shall not begin paving operations until the Department approves the QCP in writing.

401.191 Quality Control - Method A, B & C The QCP shall meet the requirements of Section 106.6 - Acceptance and this Section. The QCP shall address any items that affect the quality of the Hot Mix Asphalt Pavement including, but not limited to, the following:

a. JMF(s)
b. Hot mix asphalt plant details
c. Stockpile Management (to include provisions for how the requirements of 401.071b will be met)
d. Make and type of paver(s)
e. Make and type of rollers including weight, weight per inch of steel wheels, and average contact pressure for pneumatic tired rollers
f. Name of QCP Administrator, and certification number
g. Name of Process Control Technician(s) and certification number(s)
h. Name of Quality Control Technicians(s) and certification number(s)
i. Mixing & transportation including process for ensuring that truck bodies are clean and free of debris or contamination that could adversely affect the finished pavement
j. Testing Plan
k. Laydown operations including longitudinal joint construction, procedures for avoiding paving in inclement weather, type of release agent to be used on trucks tools and rollers, compaction of shoulders, tacking of all joints, methods to ensure that segregation is minimized, procedures to determine the maximum rolling and paving speeds based on best engineering practices as well as past experience in achieving the best possible smoothness of the pavement.
l. Examples of Quality Control forms including a daily plant report, daily paving report, and delivery slip template for any plant to be utilized.
m. Silo management and details

n. Provisions for varying mix temperature due to extraordinary conditions or production limitations. If a warm-mix technology is utilized, a proposed target production temperature range (not to exceed 50°F) will be provided for each mix design.
o. Name and responsibilities of the Responsible onsite Paving Supervisor.
p. Method for calibration/verification of Density Gauge
q. A note that all testing will be done in accordance with AASHTO and the MaineDOT Policies and Procedures for HMA Sampling and Testing.
r. A detailed description of RAP processing, stockpiling and introduction into the plant as well as a note detailing conditions under which the percent of RAP will vary from that specified on the JMF.
s. A detailed procedure outlining when production will be halted due to QC or Acceptance testing results.
t. A plan to address the change in PGAB source or supplier and the potential co-mingling of differing PGAB's.
u. A procedure to take immediate possession of acceptance samples once released by MaineDOT and deliver said samples to the designated acceptance laboratory.
v. Provisions for how the QCP will be communicated to the Contractor's field personnel

The QCP shall include the following technicians together with following minimum requirements:

a. QCP Administrator - A qualified individual shall administer the QCP. The QCP Administrator must be a full-time employee of or a consultant engaged by the Contractor or paving subcontractor. The QCP Administrator shall have full authority to institute any and all actions necessary for the successful operation of the QCP. The QCP Administrator (or its designee in the QCP Administrator's absence) shall be available to communicate with the Department at all times. The QCP Administrator shall be certified as a Quality Assurance Technologist certified by the New England Transportation Technician Certification Program (NETTCP).

b. Process Control Technician(s) (PCT) shall utilize test results and other quality control practices to assure the quality of aggregates and other mix components and control proportioning to meet the JMF(s). The PCT shall inspect all equipment used in mixing to assure it is operating properly and that mixing conforms to the mix design(s) and other Contract requirements, and that delivery slips and plant recordation accurately reflects the mix being produced with all the required information. The QCP shall detail how these duties and responsibilities are to be accomplished and documented, and whether more than one PCT is required. The Plan shall include the criteria to be utilized by the PCT to correct or reject unsatisfactory materials. The PCT shall be certified as a Plant Technician by the NETTCP.

c. Quality Control Technician(s) (QCT) shall perform and utilize quality control tests at the job site to assure that delivered materials meet the requirements of the JMF(s). The QCT shall inspect all equipment utilized in transporting, laydown, and compacting to assure it is operating properly and that all laydown and compaction conform to the Contract requirements. The QCP shall detail how these duties and responsibilities are to be accomplished and documented, and whether more than one QCT is required. The QCP shall include the criteria utilized by the QCT to correct or reject unsatisfactory materials. The QCT shall be certified as a Paving Inspector by the NETTCP.

The QCP shall detail the coordination of the activities of the Plan Administrator, the PCT and the QCT. The Project Superintendent shall be named in the QCP, and the responsibilities for successful implementation of the QCP shall be outlined.

The Contractor shall have a testing lab at the plant site, equipped with all testing equipment necessary to complete the tests in Table 5. The Contractor shall locate an approved Gyratory Compactor at the plant testing lab. The

Contractor shall generate QC sampling random numbers for each approved mix design. A copy of the random numbers shall be emailed to the QC.mainedot@maine.gov email address and remain on-file (in print) and be available for inspection at the QC laboratory. The Contractor shall sample, test, and evaluate Hot Mix Asphalt Pavement in accordance with the following minimum frequencies per each approved mix design:

TABLE 5: MINIMUM QUALITY CONTROL FREQUENCIES

Test or Action	Frequency	Test Method
Temperature of mix	6 per day at street and plant	-
Temperature of mat	4 per day	-
%TMD (In-Place Density - Surface)	1 per 125 ton	AASHTO T355 or AASHTO T343
%TMD (In-Place Density - Base)	1 per 250 ton	AASHTO T355 or AASHTO T343
Fines / Effective Binder	1 per 500 ton	AASHTO T 312*
Gradation	1 per 500 ton	AASHTO T30
PGAB Content	1 per 500 ton	AASHTO T164 or AASHTO T308
Voids at N_{design}	1 per 500 ton	AASHTO T 312*
VMA at N_{design}	1 per 500 ton	AASHTO T 312*
Rice Specific Gravity	1 per 500 ton	AASHTO T209
Coarse Aggregate Angularity	1 per 5,000 ton	ASTM D5821
Flat and Elongated Particles	1 Per 5,000 ton	ASTM D4791
Fine Aggregate Angularity	1 Per 5,000 ton	AASHTO T304

*Method A and B only

The Contractor shall monitor plant production on each approved mix design using running average of three control charts as specified in Section 106 - Quality. Control limits shall be as noted in Table 6 below. The UCL and LCL, shall not exceed the allowable gradation control points for the particular type of mixture as outlined in Table 1 of Section 703.09.

TABLE 6: CONTROL LIMITS

Property	UCL and LCL
Percent Passing 4.75 mm and larger sieves	Target +/-4.0
Percent Passing 2.36 mm sieve	Target +/-2.5
Percent Passing 0.075 mm sieve	Target +/-1.0
PGAB Content	Target +/-0.25
VMA at N_{design}	LCL = LSL + 0.2
Voids at N_{design}	JMF Target +/-1.2
Theoretical Maximum Specific Gravity	JMF Target +/-0.020

The Contractor shall submit all HMA QC test reports, inspection reports and updated control charts to the Resident and QC.mainedot@maine.gov by email. The HMA QC test reports, inspection reports and updated control charts shall be signed by the appropriate technician and be submitted to the Department by 1:00 P.M. on the next working day, except when otherwise noted in the QCP and approved by the Department.

The Contractor shall also retain splits of the previous 5 QC tests, with QC results enclosed for random selection and testing by the Department during inspections of the HMA production facility. Test results of splits that do not meet the Dispute Resolution Variance Limits in Table 14 shall trigger an investigation by the MaineDOT Independent Assurance Unit, and may result in that lab losing NETTCP certification and the ability to request a dispute [Section 401.24 - Process for Dispute Resolution (Methods A, B and C only)].

The Contractor shall make density test results, including randomly sampled densities, available to the Department onsite. Summaries of each day's results, including a daily paving report, shall be recorded and signed by the QCT and provided to the QC.mainedot@maine.gov email address and Resident in writing by 1:00 p.m. the next working day. The Contractor shall fill all holes in the pavement resulting from cutting cores by the Contractor or the Department with a properly compacted, acceptable mixture no later than the following working day. Before filling, the Contractor shall carefully clean the holes and apply a coating of emulsified asphalt. The Contractor may only cut additional cores for verification of the densometer, at a rate not to exceed 3 per day or 2 per 1000 ton placed.

If the Contractor's control chart shows the process for a given mix design to be out of control (defined as a single point outside of the control limits on the running average of three chart) on any property listed in Table 6: Control Limits, the Contractor shall notify the Resident of all affected projects in writing of the corrective action by 1:00 PM the next working day. The written description shall detail what action is being taken by the Contractor to bring the property in question back within control limits. Subsequent quality control results are expected to demonstrate an improvement and regression towards the aim. The Department reserves the right to take action, to include cessation of production, in the case of repeated results outside the Table 6 control chart control limits.

On a daily basis, the Contractor shall perform density testing across the mat being placed, prior to being compacted by equipment at 12 in intervals. If the density values vary by more than 2.0% from the mean, the Contractor shall make adjustments to the screed until the inconsistencies are remedied. Failure to replace or repair defective placement equipment may result in a letter of suspension of work and notification of a quality control violation resulting in possible monetary penalties as governed by Section 106 - Quality

The Contractor shall cease paving operations whenever one of the following occurs:

a. The quality level for density using all quality control tests for the current Lot is less than 60 PWL.
b. The Coarse Aggregate Angularity or Fine Aggregate Angularity value falls below the requirements of Table 3: Aggregate Consensus Properties Criteria in Section 703.07 for the design traffic level.
c. The Flat and Elongated Particles value exceeds 10% by ASTM D4791.
d. There is any visible damage to the aggregate due to over-densification other than on variable depth shim courses.
e. The Contractor fails to follow the approved QCP.

The Contractor shall notify the Resident in writing as to the reason for shutdown, as well as the corrective action, by the end of the work day. Failure to do so will be treated as a second incident under 106.4.6 QCP Non-compliance. The Department will only allow the continuation of paving operations when it is satisfied the corrective action will result in an improvement in results. The Department may require the submittal of a passing verification sample to allow further production. The Department retains the exclusive right, with the exception of the first day's production of a new JMF, to determine whether the resumption of production involves a significant change to the production process. If the Department so determines, then the current lot will be terminated, a pay factor established, and a new lot will begin.

The Contractor may utilize innovative equipment or techniques not addressed by the Contract documents to produce or monitor the production of the mix, subject to approval by the Department.

401.192 Quality Control - Method D Unless otherwise noted in Section 403 - Hot Mix Asphalt Pavement, the Contractor shall submit a modified QC Plan detailing, how the mix is to be placed, what equipment is to be used, and what HMA plant is to be used for Items covered under Method D. All mix designs (JMF) shall be approved and verified by MaineDOT prior to use. Certified QC personnel shall not be required unless otherwise noted in

Section 403 - Hot Mix Asphalt Pavement. The Contractor shall certify the mix and the test results for each item by a Certificate of Compliance.

401.20 Acceptance Method A, B & C These methods utilizes Quality Level Analysis and pay factor specifications. For Hot Mix Asphalt Pavement designated for acceptance under Quality Assurance provisions, the Department will sample once per sublot on a statistically random basis, test, and evaluate in accordance with the following Acceptance Properties:

TABLE 7: ACCEPTANCE PROPERTIES

Properties	**Point of Sampling**	**Test Method**
Gradation	Paver Hopper	AASHTO T30
PGAB Content	Paver Hopper	AASHTO T308
% TMD (In-Place Density)	Mat behind all Rollers	AASHTO T269
Voids at N_{design}	Paver Hopper	AASHTO T 312
VMA at N_{design}	Paver Hopper	AASHTO T 312
Fines to Effective Binder	Paver Hopper	AASHTO T 312
VFB	Paver Hopper	AASHTO T 312

The Department will obtain samples of Hot Mix Asphalt Pavement in conformance with AASHTO R 97, Sampling Asphalt Mixtures, and the MaineDOT Policies and Procedures for HMA Sampling and Testing. The Contractor shall transport the samples in containers provided by the Department to the designated MaineDOT Laboratory within 48 hours except when otherwise noted in the project specific QCP or as directed by the Resident. Failure to deliver an acceptance sample to the designated acceptance laboratory will be considered the second incident under 106.4.6–QCP Non-Compliance.

Target values shall be as specified in the JMF. The Department will withhold reporting of the test results for the Acceptance sample until 7:00 AM, on the second working day of receipt of the sample, or after receipt of the Contractors results of the Acceptance sample split. Upon conclusion of each lot, where there is a minimum of four sublots, results shall be examined for statistical outliers, as stated in Section 106.7.2 - Statistical Outliers.

TABLE 8: ACCEPTANCE METHODS

Property	**USL and LSL**		
	Method A	**Method B**	**Method C**
Lot Size*	Entire production per item per contract up to 6000 ton	Entire production per item per contract	Entire production per item per contract up to 6000 ton
Maximum Sublot Size – Mix	750 ton	Lot quantity divided by three	750 ton
Maximum Sublot Size – Density	Surface Layers – 250 ton Base / Intermediate Layers – 500 ton	Lot quantity divided by five	Surface Layers – 250 ton Base / Intermediate Layers – 500 ton
Minimum Number of Samples – Mix	Four	Three	Four
Minimum Number of Samples – Density	Five		

*Unless otherwise agreed upon at the Prepave Meeting

If there is less than one-half of a sublot remaining at the end, then it shall be combined with the previous sublot. If there is more than one-half sublot remaining at the end, then it shall constitute the last sublot and shall be represented

by test results. If it becomes apparent partway through a Lot that, due to an underrun, there will be insufficient mix quantity to obtain the minimum number of sublots needed, the Resident may adjust the size of the remaining sublots and select new sample locations based on the estimated quantity of material remaining in the Lot. Unanticipated over-runs of up to 1500 ton shall be rolled into the last lot. Cases where the lot is terminated prior to reaching completion shall be handled in accordance with Section 106.7.3 Early Termination of Lots. In cases where density incentive/disincentive provision apply, additional cores shall be taken to attain a minimum of three for the Lot.

Isolated Areas During the course of inspection, should it appear that there is an isolated area that is not representative of the lot based on a lack of observed compactive effort, excessive segregation, a change in process or any other questionable practice, that area may be isolated and tested separately. An area so isolated that has a calculated pay factor below 0.80 for Method A and C or below 0.86 for Method B, based on three random tests shall be removed and replaced at the expense of the Contractor for the full lane width and a length not to be less than 150 ft.

Pavement Density The Department will measure pavement density using core samples tested according to AASHTO T 166. The Contractor shall cut 6-inch diameter cores at no additional cost to the Department by the end of the working day following paving. Cores shall be cut such that the nearest edge at least 9 inches from any joint. Pre-testing of the cores will not be allowed. If the Contractor and the Department mutually determine that a core is damaged, the Contractor shall cut new core(s) at the same offset and within 3 ft of the initial sample. The Contractor and the Department will mutually determine if underlying material is adhered to the core and if so will mark the core at the point where sawing is needed. The Department will place the cores in a secure container and the Contractor shall transport the cores to the designated MaineDOT lab. The cores will be saw cut by the Department to remove underlying layers. No recuts are allowed at a test location after the core has been tested. Upon conclusion of each lot, density results shall be examined for statistical outliers as stated in Section 106.7.2.

On all sections of overlay with wearing courses designed to be 1 in or less in thickness, there shall be no pay adjustment for density otherwise noted in Section 403 - Hot Mix Asphalt Pavement. For overlays designed to be 1 in or less in thickness, density shall be obtained by the same rolling train and methods as used on mainline travelway surface courses with a pay adjustments for density, unless otherwise directed by the Department.

There shall be no pay adjustment for density on shoulders unless otherwise noted in Section 403 - Hot Mix Asphalt Pavement. Density for shoulders shall be obtained by the same rolling train and methods as used on mainline travelway, unless otherwise directed by the Department. Efforts to obtain optimum compaction will not be waived by the Department unless it is apparent during construction that local conditions make densification to this point detrimental to the finished pavement surface course.

TABLE 9: ACCEPTANCE LIMITS

Property	USL and LSL		
	Method A	**Method B**	**Method C**
Percent Passing 4.75 mm and larger sieves	Target +/-7%		
Percent Passing 2.36 mm to 1.18 mm sieves	Target +/-4%	Target +/-5%	Target +/-5%
Percent Passing 0.60 mm sieve	Target +/-3%	Target +/-4%	Target +/-4%
Percent Passing 0.30 mm to 0.075 mm sieve	Target +/-2%	Target +/-3%	Target +/-2%
PGAB Content	Target +/-0.4%	Target +/-0.5%	Target +/-0.4%
Voids at N_{design}	4.0% +/-1.5%	4.0% +/-2.0%	N/A
Fines to Effective Binder	0.9 +/-0.3	0.9 +/-0.3	N/A
VMA at N_{design}	LSL from Table 1	LSL from Table 1	N/A
VFB	Table 1 plus a 4% production tolerance for USL	Table 1 plus a 4% production tolerance for USL	N/A
% TMD (In-place Density)	95.0% +/- 2.5%		

The Contractor shall cease paving operations whenever one of the following occurs on a lot in progress:

TABLE 10: CEASE PRODUCTION CONDITIONS

Property	Percent Within Limits (PWL)	
	Method A / Method B	**Method C**
Percent Passing NMAS sieve*	<60	<60
Percent Passing 2.36 mm sieve*		
Percent Passing 0.30 mm sieve*		
Percent Passing 0.075 mm sieve*		
PGAB Content		
Voids at N_{design}		N/A
Fines to Effective Binder*		
VMA at N_{design}		
VFB		
% TMD (In-place Density)		<60

*Paving operations shall not be required to cease if the mean test value is equal to the LSL or USL and s = 0.

In cases where the Contractor is to cease paving operations based upon an Acceptance result or payfactor, the Contractor will submit a corrective action plan to the Department. The Department will only allow the continuation of paving operations when it is satisfied the corrective action will result in an improvement in results. The Department may require the submittal of a passing verification sample to allow further production.

The Department will sample, test, and evaluate Hot Mix Asphalt Pavement in accordance with Section 106 - Quality and Section 401.20 - Acceptance, of this Specification. The Department will use the following criteria for pay adjustment at the completion of the Lot using the pay adjustment factors under Section 106.7 - Quality Level Analysis:

Density If the pay factor for Density falls below 0.80 for Method A or C or 0.86 for Method B, all of the cores will be randomly re-cut by Sublot. A new pay factor will be calculated that combines all initial and retest results.

If the resulting pay factor is below 0.80 for Method A or C or below 0.86 for Method B, the entire Lot shall be removed and replaced with material meeting the specifications at no additional cost to the Department, except that the Department may, when it appears that there is a distinct pattern of defective material, isolate any defective material by investigating each mix sample sublot and require removal of defective mix sample sublots only, leaving any acceptable material in place if it is found to be free of defective material. Pay factors equal to or greater than the reject level will be paid accordingly.

Mix Properties The Department will determine a pay factor (PF) using the applicable Acceptance Limits. If any single pay factor for PGAB Content, VMA at N_{design}, or Voids at N_{design} falls below 0.80 for Method A, then the composite pay factor for PGAB Content, VMA at N_{design}, and Voids at N_{design} shall be 0.55. If any single pay factor for PGAB Content, VMA at N_{design}, or Voids at N_{design} falls below 0.86 for Method B, then the composite pay factor for PGAB Content, VMA at N_{design}, and Voids at N_{design} shall be 0.70. If the PGAB content falls below 0.80 for Method C, then the PGAB pay factor shall be 0.55.

The following variables will be used for pay adjustment:

PA = Pay Adjustment
Q = Quantity represented by PF in ton
P = Contract price per ton
PF = Pay Factor

The Department will determine a pay adjustment using Table 11: Pay Adjustment Calculations as follows:

TABLE 11: PAY ADJUSTMENT CALCULATIONS

Acceptance Method	Mix Properties / Gradation	Density
Method A	PA = (Voids @ N_d PF- 1.0)(Q)(P)x0.20 + (VMA at N_{design} PF- 1.0)(Q)(P)x0.20 + (PGAB Content PF- 1.0)(Q)(P)x0.10	PA = (density PF-1.0)(Q)(P)x0.50
Method B		
Method C	PA = (% Passing Nom. Max PF-1.0)(Q)(P)x0.05+(% passing 2.36 mm PF-1.0)(Q)(P)x0.05+(%passing 0.30 mm PF-1.0)(Q)(P)x0.05+(%passing 0.075 mm PF-1.0)(Q)(P)x0.10+(PGAB Content PF-1.0)(Q)(P)x0.25	

In addition, for 9.5 mm NMAS mixtures the following pay adjustment shall also apply:

The average percent passing for the 0.075 mm sieve shall be evaluated for each Lot. If the average is greater than 6.5%, a pay adjustment according to Table 12 below shall apply in addition to the other pay adjustments for the given method of testing.

TABLE 12: 0.075 MM SIEVE PAY ADJUSTMENT

Average Percent Passing 0.075 mm Sieve	Pay Adjustment
6.6% - 7.0%	-5%
> 7.0%	-10%

The Department shall notify the Contractor whenever the average of at least three samples in a given Lot is greater than 6.5%.

401.21 Acceptance Method D Unless otherwise stated in the 403 special provision, one sample will be taken from the paver hopper or the truck body per 250 ton per pay item. The mix will be tested for gradation and

PGAB content. Disputes will not be allowed. If the mix is within the tolerances listed in Table 13, the Department will pay the contract unit price. Contractor shall cut two 6 in cores, which shall be tested for percent TMD per AASHTO T-269 unless otherwise noted in Section 403 - Hot Mix Asphalt Pavement. If the average for the two tests falls below 92.5% the disincentive shall apply. If the test results for each 250 ton increment are outside these limits, the following deductions shall apply to the HMA quantity represented by the test.

TABLE 13: METHOD D ACCEPTANCE LIMITS AND PAY ADJUSTMENTS

Property	USL and LSL	Pay Adjustment
Percent Passing 4.75 mm and larger sieves	Target +/-7%	N/A
Percent Passing 2.36 mm sieve	Target +/-7%	-2.0%
Percent Passing 1.18 mm sieve	Target +/-5%	N/A
Percent Passing 0.60 mm sieve	Target +/-4%	N/A
Percent Passing 0.30 mm sieve	Target +/-3%	-1.0%
Percent Passing 0.075 mm sieve	Target +/-3%	-2.0%
PGAB Content	Target +/-0.5%	-5.0%
% TMD (In-place Density)	LSL of 92.5%	-10.0%

If test results do not meet the Table 13 requirements, deducts as shown shall be applied to the quantity of mix represented by the test.

401.22 Method of Measurement The Department will measure Hot Mix Asphalt Pavement by the ton in accordance with Section 108.1 - Measurement of Quantities for Payment.

401.23 Basis of Payment The Department will pay for the work, in place and accepted, in accordance with the applicable sections of this Section, for each type of HMA specified.

The Department will pay for the work specified in Section 401.12, for the HMA used, except that cleaning objectionable material from the pavement and furnishing and applying bituminous material to joints and contact surfaces is incidental. Payment for this work under the appropriate pay items shall be full compensation for all labor, equipment, materials, and incidentals necessary to meet all related contract requirements, including design of the JMF, implementation of the QCP, obtaining core samples, transporting cores and samples, filling core holes, applying emulsified asphalt to joints, and providing testing facilities and equipment. The Department will make a pay adjustment for quality as specified in Section 401.20 Acceptance Method A, B & C or 401.21 Acceptance Method D.

401.24 Process for Dispute Resolution (Methods A, B, & C only) At the time of Hot-Mix Asphalt sampling, the Department will obtain a split sample of each Acceptance test random sample for possible dispute resolution testing. The Contractor shall also obtain a split sample of the HMA at this same time. If the Contractor wishes to retain the option of requesting dispute testing of the initial Acceptance sample, the Contractor will test their split of the Acceptance sample and shall report their results to the Resident, with a copy to Contractor.mainedot@maine.gov by 7:00 AM, on the second working day from time of QA sampling, otherwise dispute resolution will not be initiated. The Department's dispute resolution split sample will be properly labeled and stored for a period of at least two weeks after it has been reported, or until the sample is tested. The properties eligible for dispute and the respective variances are shown in Table 14.

The Contractor may dispute the Department's Acceptance results and request that the dispute resolution split sample be tested by notifying the Department's Resident and QA Engineer in writing within two working days after the results of the Acceptance test are reported. The following shall be provided in the request:

- Acceptance sample reference number

- The specific test result(s) or property(ies) being disputed, and
- The complete, signed report of the Contractor's testing (In a lab certified by the NETTCP and MaineDOT) of their split of the Acceptance sample indicating that the variances in Table 14 for the specific test result(s) or property(ies) were exceeded.

TABLE 14: DISPUTE RESOLUTION VARIANCE LIMITS

Property	Disputable on Method A/B	Disputable on Method C	Variance Limits
PGAB Content	Yes	Yes	+/-0.4%
G_{mb}	Yes	No	+/-0.030
G_{mm}	Yes	No	+/-0.020
Voids at N_{design}	Only if G_{mb} or G_{mm} is not disputable	No	+/-0.8%
VMA at N_{design}	Only if G_{mb} or G_{mm} is not disputable	No	+/-0.8%
Percent Passing 4.75 mm and larger sieves	No	Yes	+/- 4.0%
Percent Passing 2.36 mm to 0.60 mm sieves	No	Yes	+/- 3.0%
Percent Passing 0.30 mm to 0.15 mm sieves	No	Yes	+/- 2.0 %
0.075 mm sieve	Only for 9.5 mm NMAS mixes	Yes	+/- 0.8%

The value of any disputed result or property reported for the initial Acceptance sample shall stand if the value reported for the dispute resolution sample is not closer to the value the Contractor reported for their split sample than to the value reported for the initial Acceptance sample. If the value reported for the dispute resolution falls precisely half-way between the other two values the value reported for the dispute resolution will replace the original acceptance value. Otherwise, the value reported for the dispute resolution sample will replace the value reported for the initial Acceptance sample and will be used to re-calculate any other affected results or properties.

SECTION 402 - PAVEMENT SMOOTHNESS

402.00 Smoothness Projects Projects to have their pavement smoothness analyzed in accordance with this Specification will be so noted in Special Provision 403 - Hot Mix Asphalt Pavement.

402.01 Pavement Smoothness The final pavement surface shall be evaluated for smoothness using a Class I or Class II profiler as defined by ASTM E950 (94). Smoothness measurements will be expressed in terms of the International Roughness Index (IRI) as defined by the World Bank, in units of inches/mile.

402.02 Lot Size Lot size for smoothness will be 3000 lane-feet. A sublot will consist of 50 lane-feet. Partial lots will be included in the previous lot if less than one-half the size of a normal lot. If equal to or greater than one-half the normal lot size, it will be tested as a separate lot.

402.03 Acceptance Testing The Department will conduct Acceptance testing following completion of the surface course. Sections to be excluded from testing include the following:

Bridge decks and joints (no smoothness measurements will be taken within 100 ft of bridge joints)
Acceleration and deceleration lanes
Shoulders and ramps
Side streets and roads
Within 100 ft of transverse joints at the beginning and end of the project

Within 100 ft of railroad crossings
Urban areas with speed limits of 30 mph or lower

Each lot shall have 2 measurements made in each wheel path. The average of the 4 measurements will determine the smoothness for that lot. The smoothness measurements will be statistically evaluated for pay factors as described in Subsection 106.7 - Quality Level Analysis, using the specification limits shown below.

TABLE 1: ACCEPTANCE LIMITS

Level	USL
I	50 in/mile
II	60 in/mile
III	70 in/mile

Computation of Smoothness Pay Adjustment:

PA = (PF-1.0)(Q)(P)
where:
Q = Quantity of surface course in the Lot (excluding shoulders, side streets, bridge decks, ramps, acceleration and deceleration lanes)
PF = smoothness pay factor for the Lot
P = Contract unit price for surface pavement
PA = pay adjustment

402.04 Unacceptable Work In the event that any Lot is found to have a pay factor less than 0.80, the Contractor shall take whatever remedial action is required to correct the pavement surface in that Lot at no additional expense to the Department. Such remedial action may include but is not limited to removal and replacement of the unacceptable pavement. In the event remedial action is necessary, the Contractor shall submit a written plan to the Resident outlining the scope of the remedial work. The Resident must approve this plan before the remedial work can begin. Following remedial work, the Lot shall be retested, and will be subject to the specification limits listed above. The resulting pay factor, if within the acceptable range, will be used in the final pay adjustment. The Contractor shall pay the cost of retesting the pavement following corrective action.

Localized surface tolerance defects will be subject to the provisions outlined in Section 401.11 Surface Tolerances.

Payment will be made under:

Pay Item	Pay Unit
402.10 Incentive/Disincentive - Pavement Smoothness	Lump Sum

SECTION 403 - HOT MIX ASPHALT PAVEMENT

403.01 Description This work shall consist of constructing one or more courses of Hot Mix Asphalt pavement on an approved base in accordance with these specifications, and in reasonably close conformity with the lines, grades, thickness and typical cross sections shown on the plans or established. The HMA pavement shall be composed of a mixture of aggregate, filler if required, and asphalt material.

403.02 General The materials and their use shall conform to the requirements of Section 401 - Hot Mix Asphalt Pavement.

403.03 Construction The construction requirements shall be as specified in Section 401 - Hot Mix Asphalt Pavement.

403.04 Method of Measurement Hot mix asphalt pavement will be measured as specified in Section 401.21-Method of Measurement.

403.05 Basis of Payment The accepted quantities of hot mix asphalt pavement will be paid for at the contract unit price per ton for the mixtures, including hot mix asphalt material complete in place. Method A, Method B, Method C and Method D shall be used for acceptance as specified in Section 401 - Hot Mix Asphalt Pavements. (See Complementary Notes, Section 403 - Hot Mix Asphalt Pavement, for Method location).

Payment will be made under:

	Pay Item	Pay Unit
403.102	Hot Mix Asphalt Pavement for Special Areas	Ton
403.206	Hot Mix Asphalt, 25 mm Nominal Maximum Size	Ton
403.207	Hot Mix Asphalt, 19.0 mm Nominal Maximum Size	Ton
403.2071	Hot Mix Asphalt , 19.0 mm Nominal Maximum Size (Polymer Modified)	Ton
403.2072	Asphalt Rich Hot Mix Asphalt, 19.0 mm Nominal Maximum Size (Asphalt Rich Base and Intermediate course)	Ton
403.208	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size	Ton
403.2081	Hot Mix Asphalt - 12.5 mm Nominal Maximum Size (Polymer Modified)	Ton
403.209	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (sidewalks, drives, islands & incidentals)	Ton
403.210	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size	Ton
403.2101	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Polymer Modified)	Ton
403.2102	Asphalt Rich Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Asphalt Rich Intermediate course)	Ton
403.2104	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Thin Lift Surface Treatment)	Ton
403.211	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Shimming)	Ton
403.2111	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Shimming, Polymer Modified))	Ton
403.212	Hot Mix Asphalt, 4.75 mm Nominal Maximum Size	Ton
403.213	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Base and Intermediate Base course)	Ton
403.2131	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Base and Intermediate Base course, Polymer Modified)	Ton
403.2132	Asphalt Rich Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (Base and Intermediate Base course)	Ton
403.214	Hot Mix Asphalt, 4.75 Nominal Maximum Size (5/8” Surface Treatment)	Ton

SPECIAL PROVISION

SECTION 403

HOT MIX ASPHALT PAVEMENT

Desc. Of Course	Grad Design.	Item Number	Total Thick	No. Of Layers	Comp. Notes
3" – Mattawamkaeg Bridge Deck					
Wearing	12.5 mm	403.2081	1½"	1	2,4,8,12,30
Base	12.5 mm	403.2131	1½"	1	2,4,8,12,30
5" – U.S. Route 2 (Main St.) Travel Way, Shoulders, Widenings & Guardrail Flareouts - Full Depth Construction					
Wearing	12.5 mm	403.2081	1½"	1	4,8,12,30
Base	12.5 mm	403.2131	1½"	1	4,8,12,30
Base	12.5 mm	403.2131	2"	1	4,8,30
3" – U.S. Route 2 (Main St.) Travel Way & Shoulders - Mill & Overlay					
Wearing	12.5 mm	403.2081	1½"	1	4,8,12,30
Base	12.5 mm	403.2131	1½"	1	4,8,12,30
5" – Hathaway Rd. & River Rd. Travel Way & Shoulders					
Wearing	12.5 mm	403.2081	1½"	1	4,8,12,30
Base	12.5 mm	403.2131	1½"	1	4,8,30
3" – Boyd St. & Willow St. - Travel Way & Shoulders – Mill & Overlay					
Wearing	12.5 mm	403.2081	1½"	1	4,8,12,30
Base	12.5 mm	403.2131	1½"	1	4,8,12,30
5" – Curb/Underdrain Installation Areas					
Wearing	12.5 mm	403.2081	1½"	1	4,8,12,30
Base	12.5 mm	403.2131	3½"	2/more	2,4,16,18,30
3" – Commercial Entrance					
Wearing	12.5 mm	403.2081	1½"	1	2,4,10,16,30
Base	12.5 mm	403.2131	1½"	1	2,4,10,16,30
Variable – Shim – As Directed					
Shim	9.5 mm	403.211	varies	1/more	2,4,10,11,14
3" – Temporary Detour					
Temp.	12.5 mm	461.131	3"	2	28
2" – Sidewalks and Incidentals					
Wearing	9.5 mm	403.209	2"	2/more	2,4,10,11,14

COMPLEMENTARY NOTES

2. The incentive/disincentive provisions for density shall not apply. Rollers shall meet the requirements of this special provision. The use of an oscillating steel roller shall be required to compact all mixtures pavements placed on bridge decks.
4. The design traffic level for mix placed shall be 0 to <3 million ESALS. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **65 gyrations**.

8. Section 106.6 Acceptance, (2) Method B. The Contractor may request a contract modification to change to testing method "A" prior to work starting on this item.
10. Section 106.6 Acceptance, (2) Method D.
11. The combined aggregate gradation required for this item shall be classified as a 9.5mm "**fine graded "** mixture, (using the Primary Control Sieve control point) as defined in 703.09.
12. The combined aggregate gradation required for this item shall be classified as a 12.5mm "**fine graded "** mixture, (using the Primary Control Sieve control point) as defined in 703.09.
14. The combined aggregate gradation required for this item shall be classified as a 9.5mm Thin Lift Mixture (TLM) mixture, using the Aggregate Gradation Control Points as defined in 703.09.
16. In areas inaccessible to a **10 ton** roller, compaction of the new Hot Mix Asphalt Pavement will be obtained using a minimal roller train consisting of a **3-5 ton** vibratory roller. Areas less than 2 feet wide shall be compacted with a minimum of a **150 pound** plate compactor. An approved release agent is required to ensure the mixture does not adhere to hand tools, rollers, pavers, and truck bodies. The use of petroleum based fuel oils, or asphalt stripping solvents will not be permitted.
18. The Department will accept or reject any HMA based on a visual basis, either prior to its use, during placement, or in its final disposition.
28. See Special Provision 461 – Temporary Pavement for project specifics.
30. The required PGAB shall be a storage-stable, homogeneous, polymer modified asphalt binder that meets **PG 64E-28** grading requirements in AASHTO M 332. All polymer modified asphalt grades utilized on the Project shall be treated with an approved liquid anti-strip. PG binders shall be treated either at the asphalt source terminal with the required dose rate on the delivery documentation, or at the hot mix asphalt plant utilizing a system integrated with the plants controls that will introduce a minimum 0.50 percent anti-strip by weight of asphalt binder used unless a rate is otherwise recommended by the anti-strip manufacturer. The PGAB and anti-strip blend shall meet the **PG 64E-28** requirements. The Contractor shall provide supporting test data showing the PGAB and anti-strip blend meet the required criteria.

Tack Coat

A tack coat of emulsified asphalt, RS-1, RS-1h, CRS-1 or CRS-1h, Item 409.15 shall be applied to any existing pavement at a rate of approximately 0.030 gal/yd², and on milled pavement approximately 0.05 gal/yd² prior to placing a new course. A fog coat of emulsified asphalt shall be applied between shim /base courses and surface course as well as to any bridge membrane prior to the placement of HMA layers at a rate not to exceed 0.030 gal/yd². Tack used will be paid for at the contract unit price for Item 409.15 Bituminous Tack Coat.

SPECIAL PROVISION
SECTION 461
LIGHT CAPITAL PAVEMENT
(Temporary Pavement)

Description:

This work shall consist of furnishing all labor, materials and equipment, for the manufacturing, installation and removal of all Temporary Pavement in accordance with these specifications, Special Provision 403 Hot Mix Asphalt, and the Plans. Temporary pavement shall meet all mix design requirements of a 12.5 mm surface mix for the top 1 ½ inches, and a 12.5 mm base mix for the remaining 1 ½ inches.

Method of Measurement:

This work will be measured for payment by the Ton, complete in place and accepted.

Basis of Payment:

The work shall be paid for at the contract Ton price for the manufacturing, installation and removal of all Temporary Pavement.

Payment will be made under:

Pay Item		Pay Unit
461.131	Temporary Pavement	Ton

SPECIAL PROVISION
SECTION 501
FOUNDATION PILES
(Dynamic Loading Test)

Description. This work shall consist of driving foundation piles in accordance with Section 501 of the Standard Specifications, except as amended herein.

Under Section 501.046 Driven Pile Resistance, Pile Testing, and Acceptance, replace the subsection labeled Dynamic Pile Tests, with the following:

Dynamic Pile Testing: This work shall consist of coordinating for dynamic pile load testing, furnishing equipment and personnel to drive piles for testing, and providing access to foundation piles for Agents of the Department to perform dynamic pile load tests. Included with this work is Contractor stand-by-time to allow for dynamic pile load testing. Dynamic pile load tests shall be performed on foundation piles noted on the Plans, and as directed by the Engineer. Dynamic pile test measurements shall be recorded for the full length of the test pile during initial drive.

The Contractor will provide the proposed dynamic pile testing schedule to the Resident a minimum of 48 hours before the start of testing. In the event that the Contractor is not able to perform the dynamic testing according to schedule, the cost of the Department's testing Agent shall be paid by the Contractor.

Drilling, Tapping, and Attaching/Removing Instruments: The Contractor shall provide the Department's Agents reasonable means of access to the piles for drilling and tapping purposes. Preference shall be given to drilling and tapping piles on the ground. For drilling and tapping of pipe pile on the ground, the Department's Agent will need up to one hour per pile to be tested. For drilling and tapping of H-pile on the ground, the Department's Agent will need up to 30 minutes per pile to be tested. The Contractor shall assist the Department's Agent by moving pile as necessary to complete drilling and tapping.

If the Contractor elects to place the pile in the leads prior to drilling and tapping, the Department's Agent will need up to one hour per H-pile for drilling and tapping per pile to be tested. The Contractor shall provide reasonable means of access to the piles in the leads for drilling and tapping, as required.

At the Contractor's option, the piles may be drilled and tapped by the Contractor. The drilling and tapping layout for H-piles are shown on Figure 1 of this Section. If the Contractor elects to drill and tap the piles, the holes shall be center-punched prior to drilling. Care shall be taken to prevent over-drilling and rounding of drill-holes. Prior to instrument attachment, the Department's Agent will inspect the drilled and tapped holes for conformance. If determined necessary by the Department's Agent, the holes will be redrilled and tapped by the Department's Agent. No additional time, or compensation, will be allowed for redrilling and tapping of holes done by the Contractor

The Contractor shall provide reasonable means of access to the piles in the leads for attaching and removing instruments to the piles. It is estimated that the Department's Agents will need up to one hour per pile to attach instruments. The Department's Agent will need up to 30 minutes per pile to remove instruments.

General Accommodations: The Contractor shall provide access to electric power for the dynamic test equipment. The power supply at the outlet shall be 10 amp, 115 volt, 55-60 cycle, AC only.

The Contractor shall provide a location that has a line-of-sight to the test piles and is within 75 feet of the piles to be tested, where the Department's Agents can park a wheeled, passenger vehicle (either van or car), from where dynamic pile testing measurements can be processed and analyzed.

The Contractor shall provide access to and a location within 10 feet of the test pile where a representative of the Department can stand and maintain a field driving log for all test piles.

Testing: With the dynamic testing equipment attached, the Contractor shall drive the pile to the minimum tip elevation, or to the required capacity, as shown on the Plans. The stresses in the piles will be monitored during driving with the dynamic test equipment to ensure that the driving stresses do not exceed the allowable stress shown on the Plans. If necessary, the Contractor shall reduce the driving energy transmitted to the pile by using additional cushions or reducing the energy output of the hammer in order to maintain stresses below the allowable driving stresses shown on the Plans. If non-axial driving is indicated by the dynamic test measurements, the Contractor shall immediately realign the driving system.

When directed by the Resident, the Contractor shall wait up to 24 hours and, after instruments are reattached, retap (redrive) load test piles. A cold hammer shall not be used for the redrive. The hammer shall be warmed-up before redrive begins by applying at least 20 blows to another pile. The maximum amount of penetration required during redrive shall be 6 in., or the maximum total number of hammer blows will be 50, whichever occurs first. After retapping, the Resident will either provide the cutoff elevation or specify additional pile penetration and testing. The time for the Department's Agent to attach and remove instruments for retapping shall be as specified herein. The general accommodations provided by the Contractor to perform retap testing shall be as specified herein.

Equipment Damage: The Contractor shall take measures to not damage dynamic pile load testing equipment. Any equipment of the Department's Agents damaged due to Contractor operations, as determined by the Resident, shall be replaced at no additional cost to the Contract. The compensation due to the Department's Agents for equipment damaged by Contractor operations shall be as follows:

Main Cable	$495.00
Pigtail Cable	$540.00
Force Transducer	$670.00
Piezoresistive Accelerometer	$1225.00
Piezoelectric Accelerometer	$925.00
Accelerometer Cable	$350.00

Driving Equipment Malfunction. If pile driving equipment is underperforming as required by the rated energy in the Wave Equation rated energy or not functioning correctly, and a relevant dynamic pile test cannot be completed, then the Contractor will compensate the Department's Agent for travel, unsuccessful field testing and overnight stay (if required) according to the schedule below:

Travel	$ 700.00 /trip
Field Testing	$1,275.00 /day
Overnight Stay	$ 165.00 /day

Pile Acceptance: Acceptance of foundation piles shall be based on the results of the dynamic testing completed by the Department's Agents. Within 24 hours of the completion of testing, the Resident will provide the Contractor a determination of whether the dynamic load test results are acceptable.

501.11 Method of Measurement. The method of measurement for Dynamic Loading Tests, as described herein, shall be as described in Section 501.05g, of the Standard Specifications.

501.12 Basis of Payment. Payment for Providing for Dynamic Loading Tests, as described herein, shall include coordinating for dynamic pile load testing, moving piles on the ground and providing access to drill and tap piles, drilling and tapping piles (at the Contractor's option), providing access to electric power, providing a location to monitor foundation piles during driving, providing access to foundation piles to attach/remove instruments, furnishing equipment and personnel to drive piles for testing, Contractor time to drive test piles, Contractor time to allow replacement of dynamic testing equipment damaged by the Contractor (as determined by the Resident), and Contractor stand-by-time.

Payment will be made under:

Pay Item	Pay Unit
501.239 Dynamic Loading Tests –Providing For	Each

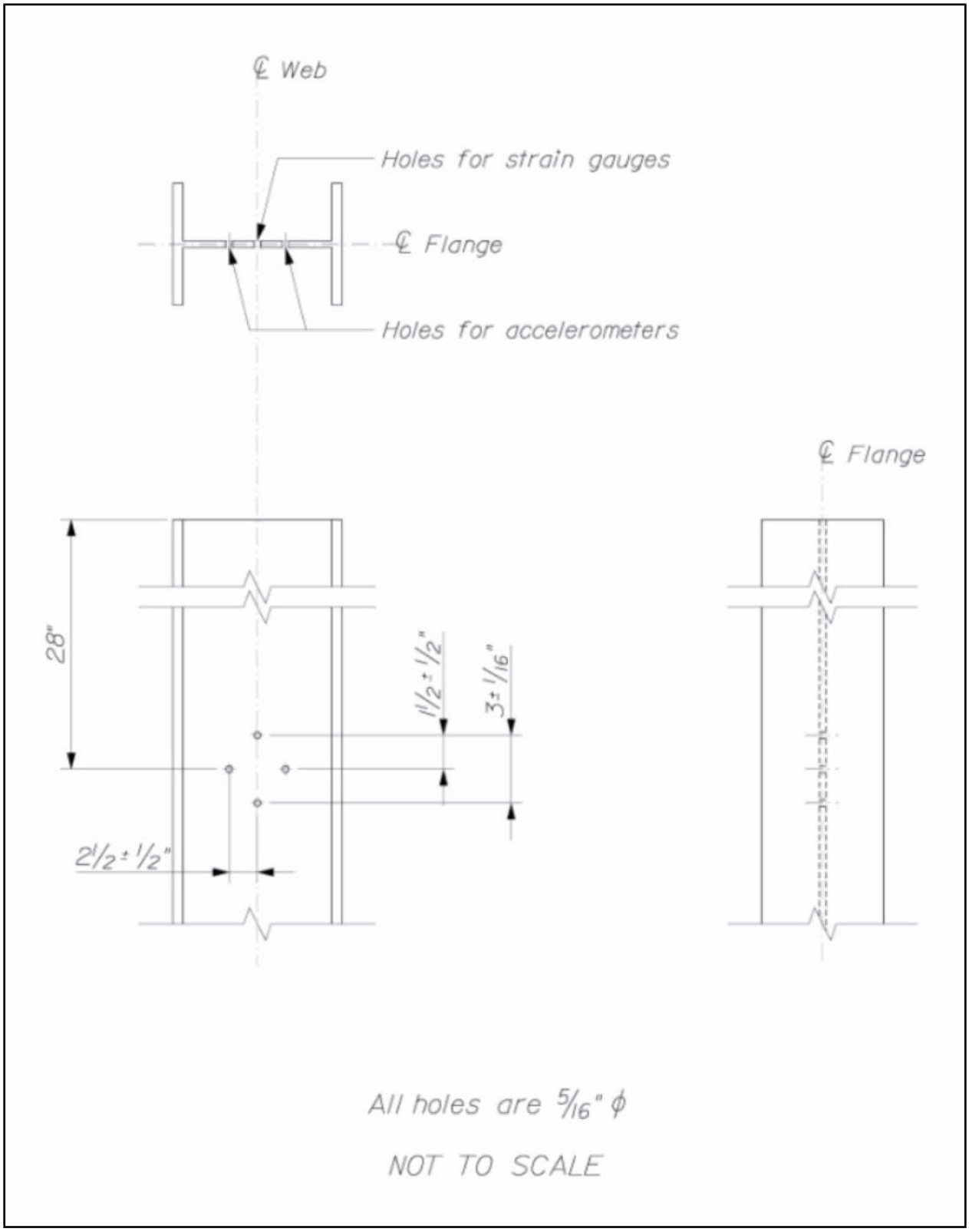


Figure 1. Drill-Hole Layout for H-Piles

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(QC/QA Acceptance Methods)

CLASS OF CONCRETE	ITEM NUMBER	DESCRIPTION	P	METHOD
A	502.219	Structural Concrete Abutment & Retaining Walls	$400	A
A	502.239	Structural Concrete Piers	$400	A
S	502.24	Structural Concrete Piers Placed Under Water	$0	C
A	502.26	Structural Concrete Roadway and Sidewalk Slab on Steel Bridges	$400	A
A	502.31	Structural Concrete, Approach Slab	$0	C
LP	502.49	Structural Concrete Curbs and Sidewalks	$450	A

P values listed above reflect the price per cubic yard (yd^3) for all pay adjustment purposes.

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Fiber Reinforced Polymer Bridge Drains)

Description

This work shall consist of design, fabrication and delivery of bridge drains using FRP (Fiber Reinforced Polymer) composite materials in accordance with the plans and this specification.

Applicable Standards and References

The design and construction of FRP composite bridge drain components shall be in accordance with this Methods Specification and the relevant requirements of the following standards and specifications, unless otherwise stipulated in this specification. Standards and specifications specifically cited in the body of the specification establish requirements that shall have precedence over all others. Should the requirements in any reference conflict with those in another, the reference highest on the list shall govern. It is the Contractor's responsibility to obtain clarification of any unresolved ambiguity prior to proceeding with the design or construction.

Specifications

Work shall be done in general accordance with the following specifications:

a. AASHTO LRFD Guide Specifications for Design of Concrete-Filled FRP Tubes for Flexural and Axial Members, 2012.
b. American Composites Manufacturing Association, ACMA Code of Standard Practice, First Edition, 2011.
c. ISO/IEC Guide 58, Calibration and Testing Laboratory Accreditation Systems - General Requirements for Operation and Recognition.
d. ISO/IEC 17025 General Requirements for the Competence of testing and Calibration Laboratories.

2.3 Standards

A.) ASTM D 2584. *Standard Test Method for Ignition Loss of Cured Reinforced Resins.* American Society for Testing and Materials, West Conshohocken, PA.

B.) ASTM D 3039. *Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials.* American Society for Testing and Materials, West Conshohocken, PA.

C.) ASTM D 3171. *Standard Test Methods for Constituent Content of Composite Materials.* American Society for Testing and Materials, West Conshohocken, PA.

D.) ASTM D 4385. *Standard Practice for Classifying Visual Defects in Thermosetting Reinforced Plastic Pultruded Products.* American Society for Testing and Materials, West Conshohocken, PA.

E.) ASTM D 570. *Test Method for Water Absorption of Plastics.* American Society for Testing and Materials, West Conshohocken, PA.

F.) ASTM E 1356. *Standard Test Method for Assignment of the Glass Transition Temperatures by Differential Scanning Calorimetry.* American Society for Testing and Materials, West Conshohocken, PA.

G.) ASTM E 1640. *Standard Test Method for Assignment of the Glass Transition Temperature by Dynamic Mechanical Analysis.* American Society for Testing and Materials, West Conshohocken, PA.

H.) ASTM C 582. *Standard Specification for Contact-Mold Reinforced Thermosetting Plastic (RTP) Laminates for Corrosion-Resistant Equipment.* American Society for Testing and Materials, West Conshohocken, PA.

Material

Materials shall conform to the following requirements:

1. FRP composite drain and pipe material shall meet the requirements of Appendix A.

2. All material and workmanship will meet or exceed the requirements of the ASTM Specifications above.

Construction Requirements

FRP Drain Manufacturers

The FRP bridge drains shall be supplied by one of the following companies:

1. Kenway Corporation
2. FRP Bridge Drain Pipe-Westfall Company
3. ACO USA

The above suppliers have been pre-certified by providing materials samples that have been tested in accordance with Appendix A. Other suppliers/manufacturers may become certified if FRP

bridge drain samples are tested in accordance with the requirements in Appendix A along with meeting the following requirements.

All manufactures or fabricators of FRP bridge drain systems/components are required to have a minimum of 3 years of experience in providing FRP composite structural grade products to the general market. Manufacturers need to provide documentation that personnel involved in manufacture/fabrication hold and maintain American Composites Manufactures Association (ACMA) certifications in a minimum of one of the following disciplines; 1) Open Molding, 2) Corrosion, 3) Vacuum Infusion, 4) Closed Molding and that the Manufacturer/Fabricator have an ISO 9001:(current year) or other independent certification to ensure that the Manufacturer's process has been independently audited for conformance.

Design Guide for FRP Composite Scupper Bodies/Drain Inlets

General

The bridge shall use a drain size specified on the plans. See Appendix B for additional details. The bottom of the downspout shall extend a minimum of 12 inches below the bottom of the beams. For bridge decks with an integral concrete wearing surface, the drain pan depth shall be reduced to provide adequate concrete cover.

Deck/interface drain holes.

For bridge decks with pavement and waterproofing membrane, drain holes are required on both sides of the scupper to capture moisture at the interface between the top of the deck and bottom of the asphalt pavement. Three holes one half inch in diameter spaced at 6 inches on center and three and one quarter inches on center below the top of the grate, or pavement thickness, shall be placed on both sides of the scupper. If the holes are created after the molding process by punching, drilling or other mechanical means the holes shall be sealed using a compatible epoxy compound.

Grates

Grates shall be bicycle friendly and designed for HL-93 Live Load unless otherwise specified. Any gaps in grates shall have a maximum clear width of two inches. The minimum clear opening size in any grating shall be 1 1/8” by 1 1/8“. Grates shall be stainless steel (ASTM A995) or FRP specifically designed and meeting the HL-93 Live Load requirements.

- Steel grating shall be commercial heavy - duty grating with 1 1/2" x 5/16" bearing bars spaced at 2 3/8” and 3/8" diameter cross bars spaced at 2”. The grating shall be centered in the drain top. The bearing bars shall run parallel to traffic.
- FRP grating if used shall provide an opening area at least 75% of steel grating noted above. FRP gratings that do not meet this requirement are not acceptable and shall not be used.

Grates shall be designed so that they can be removed by mechanical means. Fasteners for grates shall be stainless. Where selected grates require orientation to flow, the grates will have orienting features included as required, i.e. for orders of paired drains one drain would have left hand orientation and the other right hand orientation.

Grate Frames
Grate frames may be either integrated FRP composite or of stainless steel construction attached to the scupper/inlet body in a matter consistent with the physical design parameters.

Anchoring provisions
Scupper/inlet anchoring shall be bonded to the grate framing in a manner that provides a load path into the concrete decking. Anchor details to be specified as part of the shop drawings for the bridge drains and be a non-corrosive material.

Cross and Longitudinal Slope Compensation
The scupper/inlet designs shall provide a means to match the grate to the deck angles while maintaining the downspout in a plumb orientation. If purchased in pairs, one left handed version will be required for each right handed version. This may be achieved when a down spout portion is bonded to the scupper body, through the frame attachment to the scupper body.

FRP Composite Drain Sections
Bridge deck downspouts, bridge drain deck extensions, elbows and pipe for under drains shall be constructed using a circular cross section; however other cross sections are allowed with approval of the Fabrication Engineer. Drain sections shall comply with the material requirements set forth in Appendix A and maintain wall thickness of no less than 1/4 inch.

FRP Composite Deck Drain Extensions.
Down spout drain extensions shall be integrated and bonded directly to the scupper bodies.

Transitions through Connections and Components.
All transitions and joints to be manufactured through the use of smooth radius molds. Miter joint and edged transitions are not allowed. All internal joint connections are to be smooth and continuous.

Pigmented FRP Composite Drain Components
Pipes, fittings, bodies and all FRP composite drain system components shall be pigmented through the wall. The color used shall match the color of the beams unless otherwise allowed by the Fabrication Engineer. Paint, gel-coat or any other exterior coating shall not be accepted.

Joint Connections
Joints may be welded using manufacturer recommended adhesives in accordance to the adhesive manufacturer's application procedures. Adhesives must be compatible with the FRP resins, applied in a way that ensures complete bonding and liquid tight sealing of the resins, and be

compatible with the environmental conditions such as temperature, freeze thaw conditions, and wet alkaline environments.

Shop Drawings/Inspection

Drawings The Contractor shall prepare shop detail, erection and other necessary working drawings in accordance with Section 105.7 - Working Drawings. Drawings shall include dimensions and tolerances necessary for manufacture and installation, all hardware, orienting features, anchor details, fastener details, gasket details, cross and longitudinal matching features, joint details, transition details, and material lay-up/composition

Notice of Beginning Work The Contractor shall give the Fabrication Engineer a minimum of two weeks notice before the beginning of work. No work shall be performed before the Fabrication Engineer has been notified. Before beginning work, a pre-fabrication meeting may be held at the discretion of the Fabrication Engineer or, if requested, by the Contractor.

The Contractor shall advise the Fabrication Engineer of the production schedule and any changes to it. If the Contractor suspends work on a project, the Fabrication Engineer will require 48 hours notice prior to the resumption of work.

Inspection Quality Control (Q.C.) is the responsibility of the Contractor. The Quality Control Inspector (Q.C.I.) shall inspect all aspects of the work and shall supervise all nondestructive examination (NDE). The Q.C.I. shall record measurements and test results in a clear and legible manner. The Q.C.I. shall reject materials and workmanship that do not meet contract requirements. The Contractor may perform NDE in addition to the minimum required. The results of all measurements and testing shall be made available to the Quality Assurance Inspector (Q.A.I.).

Quality Assurance (Q.A.) is the prerogative of the Fabrication Engineer. The Q.A.I. will ensure that the Q.C. Department is performing properly, verify documentation, periodically inspect workmanship and witness NDE. Q.A. testing deemed necessary by the Fabrication Engineer in addition to the minimum testing requirements shall be scheduled to minimize interference with the production schedule.

Inspector's Authority The Q.A.I. will have the authority to reject material or workmanship that does not meet the contract requirements. The acceptance of material or workmanship by the Q.A.I. will not prevent subsequent rejection, if found unacceptable.

Rejections Rejected material and workmanship shall be corrected or replaced by the Contractor.

Bill of Materials The Contractor shall provide the Fabrication Engineer with copies of all bills of materials used in the fabrication of the FRP bridge drains.

Packaging, Storage and Shipping of Components

FRP drains shall be stored and handled in accordance with the manufacturer's recommendation. The drains shall be stored above the ground and not be allowed to come into contact with seawater, mud, grease, dirt or other deleterious materials that may be present on the job site.

Installation

The Contractor shall install the FRP drains in accordance with the manufacturer's installation procedures, Contract Plans, and in accordance with the Contractor's installation drawings. FRP bridge drains will be accurately placed at the locations shown on the Plans or as authorized by the Resident. Adequate means shall be provided for securely holding the drains in place during placement of concrete. Any damaged drain shall be repaired or replaced at the Resident's discretion and at no additional cost to the Department.

Method of Measurement

FRP Bridge Drains will be measured by the number of units, for fabrication and delivery. Installation for the drains will be incidental to the Structural Concrete Superstructure item.

Basis of Payment

FRP Bridge Drains will be paid for at the contract unit price. Such payment will include compensation for the fabrication and delivery of the drains in accordance with this specification.

Payment will be under:

Pay Item		Pay Unit
502.77	FRP Bridge Drain –Type E	Each

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Fiber Reinforced Polymer Bridge Drains)

APPENDIX A

A.1 Scope
This section specifies the material composition, properties, test requirements and reports that shall be submitted and approved prior to and after product certification of each FRP composite drain component type, e.g. scupper body or pipe component. The manufacturer is responsible for testing using an approved independent lab per section A.5.3. Once certified the approved product may be manufactured with only internal testing provided the manufacturing process and laminate composition do not change. Changes to process and or composition do require additional testing and product certification. The manufacturer shall report the individual test results per section A.5.3. If the strength is less than the required properties certification will not be granted.

A.2 Material/Laminate Composition

A.2.1 Fibers
Fiber sizings and coupling agents shall be compatible with the resin system used to impregnate them.

A.2.2 Matrix Resins
Commercial grades of vinyl ester and epoxy resin systems are permitted provided the finished product meets the material property requirements before and after durability conditioning as set forth in Section A. Styrene is permitted to be added to the polymer resin during processing. Added styrene shall be less than 10 percent by mass of the polymer resin. The amount of styrene, as a mass percentage of the polymer resin, added during processing shall be reported per Section A.5.3.

A.2.3 Fillers and Additives
Commercial grade inorganic fillers such as kaolin clay, calcium carbonate, and alumina tri-hydrate shall not exceed 20 percent by mass of the polymer resin constituent. Commercial grade additives and process-aids, such as release agents, low profile shrink additives, initiators, promoters, hardeners, catalysts, pigments, fire-retardants, and ultra-violet inhibitors are permitted and depend on the processing method. Shrink additives, if used, shall be less than 20 percent by mass of the polymer resin. Commercial grade inorganic or organic non-woven surfacing mats or veils are permitted.

A.2.4 Fiber Content
Fiber content shall be measured by ASTM D 3171 or ASTM D 2584. Fiber content shall be high enough to meet the mechanical property requirements of the FRP system laminate. The manufacturer shall report the fiber content of the end product by volume or by mass in accordance to the method used. If fiber content is not provided by the manufacturer, then the manufacturer shall provide material data sheets with the weight per unit area of the fiber reinforcement used to manufacture the part.

A.2.5 Glass Transition Temperature
The characteristic value of the glass transition temperature of the composite system, determined in accordance with ASTM E1640, shall be at least 40 degrees Fahrenheit higher than the maximum design temperature, $T_{MaxDesign}$, defined in section 3.12.2.2 of the AASHTO LRFD Guide Specifications for Design of Concrete-Filled FRP Tubes for Flexural and Axial Members, 2012. FRP drain systems may not be used in environments with a service temperature higher than the glass transition temperature of the resin used for their manufacturing.

A.2.6 Longitudinal and Transverse Coefficients of Thermal Expansion (CTE)
The coefficient of Thermal Expansion (CTE) of the tube may vary in the longitudinal and circumferential directions of the component depending on the laminate architecture and type of fibers and resins.

A.3 Mechanical Properties

A.3.1 Tensile Properties
The tensile strength, tensile modulus of elasticity, and ultimate tensile strain shall be determined for both the axial and hoop directions of the tubular components or in transverse and longitudinal directions of inlet bodies, see Section A.5.1 Test Samples. The tensile strength as reported by the manufacturer for product certification shall be measured according to ASTM Test Method D 3039, or other tension test method designed to determine tensile properties of composite laminates at the approved frequency and number of specimens as specified in section A.5.

A.3.4 Compressive Properties
The compressive strength and ultimate compressive strain shall be determined for the longitudinal directions of the tube laminate. The compressive strength and ultimate compressive strains shall be derived from specimens tested in accordance with ASTM Test Method D 6641, or other approved compression test method designed to determine compressive properties of the composite.

A.4 Durability Properties
Material properties shall retain 85% of their baseline values for the material properties listed in Section 2.3 after conditioning for all the durability tests listed below. Durability test methods are adopted from AASHTO Guide Specifications for Design of Bonded FRP Systems for Repair and Strengthening of Concrete Bridge Elements.

Durability property testing is only required for initial product certification and not required for subsequent production orders. The testing is the responsibility of the manufacturer and shall be conducted by an approved independent testing lab per section A.5.2.

A.4.1 Moisture Absorption
Samples will be immersed in distilled water having a temperature of 100 +/-3 degrees Fahrenheit and tested after 1,000 hours of exposure.

A.4.2 Resistance to Alkaline Environment
Samples will be immersed in a saturated solution of calcium hydroxide (pH-11) at ambient temperature of 73 +/-3 degrees Fahrenheit for 1,000 hours prior to testing. The pH level will be monitored and the solution will be maintained as needed.

A.4.3 Alternating Ultraviolet Light and Condensation Humidity
Samples will be conditioned in an apparatus under Cycle I-UV exposure condition according to ASTM G154 Standard Practice. Samples will be tested within two hours after removal from the apparatus.

A.4.4 Freeze-Thaw
Samples will be exposed to 100 repeated cycles of freezing and thawing in an apparatus meeting the requirements of ASTM C666.

A.5 Sampling, Testing & Results.

A.5.1 Test Samples.
The manufacturer is responsible for testing and may use samples in accordance to the test methods and needs of test equipment available. Test coupons may be cut from manufactured products or prepared using identical processes e.g. wet lay-up, vacuum infusion, etc. in a flat sheet, or witness plate, in which test coupons may be cut. Approval of the Fabrication Engineer shall be required for acceptance of test specimens produced by a different manufacturing method. Samples derived from special coupon test sheets shall be taken interior to edge sections 1.5x the width of the required coupon width. Samples shall be prepared from samples oriented with the directions illustrated in figures 1 and 2 for scupper body and drain pipes. For samples from filament wound pipes, samples shall be constructed over polygon mandrels allowing for flat panels to be removed for test purposes. Each test shall use a quantity of three samples. See Tables A.5.4 for tests, material requirements and sample breakdown.

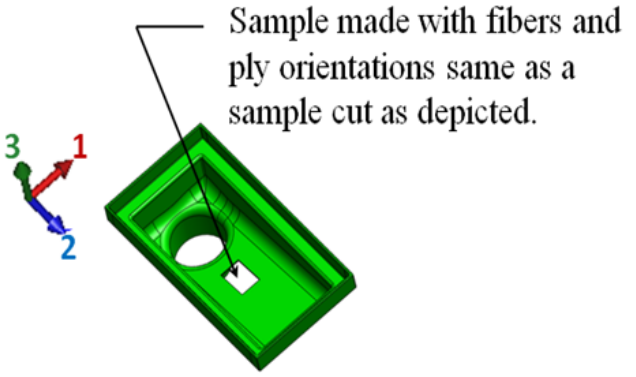


Figure 1.) Scupper Body Sample Orientations.

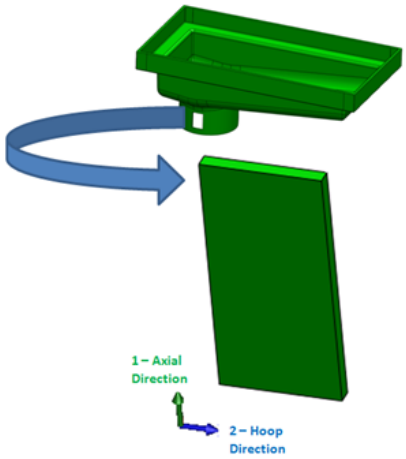


Figure 2.) Drain Pipe Sample Orientations.

A.5.2 Test Lab Requirements.
All testing of FRP material properties is being conducting in accordance to specified standards. Internal or external testing is to be conducted through laboratory facilities in accordance to ISO/IEC Guide 58, *Calibration and Testing Laboratory Accreditation Systems - General Requirements for Operation and Recognition* and ISO/IEC 17025 *General Requirements for the Competence of testing and Calibration Laboratories* as related by AASHTO document R18 "Recommended Practice for Establishing and Implementing a Quality System for Construction Materials Testing Laboratories."

A.5.3 Production Validation (PV) Testing.
Certification of materials used in FRP drain products must undergo PV testing of the specified material properties before and after environmental conditioning as set forth in Section A.5.4 by an independent lab. PV tests may be conducted internally by the manufacturer for development but are not acceptable for certification. Reported values for the material composition is be recorded and reported by the manufacturer, no independent audit is required.

A.5.4 Production Validation Sample Quantities, Minimum Material Properties and Reported Values
The following data shall be reported for material certification. Note that the tables shown use orientations related to FRP scupper or inlet bodies as set forth in Figure 1 of Section A.5.1. When evaluating tubular sections, orientation direction 2 as shown in Figure 2 of Section A.5.1 shall be substituted for orientation direction 3. The required number of samples have been reduced from ASTM requirements.

Table A.5.4.a PV reported material composition data. (Recorded by the manufacturer during the manufacturing process)

Section No.	Characteristic	Applicable Test Standard	Number of Samples	Tolerance	Reported
A.2.2	Styrene, mass percentage of polymer resin	per tolerance	N/A	10% max	
A.2.3	Inorganic fillers, mass percentage of polymer resin.	per tolerance	N/A	20% max	
	Shrink additives, mass percentage of polymer resin.	per tolerance	N/A	20% max	
A.2.4	Fiber Content	ASTM D3171 or ASTM D2584	3	Sufficient to meet mechanical properties	
A.2.5	Glass Transition Temperature	ASTM E1640	3	> Max Design Temperature	

Table A.5.4.b PV Reported Baseline Mechanical Properties

(Conducted by an independent laboratory. Samples as Manufactured w/o additional conditioning per Section A.3)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	10000 (psi)				
		Tensile Modulas of Elasticity			800000 (psi)				
		Ultimate Tensile Strain			0.003 in/ in				
	2	Tensile Strength		3	10000 (psi)				
		Tensile Modulas of Elasticity			800000 (psi)				
		Ultimate Tensile Strain			0.003 in/ in				
A.3.4	1	Compressive Strength	ASTM D6641	3	22000 (psi)				
		Ultimate Compressive Strain			0.003 in/ in				
	3	Compressive Strength		3	22000 (psi)				
		Ultimate Compressive Strain			0.003 in/ in				

Table A.5.4c PV Reported Mechanical Properties after 1000 hr. Moisture Immersion Condidtioning per Section A.4.1

(Conducted by an independent laboratory)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
	2	Tensile Strength		3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
A.3.4	1	Compressive Strength	ASTM D6641	3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				
	3	Compressive Strength		3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				

Table A.5.4d PV Reported Mechanical Properties after 1000 hr. of Alkaline Environment Conditioning per Section A.4.2

(Conducted by an independent laboratory)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
	2	Tensile Strength		3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
A.3.4	1	Compressive Strength	ASTM D6641	3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				
	3	Compressive Strength		3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				

Table A.5.4e PV Reported Mechanical Properties after UV Light Conditioning per Section A.4.3 (ASTM G154).

(Conducted by an independent laboratory)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
	2	Tensile Strength		3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
A.3.4	1	Compressive Strength	ASTM D6641	3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				
	3	Compressive Strength		3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				

Table A.5.4f PV Reported Mechanical Properties after 100 Freeze-Thaw Cycle Conditioning per Section A.4.4 (ASTM C666).

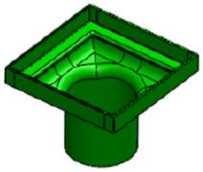
(Conducted by an independent laboratory)

						Independent Lab Reported Values			
Section No.	Direction	Characteristic	Applicable Test Standard	No. of Samples	Minumum Allowable Values	Sample 1	Sample 2	Sample 3	Avg Value
A.3.1	1	Tensile Strength	ASTM D3039	3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
	2	Tensile Strength		3	8500 (psi)				
		Tensile Modulas of Elasticity			680000 (psi)				
		Ultimate Tensile Strain			0.0025 in/in				
A.3.4	1	Compressive Strength	ASTM D6641	3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				
	3	Compressive Strength		3	18700 (psi)				
		Ultimate Compressive Strain			0.0025 in/in				

SPECIAL PROVISION
SECTION 502
STRUCTURAL CONCRETE
(Fiber Reinforced Polymer Bridge Drains)

APPENDIX B

Standard Details



Bridge Drain – Symmetric Inlet

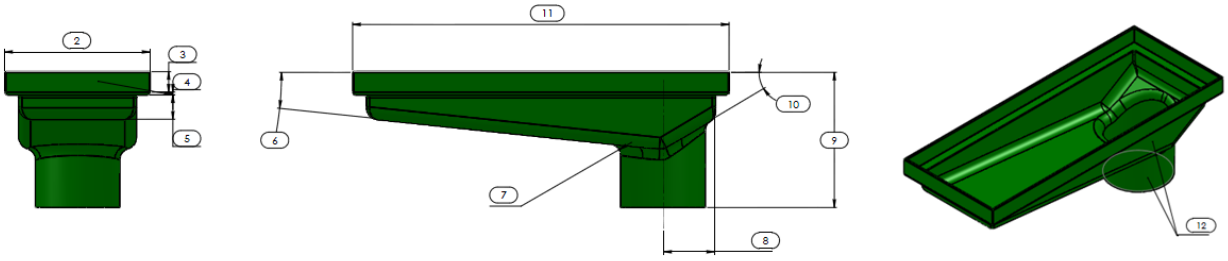
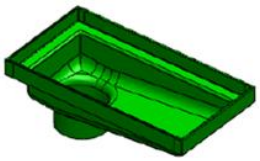


Table B1 Preferred Symmetric FRP Composite Inlet Bodies

	Size Designation	A	B	C		
	Size Dimensions (Grate Length x Width, Down Spout Diameter)	12x12xØ8	14x14xØ10	18x18xØ12		
Dimension		Nominal Dimensions			Nominal Design Tolerance	Manufacturing Tolerance
Number	Name					
1	Down Spout Inner Diameter	8"	10"	12"	min	+/- 0.015"
2	Grate Frame Width	12"	14"	18"	+/- 1"	+/- 0.025"
3	Grate Frame Height	As required to contain grate and recessed from deck surface				
4	Grate Frame Flange & Wall Thickness	0.25"	0.25"	0.25"	min	+/- 0.025"
5	Scupper Toe Depth	4"	4"	4"	+1"/-0"	+/- 0.1"
6	Scupper Toe Slope	1:10	1:10	1:10	min	+ 1 degree
7	Scupper Body Radii	2"	2"	2"	min	+0.1"
8	Down Spout Position to Heel	6"	6"	6"	+/- 0.5"	
9	Height	18"	18"	18"	Open	+/- 0.25"
10	Scupper Heel Slope	1:10	1:10	1:10	min	+0.1"
11	Grate Frame Length	12"	14"	18"	+/- 1"	+/- 0.025"
12	Scupper and Down Spout Wall Thickness	0.25"	0.25"	0.25"	min	+0.015"



Bridge Drain-Offset Scupper

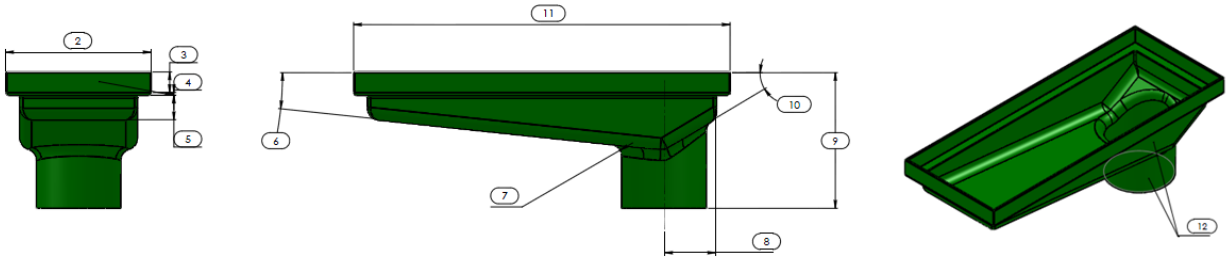


Table B2 Preferred Offset FRP Composite Scupper Bodies

	Size Designation	D	E	F	G		
	Size Dimensions (Grate Length x Width, Down Spout Diameter)	24x12xØ8	30x12xØ10	36x12xØ10	42x12xØ12		
Dimension		Nominal Dimensions				Nominal Design Tolerance	Manufacturing Tolerance
Number	Name						
1	Down Spout Inner Diameter	8"	10"	10"	12"	min	+/- 0.015"
2	Grate Frame Width	12"	12"	12"	12"	+ 2"/-0"	+/- 0.025"
3	Grate Frame Height	As required to contain grate and recessed from deck surface					
4	Grate Frame Flange & Wall Thickness	0.25"	0.25"	0.25"	0.25"	min	+/- 0.025"
5	Scupper Toe Depth	4"	4"	4"	4"	+1"/-0"	+/- 0.1"
6	Scupper Toe Slope	1:10	1:10	1:10	1:10	min	+ 1 degree
7	Scupper Body Radii	2"	2"	2"	2"	min	+0.1"
8	Down Spout Position to Heel	6"	6"	6"	6"	+/- 0.5"	
9	Height	13.5"	16"	18"	18"	Open	+/- 0.25"
10	Scupper Heel Slope	1:10	1:10	1:10	1:10	min	+0.1"
11	Grate Frame Length	24"	30"	36"	42"	+ 2"/-0"	+/- 0.025"
12	Scupper and Down Spout Wall Thickness	0.25"	0.25"	0.25"	0.25"	min	+0.015"

SPECIAL PROVISION
SECTION 510
SPECIAL DETOURS

This specification is amended as follows:

510.01 Description
This subsection is amended as follows:

There is an abandoned well within the limits of the Special Detour. The well doesn't need to be protected, avoided, or replaced if impacted by the Special Detour.

510.032(c) Approach Road Guardrail
This subsection is replaced with the following:

The Special Detour approaches shall have guardrail or concrete barrier where side slopes are steeper than 3 horizontal to 1 vertical, or as specified on the Plans. Approach guardrail shall be Type 3 guardrail or an approved equal and shall be attached to the bridge rail in a manner that develops the guardrail in tension. Approach barrier shall be attached to the bridge rail with a rigid connection with a similar strength capacity to the bridge rail. If the Plans specify a type of rail or barrier, that type shall be used.

The termination of approach guardrail or barrier and the end treatment of the rail shall be in accordance with the current AASHTO Roadside Design Guide.

510.06 Special Detour Construction
This subsection is amended as follows:

This work shall include installation of a separation geotextile to protect and provide separation between the existing stream channel and the temporary detour fill material that is not part of final stream or slope reconstruction (approximately Sta. 18+75 to 19+30). Limits of separation geotextile shall be shown on the Contractor's Special Detour plan for the Department's review and approval.

Separation geotextile shall meet the requirements of Section 620 Geotextiles.

510.09 Basis of Payment
This subsection is amended as follows:

The following sentence is inserted in the first paragraph after the second sentence: All guardrail or concrete barrier required solely for the Special Detour shall be incidental to this item.

The second paragraph is replaced with the following:

Traffic control devices, work zone crash cushions, temporary erosion control, pavement, and dust control will be paid for in accordance with the applicable Contract items.

Separation geotextile, for the purpose described herein, will not be paid for separately and will be included in the lump sum price for the Special Detour.

Full or partial removal of the abandoned well will not be paid for separately and will be included in the lump sum price for the Special Detour.

SPECIAL PROVISION
SECTION 511
COFFERDAMS

Section 511 of the Standard Specifications is amended as follows:

511.03 Cofferdam Construction

Section 511.03.C of the Standard Specifications shall be replaced with the following:

C. Inspection of Seal Cofferdams. Seal cofferdam excavations shall initially be inspected by the Contractor after final cleaning and settlement of suspended sediment.

For each seal cofferdam excavation, the Contractor shall submit a written procedure to the Department for sediment/overburden removal and excavation inspection. For cofferdams where seal concrete is to be placed on bedrock, the inspection procedure shall describe the Contractor's final cleaning and inspection process for attaining cleanliness of each cofferdam excavation.

The seal cofferdam bottom will be considered clean if, at the time of placement of the seal concrete, more than 50 percent of the bottom area has less than 1 inch of sediment or loose soil, and no portion of the area has more than 2 inches of sediment or loose soil/rock.

At a minimum, the inspection shall consist of measurements using a sediment/overburden measuring system. The Contractor shall provide access, equipment and personnel for checking the cleanliness and condition of the cofferdam excavation. The sediment/overburden measuring system shall consist of manual sounding for depth and hardness via a steel probe consisting of a 24-inch long No. 10 steel reinforcing bar with a flat end suspended on a non-stretch cable or tape. Location-Depth-Hardness-Soil Thickness readings shall be recorded from the soundings. Measurements shall be taken at a spacing of 5 feet along the perimeter cofferdam walls, and on an additional grid of equally spaced internal locations each representative of no more than 25 square feet of the seal base area.

In addition, the cofferdam inspection shall include an illuminated underwater video. The video shall be recorded by a diver, under live observation by the Department, and communication shall be available between the diver and Department representative to request video coverage of specific locations. The Contractor shall have a spotter that can indicate the general location of the diver within the cofferdam. The video inspection shall continue until the Department is satisfied that the conditions have been adequately recorded. In the event that conditions render visual inspection impossible, the above-described measuring system may utilize hand probing by the divers in lieu of visual inspection.

The Contractor shall prepare and submit an Inspection Report for each cofferdam. The Report shall include results of video inspection/diver probing and soundings that conclusively show the cleanliness and loose soil content of each 25 square foot segment of the seal cofferdam excavation. The Contractor's Inspection Report will be submitted to the Department for approval.

The Contractor shall notify the Resident at least 48 hours prior to when each seal cofferdam excavation will be ready for final inspection by the Department. The Contractor shall allow adequate time for each occurrence of cofferdam excavation inspection by the Department. Facilities and equipment shall be provided and maintained for the Department to independently inspect the cofferdam using steel probes and/or the Department's Dive Team prior to depositing the seal concrete.

No seal concrete placement shall begin until the Department has approved the cofferdam excavation.

SPECIAL PROVISION
SECTION 530
GLASS FIBER REINFORCED POLYMER
(Reinforcement Bars)

The following is added to the Standard Specifications as Section 530, Glass Fiber Reinforced Polymer, Reinforcement Bars:

530.01 Description This work shall consist of furnishing and placing Glass Fiber Reinforced Polymer (GFRP) reinforcement bars, in accordance with the Plans and as specified herein.

530.02 Materials GFRP reinforcement shall meet the requirements shown in the AASHTO Bridge Design Guide Specifications for GFRP-Reinforced Concrete Bridge Decks and Traffic Railings, including interim revisions, except as shown on the Plans and as stated herein. All GFRP reinforcement shall be deformed or sand coated.

GFRP reinforcement bars shall meet the tensile strength and modulus of elasticity specified on the Plans and shall be one of the following approved products, or approved equal:

Aslan 100 from Hughes Brothers, Inc.
ComBAR from Fiberline Composites, Inc.
MateenBar from Pultron Composites, Ltd.
V-Rod from Pultrall, Inc.

All GFRP reinforcement in the same structural component shall be supplied by the same manufacturer; there shall be no mixing of products from different manufacturers in a component unless permitted in the Contract Documents.

530.021 Documentation The GFRP reinforcement manufacturer shall submit two (2) copies of a Material Certification stating that the GFRP reinforcement incorporated into the Project meets the requirements of this specification to the Resident. The certification shall include the test values and test procedures used to determine the physical properties of the GFRP reinforcement. The certification shall bear the notarized signature of a responsible authorized representative of the GFRP reinforcement manufacturer. Each bundle of GFRP reinforcement shall be identified with the lot number affixed to each bundle by means of a durable tag.

530.03 Schedule of Material When the Plans do not include GFRP reinforcement bar schedules, the Contractor shall submit order lists, shape diagrams and bar layout drawings in accordance with Subsection 105.7 to the Resident for approval. The GFRP reinforcement shall not be ordered until these lists and drawings are approved. Approval shall not relieve the Contractor of full responsibility for the satisfactory completion of the Work specified herein. When the Department allows the use of precast concrete deck panels, or any other significant changes that affect the quantity of GFRP reinforcement, the Contractor shall be responsible for revising the

reinforcement bar schedule; the revised schedule shall be submitted to the Resident for approval. Substitution of different size GFRP reinforcement shall not be permitted except with the written authorization of the Engineer of Record.

When the Department allows the use of precast concrete deck panels, or any other significant changes that affect the quantity of GFRP reinforcement, the Contractor shall be responsible for revising the reinforcement bar schedule; the revised reinforcement schedule shall be submitted to the Resident for approval.

530.04 Fabrication Forming and fabrication tolerances of GFRP reinforcement shall be in conformance with the latest edition of the "Manual of Standard Practice of the Concrete Reinforcing Steel Institute" and the "Detailing Manual of the American Concrete Institute."

530.05 Protection of Material Delivery, storage, and handling of GFRP reinforcement shall be in accordance with the manufacturer's recommendations. The Contractor shall prevent bending, coating the bars with soil, oil, or other material, or other damage to the GFRP reinforcement.

All handling of GFRP reinforcement by mechanical means shall be done by equipment having padded contact areas, or using nylon webbing slings. The use of chains or wire rope slings will not be allowed, even when used with padding. All bundles of GFRP reinforcement shall be lifted with a strong back, spreader bar, multiple supports, or a platform bridge to prevent bar-to-bar abrasion from sags in the bundles. Support points during lifting or transporting of bundled GFRP reinforcement shall be spaced at a maximum of 15 feet, or as required by the manufacturer, whichever is more restrictive. Bundled bars shall be strapped together with non-metallic or padded straps in a manner to prevent bar-to-bar abrasion due to relative movement between bars.

Individual bars shall be handled in a manner that prevents damage to the coating due to abrasion or impact, and at no time shall any bar be moved by dragging over any surface, including other reinforcement bars. Sufficient personnel shall be assigned to assure compliance with the provisions above.

Bars loaded for transport shall be loaded and strapped down in a manner that will prevent damage from motion and vibration, to the greatest extent possible. Bundles of bent bars shall be transported strapped to wooden platforms or shall be crated. All individual bundles and layers of bundles shall be separated, and supported by dunnage.

GFRP reinforcement shall be stored on skids or other supports a minimum of 12 inches above the ground surface and protected at all times from damage and surface contamination. The storage supports shall be constructed of wood or other material that will not damage the surface of the GFRP reinforcement or sand coating. Bundles of bars shall be stored on supports in a single layer. Each bundle shall be placed on the supports out of contact with adjacent bundles. If it is expected that GFRP bars will be required to be stored outdoors for a period in excess of two months, then the GFRP reinforcement shall be protected from ultraviolet radiation. Prevent exposure of GFRP to temperatures above 120 degrees Fahrenheit.

All damaged bars shall be repaired in accordance with manufacturer recommendations and inspected and accepted by the Resident prior to placing concrete. All bars with total damage greater than 2 percent of the bar surface area, including previously repaired areas, will be rejected. All cuts, scratches, cracks, abrasions, or other damage, visible to the naked eye, shall be repaired. All bars damaged prior to placement within the formwork shall be repaired prior to GFRP reinforcement placement.

530.06 Placing and Fastening GFRP reinforcement shall be accurately placed in the positions shown on the Plans. Support and firmly tie or otherwise secure GFRP reinforcement in place to prevent settlement, floating upward, or movement in any direction during the placing and setting of the concrete.

Field bending of GFRP reinforcement is not allowed.

Field cutting of GFRP reinforcement will only be permitted with the approval of the Resident. Field cutting shall be with a high-speed cutter, fine blade saw, diamond blade or masonry saw. The GFRP reinforcement shall not be shear cut. The ends of all field cut GFRP reinforcement shall be treated in accordance with the manufacturer's recommendations.

GFRP reinforcement supported on formwork shall rest on stays, blocks, ties, hangers, GFRP or plastic chairs, bar supports made of dielectric material, or other approved materials. Blocks used for this purpose shall be precast Portland cement mortar blocks of approved shape and dimensions. Blocks shall not be used in cases where the blocks will be visible in the finished product. Reinforcement bars used as support bars shall be GFRP, stainless steel, or non-metallic. The use of pebbles, stone, brick, metal pipe, wood, or metal chairs will not be allowed. Wire bar supports will not be allowed. Layers of bars may be separated by precast Portland cement mortar blocks or other approved devices.

Bars shall be fastened together at all intersections except where spacing is less than 1 foot in either direction, in which case, fastening at alternate intersections of each bar with other bars will be permitted providing this will hold all the bars securely in position. Ties shall be soft annealed wire that has been nylon, epoxy or plastic coated. Plastic ties will also be allowed. Placing reinforcement as concrete placement progresses, without definite and secure means of holding the GFRP reinforcement in its correct position, will not be allowed.

When specified on the Plans, GFRP reinforcement shall be anchored into drilled holes. The anchoring material shall be one of the products listed on the Maine Department of Transportation's Qualified Products List and the Contractor shall submit a selected material to the Resident for approval. Installation shall be in accordance with the manufacturer's recommendations.

At each anchor location, existing reinforcement will be located to avoid drilling through existing bars. Where interferences exist, location adjustments will be determined by the Resident. Minimum embedment lengths of reinforcement shall comply with the manufacturer's recommendations for the anchoring material selected. The embedment lengths will be verified by

the Resident before installation of the reinforcement.

Termination of GFRP reinforcement shall be as shown on the Plans. Any exceptions or modifications shall be approved, in writing, by the Engineer of Record.

Immediately before placing concrete, GFRP reinforcement shall be free from all foreign material. Foreign material includes, but is not limited to, dirt, paint, oil, bitumen and dried concrete mortar. Reinforcement shall be inspected and approved by the Resident prior to concrete placement.

530.07 Splicing GFRP Reinforcement shall be spliced as shown on the Plans and as specified herein. No modifications of, or additions to, the splice arrangements shown on the Plans will be allowed without the prior approval of the Resident.

Any additional splices authorized shall be staggered as much as possible. All splices shall be made in a manner that will ensure that not less than 75% of the clear concrete cover and not less than 75% of the minimum clear distance to other reinforcement will be maintained, as compared to the cover and clear distance requirements for the un-spliced reinforcement.

Lapped splices shall be made by placing the bars in contact and tying them together. Ties shall meet the requirements specified herein.

530.08 Method of Measurement GFRP reinforcement will be measured by the linear foot based on the authorized quantity in the Contract or in the approved reinforcement bar schedule submitted by the Contractor. No adjustments to the quantity will be made except to account for changes at the direction of the Resident.

If precast concrete deck panels are used, GFRP reinforcement in precast concrete deck panels will be considered incidental to the deck concrete. No separate payment will be made.

Lap splices that are authorized at the Contractor's request will not be measured for payment.

530.09 Basis of Payment Payment for Glass Fiber Reinforced Polymer, Fabricated and Delivered, shall be considered full compensation for detailing, furnishing, and proper storage of GFRP reinforcement.

Payment for Glass Fiber Reinforced Polymer, Placing, shall be full compensation for installation, adjustment, and supplies related to placing GFRP reinforcement.

Payment for work associated with furnishing and revising the GFRP reinforcement bar schedule, and all expenses incurred by the Contractor and their suppliers to fulfill the requirements specified will be considered incidental to related Contract items. No separate payment will be made.

Payment will not be made for any materials used to hold reinforcement in place or for extra GFRP reinforcement due to substitutions and splices made for the Contractor's convenience.

When GFRP is specified to be anchored into drilled holes, no additional payment will be made for drilling and anchoring GFRP reinforcement or cutting GFRP reinforcement.

Payment will be made under:

	Pay Item	Pay Unit
530.30	GFRP, Reinforcement Bars, Fabricated & Delivered	Linear Foot
530.31	GFRP, Reinforcement Bars, Placing	Linear Foot

November 7, 2019

SPECIAL PROVISION
SECTION 534
PRECAST STRUCTURAL CONCRETE

Revise Paragraph 2 of 534.07 Quality Control to say:

Provide a copy of the Quality System Manual (QSM) to the Fabrication Engineer for review and approval.

Add the following Paragraph to 534.07 Quality Control:

QC staff shall be separate from production and shall not perform any production work.

Revise Sentence 1 in 534.17 Finishing Concrete to say:

Concrete Products shall be finished to meet the Standard Grade finish as described in the MNL-116.

SPECIAL PROVISION
SECTION 609
CURB

606.09 Basis of Payment: This section shall be amended with the addition of the following:

Pay Item		Pay Unit
609.221	Terminal Curb Type 1	Linear Foot
609.222	Terminal Curb Type 1 – Circular	Linear Foot

SPECIAL PROVISION
SECTION 610
STONE FILL, RIPRAP, STONE BLANKET, AND STONE DITCH PROTECTION
(Streambed Rock Features)

610.01 Description This work consists of furnishing and placing large stones in the relocated stream channel to simulate naturally occurring features.

610.02 Materials Material for streambed rock features shall consist of hard, sound durable rock that will not disintegrate by exposure to water or weather. Stone for Streambed Rock Features shall be subangular to subrounded and may be obtained by screening oversized rock from earth borrow pits or as fieldstone. Unwashed stone, and stone with naturally fractured faces will be allowed. Material from blasting or crushing operations will not be allowed unless approved by the Resident.

The minimum stone size shall have an average dimension of approximately 8 inches, and the maximum stone size shall have an average dimension of approximately 18 inches. Fifty percent of the stones shall have an average dimension greater than 12 inches. The maximum allowable length to width ratio will be 3:1.

The Contractor shall identify the source and proposed stones for inspection at least ten (10) working days prior to the start of the stream channel construction. The grading of stone shall be determined by the Resident by visual inspection in accordance with the Standard Specifications, Section 610.032.d Inspection.

610.03 Construction Requirements

1. Place stones individually to form rock bands and rock features in the location and with the shape and to the required grade as shown on the Plans or as directed by the Resident. Individual stones shall be rearranged by machine or handwork to the extent necessary to achieve the required shapes, slopes, and elevations.

2. Stones for rock bands shall be placed in a compact mass laterally across the width of the constructed channel on a compacted lift of streambed material, as called for in Special Provision Section 203 – Special Fill. The stones shall be placed in close contact and securely interlocked with all stones firmly embedded in the special fill with voids completely filled.

3. Stones for rock features shall be placed individually or in clusters spaced throughout the reconstructed stream as shown on the Plans or as directed by the Resident.

4. All stones shall be firmly embedded in the special fill and protrude above the average surface as shown on the Plans or at least six inches. Loose or excessively protruding stones shall be embedded, reoriented or replaced as directed.

5. Place and spread filler material as specified in Special Provision, Section 203 - Special Fill around the stones and wash-in with water to fill voids and prevent piping between stones.

610.04 Method of Measurement Streambed rock features will be measured by the cubic yard, complete in place.

610.05 Basis of Payment The accepted quantity of streambed rock features will be paid for at the contract unit price per cubic yard complete in place. Payment shall be full compensation for furnishing all materials, equipment, and labor and washing-in with water.

Payment will be made under:

Pay Item		Pay Unit
610.212	Streambed Rock Features	CY

Mattawamkeag
Mattawamkeag Bridge
WIN: 023234.01
July 27, 2020

SPECIAL PROVISION
SECTION 623
MONUMENT
(Remove and Reset Memorial)

Description

This work consists of removing, storing and reinstalling the existing Mattawamkeag Veterans Memorial, in accordance with the Plans, this specification, the Standard Specifications and as directed by the Resident. The work is intended to replicate the existing conditions upon completion of the bridge construction and removal of the Special Detour.

The "Memorial" consists of the following: granite walkway and patio area; benches; granite base; marble and granite monuments on the granite base; concrete foundation, flag poles; and stone-lined, decorative crushed stone area around the flagpoles.

Materials

Memorial: All items noted in Description and shown in photo below.

Construction Requirements

The following is a list of activities required by the Contractor and included in this item:

- Hold a pre-construction meeting with the Town of Mattawamkeag (Town), the Veterans Honor Roll Committee (VHRC), and MaineDOT to discuss and coordinate removal, storage and reinstallation efforts prior to start of work
- Provide a survey of the park's amenities, prior to removal, in order to recreate existing conditions to the best extent practicable at project completion
- Coordinate the disconnection of any power sources to the park
    - No lighting or power has been identified in the park, however an existing well cap behind the granite memorial may have power
- Remove walkway pavers and store them at a cold storage facility selected by the Town and/or VHRC.
    - Contractor will protect pavers from damage
- Remove three aluminum flag poles and concrete edging and store them in a cold storage facility.
    - If flagpoles cannot fit within the cold storage facility, the Town or VHRC will select a suitable storage location outside
    - Contractor will protect flag poles from damage
    - Crushed stone within the concrete edging around the flag poles will be replaced after poles and concrete edging are reinstalled
- Remove the existing granite memorial, two granite flower vases, and two granite benches and store them in a cold storage facility.
    - Contractor will protect granite monument, granite flower boxes, and granite benches from damage by encapsulating them in a protective cover for removal, transportation, storage and reinstallation
    - In the event the Contractor cannot reuse the existing foundation of the granite monument, the Contractor will be responsible for disposal of the foundation and for casting a new concrete foundation when reinstalling the granite monument. The approximate dimensions of the concrete foundation are a 16" wide x 12'-6" long x 4' deep.
- Remove the boulder with dedication plaque and store it in a cold storage facility
    - Contractor will protect boulder and plaque from damage
- Grade park site and install approach sidewalk after special detour is removed
- Remove from storage and reinstall the granite memorial, two granite vases, three flag poles, concrete edging around flag poles, and boulder with dedication plaque, utilizing existing park survey.
    - If necessary, recast concrete foundation for granite memorial
    - Replace crushed stone within the granite edging to a minimum depth of two inches. Install a geotextile material under the crushed stone to prevent weed growth
- Reinstall walkway pavers and connect them to the new approach sidewalk
- Loam and seed park

The cold storage facility will be the Town's town garage located at 302 Main Street or a local storage facility at 277 Main Street.

The Town and/or the VHRC will remove and store the Veterans Memorial Park flags until park amenities are reinstalled.

Contacts for the VHRC are:

Ed Richard
PO Box 2214
Mattawamkeag, ME 04459
(207) 736-3278

John Richards
60 Main Street
Mattawamkeag, ME 04459
(207) 736-7119

Prior to commencement of work, a removal and installation plan of the memorial shall be submitted by the Contractor and approved by the Resident, Town, and VHRC. Installation shall also be in conformance with the Plans. Within 14 days of receipt, the Department, Town, and VHRC will determine if the plan is in accordance with the Contract requirements and (1) notify the Contractor that the plan is approved or (2) return it for any needed revision. If returned for revision, the Contractor must resubmit two copies of the revised plan as provided above within seven days and the Department, Town, and VHRC will have seven days from receipt of the revised plan to notify the Contractor when it is approved or again require revision. Additional iterations will occur in a like manner until the Department, Town, and VHRC approve the Contractor's plan. The Contractor's plan shall be approved by the Resident, Town, and VHRC before starting removal.

Any damage to any portion of the memorial as part of this work, including during removal, transportation, and installation, shall be repaired and paid for at the Contractor expense as approved by the Resident, Town, and VHRC.

Method of Measurement

Remove and Reset Memorial will be measured as one lump sum, complete, in place and accepted.

Basis of Payment

Remove and Reset Memorial will be paid for at the Contract lump sum price, complete in place. Payment shall be full compensation for furnishing all labor, equipment, materials, and incidentals necessary to complete the work as called for on the Plans or described herein.

Payment will be made under:

Pay Item	Pay Unit
623.10 Remove and Reset Memorial	Lump Sum

SPECIAL PROVISION
SECTION 643
TRAFFIC SIGNALS
(Temporary Traffic Signal: Route 2)

The Contractor shall install and maintain a temporary traffic signal for the duration of the temporary detour.

Signal heads at each end of the work area shall be mounted on a temporary structure supplied by the Contractor and approved by the Resident. Two signal heads shall face traffic on each approach of Route 2 and Boyd Street. All signal heads shall have 12" R-Y-G circular LED indications with 5" backplates and yellow retroreflective tape along all borders.

Stop bar video detection shall be provided on each approach.

The Contractor shall program the signal controller with the following phasing and timing (in seconds):

	Ø1	Ø2	Ø3
Min Green	5	2	5
Extension	3	3	3
Max Green	10	10	10
Yellow Cl.	3	3	3
All Red	28	20	28
Recall	none	none	none

Ø1 – Route 2 Southbound
Ø2 – Boyd Street
Ø3 – Route 2 Northbound

Clearance time calculations were based on a vehicle speed of 25 mph for 1000 ft. on Route 2.

643.19 Basis of Payment

As per STATE OF MAINE, Department of Transportation, Standard Specifications, Revision of April 2020.

Payment will be made under:

Pay Item		Pay Unit
643.72	Temporary Traffic Signal: Route 2	Lump Sum

Highway Lighting Quality Control Checklist

Subsection 634.09 Field Testing

Project Pin # _____

Location (if multiple services, please be specific)- _____

Grounding Electrode Resistance at service _____

Number of Circuits _____

Hand-Off-Auto Switch? _____

Circuit #1

Open Circuit Resistance- (Ohm out both hot legs at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Megger Test- (Meg out both hot legs to ground at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Current draw- (during normal operation) Leg #1 _____ Leg #2 _____

Operating Voltage at last pole _____

Circuit #2

Open Circuit Resistance- (Ohm out both hot legs at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Megger Test- (Meg out both hot legs to ground at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Current draw- (during normal operation) Leg #1 _____ Leg #2 _____

Operating Voltage at last pole _____

I, _____, certify that this work was done in accordance with subsection 643.14 and current NEC _____ guidelines, and when tested, was functioning as intended.

(YEAR)

Electrician's Signature _____

Electrician's License # _____

Highway Lighting Quality Control Checklist

Subsection 634.09 Field Testing

Project Pin # _____

Location (if multiple services, please be specific)- _____

Grounding Electrode Resistance at service _____

Number of Circuits _____

Hand-Off-Auto Switch? _____

Circuit #3

Open Circuit Resistance- (Ohm out both hot legs at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Megger Test- (Meg out both hot legs to ground at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Current draw- (during normal operation) Leg #1 _____ Leg #2 _____

Operating Voltage at last pole _____

Circuit #4

Open Circuit Resistance- (Ohm out both hot legs at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Megger Test- (Meg out both hot legs to ground at the cabinet while they are shorted together at the last pole and the fuse holders are disconnected at each pole) _____

Current draw- (during normal operation) Leg #1 _____ Leg #2 _____

Operating Voltage at last pole _____

I, _____, certify that this work was done in accordance with subsection 643.14 and current NEC _____ guidelines, and when tested, was functioning as intended.

(YEAR)

Electrician's Signature _____

Electrician's License # _____

Traffic Signal Quality Control Checklist

Subsection 643.14 Field Testing

Project Pin # _____

Grounding Electrode Resistance at service _____

ID tags on loop amps / detector cards? _____

Location _____

Street Approach	_____		
Loop #	_____	**Resistance**	_____
Phase #	_____	**Meg to ground**	_____
L,C, or R Lane	_____	**Amount of bondo covering loop**	_____
Pulse or Presence	_____		

Street Approach	_____		
Loop #	_____	**Resistance**	_____
Phase #	_____	**Meg to ground**	_____
L,C, or R Lane	_____	**Amount of bondo covering loop**	_____
Pulse or Presence	_____		

Street Approach	_____		
Loop #	_____	**Resistance**	_____
Phase #	_____	**Meg to ground**	_____
L,C, or R Lane	_____	**Amount of bondo covering loop**	_____
Pulse or Presence	_____		

I, _____, certify that this work was done in accordance with subsection 643.14 and current NEC _____ guidelines, and when tested, was functioning as intended.

(YEAR)

Electrician's Signature _____

Electricain's License # _____

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC
(Construction Requirements)

Subsection 652.3.6 is amended by adding the following requirements:

Prior to and after use of the temporary detour, short-term, daily lane closures maintaining one lane of alternating traffic will be allowed during daylight, working hours with approval of the Resident.

Access to Willow Street from Route 2 shall be prohibited when the temporary bridge is in use.

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC

Approaches. Approach signing shall include the following signs at a minimum. Field conditions may warrant the use of additional signs as determined by the Resident.

Road Work Next X* Miles
Road Work 500 Feet (Ahead)
End Road Work

Work Areas. At each work site, signs and channelizing devices shall be used as directed by the Resident.

Signs include:

Road Work xxxx[1].
One Lane Road Ahead
Flagger Sign

Other typical signs include:

Be Prepared to Stop
Low Shoulder
Bump
Pavement Ends

The above lists of Approach signs and Work Area signs are representative of the contract requirements. Other sign legends may be required.

Unless otherwise defined in Special Provision 105/107 or submitted and approved in the Traffic Control Plan, the following shall apply:

- The Contractor shall conduct their operations in such a manner that the roadway will not be restricted to one lane for more than 2,500 feet at each work area and no more than 4,000 feet for paving and milling work areas.
- Where more than one work area restricts traffic to one lane operation, these work areas shall be separated by at least 1 mile of two-way operation.

Temporary Centerline A temporary centerline shall be placed each day on all new pavement to be used by traffic. The temporary centerline, when specified of reflectorized traffic paint, shall conform to the standard marking patterns used for permanent markings. Failure to apply a temporary centerline daily will result in a Traffic Control Violation and suspension of paving operations until temporary markers are applied to all previously placed pavement.

[1] "Road Work Ahead" to be used in short duration operations and "Road Work xx feet" to be used in stationary operations as directed by the Resident.

SPECIFICATIONS
FOR
MATTAWAMKEAG BRIDGE SEWER
FORCE MAIN REPLACEMENT

TOWN OF MATTAWAMKEAG, MAINE

JULY, 2020

Prepared by:
OLVER ASSOCIATES INC.
Environmental Engineers
290 Main Street
P.O. Box 279
Winterport, Maine 04496
(207) 223-2232

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TOWN OF MATTAWAMKEAG, MAINE

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SRF UTILITY SUPPLEMENTAL GENERAL CONDITIONS

Utility Supplementary Conditions

Conflict of Interest

Contractor may not knowingly contract with a supplier or manufacturer if the individual or entity who prepared the plans and specifications has a corporate or financial affiliation with the supplier or manufacturer. Owner's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest in Contractor. Owner's officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from Contractor or subcontractors.

Gratuities

If Owner finds after a notice and hearing that Contractor, or any of Contractor's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of Owner or Agency in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, Owner may, by written notice to Contractor, terminate this Contract. Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract. In the event this Contract is terminated as provided in above paragraph, Owner may pursue the same remedies against Contractor as it could pursue in the event of a breach of this Contract by Contractor. As a penalty, in addition to any other damages to which it may be entitled by law, Owner may pursue exemplary damages in an amount (as determined by Owner) which shall not be less than three nor more than ten times the costs Contractor incurs in providing any such gratuities to any such officer or employee.

State Energy Policy

Contractor shall comply with the Energy Policy and Conservation Act (P.L. 94-163). Mandatory standards and policies relating to energy efficiency, contained in any applicable State Energy Conservation Plan, shall be utilized.

Environmental Requirements

When constructing a project involving trenching and/or other related earth excavations, Contractor shall comply with the following environmental constraints:

1. Floodplains – When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert 100 year floodplain areas delineated on the latest Federal Emergency Management Agency Floodplain Maps, or other appropriate maps, i.e., alluvial soils on NRCS Soil Survey Maps.
2. Endangered Species – Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should

any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of Contractor, Contractor will immediately report this evidence to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the U.S. Fish and Wildlife Service.

Utility Project Sign

At the start of the project, the Contractor shall provide and erect a project sign as detailed and specified in the attachment to these supplementary conditions. The location of the sign shall be as directed by the Engineer. No other contractor, subcontractor, or material references will be permitted on the sign. The Contractor shall maintain and keep the project sign in good condition until the work is completed when the sign will be removed. Provide adequate supports for the sign as site conditions may require and keep sign a proper distance above prevailing grade to permit public viewing.

Alternate methods of publicizing may be considered on a project specific basis for projects with a contract value less than $250,000. Prior to the start of the project, the Contractor must obtain Agency approval, through the Owner, for use of a proposed method. Alternate methods that may be considered include: posters or wall signage on public buildings or at a public location, newspaper advertising, online signage, and press releases. Minimum public awareness requirements and sample language can be obtained from the Agency.

SRF Disadvantaged Business Enterprises Program

The Contractor 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 40 CFR part 33, Disadvantaged Business Enterprises (DBE), in the award and administration of subcontracts. 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 other legally available remedies.

The goals for this project are a minimum of 0.64% certified Minority Business Enterprise (MBE) and a minimum of 1.64% certified Women's Business Enterprise (WBE) participation. Lists of certified businesses may be found on the following internet websites: EPA Office of Small and Disadvantaged Business Utilization (OSDBU), State of Maine Department of Transportation (DOT), and the United States Small Business Administration (SBA).

The contractor must maintain all records documenting its compliance with the requirements of this part, including documentation of its good faith efforts (such as copies of solicitation letters and emails) and data relied upon in formulating its fair share objectives.

1. During the bidding period, the Contractor is required to make the following good faith efforts if they will be awarding subcontracts:

   (a) Ensure DBEs are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities. This will include placing DBEs on solicitation lists and soliciting them whenever they are potential sources.

   (b) Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process. This includes,

whenever possible, posting solicitations for bids or proposals for a minimum of 30 calendar days before the bid or proposal closing date.

(c) Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs. This will include dividing total requirements when economically feasible into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.

(d) Encourage contracting with a consortium of DBEs when a contract is too large for one of these firms to handle individually.

(e) Use the services and assistance of the SBA and the Minority Business Development Agency of the Department of Commerce.

(f) Employ the good faith efforts described above even if the prime contractor has achieved its fair share objectives under subpart D of this part.

2. The Contractor must comply with the following provisions when submitting their bid:

(a) The contractor must complete and submit EPA Form 6100–4, 'DBE Program Subcontractor Utilization Form' (copy attached) as part of the prime contractor's bid or proposal package to the Owner. Note, only DBE subcontractors should be listed. If no DBE subcontractors are to be used, the contractor must still complete and submit the form.

(b) The contractor must have each of its proposed DBE subcontractors complete the EPA Form 6100–3, 'DBE Program Subcontractor Performance Form' (copy attached). The completed forms must be submitted as part of the prime contractor's bid or proposal package to the Owner.

3. Prior to contract award, as the Successful Bidder, the Contractor must comply with the following provisions:

(a) The contractor must submit to the Owner documentation of its good faith efforts (such as copies of solicitation letters and emails) and data relied upon in formulating its fair share objectives. Solicitation documentation must include proof of receipt. The records must be submitted to the Owner even if the goals were met.

(b) The contractor must submit to the Owner a bidders list of all firms that bid or quote on subcontracts, including both MBE/WBEs and non-MBE/WBEs. The purpose of a bidders list is to provide contractors who conduct competitive bidding with as accurate a database as possible about the universe of MBE/WBE and non-MBE/WBE subcontractors. The list must include the following information:

(1) Entity's name with point of contact;

(2) Entity's mailing address, telephone number, and e-mail address;

(3) The procurement on which the entity bid or quoted, and when; and

(4) Entity's status as an MBE/WBE or non-MBE/WBE.

4. Following contract award, the Contractor must comply with the following additional provisions:

(a) The contractor must provide EPA Form 6100–2, 'DBE Program Subcontractor Participation Form' (copy attached) to all DBE subcontractors listed on Form 6100-4. EPA

Form 6100–2 gives a DBE subcontractor the opportunity to describe the work the DBE subcontractor received from the prime contractor, how much the DBE subcontractor was paid and any other concerns the DBE subcontractor might have during the course of the project, for example, reasons why the DBE subcontractor believes it was terminated by the prime contractor. If DBE subcontractors choose to complete this form, the completed form should be sent directly to the DBE Coordinator. The address is: Maine Department of Environmental Protection, Attn: Ms. Kelly Stevens, DBE Coordinator, Bureau of Water Quality, Division of Water Quality Management, 17 State House Station, Augusta, Maine 04333-0017.

(b) Complete the SRF Progress Report of DBE Subcontractor Utilization Form (copy attached) for all contractor pay applications whether or not they include invoiced amounts from DBE subcontractors. The progress report should be attached to the corresponding pay application for processing through the Owner.

(c) Pay subcontractors for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the Owner.

(d) Notify the Owner in writing prior to any termination of a DBE subcontractor for convenience by the prime contractor.

(e) If a DBE subcontractor fails to complete work under the subcontract for any reason, the prime contractor must employ the good faith efforts described above if soliciting a replacement subcontractor. Documentation of good faith efforts shall be submitted to the Owner upon request.

Davis-Bacon and Related Acts

The Contractor must comply with the following contract and subcontract provisions of the Davis-Bacon and Davis-Bacon Related acts. Attachments to these provisions include: the wage determination for this contract, four forms, and a poster.

1. Applicability of the Davis-Bacon (DB) prevailing wage requirements

Davis-Bacon prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund. If an Owner encounters a unique situation at a site that presents uncertainties regarding DB applicability, the Owner must discuss the situation with the State official before authorizing work on that site.

2. Obtaining Wage Determinations

(a) Owners shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the Owner shall monitor www.wdol.gov weekly to ensure that the wage determination contained in the solicitation remains current. The Owner shall

amend the solicitation if DOL issues a modification more than 10 days prior to the closing date, the Owner may request a finding from the State official that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State official will provide a report of its findings to the Owner.

(ii) If the Owner does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State official, at the request of the Owner, obtains an extension of the 90 day period from DOL pursuant to 20 CFR 1.6(c)(3)(iv). The Owner shall monitor www.wdol.gov on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(b) If the Owner carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the Owner shall insert the appropriate DOL wage determination from www.wdol.gov into the ordering instrument.

(c) Owners shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a Owner's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the Owner has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the Owner shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The Owner's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

3. Contract and Subcontract provisions

(a) The State official shall insure that the Owner(s) shall insert in full in any contract in excess of $2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the SRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1, the following clauses:

(1) Minimum wages.

(i) 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 (a)(1)(iv) 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 § 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 (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321, attached) 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. Additional copies of this poster can be obtained from the US Department of Labor website.

(ii)(A) 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 EPA award official shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Owner agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), Form 1444 (attached) shall be completed and sent by the Owner to the State official. The State official will transmit the request, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the State official or will notify the State official within the 30-day period that additional time is necessary. Additional copies of Form 1444 may be obtained from the US Department of Labor website.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the Owner do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the State official shall refer the questions, including the views of all interested parties and the recommendation of the State official, to the Administrator for determination. The request shall be sent to the EPA DB Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt

and so advise the State official or will notify the State official within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) 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.

(iii) 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.

(iv) 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 Owner shall upon written request of the EPA Award Official or 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 State Official may, after written notice to the contractor, sponsor, applicant, or owner, 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.

(i) 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.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the Owner. Such documentation shall be available on request of the State Official or EPA. As to each payroll copy received, the Owner shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls 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 the weekly payrolls. 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 (attached) is available for this purpose. Additional copies of the form are available from the US Department of Labor Wage and Hour Division Web 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 Owner for transmission to the State or EPA if requested by EPA, the State, the contractor, 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 Owner.

(B) 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:

(1) 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;

(2) 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;

(3) 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.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 (page 2 of the form is attached) shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) 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.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA 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 Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, 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--

(i) Apprentices. 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.

(ii) Trainees. 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.

(iii) 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.

(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 in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may by appropriate, and also a clause requiring the subcontractors to include these clauses 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 Owner, State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) 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).

(ii) 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).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. Contract Provision for Contracts in Excess of $100,000.

(a) Contract Work Hours and Safety Standards Act. The Owner shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any 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 Item 3, above 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 (a)(1) of this section the contractor and any subcontractor responsible therefore 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 (a)(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 (a)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The Owner, upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall 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 (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(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 (a)(1) through (4) of this section.

(b) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Owner shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Owner shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the State and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification

(a). The Owner shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The Owner must use Standard Form 1445 or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are attached and are available from EPA on request.

(b) The Owner shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Owners must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Owners shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c). The Owner shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The Owner shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable, the Owner must spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Owners must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the Owner shall verify evidence of fringe benefit plans and payments there under by contractors and subcontractors who claim credit for fringe benefit contributions.

(d). The Owner shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These

reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Owners must immediately report potential violations of the DB prevailing wage requirements to the EPA DB Regional Coordinator, the State Official, and to the appropriate DOL Wage and Hour District Office listed at http://www.dol.gov/esa/contacts/whd/america2.htm

American Iron and Steel (AIS) Requirements

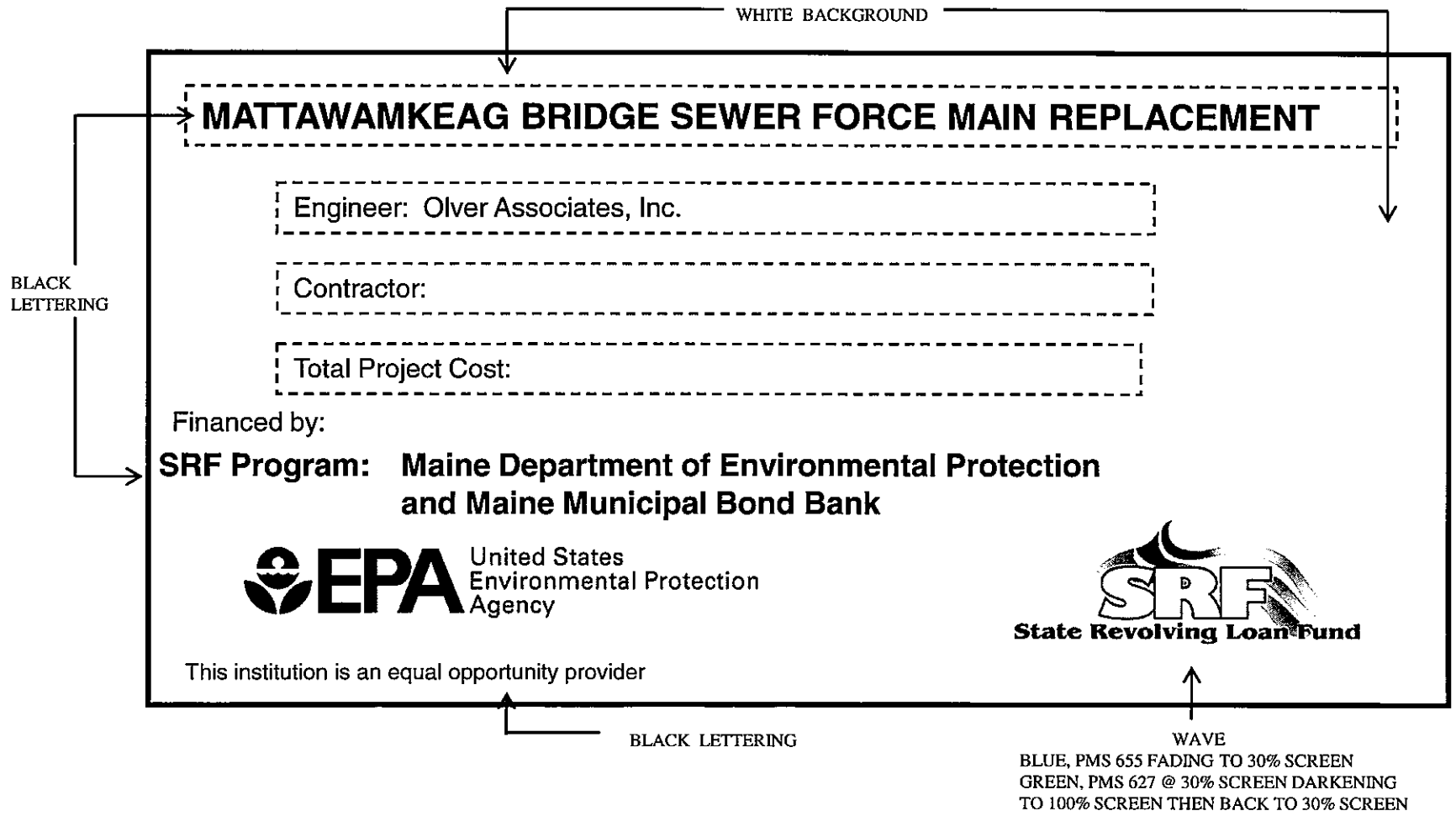
The Contractor acknowledges, to and for the benefit of the Owner and the State (Maine Department of Environmental Protection and the Maine Department of Health and Human Services), that it understands the goods and services under this Agreement are being funded with monies made available by the State Revolving Fund (SRF) that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contactor pursuant to this Agreement. See attached Public Law 113-76, Section 436. The Contractor hereby represents and warrants, to and for the benefit of the Owner and the State, that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Owner or the State. While the Contractor has no direct contractual privity with the State, as a lender to the Owner for the funding of its project, the Owner and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.
The Owner shall maintain files on the project site for American Iron and Steel (AIS) manufacturer certifications. The Contractor and subcontractors shall provide step manufacturer certifications to the Owner for each AIS item delivered to the site. The files shall be made available to State and Federal officials for inspection upon request. See sample Step Manufacturer Certification attachment for information that should be included. The Contractor and its subcontractors shall submit to the Owner, an AIS Compliance Certification (see form attached) with each contractor pay application. The Owner, shall in turn, submit this certification from the Contractor, with their AIS Compliance Certification (see form attached), to the State with the SRF pay requisition. The nationwide waiver to the American Iron and Steel law permits the use of products when they occur in de minimis incidental components of such projects funded by the Act that may otherwise be prohibited under section 436(a). Funds used for such de minimis incidental components cumulatively may comprise no more than a total of 5 percent of the total cost of the materials used in and incorporated into a project; the cost of an individual item may not exceed 1 percent of the total cost of the materials used in and incorporated into a project. It is the State's interpretation that all SRF projects will contain incidental components that might not comply with the law and therefore it is likely that the Owner will use the de minimis waiver. The Contractor is required to provide the necessary documentation. See attached sample de minimis tracking form. Owners should, in consultation with their contractors, determine the items to be covered by this waiver, must retain relevant documentation (i.e., invoices) as to those items in their project files, and must summarize the items to which this waiver is applied, the total cost of incidental components covered by the waiver, and the calculations by which they determined the total cost of materials used in and incorporated into the project. The Owner shall maintain files on the project site

for this documentation. The files shall be made available to State and Federal officials for inspection upon request.
The Contractor shall refer to the attached guidance taken from an EPA Memorandum. Additional information regarding the AIS requirements can be found on this website http://water.epa.gov/grants_funding/aisrequirement.cfm

List of Attachments to the SRF Supplemental Conditions:

- Utility Project Sign Drawing
- DBE Program Subcontractor Utilization Form - EPA 6100-4
- DBE Program Subcontractor Performance Form - EPA 6100-3
- DBE Program Subcontractor Participation Form - EPA 6100-2
- Progress Report of DBE Subcontractor Utilization Form
- Owner's Davis Bacon Compliance Report
- AIS Covered Products Q &A
- AIS Law
- AIS Certification by Owner
- AIS Certification by Contractor
- AIS Step Manufacturer Certification
- AIS De Minimis Tracking Form

Temporary Construction Sign for CWSRF Projects



MINIMUM SIGN DIMENSIONS: 1200 x 2400 x 19 MM (4' x 8' x 3/4")

EXTERIOR PLYWOOD (A-B GRADE)

MINIMUM LETTERING SIZE: 5 CM (2-INCHES)

Disadvantaged Business Enterprise Program (DBE) Subcontractor Utilization Form

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE[1] subcontractors[2] and the estimated dollar amount of each subcontract. An EPA Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name		Project Name
Bid /Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.		Email Address
Issuing/Funding Entity:		

I have identified potential DBE certified subcontractors	_____ YES	_____ NO
If yes, please complete the table below. If no, please explain:		

Subcontractor Name/ Company Name	Company Address/Phone/Email	Est. Dollar Amt.	Currently DBE Certified?

Continue on back if needed

[1]A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award or financial assistance.

Disadvantaged Business Enterprise Program
(DBE) Subcontractor Utilization Form

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Section 33.202 (c).

Prime Contractor Signature	Print Name
Title	**Date**

(DBE Subcontractor Utilization Form) DEP FORM 6100-4

Disadvantaged Business Enterprise Program (DBE) Subcontractor Performance Form

This form is intended to capture the DBE[1] subcontractor's[2] description of work to be performed and the price of the work submitted to the prime contractor. An EPA Financial Assistance Agreement Recipient must require its prime contractor to have its DBE subcontractors complete this form and include all completed forms in the prime contractors bid or proposal package.

Subcontractor Name	Project Name	
Bid /Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.	Email Address	
Prime Contractor Name	Issuing/Funding Entity:	

Contract Item Number	**Description of Work Submitted to the Prime Contractor Involving Construction, Services, Equipment or Supplies**	**Price of Work Submitted to the Prime Contractor**
DBE Certified By: _____DOT _____SBA _____Other:_____	Meets/exceeds EPA certification standards? _____YES _____NO _____Unknown	

[1]A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

Disadvantaged Business Enterprise Program (DBE) Subcontractor Performance Form

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.202 (c).

Prime Contractor Signature	Print Name
Title	**Date**

Subcontractor Signature	Print Name
Title	**Date**

Disadvantaged Business Enterprise Program (DBE) Subcontractor Participation Form

An EPA Financial Assistance Agreement Recipient must require its prime contractors to provide this form to its DBE subcontractors. This form gives a DBE[1] subcontractor[2] the opportunity to describe work received and /or report any concerns regarding the EPA-funded project (e.g. in areas such as termination by prime contractor, late payments, etc.). The DBE subcontractor can, as an option, complete and submit this form to the DEP DBE Coordinator at any time during the project period of performance.

Subcontractor Name		Project Name
Bid /Proposal No.	Assistance Agreement ID No. (if known)	Point of Contact
Address		
Telephone No.		Email Address
Prime Contractor Name		Issuing/Funding Entity:

Contract Item Number	Description of Work Received from the Prime Contractor Involving Construction, Services, Equipment or Supplies	Amount Received by Prime Contractor

[1]A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

[2]Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

Disadvantaged Business Enterprise Program (DBE) Subcontractor Participation Form

Please use the space below to report any concerns regarding the above EPA-funded project:

Subcontractor Signature	Print Name
Title	**Date**

STATE OF MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION
CWSRF DBE PROGRAM

PROGRESS REPORT OF DBE SUBCONTRACTOR UTILIZATION FORM

TO INSURE PROMPT PAYMENT THE FOLLOWING INFORMATION MUST BE SUBMITTED WITH ALL REIMBURSEMENT REQUESTS WHETHER THEY INCLUDE INVOICED AMOUNTS FROM A QUALIFYING WBE OR MBE PARTICIPANT OR NOT:

Municipality/District:_____ SRF #:_____

Name of Project:_____ Contractor:_____

Contractor's Payment Request No._____Period covered by the request_____

The accompanying Reimbursement Request includes the following WBE/MBE participation:

Name & Address of WBE/MBE firm to be paid	WBE	MBE	Source of Certification, i.e., DOT, EPA or SBA	Amount to be paid this request	Type of Work

This attachment must be signed by an authorized representative of the contractor.

Signature_____ Date_____

Name:_____ Title:_____

Address:_____

Phone:_____ E-Mail:_____

Owner's Davis-Bacon Compliance Report

State Revolving Loan Fund

Project Name _____ **SRF Project #** _____

Project Owner: _____

Certified Payrolls Reviewed By: _____
(Printed name of Owner's Representative)

Employee interviews have been conducted in accordance with the contract requirements. Yes ☐ **No** ☐

Prime Contractor: _____

Prime Contractor's Pay Application No: _____(Note: Only one allowed per Compliance Report)

Application Period: From _____ **to** _____

Check one box and sign below:

☐ For the application period indicated, there were no certified payrolls reported because there were no workers on the site that were subject to the Davis-Bacon and Related Acts.

☐ For the application period indicated, the certified payrolls are in compliance with the Davis-Bacon and Related Acts.

☐ For the application period indicated, the certified payrolls are not in compliance with the Davis-Bacon and Related Acts. A Compliance Report for the corrective action will be submitted ASAP.

Summary of noncompliant findings and follow up actions needed:

_____

_____

_____

_____

_____

_____ _____
Owner's Representative Signature **Date**

Owner's Davis-Bacon Compliance Report

State Revolving Loan Fund

List all weekly certified payrolls for the application period:

Contractor / Subcontractor Name	Week Ending	Compliant (Yes/ No)	Comments

Covered Iron and Steel Products

(Guidance taken from EPA Memorandum dated March 20, 2014)

1) What is an iron or steel product?

For purposes of the CWSRF and DWSRF projects that must comply with the AIS requirement, an iron or steel product is one of the following made primarily of iron or steel that is permanently incorporated into the public water system or treatment works:

Lined or unlined pipes or fittings;
Manhole Covers;
Municipal Castings (defined in more detail below);
Hydrants;
Tanks;
Flanges;
Pipe clamps and restraints;
Valves;
Structural steel (defined in more detail below);
Reinforced precast concrete; and
Construction materials (defined in more detail below).

2) What does the term 'primarily iron or steel' mean?

'Primarily iron or steel' places constraints on the list of products above. For one of the listed products to be considered subject to the AIS requirements, it must be made of greater than 50% iron or steel, measured by cost. The cost should be based on the material costs.

3) Can you provide an example of how to perform a cost determination?

For example, the iron portion of a fire hydrant would likely be the bonnet, body and shoe, and the cost then would include the pouring and casting to create those components. The other material costs would include non-iron and steel internal workings of the fire hydrant (i.e., stem, coupling, valve, seals, etc). However, the assembly of the internal workings into the hydrant body would not be included in this cost calculation. If one of the listed products is not made primarily of iron or steel, United States (US) provenance is not required. An exception to this definition is reinforced precast concrete, which is addressed in a later question.

4) If a product is composed of more than 50% iron or steel, but is not listed in the above list of items, must the item be produced in the US? Alternatively, must the iron or steel in such a product be produced in the US?

The answer to both question is no. Only items on the above list must be produced in the US. Additionally, the iron or steel in a non-listed item can be sourced from outside the US.

5) What is the definition of steel?

Steel means an alloy that includes at least 50 percent iron, between .02 and 2 percent carbon, and may include other elements. Metallic elements such as chromium, nickel, molybdenum, manganese, and silicon may be added during the melting of steel for the purpose of enhancing properties such as corrosion resistance, hardness, or strength. The definition of steel covers carbon steel, alloy steel, stainless steel, tool steel and other specialty steels.

6) What does 'produced in the United States' mean?

Production in the United States of the iron or steel products used in the project requires that all manufacturing processes, including application of coatings, must take place in the United States, with the exception of metallurgical processes involving refinement of steel additives. All manufacturing processes includes processes such as melting, refining, forming, rolling, drawing, finishing, fabricating and coating. Further, if a domestic iron and steel product is taken out of the US for any part of the manufacturing process, it becomes foreign source material. However, raw materials such as iron ore, limestone and iron and steel scrap are not covered by the AIS requirement, and the material(s), if any, being applied as a coating are similarly not covered. Non-iron or steel components of an iron and steel product may come from non-US sources. For example, for products such as valves and hydrants, the individual non-iron and steel components do not have to be of domestic origin.

7) Are the raw materials used in the production of iron or steel required to come from US sources?

No. Raw materials, such as iron ore, limestone, scrap iron, and scrap steel, can come from non-US sources.

8) If an above listed item is primarily made of iron or steel, but is only at the construction site temporarily, must such an item be produced in the US?

No. Only the above listed products made primarily of iron or steel, permanently incorporated into the project must be produced in the US. For example trench boxes, scaffolding or equipment, which are removed from the project site upon completion of the project, are not required to be made of U.S. Iron or Steel.

9) What is the definition of 'municipal castings'?

Municipal castings are cast iron or steel infrastructure products that are melted and cast. They typically provide access, protection, or housing for components incorporated into utility owned drinking water, storm water, wastewater, and surface infrastructure. They are typically made of grey or ductile iron, or steel. Examples of municipal castings are:

Access Hatches;
Ballast Screen;
Benches (Iron or Steel);
Bollards;
Cast Bases;
Cast Iron Hinged Hatches, Square and Rectangular;
Cast Iron Riser Rings;
Catch Basin Inlet;
Cleanout/Monument Boxes;
Construction Covers and Frames;
Curb and Corner Guards;
Curb Openings;
Detectable Warning Plates;
Downspout Shoes (Boot, Inlet);
Drainage Grates, Frames and Curb Inlets;
Inlets;
Junction Boxes;
Lampposts;
Manhole Covers, Rings and Frames, Risers;
Meter Boxes;
Service Boxes;
Steel Hinged Hatches, Square and Rectangular;
Steel Riser Rings;
Trash receptacles;
Tree Grates;
Tree Guards;
Trench Grates; and
Valve Boxes, Covers and Risers.

10) What is 'structural steel'?

Structural steel is rolled flanged shapes, having at least one dimension of their cross-section three inches or greater, which are used in the construction of bridges, buildings, ships, railroad rolling stock, and for numerous other constructional purposes. Such shapes are designated as wide-flange shapes, standard I-beams, channels, angles, tees and zees. Other shapes include H-piles, sheet piling, tie plates, cross ties, and those for other special purposes.

11) What is a 'construction material' for purposes of the AIS requirement?

Construction materials are those articles, materials, or supplies made primarily of iron and steel, that are permanently incorporated into the project, not including mechanical and/or electrical components, equipment and systems. Some of these products may overlap with what is also considered "structural steel". This includes, but is not limited to, the following products: wire rod, bar, angles, concrete reinforcing bar, wire, wire cloth, wire rope and cables, tubing, framing, joists, trusses, fasteners (i.e., nuts and bolts), welding rods, decking, grating, railings, stairs, access ramps, fire escapes, ladders, wall panels, dome structures, roofing, ductwork, surface drains, cable hanging systems, manhole steps, fencing and fence tubing, guardrails, doors, and stationary screens.

12) What is not considered a 'construction material' for purposes of the AIS requirement?

Mechanical and electrical components, equipment and systems are not considered construction materials. Mechanical equipment is typically that which has motorized parts and/or is powered by a motor. Electrical equipment is typically any machine powered by electricity and includes components that are part of the electrical distribution system.

The following examples (including their appurtenances necessary for their intended use and operation) are NOT considered construction materials: pumps, motors, gear reducers, drives (including variable frequency drives (VFDs)), electric/pneumatic/manual accessories used to operate valves (such as electric valve actuators), mixers, gates, motorized screens (such as traveling screens), blowers/aeration equipment, compressors, meters, sensors, controls and switches, supervisory control and data acquisition (SCADA), membrane bioreactor systems, membrane filtration systems, filters, clarifiers and clarifier mechanisms, rakes, grinders, disinfection systems, presses (including belt presses), conveyors, cranes, HVAC (excluding ductwork), water heaters, heat exchangers, generators, cabinetry and housings (such as electrical boxes/enclosures), lighting fixtures, electrical conduit, emergency life systems, metal office furniture, shelving, laboratory equipment, analytical instrumentation, and dewatering equipment.

13) If the iron or steel is produced in the US, may other steps in the manufacturing process take place outside of the US, such as assembly?

No. Production in the US of the iron or steel used in a listed product requires that all manufacturing processes must take place in the United States, except metallurgical processes involving refinement of steel additives.

14) What processes must occur in the US to be compliant with the AIS requirement for reinforced precast concrete?

While reinforced precast concrete may not be at least 50% iron or steel, in this particular case, the reinforcing bar and wire must be produced in the US and meet the same standards as for any other iron or steel product. Additionally, the casting of the concrete product must take place in the US. The cement and other raw materials used in concrete production are not required to be of domestic origin. If the reinforced concrete is cast at the construction site, the reinforcing bar and wire are considered to be a construction material and must be produced in the US.

From the "Consolidated Appropriations Act, 2014"

H.R. 3547 (PL113-76, enacted 1/17/2014)

USE OF AMERICAN IRON AND STEEL

"SEC. 436. (a)(1) None of the funds made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.) or made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j–12) shall be used for a project for the construction, alteration, maintenance, or repair of a public water system or treatment works unless all of the iron and steel products used in the project are produced in the United States.

(2) In this section, the term ''iron and steel products'' means the following products made primarily of iron or steel: lined or unlined pipes and fittings, manhole covers and other municipal castings, hydrants, tanks, flanges, pipe clamps and restraints, valves, structural steel, reinforced precast concrete, and construction materials.

(b) Subsection (a) shall not apply in any case or category of cases in which the Administrator of the Environmental Protection Agency (in this section referred to as the ''Administrator'') finds that—

(1) applying subsection (a) would be inconsistent with the public interest;

(2) iron and steel products are not produced in the United States in sufficient and reasonably available quantities and of a satisfactory quality; or

(3) inclusion of iron and steel products produced in the United States will increase the cost of the overall project by more than 25 percent.

(c) If the Administrator receives a request for a waiver under this section, the Administrator shall make available to the public on an informal basis a copy of the request and information available to the Administrator concerning the request, and shall allow for informal public input on the request for at least 15 days prior to making a finding based on the request. The Administrator shall make the request and accompanying information available by electronic means, including on the official public Internet Web site of the Environmental Protection Agency.

(d) This section shall be applied in a manner consistent with United States obligations under international agreements.

(e) The Administrator may retain up to 0.25 percent of the funds appropriated in this Act for the Clean and Drinking Water State Revolving Funds for carrying out the provisions described in subsection (a)(1) for management and oversight of the requirements of this section.

(f) This section does not apply with respect to a project if a State agency approves the engineering plans and specifications for the project, in that agency's capacity to approve such plans and specifications prior to a project requesting bids, prior to the date of the enactment of this Act."

American Iron and Steel (AIS) Requirements

"The Contractor acknowledges, to and for the benefit of the Owner and the State (Maine Department of Environmental Protection), that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund (CWSRF) that have statutory requirements commonly known as "American Iron and Steel;" that requires all of the iron and steel products used in the project to be produced in the United States ("American Iron and Steel Requirement") including iron and steel products provided by the Contactor pursuant to this Agreement. See attached Public Law 113-76, Section 436. The Contractor hereby represents and warrants, to and for the benefit of the Owner and the State, that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Owner or the State. While the Contractor has no direct contractual privity with the State, as a lender to the Owner for the funding of its project, the Owner and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

The Owner shall maintain files on the project site for American Iron and Steel (AIS) manufacturer certifications. The Contractor and subcontractors shall provide step manufacturer certifications to the Owner for each AIS item delivered to the site. The files shall be made available to State and Federal officials for inspection upon request. See sample Step Manufacturer Certification attachment for information that should be included.

The Contractor and its subcontractors shall submit to the Owner, an AIS Compliance Certification (see form attached) with each contractor pay application. The Owner, shall in turn, submit this certification from the Contractor, with their AIS Compliance Certification (see form attached), to the State with the SRF pay requisition.

The nationwide waiver to the American Iron and Steel law permits the use of products when they occur in de minimis incidental components of such projects funded by the Act that may otherwise be prohibited under section 436(a). Funds used for such de minimis incidental components cumulatively may comprise no more than a total of 5 percent of the total cost of the materials used in and incorporated into a project; the cost of an individual item may not exceed 1 percent of the total cost of the materials used in and incorporated into a project. It is the State's interpretation that all CWSRF projects will contain incidental components that might not comply with the law and therefore it is likely that the Owner will use the de minimis waiver. The Contractor is required to provide the necessary documentation. See attached sample de minimis tracking form. Owners should, in consultation with their contractors, determine the items to be covered by this waiver, must retain relevant documentation (i.e., invoices) as to those items in their project files, and must summarize the items to which this waiver is applied, the total cost of incidental components covered by the waiver, and the calculations by which they determined the total cost of materials used in and incorporated into the project. The Owner shall maintain files on the project site for this documentation. The files shall be made available to State and Federal officials for inspection upon request."

The Contractor shall refer to the attached guidance taken from an EPA Memorandum. Additional information regarding the AIS requirements can be found on this website http://water.epa.gov/grants_funding/aisrequirement.cfm

State Revolving Loan Fund

CERTIFICATION BY THE OWNER
OF COMPLIANCE WITH THE
USE OF AMERICAN IRON AND STEEL LAW
enacted on 1/17/2014

(To be attached to each SRF requisition submitted for payment)

We, the Owner named, _____, having obtained a loan from the State of Maine Clean Water State Revolving Fund (CWSRF), to fund the Project named _____, hereby submit to the Department of Environmental Protection, certification from each contractor working on the Project that the use of American Iron and Steel in the construction of the Project complies with the law, or that a waiver has been obtained from the U.S. Environmental Protection Agency. Thereby, it is to the best of the Owner's knowledge that the costs being requested with this SRF requisition #_____ are in compliance with the Use of American Iron and Steel Law.

_____	_____	_____
Signature of Official	Printed name	Date

Attachment: Certification by Contractor

CERTIFICATION BY CONTRACTOR
OF COMPLIANCE WITH THE
USE OF AMERICAN IRON AND STEEL LAW
enacted on 1/17/2014

(To be attached to each pay application submitted for payment)

We, the Prime Contractor and Subcontractors, as named below, hereby certify that the use of American iron and steel in the construction of the Project named _____ _____, being requested in the pay application (or invoice) #_____ and dated _____, complies with the Use of American Iron and Steel Law, or that a waiver been obtained from the U.S. Environmental Protection Agency.

Prime Contractor Name: _____

_____	_____	_____
Signature of Official	Printed name	Date

Subcontractor Name	Signature of Official	Date
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Sample Step Manufacturer Certification

(Documentation must be provided on company letterhead)

Date

Company Name

Company Address

City, State Zip

Subject: American Iron and Steel Step Manufacturer Certification

Project Name _____

I, _____ (company representative), certify that the _____ (melting, bending, coating, galvanizing, cutting, etc.) process for _____ (manufacturing or fabricating) the following products and/or materials shipped or provided for the project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. _____

2. _____

3. _____

Such process took place at the following location: _____(address)

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

_____	_____	_____
Company representative	Signature	Date

Maine Clean Water State Revolving Loan Fund (CWSRF)

American Iron and Steel - De Minimis Tracking Form (Sample)

The EPA has issued a public interest waiver for De Minimis incidental components. An Owner wishing to use this waiver should consult with their contractor(s) to maintain an itemized list to track the components covered under De Minimis. The Owner may create their own format for the list or use this sample form.

Owner: _____ Loan #: _____

Project Name: _____

NOTE: The De Minimis waiver is only applicable to the cost of materials for the entire project. Do not include other project costs (labor, installation costs, etc.) in the "Total Cost of Materials". The total cost of a material may be based on estimated, or if available, actual costs.

Funds used for de minimis incidental components cumulatively may comprise no more than a total of 5 percent of the total cost of the materials used in and incorporated into a project; the cost of an individual item may not exceed 1 percent of the total cost of the materials used in and incorporated into a project.

Total Cost of Materials: _____ 5% Limit: _____ 1% limit: _____

Manufacturer & Component Description	Part/Model #	Quantity (if applicable)	Cost per Unit (if applicable)	Component's Total Cost	Invoice or receipt attached

Use additional sheets as necessary

Total Cost of Components deemed to be De Minimis: _____

Completed by:

Company: _____

Name: _____ Title: _____

Signature: _____ Date: _____

DRAWING LIST

DRAWING LIST

MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

TOWN OF MATTWAMKEAG, MAINE

SHEET	TITLE
GENERAL	
G-1	General Notes & Index
CIVIL	
C-1	Existing Sewer Force Main Plan & Profile
C-2	Temporary Sewer Force Main Plan & Profile
C-3	Permanent Sewer Force Main Plan & Profile
C-4	Sewer Force Main Details
C-5	Sewer Force Main Details
ELECTRICAL	
E-1	Electrical Details

TECHNICAL SPECIFICATIONS

DIVISION 1

GENERAL REQUIREMENTS

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 01026

MEASUREMENT AND PAYMENT

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 01026

MEASUREMENT AND PAYMENT

SECTION 01026 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope: This section describes the measurement and payment for the work to be completed under each bid item in the Proposal. The descriptions may not reference all of the associated Work. Work specified, but not specifically designated as a bid item, is considered incidental to all bid items.

B. Payment procedures are described in the Agreement, General Conditions, and related documents.

C. Work Covered: The total price for the Contract shall cover all work shown on the Contract Drawings and required by the Specifications and other Contract Documents. All costs in connection with the Work, including furnishing all materials, equipment, supplies and appurtenances; providing all construction, and tools; and performing all necessary labor and supervision to fully complete the Work, shall be included in the lump sum price bid or the unit prices specified on the bid sheets. No item that is required for the proper and successful completion of the Work will be paid for outside of, or in addition to, the prices submitted in the bid. All Work not specifically identified within this section shall be considered incidental to the project and a subsidiary obligation of the Contractor and all costs in connection therewith shall be included in the prices. Owner's responsibility for any item listed as being provided by Owner is limited to prepurchase and payment of that equipment outside of contract. Contractor is responsible for the unloading, storage, installation, and startup of all new Owner provided items and the relocation, installation, and startup of all Owner provided items that are already existing.

PART 2 - PRODUCTS (not applicable)

PART 3 - EXECUTION

3.01 MEASUREMENT

A. Notify Engineer when necessary measurements must be taken. Do not proceed until measurements have been taken.

3.02 SCHEDULE OF PAYMENT ITEMS

Note: Any Pay Items not noted to be Temporary shall be applicable to permanent installation.

A. Item 1 - (MDOT 202.15) Removing Existing Manhole or Catch Basin:

1. Payment: Unit price as stated in the Proposal per unit shown to be removed on the Drawings or as directed by the Engineer.

2. Measurement: Measured as complete units.

3. Includes cleaning, earthwork, compaction, removal and disposal of materials, and restoration of disturbed surfaces.

4. Schedule of Payment: 100% upon completion.

B. Item 2 - (MDOT 202.61) Remove Storm Drain or Sewer Pipe:

1. Payment: Lump sum price as stated in the Proposal.

2. Measurement: Per completion of work.

3. Includes removal or abandonment of existing buried utility pipes along new sewer routes where encountered, removal of existing force main as necessary for DOT work, including but not limited to all existing heat trace electrical and insulation materials as shown on the Drawings, including all disposal costs, labor, materials, and equipment.

4. Schedule of Payment: Measured by actual percent completion at time of requisition.

C. Item 3 - (MDOT 403.2081) Hot Mix Asphalt, 12.5 mm Nominal Maximum Size, Polymer Modified:

1. Payment: Unit price per ton of pavement as stated in the Proposal.

2. Measurement: As measured in place within the pay limits and to the thickness shown on the Drawings and as directed by the Engineer.

3. Includes preparation and placement of specified thickness of binder and final surface course pavement in roadway areas disturbed by sewer force main work outside of MDOT paving or project areas disturbed by MDOT project, including adjusting rims and covers of existing buried improvements, if necessary, shimming prior to pavement as necessary, saw cutting all edges prior to excavation and again before paving as noted on the Drawings and as directed by the Engineer and cutting in butt joints as required to match into existing pavement.

4. Schedule of Payment: 100% upon installation.

D. Item 4 - (MDOT 604.183) Modify Existing Manhole or Catch Basin:

1. Payment: Unit price per unit as stated in the Proposal.

2. Measurement: Per completion of work.

3. Includes: Manhole modification to accept new sewer work including coring, patching, boots, linkseals, removal of existing inside drop assembly and installation of new inside force main drop assembly, and incidentals.

4. Schedule of Payment: 100% per unit upon completion.

5. Note: This pay item applies to sewer MH Sta. 13.53, 11' LT.

E. Item 5 - (MDOT 655.201) Electrical Work:

1. Payment: Lump sum price as stated in the Proposal.

2. Measurement: Per completion of work.

3. Includes: All wiring, conduit, expansion joints, and electrical equipment including but not limited to, controls, monitoring equipment and alarms, raceways, generator power inlet, transfer switch, relocating existing panel, battery pack, plywood backboard, posts, sonotubes, concrete, edging, coordination with other work, and all labor, materials, and incidentals as required to provide a full system and all details as shown on the plans.

4. Schedule of Payment: 100% upon installation.

F. Item 6 - (MDOT 801.03) Test Pits:

1. Payment: Unit price per each test pit unit as stated in the Proposal.

2. Measurement: Per unit completed.

3. Includes clearing, excavation, dewatering, backfilling, and compaction in locations as shown in Drawings or as directed by the Engineer.

4. Schedule of Payment: 100% upon completion.

5. Limitation: In order to qualify as a test pit for payment, at least 10 CY of material must be excavated in search of a specific buried site feature. Only one test pit payment per each specific site feature will be made.

G. Item 7 - (MaineDOT 801.071) Temporary Sewer Bypass:

1. Payment: Lump sum price as stated in the Proposal.

2. Measurement: Per completion of work.

3. Includes: Excavation, coordination with temporary bridge construction, pressure sewer pipe and fittings, backfill, compaction, expansion joints, suspended pipe hangers, supports and hardware, bridge supports and hardware as required for hangers, shoring and bracing, temporary heat trace systems, insulation, installation and removal and incidentals as shown on the Drawings or as required. Also includes Contractor's responsibility for all temporary piping, monitoring and maintenance of temporary sewer to maintain continuous sewer service.

4. Schedule of Payment: Installation - 90%; pressure testing and cleaning - 10%

5. Clarification: This item includes all costs for temporary force main including temporary electrical. All permanent electrical work to remain will be in Bid Item 5.

H. Item 8 - (MDOT 812.163) Modify Sewer Manhole, Adjust Frame & Cover:

1. Payment: Unit price per unit as stated in the Proposal.

2. Measurement: Per completion of work.

3. Includes: excavation, removal of existing frame and cover, any precast concrete risers needed to adjust cover to grade, butyl rubber sealant, mortar, poly frost barrier, resetting frame and cover, backfill restoration to original site conditions, and all incidentals.

4. Schedule of Payment: 100% per unit upon completion.

I. Item 9 - (MDOT 822.321) 4 Inch Class 52 Ductile Iron Pipe:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: As measured along the horizontal projection of the centerline of the pipe from the connection point to the transition to suspended force main.

3. Includes: Excavation, pipe material, placement of pipe, thrust blocks, backfill and compaction, roadway base and subbase, clearing, shoring and bracing, fittings, filter fabric, couplings, and incidentals as required or as shown on the Drawings.

4. Schedule of Payment: Installation - 80%; compaction - 10%; pressure testing and cleaning - 10%.

J. Item 10 – (MDOT 822.321) 4 Inch Class 52 Ductile Iron Pipe on Bridge Insulated:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: As measured along the horizontal projection of the centerline of the pipe from the transition point at the approach slab to the transition near the peak of the bridge.

3. Includes: Pipe, insulation, hangars, support system, expansion joints, pipe sleeves, pipe jacket, pipe wrap, staging, and all labor, materials and incidentals as required or as shown on the Drawings.

4. Schedule of Payment: Installation - 90%; pressure testing and cleaning - 10%.

K. Item 11 - (MDOT 822.33) 6 Inch Class 52 Ductile Iron Pipe:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: As measured along the horizontal projection of the centerline of the pipe from the connection point to the transition to suspended force main.

3. Includes: Excavation, pipe material, placement of pipe, thrust blocks, backfill and compaction, roadway base and subbase, clearing, shoring and bracing, fittings, filter fabric, couplings, and incidentals as required or as shown on the Drawings.

4. Schedule of Payment: Installation - 80%; compaction - 10%; pressure testing and cleaning - 10%.

L. Item 12 – (MDOT 822.33) 6 Inch Class 52 Ductile Iron Pipe on Bridge Insulated:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: As measured along the horizontal projection of the centerline of the pipe from the transition point at the approach slab to the transition near the peak of the bridge.

3. Includes: Pipe, insulation, heat trace, hangars, support system, expansion joints, pipe sleeves, pipe jacket, pipe wrap, staging, and all labor, materials and incidentals as required or as shown on the Drawings.

4. Schedule of Payment: Installation - 90%; pressure testing and cleaning - 10%.

M. Item 13 - (MDOT 822.38) Sewer Force Main Relocation Sta. 21+00:

1. Payment: Unit price per unit as stated in the Proposal.

2. Measurement: Upon completion of work.

3. Includes excavation, backfill, dewatering, fittings, pipe, thrust blocks, and all appurtenances as specified and as shown on Drawings.

4. Schedule of Payment: Installation - 90%; compaction - 10%.

N. Item 14 - (MDOT 823.3411) Air Release Valve, Manual Release System:

1. Payment: Lump sum price as stated in the Proposal.

2. Measurement: Per completion of work.

3. Includes coordination with bridge construction activities, connection to force main tee, mechanical joint cap with tap and 1" ∅ 316 SS riser pipe, cleanout cover, all piping, heat trace, valves, adapters, fittings, anchors and supports required to attach the piping to the bridge or as shown on Drawings.

4. Schedule of Payment: Installation – 100%.

O. Item 15 - (MDOT 827.302) Unsuitable Soil Excavation – Below Grade:

1. Payment: Unit price per cubic yard as stated in the Proposal.

2. Measurement: Cubic yards as measured in place within the pay limits shown on the Drawings and as directed by the Engineer.

3. Includes removal and disposal of unsuitable material and placement with select gravel backfill or aggregate base as specified and as directed by the Engineer.

4. Schedule of Payment: Installation - 100%.

P. Item 16 - (MDOT 827.331) Trench Insulation 2" Rigid:

1. Payment: Unit price per square yard as stated in the Proposal.

2. Measurement: Measured in place as shown on the Drawings or as directed by the Engineer.

3. Includes insulation over pipe and structures as shown on the Drawings and as specified.

4. Schedule of Payment: 100% upon installation.

5. Explanation: If 4" insulation called for in places, payment will be based on double the 2" price.

Q. Item 17 - (MDOT 832.07) Owner's Testing Allowance:

1. Explanation: Testing listed in the Contract Documents as being the Owner's responsibility will be paid for by the Contractor and reimbursed through this allowance. This allowance does not apply to any tests which are stated in the Contract Documents as being the Contractor's responsibility.

2. Payment: Actual costs incurred.

3. Measurement: Submit evidence of paid invoices from testing firm.

4. Includes: Testing costs, such as concrete tests, compaction tests, etc., that are specified as Owner's responsibility are included in this item. Contractor shall pay for all such tests. All testing costs specified as the Contractor's responsibility shall remain so and in no way shall the included allowance be used for such costs. All testing costs shall be billed directly to Contractor, and a final Change Order will be issued balancing the actual testing costs to the Contractor as compared to the stated allowance.

5. Schedule of Payment: 100% - upon completion of tests and evidence of paid invoice submitted.

*** END OF SECTION ***

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 01300

SUBMITTALS

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. Submittal requirements specified in this section include Shop Drawings, temporary sewer force main systems, product data, samples and miscellaneous Work-related submittals. Individual submittal requirements are specified in applicable sections for each unit of work. Refer to other Division-1 sections and other Contract Documents for requirements of administrative submittals.

B. Definitions: Work-related submittals of this section are categorized for convenience as follows:

1. Shop Drawings include specially-prepared technical data for this project, including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information.

2. Product data include standard printed information on materials, products and systems.

3. Samples include both fabricated and unfabricated physical examples of materials, products and units of Work; both as complete units and as smaller portions of units of Work; either for limited visual inspection or (where indicated) for more detailed testing and analysis.

C. Miscellaneous submittals related directly to the Work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standards, Record Drawings, field measurement data, operating and maintenance materials, overrun stock, and similar information, devices and materials applicable to the Work.

D. American Iron & Steel

1. Section 746 of Title VII of the Consolidated Appropriations Act of 2017 (Division A – Agriculture, Rural Development, Food and Drug Administration and Related Agencies Appropriations Act, 2017) applies an American Iron and Steel requirement to this project.

1.02 GENERAL SUBMITTAL REQUIREMENTS

A. Coordination and Work Sequencing:

1. Coordinate preparation and processing of submittals with performance of the Work so that Work will not be delayed by submittals.

2. Coordinate and sequence different categories of submittals for same Work, and for interfacing units of Work, so that one will not be delayed for coordination of Engineer's review with another.

3. Determine and verify all interface conditions, catalog numbers and similar data.

4. Coordinate with other trades and equipment manufacturers.

5. Indicate all deviations from the requirements of the Contract Documents.

6. Field measure all critical project dimensions prior to issuing submittal and to fabricating products shown on the submittals.

B. Preparation of Submittals: Provide permanent marking on each submittal to identify project, date, Contractor, Subcontractor, submittal name and similar information to distinguish it from other submittals. Include specifications section reference and submittal log reference to clearly define to what portion of Work that is applicable to submittal. Show Contractor's executed review and approval marking and provide space for Engineer's "Action" marking. Submittals which are received from sources other than through Contractor's office will be returned by Engineer "without action".

C. Grouping of Submittals: Unless otherwise specified, make submittals in groups containing all associated items to ensure that information is available for checking each item when it is received. Partial submittals may be rejected as not complying with the provisions of the Contract Documents.

D. Number of Submittals: Submit number of copies to be returned plus 4 copies which will be retained by the Engineer. Additional copies may be requested by the Engineer.

E. General Distribution: Provide additional distribution of submittals (not included in foregoing copy submittal requirements) to Subcontractors, suppliers, fabricators, installers, governing authorities and others as necessary for proper performance of the Work. Include such additional copies in transmittal to Engineer where required to receive "Action" marking before final distribution. Record distributions on transmittal forms.

1.03 SUBMITTAL CONTENTS

A. Shop Drawings: Provide newly-prepared information, on reproducible sheets, with graphic information at accurate scale (except as otherwise indicated), with name of preparer indicated (firm name). Show dimensions and note which are based on field measurement. Identify materials and products in the Work shown. Indicate compliance with standards, and special coordination requirements. Do not allow Shop Drawing copies without appropriate final "Action" markings by Engineer to be used in connection with the Work.

B. Product Data: Collect required data into one submittal for each unit of Work or system; and mark each copy to show which choices and options are applicable to project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked, and special coordination requirements.

C. Samples: Provide units identical with final condition of proposed materials or products for the work. Include "range" samples (not less than 3 units) where unavoidable variations must be expected, and describe or identify variations between units of each set. Provide full set of optional samples where Engineer's selection is required. Include information with each sample to show generic description, source or product name and manufacturer, limitations, and compliance with standards. Samples are submitted for review and confirmation of color, pattern, texture and type by Engineer. Engineer will not "test" samples (except as otherwise indicated) for compliance with other requirements, which are therefore the exclusive responsibility of Contractor.

D. AIS Certifications: For products required to meet the American Iron & Steel criteria, certifications should be submitted with the product submittal. No submittals can be released without this certification. The Certification must include the name of product(s) being certified as AIS compliance, the name of the project/owner, and the specific location in the United States where the products for this project were made.

1.04 PROCESSING OF SUBMITTALS

A. Engineer's Action: Where action and return is required or requested, Engineer will review each submittal, mark with "Action", and where possible return within two weeks of receipt. Where submittal must be held for coordination, or additional time is required for review of complex items, Contractor will be so advised by Engineer without delay.

B. Action Stamp: Engineer's action stamp, for use on submittals to be returned to Contractor, is self-explanatory.

C. Additional Submittals: If an intermediate submittal is necessary, process the same as the initial submittal.

D. Allow two weeks for reprocessing each submittal.

E. No extension of Contract Time will be authorized because of failure to transmit submittals to the Engineer sufficiently in advance of the Work to permit processing.

1.05 INCORPORATION OF WORK

A. No work shall be incorporated into project until such time as Contractor has formally submitted a Submittal for all materials and until Engineer has reviewed and approved submittal.

B. No payment will be approved for any work incorporated into project without an approved submittal.

C. Failure by Contractor to provide Submittals for work in a timely manner shall be grounds for suspension of contract by Owner at no penalty to Owner. Contract will not be resumed until Contractor has properly issued all Submittals. No additional contract time will be provided for period of time that project is delayed due to submittals not being issued in a timely manner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 01400

QUALITY CONTROL

SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for quality-control services.

B. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by Engineer.

C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.

D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.

1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.

2. Specified inspections, tests, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.

3. Requirements for Contractor to provide quality-control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.02 RESPONSIBILITIES

A. Contractor Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract documents and required by authorities having jurisdiction. Costs for these services are included in the Contract Price.

B. Contractor's Tests: Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform quality-control services. Costs for these services are included in the Contract Price.

C. Owner's Tests: Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Owner's responsibility, the Owner will employ and pay a qualified independent testing agency to perform those services. Where a testing allowance is included as a payment item, Contractor shall be responsible for the payment of all Owner's tests.

D. Retesting: The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.

E. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated noncompliance with Contract Document requirements.

F. Associated Services: Cooperate with agencies performing required inspections, tests, and similar services, and provide reasonable auxiliary services as required. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include, but are not limited to, the following:

1. Provide access to the Work.

2. Furnish incidental labor and facilities necessary to facilitate inspections and tests.

3. Take adequate quantities of representative samples of materials that require testing or assist the agency in taking samples.

4. Provide facilities for storage and curing of test samples.

5. Deliver samples to testing laboratories.

6. Provide the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.

7. Provide security and protection of samples and test equipment at the Project Site.

G. Duties of the Testing Agency: The independent agency engaged to perform inspections, sampling, and testing of materials and construction specified in individual Sections shall cooperate with the Engineer and the Contractor in performance of the agency's duties. The testing agency shall provide qualified personnel to perform required inspections and tests.

1. The agency shall notify the Engineer and the Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. The agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.

3. The agency shall not perform any duties of the Contractor.

1.03 SUBMITTALS

A. Unless the Contractor is responsible for this service, the independent testing agency shall submit a certified written report, in duplicate, of each inspection, test, or similar service to the Engineer. If the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection, test, or similar service through the Contractor.

B. Report Data: Written reports of each inspection, test, or similar service include, but are not limited to, the following:

1. Date of issue.

2. Project title and number.

3. Name, address, and telephone number of testing agency.

4. Dates and locations of samples and tests or inspections.

5. Names of individuals making the inspection or test.

6. Designation of Work and test method.

7. Identification of product and Specification Section.

8. Complete inspection or test data.

9. Test results and an interpretation of test results.

10. Ambient conditions at the time of sample taking and testing.

11. Comments or professional opinion on whether inspected or tested Work complies with Contract Document requirements.

12. Name and signature of laboratory inspector.

13. Recommendations on retesting.

1.04 QUALITY ASSURANCE

A. Qualifications for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, that are prequalified as complying with the American Council of Independent Laboratories' "Recommended Requirements for Independent Laboratory Qualification" and that specialize in the types of inspections and tests to be performed.

B. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 REPAIR AND PROTECTION

A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes.

B. Protection construction exposed by or for quality-control service activities, and protect repaired construction.

C. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

END OF SECTION

DIVISION 2

SITE CONSTRUCTION

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 02110

SITE CLEARING

SECTION 02110 - SITE CLEARING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Site clearing work to be conducted as part of this project includes, but is not limited to:

1. Protection of existing trees indicated to remain or outside of work area.

2. Removal and/or relocation of trees and other vegetation.

3. Clearing and grubbing, including removal of waste materials in project area.

4. Removing and/or resetting above ground improvements, including but not limited to pipes, landscaping, and site features.

5. Removal and/or resetting where required of underground features and utilities including manholes, sewers, drains, electrical utilities, pipes, and culverts.

6. Removal of roadways, driveways, and resetting where required.

7. Removal of electrical or utility conduits.

1.02 RELATED SECTIONS

A. Section 02720 - Precast Concrete Sewerage Structures

1.03 PROJECT CONDITIONS

A. Confine all clearing and grubbing to the following locations:

1. Areas where work is required to be done, restricted to the minimum extent required to properly install the work.

2. Within the property lines of lands owned by Owner.

B. Traffic: Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close

or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.

C. Protection of Existing Improvements: Provide protections necessary to prevent damage to existing improvements unless indicated to be permanently removed.

1. Protect improvements on adjoining properties and on Owner's property.

2. Restore damaged improvements, whether or not shown on the Drawings, to their original condition, as acceptable to property owners.

D. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain in place against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.

1. Water trees and other vegetation to remain within limits of contract work as required to maintain their health during course of construction operations.

2. Provide protection for roots over 1 1/2 inch in diameter that are cut during construction operations. Coat cut faces with an emulsified asphalt or other acceptable coating formulated to use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.

3. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations in a manner acceptable to Engineer. Employ a licensed arborist to repair damage to trees and shrubs.

E. Improvements on Private Property: Authority for performing removal and alteration work on private property will be obtained by Owner prior to award of contract.

F. Reset Disturbed Property Pins or Monuments by a Professional Surveyor.

G. Asbestos or Hazardous Materials: It is not expected that friable asbestos or hazardous materials will be encountered in the Work. If any materials suspected of containing friable asbestos or hazardous materials are encountered, do not disturb the materials. Immediately notify the Engineer and the Owner.

1. Friable asbestos and hazardous materials will be removed by Owner before start of Work to the extent known.

2. Friable asbestos or hazardous materials found during the work will be removed by the Owner as soon as possible after it is encountered.

1.04 EXISTING SERVICES

A. General: Indicated locations are approximate; determine exact locations before commencing work.

B. Identify service lines and capping locations on Project Record Documents.

1.05 STORAGE AND HANDLING

A. Store trees, plants and shrubs temporarily removed and intended to be replanted in protected areas and give ample water to keep them in a thriving condition for subsequent replanting.

B. Store fences, signs, guardrails, curbing, and other items removed during construction at approved locations for subsequent reinstallation.

C. Obstruction of roads, driveways, sidewalks, gutters and drainage ditches, swales and channels with stored materials is not permitted.

1.06 JOB CONDITIONS

A. The locations of trees, plantings, vegetation, sidewalks, fences, curbs and other living and nonliving items, as shown on the Drawings, have been determined by actual surveys at the time surveys were made. Since that time, the condition of the site may have changed. Remove and replace all obstacles and obstructions, as required to complete the Work, whether shown on the Drawings or not, at no extra cost to Owner.

B. Explosives are not permitted for clearing and grubbing operations.

C. Use all means necessary to protect existing objects not indicated to be removed. In the event of damage, make all necessary repairs and replacements and restore to its original condition, as acceptable to Engineer.

1.07 SCHEDULING

A. Pavements which are required to be removed shall be saw cut in advance, but do not remove until installation of work commences.

B. Do not remove highway signs, guardrails, and other control, safety, and warning devices until just prior to installation work in the immediate area of such improvements.

C. Do not remove fences until Owner is notified at least four (4) days in advance. Do not remove fences more than 48 hours in advance of work in that location. Provide temporary fencing acceptable to Owner where indicated on Drawings.

D. All items removed but scheduled to be replaced shall be reinstalled as soon as possible after completion of all work in that area.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that all boundaries, including permanent and temporary easements, property lines, rights-of-way, and grading limits have been accurately and clearly marked.

B. Verify that work areas and other items of work are accurately located and clearly marked.

3.02 PREPARATION

A. Identify all trees, plantings, and other objects which are considered necessary to be removed, cut, trimmed, or temporarily relocated.

B. Accompany Engineer through the site to inspect items to be trimmed, removed, relocated or replanted prior to start of work. If Contractor wishes to remove, either permanently or temporarily, any vegetation not specifically identified on the Drawings to be removed, make request to Engineer at least 7 days in

advance. All vegetation must be maintained unless specifically authorized for removal by Engineer or in writing by property owner.

3.03 SITE CLEARING

A. General: Remove trees, shrubs, grass, and other vegetation, improvements, or obstructions, as required, to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated. Removal includes digging out and off site disposal of stumps and roots.

B. Topsoil: Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4 inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2 inches in diameter, and without weeds, roots, and other objectionable material.

1. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.

C. Clearing and Grubbing: Clear only trees, shrubs, and other vegetation as approved by Engineer.

1. Completely remove stumps, roots, and other debris protruding through ground surface.

2. Use only hand methods for grubbing inside drip line of trees indicated to remain.

3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated. Place fill material in horizontal layers not exceeding 6 inches loose depth, and thoroughly compact each layer to a density equal to adjacent original ground.

4. Remove and waste materials or debris in the work area and dispose of off-site.

5. Removal/Restoration of Existing Improvements: Remove and restore existing above grade and below grade improvements as indicated and as necessary to facilitate new construction. Store fences, signs, walks, guard rails, curbs, and other items designated to be restored.

D. Trees and Plantings:

1. In grassed, planted, and open areas, do not remove or trim trees or plantings without the prior permission of Engineer. Remove and preserve small trees, plantings, flowers and similar vegetation for reuse.

2. In wooded areas, trees may be removed and/or trimmed, as required, for the proper installation of the Work. Gross and unnecessary removal of trees is not permitted.

3. If it is impractical to fell trees as a whole, remove them in sections according to standard practices of professional tree removal. Fell trees to the center of the area being cleared to minimize damage to trees that are to be left standing.

4. Immediately after felling a tree, remove branches, cut trunk and limbs and remove all materials from the site and dispose of in a lawful manner. If cut trees are noted to remain on site and become the property of the owner, cut all tree branches and trunk sections in excess of 3" in diameter in to two foot lengths, and stack neatly in a location as directed by the Engineer.

5. All trees to be trimmed shall be evenly cut to achieve neat severance with the least possible damage to the tree. Review proposed tree trimming with Engineer prior to work.

E. Pavements:

1. Remove existing pavements to the limits shown on the Drawings, or if not shown, to the minimum extent possible to perform the work.

2. Roadway reconstruction projects require the removal of all existing pavement on the road prior to the placement of any new subgrade, subbase, base, or pavement. Existing pavement may be removed and disposed of or ground and reclaimed for reuse in the subgrade or subbase upon approval by the Engineer.

3. Saw-cut asphalt and concrete paved surfaces before removal. Use a saw which will cut a neat, straight joint line.

4. Carefully remove guardrails to the minimum extent possible. Terminate removals at a joint or guardrail post. Store and protect for reuse.

F. Other Obstructions:

1. All obstructions encountered shall be carefully removed and stored for subsequent replacement.

2. Do not disturb property markers unless absolutely necessary. If it becomes necessary to disturb or remove a property marker, employ a Registered Land Surveyor at no extra cost to the Owner to establish the property marker location by providing a minimum of four (4) ties to the marker. The Registered Land Surveyor shall replace the property marker as soon as possible.

G. Manholes:

1. Remove all manholes, and frames, covers, risers, tops, cones, barrels, base sections and slabs where indicated on the Drawings or as directed by the Engineer.

2. Remove all culverts and pipes where indicated by the Drawings or as directed by the Engineer.

3. Fill all voids created with select granular fill or with aggregate subbase and base if under traveled ways or sidewalks.

4. Compact all backfill as specified herein.

H. Electrical Heat Trace:

1. Remove entire existing heat trace system including meters, panels, conduits, wiring, and other accessories where indicated on the Drawings or as directed by the Engineer.

2. Do not remove until temporary sewer force main is online. Coordinate work with electrical utility service provider and Owner as necessary.

I. Other Electrical Utilities:

1. Maintain all other electric utilities for duration of project.

2. Temporarily relocate if interfering with work area, or permanently relocate as indicated on Drawings, or as directed by Engineer.

3. Restore at completion of project.

3.04 SALVAGEABLE ITEMS

A. Owner retains first refusal of salvage value of all items removed from site improvements, and incidentals. Contractor shall allow Owner to inspect all items removed during site clearing operations. If Owner wishes to retain items, Contractor shall remove them to storage area to be identified by Owner.

B. Contractor shall not claim loss of salvage value for items retained by Owner as a justification for a price increase or change order under this Contract.

3.05 DISPOSAL OF WASTE MATERIALS

A. Contractor shall remove and dispose of all site clearing debris and items that Owner does not elect to salvage.

B. Removal from Owner's Property: Remove waste materials from Owner's property and dispose of by methods conforming to all Federal, State, and local regulations.

C. Burning on Owner's Property: Burning is not permitted on Owner's property unless otherwise approved by Engineer. If burning is approved, it will only be permitted at designated areas and times directed by Engineer. Provide full-time monitoring for burning materials until fires are extinguished.

END OF SECTION

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 02160

EXCAVATION SUPPORT SYSTEMS

SECTION 02160 - EXCAVATION SUPPORT SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. General support system work includes, but is not limited to, the following:

1. Shoring and bracing necessary to protect existing buildings, streets, walkways, utilities, and other improvements and excavation against loss of ground or caving embankments.

2. Maintenance of shoring and bracing.

3. Removal of shoring and bracing, as required.

B. Types of shoring and bracing systems include, but are not limited to, the following:

1. Steel H-section (soldier) piles.

2. Timber lagging.

3. Steel sheet piles.

4. OSHA approved trench boxes.

1.02 SUBMITTALS

A. General: Submit each item in this Article in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Layout drawings for excavation support system and other data prepared by, or under the supervision of, a qualified professional engineer. System design and calculations must be acceptable to local authorities having jurisdiction.

1.03 QUALITY ASSURANCE

A. Engineer Qualification: A professional engineer legally authorized to practice in jurisdiction where Project is located, and experienced in providing successful

engineering services for excavation support systems similar in extent required for this Project.

B. Supervision: Engage and assign supervision of excavation support system to a qualified professional engineer foundation consultant.

1. Submit name of engaged consultant and qualifying technical experience.

C. Regulations: Comply with codes and ordinances of governing authorities having jurisdiction.

1.04 JOB CONDITIONS

A. Before starting work, verify governing dimensions and elevations.

1. Verify condition of adjoining properties.

2. Take photographs to record any existing settlement or cracking of structures, pavements, and other improvements.

3. Prepare a list of such damages, verified by dated photographs, and signed by Contractor and others conducting investigation.

B. Survey adjacent structures and improvements, employing qualified professional engineer, and establishing exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

C. During excavation, resurvey benchmarks weekly, maintaining accurate log of surveyed elevations for comparison with original elevations. Promptly notify Engineer if changes in elevations occur or if cracks, sags, or other damage is evident.

1.05 EXISTING UTILITIES AND STRUCTURES

A. Protect existing active sewer and other utility services and adjacent structures.

B. Notify municipal agencies and service utility companies having jurisdiction. Comply with requirements of governing authorities and agencies for protection, relocation, removal, and discontinuing of services.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Provide adequate shoring and bracing materials which will support loads imposed. Materials need not be new, but should be in serviceable condition.

B. Structural Steel: ASTM A 36.

C. Steel Sheet Piles: ASTM A 328.

D. Timber Lagging: Any species, rough-cut, mixed hardwood, nominal 3 inches thick, unless otherwise indicated.

PART 3 - EXECUTION

3.01 CONFORMANCE WITH OSHA

A. Comply with all OSHA regulations.

3.02 SHORING

A. Wherever shoring is required, locate the system to clear permanent construction and to permit forming and finishing of concrete surfaces.

B. Provide shoring system adequately anchored and braced to resist earth and hydrostatic pressures.

C. Shoring systems retaining earth on which the support or stability of existing structures is dependent must be left in place at completion of work.

3.03 BRACING

A. Locate bracing to clear construction, and other permanent work. If necessary, to move a brace, install new bracing prior to removal of original brace.

B. Do not place bracing where it will be cast into or included in permanent concrete work, except as otherwise acceptable to Engineer.

C. Install internal bracing, if required, to prevent spreading or distortion of braced frames.

D. Maintain bracing until structural elements are supported by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

E. Remove sheeting, shoring, and bracing in stages to avoid disturbance to underlying soils and damage to structures, pavements, facilities, and utilities.

F. Repair or replace, as acceptable to Engineer and Owner, adjacent work damaged or displaced through installation or removal of shoring and bracing work.

END OF SECTION

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 02200

SEWER RELOCATION AND REPLACEMENT RELATED EARTHWORK

SECTION 02200 - SEWER RELOCATION AND REPLACEMENT RELATED EARTHWORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Earthwork includes the following:

1. Excavation of soils, rock, debris, fill, and miscellaneous as required.
2. Excavation and sawcutting of paved areas.
3. Dewatering, drainage, and moisture control in excavated areas as required.
4. Aggregates for fill, backfill, base, subbase, bedding, and miscellaneous as required.
5. Backfilling of trench excavation.
6. Compaction of trench excavation.
7. Grading of areas prior to surface restoration.
8. Disposal of excess material.
9. Test pits as required.
10. Filter fabric where required.
11. Trench marking tape where required.
12. Flowable fill as required in areas where rapid backfilling is needed or where adjacent slabs or structures have been undermined by excavation.

1.02 RELATED SECTIONS

A. Section 02110 - Site Clearing.

B. Section 02160 - Excavation Support Systems.

C. Section 02511 – Sewer Relocation and Replacement Related Hot Bituminous Paving.

D. Section 02700 - Sewerage.

E. Section 02701 – Sewer Crossing of Bridge

F. Section 02720 – Precast Concrete Sewerage Structures.

G. Section 03300 – Cast-in-Place Concrete.

1.03 PAY LIMITS

A. Excavation Measurement: Volume of excavation actually removed, measured in original position, but not to exceed the following unless specifically shown otherwise on Drawings.

1. 24 inches outside of precast manhole measured as square.

2. Pipe pay limits as shown on Drawings.

3. As shown or stated on Drawings or Contract Documents.

B. Unit prices for rock excavation include replacement with approved materials.

1.04 DEFINITIONS

A. Base Course: The layer placed above the subbase.

B. Common Borrow: Soil material obtained off-site when sufficient approved soil material is not available from excavation.

C. Excavation consists of the removal of material encountered to subgrade elevations and the reuse or disposal of materials removed.

D. Subbase Course: The layer placed between the subgrade and base course.

E. Subgrade: The uppermost surface of an excavation or the top surface of a fill on backfill at elevations defined on the Drawings.

F. Unauthorized excavation consists of removing materials beyond indicated subgrade elevations or dimensions or pay limits without direction by the Engineer. Unauthorized excavation, as well as remedial work directed by the Engineer, shall be at the Contractor's expense.

G. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within building lines.

1.05 SUBMITTALS

A. Submit the following according to the Conditions of the Contract and Division 1 Specification Sections:

1. Product data for the following:

a) Each type of warning tape.

b) Filter fabric.

2. Samples of the following when requested:

a) Samples sealed in air-tight containers of each proposed soil material required from on-site or borrow sources.

b) 12-by-12-inch sample of filter fabric.

3. Test Reports: Submit the following:

a) Grain size analysis of each soil material proposed for incorporation into work with one test provided for every 1000 CY of material placed or at other frequency determined by Engineer.

b) One optimum moisture-maximum density curve for each soil material incorporated into work or at other frequency as determined by Engineer.

1.06 QUALITY ASSURANCE

A. Codes and Standards: Perform earthwork complying with requirements of authorities having jurisdiction.

B. Testing and Inspection Service: Owner will employ a qualified independent geotechnical engineering testing agency to verify that soils comply with specified requirements and to perform required field and laboratory testing.

1.07 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted in writing by the Engineer and then only after acceptable temporary utility services have been provided.

1. Provide a minimum 72 hours notice to the Engineer and receive written notice to proceed before interrupting any utility.

B. Demolish and abandon existing underground utilities indicated to be removed. Coordinate with utility companies to shutoff services if lines are active.

C. Test pits: Excavate test pits to gain additional information on project conditions where shown on the Drawings or as directed by Engineer. Comply with earthwork requirements of this Section.

1.08 PROTECTION

A. Protection of surfaces: Do not operate equipment on surfaces beyond the work area as much as practicable. Surfaces which are outside the specified limits of Work which become damaged shall be repaired by the Contractor at no additional cost to the Owner.

B. Maintain excavations with approved barricades, lights, and signs to protect life and property until excavation is filled and graded to a condition acceptable to the Engineer.

C. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

A. Provide approved soil materials complying with this specification.

B. Suitable materials: As indicated on Drawings or that meet these specifications.

C. Unsuitable materials: Material containing excessive clay, vegetation, organic matter; debris; pavement over four inches in greatest dimension; stones or boulders over four inches in greatest dimension; frozen material and material which, in the opinion of the Engineer, will not provide a suitable foundation or subgrade, or does not meet these specifications.

D. On-Site Suitable Excess Excavated Material: Any suitable material from on-site excavation which, in the opinion of Engineer, is acceptable for roadway subgrade or embankment construction.

E. Inspection: The Engineer may inspect off-site sources of materials and order tests of these materials to verify compliance with these specifications.

F. Testing: All materials shall be tested for gradation analysis at the rate of one test per 1000 cubic yards or, in the opinion of the Engineer, if approved material appears to have significantly changed quality since last test.

2.02 Gravel/Select Backfill (MDOT Type C Aggregate Backfill): Well graded granular material free of organic material. Sieve analysis by weight:

Sieve size	% Passing By Weight
4"	100
3"	90 - 100
1/4"	25 - 90
No. 40	0 - 30
No. 200	0 - 5

2.03 Sand: Well graded durable particles free from organic matter. Sieve analysis by weight:

Sieve Size	% Passing by Weight
3/8"	100
No. 4	95 - 100
No. 16	50 - 85
No. 100	2 - 10
No. 200	0 - 5

2.04 3/4" Crushed Stone: Durable, clean angular rock fragments obtained by breaking and crushing rock material. Sieve analysis by weight:

Sieve Size	% Passing by Weight
1"	100
3/4"	75 - 100
1/2"	35 - 70
3/8"	0 - 25
No. 200	0 - 2

2.05 Flowable Fill:

A. Type II Portland: Cement, 75 lbs per cubic yard.

B. Sand: 2350 lbs per cubic yard.

C. Air content: –25%.

2.06 Common Borrow: Earth suitable for embankment or subgrade construction shall be free of frozen material, rubbish, debris, peat and other unsuitable material. Soils meeting Soil Classifications MH, CH, OH, and Pt will not be accepted. Moisture content shall be sufficient to provide required compaction and stable embankment. In no case shall the moisture content exceed 4 percent above optimum. The optimum moisture content shall be determined in accordance with ASTM 1557. All common borrow material shall be approved by Engineer. Sieve analysis by weight:

Sieve Size	% Passing by Weight
8"	100
No. 200	0 - 50

2.07 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum 3 inches wide and 5 mils thick minimum, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 2'-6" deep.

B. Tape Colors: Provide tape colors to utilities as follows:

1. Red: Electric.

2. Green: Sewer systems.

C. Filter Fabric for MDOT Trench: Manufacturer's standard nonwoven pervious geotextile fabric of polypropylene fibers.

1. Provide filter fabric that meets or exceeds the listed minimum physical properties determined according to ASTM D 4759 and the referenced standard test method in parenthesis:

a) Grab Tensile Strength (ASTM D 4632): 160 lb.

b) Apparent Opening Size (ASTM D 4751): #70 U.S. Standard sieve.

c) Permittivity (ASTM D 4491): 1.5 per second.

d) Flow rate (ASTM 4491): 110 gallons per minute per square foot.

2. Fabric shall be equal to MIRAFI 160N.

PART 3 - EXECUTION

3.01 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, tanks, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.

C. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

D. Provide tree protection as required.

E. Obtain copies of all applicable permits governing excavation.

3.02 EXCAVATION CLASSIFICATIONS

A. Excavation is classified as follows and includes excavation to required subgrade elevations. Excavation will be classified as earth excavation or rock excavation on land and as submerged excavation or submerged rock excavation below mean low water of tidal areas as follows:

1. Earth excavation includes roadway excavation of pavements, bases, subbases and subgrades, and other obstructions visible on surface; underground structures, utilities, and other items indicated to be demolished and removed; together with soil and other materials encountered that are not classified as rock or unauthorized excavation.

a) Intermittent drilling, blasting, or ripping to increase production and not necessary to permit excavation of material encountered will be classified as earth excavation.

2. Rock excavation includes removal and disposal of rock material and obstructions encountered that cannot be removed by the following heavy-duty rock excavating equipment without systematic drilling, blasting, or ripping.

a) Rock material includes boulders 2.0 cubic yards or more in volume and rock in beds, ledges, unstratified masses, and conglomerate deposits.

b) Rock excavation will be paid by unit prices included in the Contract Documents.

c) Do not excavate rock until it has been classified and cross-sectioned by Engineer.

3.03 STABILITY OF EXCAVATIONS

A. Comply with local codes, ordinances, and requirements of authorities having jurisdiction to maintain stable excavations.

3.04 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated slopes, lines, depths, and invert elevations.

B. Excavate uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.

1. Clearance: 12 inches each side of pipe or conduit or as indicated on Drawings.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit or appropriate space for bedding where bedding is required as indicated on Drawings.

D. Remove all sharp items and objects from trench.

E. Where encountering rock or another unyielding bearing surface, carry trench excavation 6 inches below invert elevation to receive bedding course.

3.05 EXCESS EXCAVATION WASTE AREAS

A. If material is suitable as approved by Engineer, use excess excavated material for subgrade or embankment construction. Comply with all compaction requirements defined herein.

B. If material is deemed unsuitable for reuse by Engineer, or if excess suitable material exists, it shall be the responsibility of the Contractor to obtain necessary permits and approvals from all pertinent State and Federal agencies and from the local municipality prior to the establishment of waste areas off the project.

1. Written permission of the property owners shall be obtained by the Contractor, including permission to dispose of waste in the area.

2. Copies of all required permits shall be given to the Engineer.

3. Provisions shall be made for temporary and permanent erosion controls at waste areas which shall include, but not necessarily be limited to, grading the surface to drain, covering the surface with loam or other earthy material that will support growth and seeding and mulching.

C. No additional payment shall be made for disposal of either excess suitable fill or excess unsuitable fill on waste areas beyond payment made under roadway excavation pay item. No additional payment beyond excavation pay item shall be made for suitable material used as roadway subgrade.

3.06 TEST PITS

A. Excavate test pits in locations as directed by Engineer.

B. Utilize smallest equipment required for excavation and appropriately tracked or wheeled equipment to minimize damage to ground surfaces and vegetation in areas not otherwise to be disturbed by Contractor's activities.

C. To the extent possible, restore surface conditions to existing prior to excavation.

3.07 APPROVAL OF SUBGRADE

A. Notify Engineer when excavations have reached required subgrade. Allow time for verification of subgrade elevations prior to proceeding with placement of subbase material.

B. When Engineer determines that unforeseen unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Unforeseen additional excavation and replacement material will be paid according to the Contract provisions for changes in Work.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by the Engineer.

3.08 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavations under other construction as directed by Engineer.

3.09 STORAGE OF SOIL MATERIALS

A. Stockpile excavated materials acceptable for backfill and fill soil materials, including acceptable borrow materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent wind-blown dust.

B. Stockpile soil materials away from edge of excavation. Do not store within drip line of remaining trees.

C. Stockpiling excavated soils along roadway is prohibited.

3.10 DEWATERING

A. Prevent surface water and subsurface or groundwater from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

C. Do not allow water to accumulate in excavations. Provide and maintain pumps, dewatering system components necessary to convey water away from excavations.

D. Convey water removed from excavations and rain water to collection or run-off areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.

3.11 BACKFILL AND FILL

A. Place acceptable soil material in layers to required elevations as shown on the Drawings and as listed below.

B. Fill, backfill, and compact to produce minimum subsequent settlement of the material and provide adequate support for the surface treatment or structure to be placed on the material.

C. Place material in approximately horizontal layers of beginning at lowest area to be filled. Do not impair drainage.

D. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Scarify surfaces so that fill material will bond with existing surface.

E. When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.

F. Place backfill and fill materials in layers not more than 12" in loose depth for material compacted by heavy compaction equipment, and not more than 6" in loose depth for material compacted by hand-operated tampers. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

G. Place backfill and fill materials evenly adjacent to structures, to required elevations. Prevent wedging action of backfill against structures by carrying material uniformly around structure to approximately same elevation in each lift. No backfill shall be placed around new concrete structures until concrete has reached 75% of its design strength.

H. Do not allow heavy machinery within five feet of structures during backfilling and compaction.

I. Backfill excavations as promptly as Work permits, but not until completion of the following:

1. Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.

2. Surveying locations of underground utilities for record documents.

3. Testing, inspecting, and approval of underground utilities.

4. Removal of trash and debris from excavation.

5. Removal of temporary shoring and bracing, and sheeting.

J. Use care in backfilling to avoid damage or displacement of underground structures and pipe.

K. Backfill under all existing utility pipes crossed by sewer construction with 3/4" crushed stone or flowable fill. The crushed stone backfill will extend continuously from the bedding of the new sewer to the utility pipe crossed, including a 6" thick envelope of crushed stone all around the existing utility pipes. The 3/4" crushed stone backfill shall stand at its own angle of repose. No "haunching" or "forming" with common fill will be allowed.

3.12 UTILITY TRENCH BACKFILL

A. Place and compact bedding course on rock and other unyielding bearing surfaces and to fill unauthorized excavations. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

B. Bed pipe in crushed stone to limits of bedding and requirements for remaining trench backfill.

C. Place and compact initial backfill of satisfactory soil material or subbase material, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit.

D. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.

E. Coordinate backfilling with utilities testing.

F. Fill voids with approved backfill materials as shoring and bracing, and sheeting is removed.

G. Place and compact final backfill of satisfactory soil material to final subgrade.

H. Install warning tape directly above utilities as indicated on Drawings.

3.13 MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within two percent of optimum moisture content.

B. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

C. Remove and replace, or scarify and air-dry satisfactory soil material that is too wet to compact to specified density.

D. Stockpile or spread and dry removed wet satisfactory soil material.

3.14 COMPACTION

A. Place backfill and fill materials in layers not more than 12 inches in loose depth for material compacted by heavy compaction equipment, and not more than 6 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill materials evenly on all sides of structures to required elevations. Place backfill and fill uniformly along the full length of each structure.

C. Compact to the following minimum densities:

FILL AND BACKFILL LOCATION	DENSITY
Top 2 feet under pavement	95%
Below top 2 feet under pavement	92%
Trenches through unpaved areas	90%
Pipe Bedding	92%
Around street manholes and catchbasins	92%

Maximum density: ASTM D1557, modified.
Field density tests: ASTM D2922 (nuclear methods).

D. Determine actual in place densities using field tests as directed by the Engineer. Tests will be made by an independent laboratory. Costs for initial tests will be paid by Owner or by testing allowance bid item. Subsequent retests will be paid by Contractor.

E. When field in-place density tests are performed using nuclear methods, make calibration checks of both density and moisture gages at beginning of work, on each different type of material encountered, and at intervals as directed by the Engineer.

F. In each compacted initial and final trench backfill layer, perform at least one field in-place density test for each 200 feet or less of trench, and at every 2' vertical layer, but no fewer than two tests.

G. When testing agency reports that subgrades, fills, or backfills are below specified density, scarify and moisten or aerate, or remove and replace soil to the depth required, recompact, and retest until required density is obtained.

3.15 GRADING

A. Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Provide a smooth transition between existing adjacent grades and new grades.

C. Cut out soft spots, fill low spots, and trim high spots to conform to required surface tolerances.

D. Slope grades to direct water away from buildings and to prevent ponding.

E. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 0.10 foot.

2. Pavements: Plus or minus 1/2 inch when tested with 10 foot straightedge.

F. After grading, compact subgrade surfaces to the percentage of maximum density for each area classification.

G. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

H. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

I. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

3.16 SUBBASE AND BASE COURSES

A. Under pavements, place subbase course material on prepared subgrades. Place base course material over subbases to pavements.

B. Compact subbase and base courses at optimum moisture content to required grades, lines, cross sections and thickness to not less than 95 percent of ASTM D 1557 modified.

C. Shape subbase and base to required crown elevations and cross-slope grades.

D. When thickness of compacted subbase or base course is 6 inches or less, place materials in a single layer.

E. When thickness of compacted subbase or base course exceeds 12 inches, place materials in equal layers, with no layer more than 12 inches thick or less than 6 inches thick when compacted.

F. Place shoulders along edges of subbase and base course to prevent lateral movement. Construct shoulders at least 12 inches wide of acceptable soil materials and compact simultaneously with each subbase and base layer.

3.17 FINAL DISPOSAL OF EXCESS MATERIALS

A. Remove excess excavated material not wanted by the Owner and dispose of it off Owner's property.

B. Grade material to the satisfaction of the Owner of the property on which the material is deposited. Keep roads free of debris. Use suitable watertight vehicles for hauling wet materials over roads and streets.

C. Clean up materials dropped from or spread by vehicles promptly or when directed by the Engineer.

D. Dispose of materials in accordance with all applicable regulations.

END OF SECTION

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 02511

SEWER RELOCATION AND REPLACEMENT RELATED HOT BITUMINOUS PAVING

SECTION 02511 -SEWER RELOCATION AND REPLACEMENT RELATED HOT BITUMINOUS PAVING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide bituminous paving as shown on the Drawings. This Section includes the following:

1. Paving of existing pavement areas disturbed by the utility work in limited areas as directed by Engineer or MDOT.

2. Temporary and permanent trench paving.

1.02 RELATED SECTIONS

A. Section 02200 – Sewer Relocation and Replacement Related Earthwork (includes base, subbase, compaction).

1.03 SUBMITTALS

A. Product Data: For each product specified, include technical data and tested physical and performance properties.

B. Mix Designs: Provide design of each grade of pavement to be used.

C. Material Certificates: Certificates signed by manufacturers certifying that each material complies with requirements.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Engage a firm experienced in manufacturing hot mix asphalt similar to that indicated for this project and with a record of success in service performance.

B. Standards: Current version of 'Standard Specifications Highways and Bridges', Maine Department of Transportation, and 'Special Provision, Hot Mix Asphalt Pavement' by MDOT and subsequent revisions.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver pavement marking materials to project site in original packages with seals unbroken and bearing manufacturer's labels containing brand name and type of material, date of manufacturers, and directions for storage.

B. Store pavement marking materials in a clean, dry, protected location and within temperature range required by manufacturer. Protect stored materials from direct sunlight.

1.06 PROJECT CONDITIONS

A. Environmental Limitations: Do not apply asphalt materials if the following conditions cannot be met in the opinion of the Engineer:

1. Prime and Tack Coats: Minimum air temperature of 50°F (10°C) and rising in the shade at job site and gravel base not excessively damp or wet and binder layer dry.

2. Asphalt Base Course: Minimum air temperature of 35°F (2°C) and rising in the shade at time of placement and area to be paved is not frozen nor excessively damp or wet.

3. Asphalt Surface Course: Minimum air temperature of 50°F (10°C) and rising (10°C) in the shade at time of placement, and asphalt base course dry.

B. Surface Preparation: The surface upon which bituminous mixture is to be placed shall be thoroughly cleaned of all loose materials if pavement and compacted to a smooth regular surface if gravel aggregate base. When the surface of areas to be paved is irregular, it shall be brought to uniform grade and cross section with shim or gravel as directed. All driveway areas and trench repairs shall be prepared with base materials matching existing materials and compacted to provide a suitable paving surface.

C. No permanent paving in vicinity of untested manholes, or pipe shall be undertaken without prior authorization of Engineer.

PART 2 - PRODUCTS

2.01 HOT BITUMINOUS PAVEMENT MIXES

A. Provide materials meeting MDOT Specification 401 and 403 as follows:

1. Binder (Base) Course: MDOT Type 19 mm.

2. Surface Course: MDOT Type 12.5 mm.

3. Shim: MDOT Type 9.5 mm.

B. Aggregates for hot mix pavement shall conform with MDOT Special Provisions as follows:

Grading

	Percent By Weight Passing - Combined Aggregate		
Sieve Size	Type 19 mm	Type 12.5 mm	Type 9.5 mm
37.5 mm (1 1/2")			
25 mm (1")	100		
19 mm (3/4")	90-100	100	
12.5 mm (1/2")	-90	90-100	100
9.5 mm (3/8")	-	-90	90-100
4.75 mm (No. 4)	-	-	-90
2.36 mm (No. 8)	23-49	28-58	32-67
1.18 mm (No. 16)	-	-	-
0.60 mm (No. 30)	-	-	-
0.30 mm (No. 50)	-	-	-
0.075 mm (No. 200)	2-8	2-10	2-10

2.02 BITUMINOUS TACK COAT

A. Emulsified asphalt, conforming to AASHTO M140, as modified per MDOT 'Standard Specification, Section 702.04.

2.03 TEMPORARY PAVEMENT

A. Emulsion Cold Patch with ½ inch maximum stone size and MC 250 Emulsion acceptable to Engineer and MDOT.

PART 3 - EXECUTION

3.01 GENERAL

A. Install according to MDOT 'Standard Specification' Sections 401, 403, and other applicable sections.

3.02 HOT BITUMINOUS PAVEMENT

A. Conditioning of Existing Surface:

1. The surface upon which bituminous mixture is to be placed shall be thoroughly cleaned of all debris and objectionable material as determined by Engineer. When the surface of the existing base or pavement is irregular or specified grade, it shall be brought to uniform grade and cross section as directed or as specified.

2. Base course shall be shaped to a tolerance above or below the required cross sectional shape of 3/8 inch.

3. Do not place pavement if base or existing pavement layers are wet, excessively damp, or frozen.

4. Place binder and surface courses to the depth and elevations shown on the Drawings or as directed by Engineer.

B. Weather and Seasonal Limitations:

1. For seasonal limitations, the State will be considered to be divided into 2 paving zones:

a. Zone 1. All area north of US Route 2 from Gilead to Bangor and north of Route 9 from Bangor to Calais.

b. Zone 2. All area south of Zone 1 including the US Route 2 and Route 9 boundaries.

2. Seasonal Limitations: Bituminous plant mix for use other than traveled way wearing course may be placed in either zone between the dates of April 15th and November 15th, provided that the air temperature as determined by an approved thermometer placed in the shade at the paving

location is 2°C (35°F) or higher and the area to be paved is not frozen. Plant mix to be placed as traveled way wearing course may be placed in Zone 1 between the dates of May 1st and the Saturday following October 1st and in Zone 2 between the dates of April 15th and the Saturday following October 15th provided the air temperature determined as above is 10°C (50°F) or higher. The traveled way as used herein shall also include truck lanes, ramps, approach roads, and auxiliary lanes.

3. Any hot bituminous base or binder course that is to be subjected to traffic during the winter months shall have its gradation densified or asphalt content (percent of mix) adjusted at no cost to the Owner through a change in the job mix formula as submitted by the Contractor and approved by the Engineer.

4. Hot bituminous mixtures used for curb, driveways, sidewalks, island, or other incidentals are not subject to seasonal limitations, except that weather conditions shall be satisfactory for proper handling and finishing of the mixture. Bituminous plant mix shall not be placed on a wet surface or a frozen surface. The ambient air temperature in the shade shall be 2°C (35°F) or higher and rising.

5. The Owner may authorize construction of bituminous pavements at lower atmospheric temperatures than those specified or extend the dates of the paving season. However, the Contractor shall remain responsible for meeting all pavement quality, performance requirements, and warranty.

C. Trucks used for hauling bituminous mixtures shall meet the requirements of MDOT 'Special Provision' Section 401.09.

D. Rollers shall meet the requirements of MDOT 'Special Provision' Section 401.11.

E. Spreading and Finishing:

1. The mixture shall be laid upon an approved surface, spread and struck off to the grade and elevation established.

2. On roads opened to two way traffic, the placement of each course shall be completed over the full width of the traveled way section being paved on each day's run unless otherwise approved.

F. Compaction: Immediately after the bituminous mixture has been spread, struck off and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling. Minimum compaction shall be 92% to 97% of theoretical maximum density (TMD) using ASTMD 2071, and in accordance with MDOT Section 401.

1. The surface shall be rolled when the mixture is in the proper condition and when the rolling does not cause undue displacement, cracking, or shoving. To prevent adhesion of the mixture to the rollers or vibrating compactors, the rolls of contact surfaces shall be kept moistened with water or water mixed with small quantities of detergent, or other approved method. Oil will not be permitted.

2. Unless otherwise directed, rolling shall begin at the low side and proceed longitudinally parallel to the centerline, each trip overlapping the previously rolled strips, gradually progressing to the high side using a uniform rolling pattern that will insure complete coverage of the entire mat.

3. When abutting a previously placed lane, the longitudinal joint should be rolled first followed by the regular rolling procedure.

4. Rollers shall move at a slow uniform speed with the drive roll wheels nearest the paver. Rolling shall be continued until all roller markings are eliminated.

5. Any displacement occurring as a result of the reversing of the direction of a roller or from other causes, shall be corrected at once by the use of rakes or lutes and additional fresh mixture when required. Care shall be exercised in rolling not to displace the line and grade of the edges of the bituminous mixture.

6. Along forms, curbs, headers, walls, and other places not accessible to the rollers, the mixture shall be thoroughly compacted with mechanical vibrating compactors. Hand tamping will be permitted only for areas inaccessible to other compaction equipment.

7. Mixture that becomes loose and broken, mixed with dirt or is in any way defective shall be removed and replaced with fresh, hot mixture, which shall be compacted to conform with the surrounding area.

8. Mixture showing an excess or deficiency of bituminous material shall be removed and replaced.

G. Joints: Wearing course transverse joints shall be constructed using shims equal to the depth allowed for compaction.

1. The paver shall always maintain a uniform head of material during the joint construction.

2. The bituminous mix shall be free of segregation and meet temperature requirements.

3. Transverse joints of the wearing course shall be straight and neatly trimmed. A vertical face exposing the full depth of the course may be formed by inserting a header, by breaking the bond with the underlying course or by cutting back with hand tools.

4. Edges of joints that are to form longitudinal joints shall be maintained vertically.

5. A coating of emulsified asphalt shall be applied each day prior to paving. The application shall be by an approved spray apparatus designed for covering a narrow surface. Application of this material by a brush may be approved for small surfaces or in the event of a malfunction of the spray apparatus, but for a period of not more than one working day.

6. When new pavement joins an existing pavement, and when directed, the existing pavement shall be cut along a smooth line and to a neat, even vertical joint. Broken or raveled edges will not be permitted. All work necessary for the preparation of this joint will be considered as incidental to the related contract items.

H. Surfaces Tolerances: The surface shall be tested by the Engineer with a 16 foot (4.9 m) straightedge or string line placed parallel to the centerline of pavement and with a 10 foot (3 m) straightedge or string line placed transversely to the centerline of pavement. Variations exceeding 1/4 inch (6 mm) shall be corrected by removing defective work and replacing with new material as directed. A 10 foot (3 m) straightedge, shall be furnished by the paving contractor if requested by the Engineer.

3.03 BITUMINOUS TACK COAT

A. Install according to MDOT 'Standard Specification' Section 409.

B. Apply uniformly to existing surfaces of previously constructed bituminous paving and to surfaces abutting or projecting into new, hot bituminous pavement. Apply at a uniform rate of 0.05 to 0.15 gal./sq. yd.

1. Allow tack coat to cure undisturbed before paving.

2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

C. Tack coat not required when surface course is to be applied immediately after binder is applied.

3.04 TEMPORARY PAVEMENT

A. Conditioning of Existing Surface:

1. The surface upon which temporary mixture is to be placed shall be thoroughly cleaned of all debris objectionable material as determined by Engineer. When the surface of the existing base or pavement is irregular or not at specified grade, it shall be brought to uniform grade and cross section as directed or as specified.

2. Temporary pavement course shall be shaped to a tolerance above or below the required grade of 3/8 inch.

3. Do not place pavement if base or existing pavement layers are wet, excessively damp, or frozen.

B. Spreading and Finishing:

1. The mixture shall be laid upon an approved surface, spread and struck off to the grade and elevation established.

2. Bituminous pavers shall be used to distribute the mixture either over the entire width or over such partial width as may be practicable.

3. During placing operations, sufficient bituminous mixture shall be delivered to the project to maintain a constant paving speed. The paver speed shall be adjusted to the plant production capabilities regardless of haul distance.

4. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impracticable, the mixture shall be spread, raked, and luted with hand tools. For such areas the mixture shall be dumped, spread, and screeded to give the required compacted thickness.

C. Compaction: Immediately after the bituminous mixture has been spread, struck off and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling.

1. The surface shall be rolled when the mixture is in the proper condition and when the rolling does not cause undue displacement, cracking, or shoving.

2. Rollers shall move at a slow uniform speed with the drive roll wheels nearest the paver. Rolling shall be continued until all roller markings are eliminated as practicable.

3. Any displacement occurring as a result of the reversing of the direction of a roller or from other causes, shall be corrected at once by the use of rakes or lutes and additional fresh mixture when required. Care shall be exercised in rolling not to displace the line and grade of the edges of the bituminous mixture.

4. Along forms, curbs, headers, walls, and other places not accessible to the rollers, the mixture shall be thoroughly compacted with mechanical vibrating compactors. Hand tamping will be permitted only for areas inaccessible to other compaction equipment.

5. Mixture that becomes loose and broken, mixed with dirt or is in any way defective shall be removed and replaced with fresh mixture, which shall be compacted to conform with the surrounding area.

D. Joints: Wearing course transverse joints shall be constructed using shims equal to the depth allowed for compaction.

1. When new pavement joins an existing pavement, and when directed, the existing pavement shall be cut along a smooth line and to a neat, even vertical joint. Broken or raveled edges will not be permitted. All work necessary for the preparation of this joint will be considered as incidental to the related contract items.

E. Maintenance:

1. Maintain temporary pavement as directed by Engineer until permanent pavement can be placed.

2. Response time for maintenance calls shall be forty eight hours or less during business hours.

F. Removal of Temporary Pavement:

1. Once acceptable seasonal and weather limitations are achieved, remove all temporary pavement and repair and prepare base materials per Section 02200 and standards in this Section for permanent pavement.

END OF SECTION

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 02700

SEWERAGE

SECTION 02700 - SEWERAGE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide exterior sanitary sewer systems as shown on the Drawings. This section includes:

Ductile iron lined sewer pipe and fittings
Fernco couplings
Abandoning sewerage systems
DI force main pressure pipes
Fittings and couplings
Stainless Steel Piping
Relocation of Existing Sewer Force Main

1.02 RELATED SECTIONS

A. Section 02160 – Excavation Support Systems.

B. Section 02200 – Sewer Relocation and Replacement Related Earthwork (includes excavation, bedding, backfill, compaction).

C. Section 02701 – Sewer Crossing of Bridge.

D. Section 02720 – Precast Concrete Sewerage Structures.

E. Section 03300 – Cast-in-Place Concrete.

F. Section 05500 – Metal Fabrications.

G. Section 07200 – Insulation.

H. Section 15100 – Valves.

I. Section 15125 – Pipe Expansion Joints.

J. Section 15145 – Pipe Hangers, Supports, Anchors, and Seals.

1.03 DEFINITIONS

A. Force Main Piping: System of pipe, fittings, and appurtenances for pumped flow of sanitary sewage or storm drainage.

B. Sewerage Piping: System of sewer pipe, fittings, and appurtenances for gravity flow of sanitary sewage.

1.04 PERFORMANCE REQUIREMENTS

A. Gravity Flow, Non-pressure Piping Pressure Ratings: At least equal to system test pressure.

B. Force Main Pressure Ratings: At least equal to 1.5 times system operating pressure, but not less than 200 psig.

1.05 SUBMITTALS

A. Submit each item in this Article according to the Conditions of the Contract and Division 1 Specifications Sections:

1. Manufacturer's product data and installation instructions.

2. Certified copies of tests on pipe units.

3. Shop Drawings or Catalog Cuts of adapters for joining pipes of different materials.

4. Construction Records: Record depth and location of the following:

a) Bends
b) Repairs to existing pipes
c) Thrust blocks
d) All utilities encountered during excavation

5. Record neatly in a permanently bound notebook and submit at substantial completion. Provide access to records for Engineer at all times. Submit copies to Engineer on a weekly basis.

1.06 QUALITY ASSURANCE

A. Environmental Agency Compliance: Comply with regulations pertaining to sanitary sewerage and storm drainage systems as promulgated by Maine DEP and U.S. EPA.

B. Utility Compliance: Comply with regulations pertaining to sanitary sewerage systems. Include standards of water and other utilities where appropriate and Maine DOT utility location and road opening permits.

C. Product Options: Drawings indicate sizes, profiles, connections, and dimensional requirements of system components and are based on specific manufacturer types indicated.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic structures in direct sunlight.

B. Do not store plastic pipe or fittings in direct sunlight.

C. Protect pipe, pipe fittings, and seals from dirt and damage.

1.08 PROJECT CONDITIONS

A. Site Information: Perform site survey, research public utility records, and verify existing utility locations prior to excavation.

B. Locate existing structures and piping to be closed and abandoned or to remain.

C. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted under the following conditions and then only after arranging to provide acceptable temporary utility services.

1. Notify Engineer not less than 72 hours in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without receiving Engineer's written permission.

1.09 SEQUENCING AND SCHEDULING

A. Coordinate sanitary sewerage system connections to utility company's sanitary sewer.

B. Coordinate with other utility work.

PART 2 - PRODUCTS

2.01 PIPE AND FITTINGS

A. Stainless Steel Pipe:

1. Pipe: Stainless steel, pickled and passivated, ASTM A778, TP316L, "as welded" grade, unless otherwise specified hereinafter.

a. 2 Inch and Smaller: ASTM A312, TP316L, Schedule 40S, seamless.

2. Fittings:

a. 2 Inch and Smaller: Screwed, stainless steel, rated 1,000 pound CWP, forgings conforming to ASTM A182, Grade F316 or barstock to ASTM A276, Type 316, dimensions conforming to ANSI B16.3, standard for 150 pound SWP malleable iron screwed fittings.

1. Thread Lubricant Teflon tape.

B. Ductile-Iron Pipe Force Main: AWWA C151, thickness Class 52.

1. Lining: AWWA C104, double cement mortar lined, seal coated.

2. Gaskets, Glands, and Bolts and Nuts: AWWA C111.

3. Mechanical-Joint-Type or Restrained Push-On Type Pipe: AWWA C111, rubber gaskets, ductile or cast iron glands, and stainless steel bolts and nuts.

4. Exterior Coating: Bituminous.

2.02 BURIED PIPE JOINTS

A. Pressure sewers, force main, and force main sewer ductile iron pipe - as specified in Section 02701.

2.03 PIPE COUPLINGS

A. Ductile Iron pressure pipe couplings shall be as noted on plans.

B. Restrained joint fittings shall be similar to mechanical joint fittings except the joint shall provide mechanical restraint using an internally cast ring around the smooth plain end of the pipe which locks to the shoulder extension on the ball end of the pipe. Friction type joints will not be allowed.

2.04 MARKING TAPE

A. Metal detector compatible for future location.

B. Width of three inches minimum.

C. Green color required.

D. Equal to Liveguard III by Tri-Sales Inc.

PART 3 - EXECUTION

3.01 INSTALLATION OF FORCE MAINS

A. Lay pipe to line and grade shown on the Drawings. Do not allow positive-negative grade discontinuities.

B. Maintain minimum of 5 feet of cover over the force main.

C. Install warning tape continuously along the force main. At ends of rolls and repairs, splice tape with 3 foot overlap connected with duct tape. Supply Owner with one full roll for future repairs.

D. Install piping with restrained joints at horizontal and vertical changes in direction. Use cast-in-place concrete supports and anchors, corrosion-resistant rods and clamps, or thrust blocks.

E. Torque wrenches required to tighten all mechanical joint fittings with applied torque conforming to pipe and fitting manufacturer's requirements.

3.02 ABANDONING SEWERAGE PIPES

A. Close open ends of abandoned underground piping that is indicated to remain in place. Include closures strong enough to withstand hydrostatic and earth pressures that may result after ends of abandoned piping have been closed. Use either of the following procedures:

1. Close open ends of piping with at least 8 inch thick brick masonry bulkheads.

2. Close open ends of piping with threaded metal caps, plastic plugs, or other acceptable methods suitable for size and type of material being closed. Do not use wood plugs.

3. Close open ends of pipe by encasing in concrete mass that extends at least 18" outside of pipe end in all directions.

3.03 EXISTING UTILITIES

A. If, either for the convenience of the contractor, or accidentally, existing utilities or structures of any kind are disrupted, damaged, or proposed temporarily disconnected, contractor shall repair, reconnect, or reinstall the utility to the complete satisfaction of the Utility Owner, Engineer, and Owner. This may require replacement of existing facilities with new materials.

3.04 FIELD QUALITY CONTROL

A. Clear interior of piping and structures of dirt and superfluous material as the work progresses. Maintain swab or drag in piping and pull past each joint as it is completed.

1. In large, accessible piping, brushes and brooms may be used for cleaning.

2. Place plug in end of incomplete piping at end of day and whenever work stops.

3. Flush piping between manholes and other structures, if required by authorities having jurisdiction, to remove collected debris.

B. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of the Project.

1. Submit separate reports for each system inspection.

2. Defects requiring correction include the following:

a) Alignment: Less than full diameter of inside of pipe is visible between structures.

b) Deflection: Flexible piping with deflection that prevents passage of a ball or cylinder of a size not less than 92.5 percent of piping diameter.

c) Crushed, broken, cracked, or otherwise damaged piping.

d) Infiltration: Water leakage into piping.

e) Exfiltration: Water leakage from or around piping.

C. Replace defective piping using new materials and repeat inspection until defects are within allowances specified.

D. Reinspect and repeat procedure until results are satisfactory.

E. Test new piping systems and parts of existing systems that have been altered, extended, or repaired for leaks and defects.

1. Do not enclose, cover, or put into service before inspection and approval.

2. Test completed piping systems according to authorities having jurisdiction.

3. Schedule tests, and their inspections by authorities having jurisdiction, with at least 48 hours' advance notice.

4. Submit separate reports for each test.

3.05 MAXIMUM OPEN TRENCH LIMITATION

A. Maximum excavated length of utility trench that may be left open and not backfilled to grade at any given time shall be 200 LF.

3.06 FORCE MAIN PRESSURE SEWER TESTS

A. Test temporary and permanent force mains after installation. Perform tests in presence of Engineer.

B. Provide corporation stops at critical pipeline locations to allow test to be conducted. Include air release corporation stop at high point in system.

C. Use hydrostatic test on pressure sewer lines as follows:

1. Fill section of pipe with water and expel all air.

2. Pressurize to 200 psig.

3. Measure leakage over a 2 hour test period.

4. Acceptable leakage: Less than 10 gallons per day per inch diameter per mile of pipe tested.

D. May use alternate high pressure air test on pressure sewer lines as follows:

1. Provide temporary equipment for testing, including pump and gages. Test piping system before insulation is installed wherever feasible, and remove control devices before testing.

2. Test each natural section of each piping system independently but do not use piping system valves to isolate sections where test pressure exceeds valve pressure rating.

3. Required test period is 2 hours.

4. Test each piping system at 150% of operating pressure indicated, but not less than 25 psi test pressure. Provide Engineer with 24 hour notice prior to test. Tests not witnessed by Engineer will not be accepted. If

operating pressure results in testing pressures greater than 50 psi, Engineer may elect to limit test pressure to 50 psi.

5. Observe each test section for leakage at end of test period. Test fails if pressure drop exceeds 5% of test pressure.

6. Repair piping systems or sections which fail required piping test, by disassembly and re-installation, using new materials to extent required to overcome leakage. Do not use chemicals, stop-leak compounds, mastics, or other temporary repair methods.

END OF SECTION

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 02701

SEWER CROSSING OF BRIDGE

SECTION 02701 – SEWER CROSSING OF BRIDGE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Furnish all labor, materials, and equipment necessary to complete all work as shown on drawings and specified. Bridge work includes the following items for both the temporary and the permanent force main:

1. Pipe.

2. Expansion joints.

3. Pipe insulation.

4. Insulation jacket.

5. Insulation accessories.

6. Heat tracing.

a. Temporary Force Main – The general procedure, material used and methods for installing the temporary force main shall be at the option of the Contractor, subject to approval of the Engineer and the requirements of the contract.

b. The temporary force main must be a minimum diameter of 4" ∅, DR 11 HDPE, SDR 21 PVC or Ductile Iron as specified herein.

c. The bridge supports, expansion joints, insulation and heat tracing must be appropriate for the chosen material.

1.02 RELATED SECTIONS

A. Section 02200 – Sewer Relocation and Replacement Related Earthwork

B. Section 02700 – Sewerage

C. Section 15145 – Pipe Hangers, Supports, Anchors and Seals

D. Section 16898 – Electric Protective Heating Cables

1.03 SUBMITTALS

A. Submittals shall be required for both temporary and permanent force main systems.

B. Contractor shall provide a temporary flow plan to Engineer for review. Work shall be sequenced to minimize the duration over which temporary pumping is used. Temporary system shall be capable of pumping 150 GPM at 40 feet TDH.

C. Shop Drawings: Submit shop drawings for temporary force main pipe, expansion joints, heat tracing, insulation and accessories, protective jacket, pipe supports, and pipe hanger components.

D. Shop Drawings: Submit shop drawings for the permanent force main including pipe, expansion joints, heat tracing, insulation and accessories, protective jacket, pipe supports, and pipe hanger components.

E. Product data: Submit manufacturers' specifications and installation instructions.

1.04 QUALITY ASSURANCE

A. General: Insulation work shall be installed by skilled workmen employed in the trade. Heat tracing work shall be coordinated with Electrical Contractor.

E. MDOT Specifications: All work on the bridge crossing must comply with MDOT Utility Location and Road Opening Permits. In addition, MDOT Standard Specifications must be followed when working on the bridge structures and making alterations to the same.

PART 2 – PRODUCTS

2.01 PIPES AND FITTINGS

A. General: Provide fittings of same type and class of materials as pipe.

B. Ductile-Iron Pipe Force Main:

1. AWWA C151, thickness Class 52.

2. Lining: AWWA C104, double cement mortar lined, seal coated.

3. Gaskets, Glands, and Bolts and Nuts: AWWA C111.

4. Restrained Push-On Type Pipe: AWWA C111, rubber gaskets, ductile or cast iron glands, and stainless steel bolts and nuts.

5. Exterior Coating: Bituminous.

C. Hangers, Supports and Miscellaneous:

1. Refer to Section 15145.

2.02 INSULATION

A. Provide mechanical insulation system for all force main piping that is:

1. Exposed to the atmosphere outside of the ground and suspended from a bridge, or

2. Buried on the earthen side of the bridge abutments to a distance of five (5) feet from the inside face of the abutment.

B. Pipe requiring insulation shall be thermally protected with a moisture resistant insulating system that absorbs moisture only on its surface cells when tested to ASTM C240 standards. Moisture absorption shall not exceed 0.2% by volume.

C. Insulation shall be resistant to acid and waste materials.

D. Noncombustible insulation material complying with ASTM E 136 is required.

E. Minimum density shall be 7.5 pounds/CF.

F. Flexural strength shall be at least 70 psi.

G. Coefficient of thermal expansion shall not exceed $(5.0)(10^{-5})/°F$.

H. Shear strength shall be at least 50 psi.

I. Thermal conductivity shall be at 0.31 BTU-in/hr-SF-°F at 50°F.

J. Thermal diffusivity shall be 0.016 SF/hr.

K. Insulation sections shall be preformed to fit tightly around all pipes and fittings. Special insulation fittings will be fabricated for insulation around each required pipe fitting shown on the Drawings.

L. Equal to StrataFab Insulation system using FOAMGLAS insulation as provided by ERCO, Lewiston, Maine.

2.03 INSULATION WRAPPING JACKET FOR BURIED PIPE

A. Provide flexible wrapping material around insulation layer of all buried pipes.

B. Wrapping shall be self-sealing, non-metallic sheet which will seat on the insulation layer with manual pressure or heat sealing.

C. Composition of wrapping material shall be special bituminous resin reinforced with woven glass fabric and covered with an aluminized mylar film and release paper.

D. Thickness of wrapping material shall be 125 mils minimum.

E. Tensile strength shall be at least 165 lbs/inch of width at 20°F.

F. Weight shall be at least 66 lbs/100 SF.

G. Application temperature shall be as low as 20°F.

H. Permeability shall not exceed 0.002 per inch as measured by ASTM E-96.

I. Equal to Pittwrap Insulation Jacketing as manufactured for compatible installation with FOAMGLAS systems.

2.04 INSULATION WRAPPING JACKET FOR EXPOSED NON-BURIED PIPE

A. Provide rigid wrapping material around insulation layers of all exposed non-buried pipes.

B. Wrapping shall be rolled or preformed corrugated aluminum jacket with integrally bonded moisture barrier for all surfaces in contact with insulation.

C. Minimum aluminum thickness shall be 0.016-inch for pipe sizes less than 36" manufactured from 3003 or 3105 aluminum alloy with stucco embossed pattern. Include polysurlyn moisture barrier that is heat laminated in the factory over the interior surface of the aluminum roll jacketing.

1. Equal to ITW Insulation Systems Pabco-Chiders Metals or Premetco International.

2. Fastening hardware shall be equal to ITW Insulation Systems T-304 stainless steel ½" wide strapping and wing seals.

3. Weather barrier coating shall be equal to Childers CP-11 Vi-Cryl water based, vinyl-acrylic mastic coating, metallic gray, with Childers Chil-Glas #5 glass fiber cloth membrane for use on exposed insulation at joint transitions.

D. Provide aluminum or stainless steel support bands at minimum one foot intervals.

2.05 INSULATION ACCESSORIES

A. Adhesives to bond insulation to pipe or insulation sections to each other shall be as recommended by the insulation system manufacturer.

B. Sealants for sealing joints between insulation sections and protrusions in metal jacketed joints and laps shall be as recommended by the insulation system manufacturer.

2.06 HEAT TRACING

A. Heat Trace Cable: Coordinate with Section 16898
Pipe to have two (2) runs of heat trace its entire length installed by a licensed electrician.

B. Accessories: Provide all necessary accessories for taping, and pipe labels ("Electric Traced") as recommended by the manufacturer to make a complete system.

PART 3 – EXECUTION

3.01 COORDINATION

A. Provide redundant temporary pumping system capable of pumping 150 GPM at 40 feet TDH to facilitate construction of permanent force main. Transition between systems as necessary to complete work. Coordinate all work involving transitioning between systems with Owner and Engineer.

B. Prior to any work on the bridge, notify MDOT Maintenance and Operations Division. The general procedure and methods of constructing the temporary bridge crossing shall be at the option of the CONTRACTOR, subject to approval of the ENGINEER and the requirements of the Contract.

3.02 BURIED PIPING SYSTEMS

A. All piping shall be cleaned of foreign substances and free of surface moisture prior to and during the application of insulation.

B. All insulation materials shall be stored in an area protected from the weather and kept dry before and during application.

C. Testing of the piping system shall be completed prior to application of the insulation.

D. After the nominal system diameter is determined (pipe diameter plus insulation thickness), the trench shall be excavated to allow 6" minimum clearance in all directions around the final O.D. of the system.

E. The bottom of the trench shall be graded to the design slope of the piping and to provide uniform bearing along its entire length. Where wet or unstable soils are encountered, such soil shall be removed to a sufficient depth and the trench backfilled with coarse sand or loose granular earth.

F. Backfill shall be compacted to a density equal to that of the adjacent portions of the trench. Where excavation of rock is required, the rock shall be excavated to an over-depth of six inches (6") below the specified trench depth. Over depths in rock shall be backfilled with coarse sand and thoroughly compacted.

G. In areas of high water table, adequate drainage shall be provided.

H. All insulated piping shall rest in a six inch (6") layer of compacted sand. Excavation shall be kept free of standing water during insulation and jacketing application.

I. FOAMGLAS insulation or equal shall be applied to the piping with butt joints staggered and tightly butted. Longitudinal and butt joints may be left dry.

J. All joints shall be tightly fitted to eliminate voids by refitting or replacing sections of insulation.

K. Each section of insulation shall be held in place by two wraps of strapping tape with a 50% overlap per wrap.

L. FOAMGLAS insulation which has been pre-jacketed or equal with PITTWRAP or equal jacketing shall be applied joint-on-joint, with all joints tightly butted. Strapping tape may be used over the jacketing to temporarily secure the insulation until longitudinal laps are sealed and butt straps applied.

M. Where conditions permit, FOAMGLAS insulation or equal and jacketing may be applied outside of the trench to sections of piping. Sections of pipe greater than 10 feet in length should be insulated in maximum 10 foot segments with 1 foot wide gaps between insulated segments.

N. The un-insulated gaps will allow the placement of slings by which the pipe can be lifted into the trench.

O. After the sections of pipe are in place in the trench and the ends of the pipe connected, insulation and jacketing shall be applied to the joint areas and gaps that were not insulated above ground. Adequate working space shall be maintained by the best available means.

P. Apply the specified jacketing in strict accordance with the appropriate product data sheet. Seal all overlaps and butt strips as noted in the product data sheet to ensure that groundwater cannot penetrate the jacket system.

Q. Uncoated, exposed insulation left at day's end shall be sealed with PITTSEAL 444N sealant or equal to prevent bulk water entry.

R. All completed work shall be backfilled as soon as possible to prevent damage to the insulation system.

S. At all irregular surfaces, such as elbows, tees, fitting covers, etc., the PITTWRAP or equal jacketing shall be precut to fit the contour of the surface to which it is to be applied. Precut sections shall allow for two inch (2") overlap. All laps shall be sealed.

T. In addition to sealing the jacketing on these irregular surfaces, a coating of PITTCOTE 300 coating or equal shall be applied over the jacketing. Carefully burn away the exterior plastic film on the jacketing. Apply a glove coat of coating.

U. While still tacky, embed a layer of reinforcing fabric in the coating. After one hour, apply a second coat of coating over the first coat. Total wet film thickness of the two coats shall be 1/8" minimum.

V. If backfilling takes place less than 24 hours after coating is applied, roofing felt shall be placed over the coating before backfilling.

W. The trench shall be carefully backfilled. Sand backfill shall be placed within 6" of the insulated pipe and shall be free of rocks, debris, or stones greater than 1/4" diameter. Care shall be taken not to damage the jacketing during backfilling. Backfill shall be applied in 6" lifts, tamping each lift, until a depth of one foot over the insulated pipe is reached. The remainder of the trench shall be backfilled in one foot lifts, with each lift tamped to the desired compaction.

3.03 EXPOSED EXTERIOR NON-BURIED PIPING SYSTEMS

A. All piping shall be cleaned of foreign substances and free of surface moisture prior to and during the application of insulation.

B. All insulation materials shall be stored in an area protected from the weather and kept dry before and during application.

C. Testing of the piping system shall be completed prior to application of the insulation.

D. After the nominal system diameter is determined (pipe diameter plus insulation thickness), the trench shall be excavated to allow 6" minimum clearance in all directions around the final O.D. of the system.

E. FOAMGLAS insulation or equal shall be applied to the piping with butt joints staggered and tightly butted. Longitudinal and butt joints may be left dry.

F. All joints shall be tightly fitted to eliminate voids by refitting or replacing sections of insulation.

G. Each section of insulation shall be held in place by two wraps of strapping tape with a 50% overlap per wrap.

H. FOAMGLAS insulation which has been pre-jacketed or equal with PITTWRAP or equal jacketing shall be applied joint-on-joint, with all joints tightly butted. Strapping tape may be used over the jacketing to temporarily secure the insulation until longitudinal laps are sealed and butt straps applied.

I. Apply the specified jacketing in strict accordance with the appropriate product data sheet. Seal all overlaps and butt strips as noted in the product data sheet to ensure that water cannot penetrate the jacket system.

J. Uncoated, exposed insulation left at day's end shall be sealed with PITTSEAL 444N sealant or equal to prevent bulk water entry.

K. At all irregular surfaces, such as elbows, tees, fitting covers, etc., the PITTWRAP or equal jacketing shall be precut to fit the contour of the surface to which it is to be applied. Precut sections shall allow for two inch (2") overlap. All laps shall be sealed.

L. In addition to sealing the jacketing on these irregular surfaces, a coating of PITTCOTE 300 coating or equal shall be applied over the jacketing. Carefully burn away the exterior plastic film on the jacketing. Apply a glove coat of coating.

M. While still tacky, embed a layer of reinforcing fabric in the coating. After one hour, apply a second coat of coating over the first coat. Total wet film thickness of the two coats shall be 1/8" minimum.

N. Aluminum jacketing shall be applied with all laps positioned to shed water. All laps shall be a minimum of 2".

O. Aluminum jacketing shall be secured using bands and seals as specified.

P. Band spacing shall be two bands equally spaced per section of insulation and no greater than every 12" O.C. apart.

3.04 INSTALLATION

A. Heat Tracing:

1. To be installed by licensed electrician under Section 16898.

2. Heat tracing shall not be in contact with protection saddles.

1. Layout (see Drawings): Two runs of heat tracing shall start at junction box as shown on Electrical Drawings near south end of bridge and run along the pipe across bridge to terminate at the north end of bridge. Locate heat tracing at 4:00 and 8:00 positions in pipe.

B. Steel and Pipe Supports: All structural steel and pipe supports shall be galvanized steel and shall be installed as required by manufacturer.

C. Existing and Temporary Bridge Structures: Care shall be taken to ensure and maintain the structural integrity of all members of the existing and temporary bridges. Any damage to the bridge structure due to construction shall be repaired to match existing to the approval of the ENGINEER and MDOT.

D. Alignment: All sewer pipe and fittings shall be aligned to conform to the lines and grade as shown on the Drawings. Each pipe and fitting shall be laid to form a closed joint with the previously laid pipe or fitting and bring the pipe to the required grade by adjustment of the pipe supports.

E. Cleanup: On completion, the area of the bridge crossing shall be restored to its original condition.

3.05 TESTING OF SEWER CROSSING OF BRIDGE

A. Testing shall be in accordance with Section 02700.

B. Existing or temporary sewer force mains are not to be disturbed until sewer force main installed for temporary or permanent use have been accepted by Engineer and Owner.

****END OF SECTION****

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 02717

MANHOLE RIM ADJUSTMENT

SECTION 02717 – MANHOLE RIM ADJUSTMENT

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. This specification defines the Work required to adjust existing manhole rims to-grade including, but not limited to:

1. Removal and replacement of adjacent pavement surfaces.

2. Removal and adjustment to new grades of manhole rims indicated by drawings or by Engineer as requiring adjustment.

3. Earthwork as required to locate existing manhole covers and to repair excavated areas adjacent to manhole.

1.02 SUBMITTALS

A. Submit shop drawings for precast structures. Show components to be used.

B. Provide manufacturers' product data and installation instructions for frames, covers, and precast items.

1.03 QUALITY ASSURANCE

A. Provide precast risers capable of supporting AASHTO H-20 loading.

B. All precast concrete shall comply with ASTM C913 "Standard Specification for Precast Concrete Water and Wastewater Structures".

PART 2 – PRODUCTS

2.01 MANHOLE FRAMES AND COVERS

A. Reuse existing manhole frames and covers.

2.02 RISER RINGS TO GRADE

A. Provide reinforced riser rings to grade.

B. Use number of rings required to achieve grade elevation.

C. Seal all joints with bitumastic sealant.

D. Ring inside diameter shall be twenty four inches.

2.03 SIGNS, BARRICADES, AND WARNING DEVICES

A. General: Comply with requirements in "Manual on Uniform Traffic Control Devices" published by Dept. of Transportation, Federal Highway Administration and requirements of Maine Dept. of Transportation. No hand painted plywood, cardboard, paper or non-MDOT standard signs shall be allowed.

PART 3 – EXECUTION

3.01 PREPARATION

A. Field locate existing manhole covers using metal detectors and test pits where buried.

B. Clearly mark all manhole locations to be adjusted using fluorescent marking paint.

3.02 SITE CLEARING

A. Remove existing pavements, walks, and curbs to the limits shown on the Drawings, or if not shown, to the minimum extent possible to perform the work.

B. Saw-cut asphalt and concrete paved surfaces before removal. Use a saw which will cut a neat, and straight joint line.

C. Remove manhole frames, covers, and risers where indicated on the Drawings or as directed by the Engineer.

D. Excavate adjacent roadway base as required to perform Work.

3.03 INSTALLATION OF PRECAST STRUCTURES

A. Place riser and top sections in the appropriate height combinations.

B. Follow manufacturer's instructions for sealing joints between frame and riser rings. Provide two rings of 1-inch diameter butyl rubber sealant.

C. Point joints inside and out with butyl caulk.

D. Set frames and covers to 1/2" below final pavement grade or as shown on the Drawings in paved areas. Set 2" below finish grade in unpaved roads or set at 24" above grade in cross country runs.

E. Provide adequate temporary covers to prevent accidental entry until final placement of frame and cover is made.

F. Provide downward force to frame so as to compress the joint and provide a watertight seal and prevent future settlement.

G. Set frames and covers to final grade only after pavement base course has been applied, or after final grading of gravel roads.

3.04 BACKFILL AND FILL

A. Place acceptable soil material in layers to required elevations as shown on the Drawings and as listed below.

B. Fill, backfill, and compact to produce minimum subsequent settlement of the material and provide adequate support for the surface treatment or structure to be placed on the material.

C. Place material in approximately horizontal layers beginning at lowest area to be filled. Do not impair drainage.

D. Place backfill and fill materials in layers not more than 12" in loose depth for material compacted by heavy compaction equipment, and not more than 6" in loose depth for material compacted by hand-operated tampers. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

E. Place backfill and fill materials evenly adjacent to structures, to required elevations. Prevent wedging action of backfill against structures by carrying material uniformly around structure to approximately same elevation in each lift.

3.05 MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within two percent of optimum moisture content.

B. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

C. Remove and replace, or scarify and air-dry satisfactory soil material that is too wet to compact to specified density.

D. Stockpile or spread and dry removed wet satisfactory soil material.

3.06 COMPACTION

A. Place backfill and fill materials evenly on all sides of structures to required elevations. Place backfill and fill uniformly along the full length of each structure.

B. Compact to the following minimum densities:

FILL AND BACKFILL LOCATION	DENSITY
Top 2 feet under pavement	95%
Below top 2 feet under pavement	92%
Trenches through unpaved areas	90%
Around street manholes	92%

Maximum density: ASTM D1557, modified.
Field density tests: ASTM D2922 (nuclear methods).

C. Determine actual in-place densities using field tests as directed by the Engineer. Tests will be made by an independent laboratory. Costs for initial tests will be paid by Owner or by testing allowance bid item. Subsequent retests will be paid by Contractor.

D. When field in-place density tests are performed using nuclear methods, make calibration checks of both density and moisture gauges at beginning of work, on each different type of material encountered, and at intervals as directed by the Engineer.

3.07 SITE CLEANUP

A. Remove excess excavated material not wanted by the Owner and dispose of it off Owner's property.

B. Grade material to the satisfaction of the Owner of the property on which the material is deposited. Keep roads free of debris. Use suitable watertight vehicles for hauling wet materials over roads and streets.

C. Clean up materials dropped from or spread by vehicles promptly or when directed by the Engineer.

D. Dispose of materials in accordance with all applicable regulations.

END OF SECTION

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 02720

PRECAST CONCRETE SEWERAGE STRUCTURES

SECTION 02720 - PRECAST CONCRETE SEWERAGE STRUCTURES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide precast concrete structures as shown on the Drawings and as specified. This section includes:

Inside drop assembly piping and all accessories as required
Precast concrete riser rings
Masonry materials
Installing boots for new pipes in existing manholes
Installing link seal for new pipes in existing manholes
Air relief access point

1.02 RELATED SECTIONS

A. Section 02200 – Sewer Relocation and Replacement Related Earthwork.

B. Section 02700 – Sewerage.

1.03 QUALITY ASSURANCE

A. Provide precast structures, risers, and covers capable of supporting AASHTO H-20 loading.

B. All precast concrete shall comply with ASTM C913 "Standard Specification for Precast Concrete Water and Wastewater Structures."

1.04 SUBMITTALS

A. Provide manufacturers' product data and installation instructions for precast items, sleeves, joint sealants, and frost barrier.

PART 2 – PRODUCTS

2.01 PRECAST CONCRETE REQUIREMENTS

A. Structure Channels and Benches: Factory or field formed from concrete. Portland-cement design mix, 3000 psi minimum, with 0.45 maximum water-cement ratio.

B. Include channels and benches in both sanitary sewer and drain manholes.

C. Manhole Channels: Concrete invert, formed to same width as connected piping, with height of the vertical sides to 3/4 of the pipe diameter. Form curved channels with smooth, uniform longest possible radius and slope.

1. Invert Slope: 1.2 inches through manhole, unless otherwise indicated on Drawings.

D. Manhole Benches: Concrete, sloped to drain into channel.

1. Slope: 1 inch per foot.

E. Pipe Connections:

1. As specified on drawings.

F. Drop Manholes: Fabricate 304 stainless steel brackets and provide stainless steel anchor bolts and straps to firmly secure vertical pipe into concrete manhole wall. Provide pipe and fittings as indicated on Drawings.

2.02 AIR RELIEF ACCESS POINT

A. Fully machined frame and cover.

B. Gray cast iron construction meeting ASTM A48 Class 30.

C. Rated for H-20 wheel loading.

D. Diamond pattern on cover.

E. Lettering on cover marked as "SEWER".

F. Lid shall be bolted to frame.

G. Minimum flange criteria: reinforcing webs.

H. Minimum frame height: 12".

I. Minimum inside frame diameter: 10".

J. Minimum cover diameter: 11.5".

K. Minimum clear frame opening diameter: 10".

L. Equal to Neenah Manhole Frames and Covers model R-1977.

2.03 MORTAR MATERIALS;

A. For mortar mix: Conform to requirements of ASTM C 270, Type S using Portland cement.

B. Portland Cement: Natural color ASTM C 150, Type I, except Type III may be used for cold weather construction.

C. Hydrated Lime: ASTM C270, Type S.

D. Aggregate for Mortar: ASTM C 144, except for joints less than 1/4" use aggregate graded with 100% passing the No. 16 sieve.

E. Aggregate for Grout: ASTM C 404.

F. Water: Clean potable.

G. Cold Weather Admixture: Nonchloride, noncorrosive accelerating admixture complying with ASTM C 494 Type C.

H. Premixed mortars shall be as recommended by premix manufacturer an approved by Engineer.

PART 3 - EXECUTION

3.01 ABANDONING PRECAST SEWERAGE AND DRAINAGE STRUCTURES

A. Excavate around abandoned structure such as manholes, catch basins, or wet wells as required and use either of the following procedures:

1. Remove structure and close open ends of remaining piping in accordance with requirements of Section 02700 for pipe abandonment.

2. Remove top of structure down to at least 36 inches below final grade. Fill to within 12 inches of top with crushed stone, gravel, flowable fill or compacted fill approved by Engineer.

3. Backfill to grade according to Division 2 Section 02200, and typical trench detail for either lawn or paved roadway area soils and resurfacing.

3.02 MANHOLE MODIFICATION

A. By-pass sewage flows as required for rehabilitation work.

B. Pressure wash and vacuum clean all material from existing manhole and dispose of in accordance with Specifications.

C. Remove existing drop pipe assembly and provide a watertight seal on any penetrations not to be reused.

D. Form new drop pipe assembly as shown on the Drawings or as directed by Engineer.

END OF SECTION

DIVISION 3

CONCRETE

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 03300

CAST-IN-PLACE CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide all cast-in-place concrete work, including:

Concrete thrust blocks at all pressure pipe bends

1.02 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of following codes, Specifications and standards, except where more stringent requirements are shown or specified:

ACI "Manual of Concrete Practice".
Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice".
ANSI or ASTM standards for concrete as referenced or appropriate.

B. Testing by Owner: Field tests will be by the Engineer's representative or by an independent testing laboratory.

1. Tests will be done for slump, air content and concrete temperature.

2. Compression test specimens will be taken and tested for compression.

C. Testing and Services by Contractor: Performed by an approved testing laboratory at the Contractor's expense:

1. Retesting of rejected materials and installed work.

2. Any additional testing conducted for early detection of strength to accommodate Contractor's work schedule.

3. Contractor to furnish equipment including buckets, shovels, and wheelbarrows for proper sampling of concrete mix, facilities for storing and curing specimens at the job site, and labor to assist technician performing field tests.

D. Materials and installed work may require testing and retesting at any time during the progress of the Work as directed by the Engineer. Allow free access to material stockpiles and facilities. These tests will be done by an independent approved laboratory at the Contractor's expense.

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's product data with application and installation instructions for proprietary materials and items.

PART 2 - PRODUCTS

2.01 PROPORTIONING AND DESIGN OF MIXES

A. Design mixes to provide normal weight concrete with the following properties.

1. General Use Concrete:

- Type II Portland Cement.
- Min. 28 day compressive strength: 4000 psi.
- Max. water/cement ratio: 0.45.
- Min. cement content: 564 lbs per cubic yard.
- Slump: Concrete for general use: not less than 1", not more than 4".
- Sloping surfaces: slump not more than 3".
- Concrete with high range water reducer (HRWR) admixture: not more than 8".
- Max. aggregate size: 3/4".
- Air Content: 6% +/- 1% by volume for 3/4" aggregate.
- Flyash shall be Class F and shall not exceed 10% cement content, meeting ASTM C618.

B. Concrete for cast-in-place thrust block shall have a minimum 28 day compressive strength of 2000 psi.

PART 3 - EXECUTION

3.01 PLACEMENT OF PRESSURE PIPE THRUST BLOCKS

A. Concrete shall be poured in place or precast.

1. Poured in place thrust blocks shall be constructed by pouring concrete between the fitting and the undisturbed wall of the trench. Care shall be exercised to ensure that the concrete is clear of joint accessories, bolts, nuts, and flanges.

B. Thrust blocks are required wherever the pipe:

1. Changes direction at tees and bends.

2. Changes sizes, as at reducers.

3. Stops, as at dead ends.

END OF SECTION

DIVISION 5

METALS

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 05500

METAL FABRICATIONS

SECTION 05500 - METAL FABRICATIONS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Metal fabrications includes items made from aluminum and steel shapes, plates, bars, strips, tubes, pipes and castings which are not a part of structural steel or other metal systems specified elsewhere.

B. Provide metal fabrications for:

- Miscellaneous metal channels and support beams
- Miscellaneous connections and connectors
- Miscellaneous equipment and panel supports
- Anchor bolts

1.02 RELATED SECTIONS

A. Section 02700 – Sewerage.

B. Section 02701 – Sewer Crossing of Bridge.

C. Section 15145 – Pipe Hangers, Supports, Anchors, and Seals.

1.03 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of following, except as otherwise indicated:

1. AISC "Specifications for Structural Joints using ASTM A325 or A 490 Bolts" approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.

2. AWS D.1.2 "Structural Welding Code".

1.04 SUBMITTALS

A. Product Data: Submit manufacturer's specifications, anchor details and installation instructions for products used in miscellaneous metal items, including paint products and grout.

B. Shop Drawings: Submit shop drawings for fabrication and erection of miscellaneous metal fabrications including layout, bracing details, anchorage recommendations and tolerances.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Metals: For fabrication of miscellaneous metal work use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks.

1. Steel Plates, Shapes and Bars: ASTM A 36.

2. Stainless Steel: Type 316.

3. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

B. Fasteners: Provide zinc-coated fasteners except where indicated on Drawings as stainless steel fasteners.

1. Steel Bolts and Nuts: Regular hexagon head type, ASTM A 307, Grade A.

2. Stainless Steel Bolts and Nuts: Hexagon head type, ASTM-A320.

3. Expanding Anchors: Equal to Hilti Kwik-Bolt, stainless steel as required.

4. Nylon Washers: Provide to separate steel from aluminum at connections.

2.02 GENERAL FABRICATION

A. Workmanship:

1. Use materials of size and thickness indicated on Drawings or, if not indicated, as required to produce strength and durability in finished product for intended use.

2. Work to dimensions shown or accepted on Shop Drawings, using proven details of fabrication and support.

3. Use type of materials shown or specified for various components of Work.

B. Form exposed Work true to line and level with accurate angles and surfaces and straight sharp edges.

1. Ease exposed edges to a radius of approximately 1/32", unless otherwise shown.

2. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing Work.

C. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces.

D. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type shown or, if not shown, Phillips flat-head (countersunk) screws or bolts.

E. Provide for anchorage of type shown, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.

F. Cut, reinforce, drill and tap miscellaneous metal Work as indicated to receive finish hardware and similar items.

PART 3 - EXECUTION

3.01 Preparation: Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

3.02 INSTALLATION

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction, including stainless steel fasteners for concrete and masonry inserts, through-bolts, and other connectors as required.

B. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set Work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels. Provide temporary bracing or anchors in formwork for items which are to be built into concrete, masonry or similar construction.

C. Field Welding: Comply with AWS Code for procedures of manual-shielded metal-arc welding, appearance and quality of welds, and methods used in correcting welding work.

END OF SECTION

DIVISION 7

THERMAL AND MOISTURE PROTECTION

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 07200

INSULATION

SECTION 07200 - INSULATION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Install insulation as shown on Drawings and indicated by provisions of this section. Insulation specified in this section includes the following:

Rigid foam insulation for pipe trenches

1.02 QUALITY ASSURANCE

A. Thermal Conductivity: Thicknesses indicated for board insulation are for thermal conductivity (k-value at 75°F or 24°C) specified for each material. Provide adjusted thicknesses as directed for equivalent use of material having different thermal conductivity.

1.03 PRODUCT HANDLING

A. General Protection: Protect insulations from physical damage and from becoming wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage and protection during installation.

1.04 SUBMITTALS

A. Product data for each type of insulation proposed.

B. Technical data showing thermal properties of product.

PART 2 - PRODUCTS

2.01 INSULATION

A. Rigid Board-Type Insulation for Trenches and Pipe Insulation: Closed-cell rigid foamed polystyrene, equal to "Styrofoam" HI-60, by Dow Chemical, or Owens Corning Foamular 600. Thickness as shown.

1. Thermal resistance: Aged R-value = 5 per inch of 75°F mean temperature.

2. Compressive strength ≥ 60 psi.

3. Flexural strength ≥ 75 psi.

4. Minimum density 1.60 PCF.

5. Water adsorption ≤ 0.1 percent by volume.

6. Coefficient of linear thermal expansion: maximum 3.5 x 10^{-5} in/ °F.

7. Complies with ASTM C578 Type VII.

PART 3 - EXECUTION

3.01 INSPECTION AND PREPARATION

A. Clean substrates of substances harmful to insulations or vapor and moisture barriers, including removal of projections which might cause punctures.

3.02 INSTALLATION OF RIGID BOARD INSULATION

A. General:

1. Comply with manufacturer's instructions for particular conditions of installation in each case. If printed instructions are not available or do not apply to project conditions, consult manufacturer's mechanical representative for specific recommendations before proceeding with work.

2. Extend board insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections which interfere with placement.

3. Apply a single layer of board insulation of required thickness, unless otherwise shown or required to make up total thickness.

4. For pipe trench insulation, provide to the extent practical, full sheets of insulation over trench width to minimize the number of openings between sheets. Add 2' long piece of insulation over each joint. Use four foot

minimum width sheets centered on pipe(s), and add additional width to fill trench as necessary, or as directed by Engineer.

5. Over or adjacent to precast concrete structures, provide 4' wide sheets over structure and extend outside structural wall a minimum of 2' for full perimeter.

END OF SECTION

DIVISION 15

MECHANICAL

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 15100

VALVES

SECTION 15100 - VALVES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Work defined in this Section includes, but is not limited to:

Stainless Steel Ball Valves

1.02 RELATED SECTIONS

A. Section 15145 - Pipe Hangers, Supports, Anchors, and Seals.

1.03 QUALITY ASSURANCE

A. Valve Types: Provide valves of same type by same manufacturer.

1.04 SUBMITTALS

A. Submit Shop Drawings for all valves.

B. Product Data:

1. Submit catalog cuts, materials listing including ASTM/ANSI Standards, specifications, installation instructions, and dimensioned drawings for each item.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Prepare valves for shipping as follows:

1. Set ball valves open to minimize exposure of functional surfaces.

PART 2 - PRODUCTS

2.01 STAINLESS STEEL BALL VALVES

A. Provide SS ball valves in SS lines.

B. Valves shall be standard port.

C. Ball shall be stainless steel.

D. Seats and stem packing shall be reinforced Teflon.

E. Handle and nuts shall be 316 SS.

F. Connections shall be garden hose type.

G. Standard port capacity.

H. Equal to Flow-Tek Series S70 as provided by Allagash Valves & Controls, Inc.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General: Install valves as shown on the drawings and in accordance with manufacturer's recommendations. Allow sufficient room around valves for maintenance, removal, and proper operation.

B. Field orientate valves as required for access to actuators.

3.02 WARRANTY

A. The valve supplier shall warrant that its valve shall be free from defects in material and workmanship and that it will replace or repair, F.O.B. its factory, any part or parts returned to it which have failed under normal use and service within 12 months of start-up.

END OF SECTION

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 15125

PIPE EXPANSION JOINTS

SECTION 15125 - PIPE EXPANSION JOINTS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes pipe expansion joints for mechanical piping systems.

1.02 RELATED DOCUMENTS

A. Section 02200 – Sewer Relocation and Replacement Related Earthwork.

B. Section 02700 – Sewerage.

C. Section 02701 – Sewer Crossing of Bridge.

1.03 PERFORMANCE REQUIREMENTS

A. Compatibility: Provide pipe expansion joints and pipe alignment guides, suitable for piping system fluids, materials, working pressures, and temperatures.

B. Fabricate and install expansion system capable of sustaining forces generated by gravity, thermal movement, and seismic event.

1.04 REQUIRED STYLES

A. Romac coupling, or equal, shall be used for pipe transitions of steel to steel, cast/ductile iron to cast/ductile iron, or any combination thereof, unless otherwise noted.

1.05 SUBMITTALS

A. Product data for each type of pipe expansion joint and pipe alignment guide specified.

B. Pipe expansion joint schedule showing manufacturer's figure number, size, location, and features for each required expansion joint.

C. Assembly-type shop drawings for each type of pipe expansion joint and pipe alignment guide indicating dimensions, weights, required clearances, and methods of component assembly.

PART 2 - PRODUCTS

2.01 PIPE COUPLING EXPANSION JOINTS

A. The pipe couplings shall be of a gasketed, sleeve-type with diameter to properly fit the pipe.

B. Each coupling shall consist of one (1) steel middle ring, of thickness, length or style specified; two (2) steel followers, two (2) rubber-compounded wedge section gaskets and sufficient trackhead steel bolts to properly compress the gaskets.

C. The middle ring and followers of the coupling shall be true circular sections free from irregularities, flat spots, or surface defects. They shall be formed from mill sections with the follower-ring section of such design as to provide confinement of the gasket. After welding, they shall be tested by cold expanding a minimum of 1% beyond the yield point.

D. The coupling bolts shall be of the elliptic-neck, track-head design with rolled threads. The manufacturer shall supply information as to the recommended torque to which the bolts shall be tightened.

E. All bolt holes in the followers shall be oval for greater strength.

F. The gaskets of the coupling shall be composed of a crude or synthetic rubber base compounded with other products to produce a material which will not deteriorate from age, from heat, or exposure to air under normal storage conditions. It shall also possess the quality of resilience and ability to resist cold flow of the material so that the joint will remain sealed and tight indefinitely when subjected to shock, vibration, pulsation and temperature, or other adjustments of the pipe line.

G. The couplings shall be assembled on the job in a manner to insure permanently tight joints under all reasonable conditions of expansion, contraction, shifting and settlement, unavoidable variations in trench gradient, etc.

H. Equal to Romac Model EJ400.

2.02 REQUIRED PIPE ENDS AT COUPLING EXPANSION JOINTS

A. The pipe shall be furnished with plain ends for Dresser Couplings in accordance with AWWA specifications for tolerances.

B. The pipe shall be smooth and round for a distance of 8" from each end. The maximum plus or minus variation from nominal outside diameters for each size shall not exceed:

SIZE	MAXIMUM VARIATION
3" to 16"	.06"
18" thru 24"	.08"
30" and 42"	.10"
48"	.12"
54" thru 60"	.15"

C. The maximum outside pipe diameter shall be such as to permit the passing of a ring gauge having an internal bore not greater than .01" larger than the maximum allowable outside diameter of the pipe. This ring gauge shall go over the end of the pipe for a distance of 8" for all sizes up to and including 24", and for a distance of 12" on sizes 24".

D. The minimum outside diameter shall be determined by the use of a steel tape circumferentially applied to prevent the shipment of undersize, out-of-round pipe which, if measured diametrically through the maximum diameter or checked with a No-Go ring gauge, might appear within the specified tolerance.

2.03 EXPANSION JOINTS

TAG NO.	SIZE	LOCATION	TYPE
EJ-101	6"	Force main south end	Equal to Romac Model EJ400
EJ-102	4"	Force main north end	Equal to Romac Model EJ400

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install pipe expansion joints according to manufacturer's written instructions.

B. Align expansion joints to avoid end-loading and torsional stress.

END OF SECTION

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 15145

PIPE HANGERS, SUPPORTS, ANCHORS, AND SEALS

SECTION 15145 - PIPE HANGERS, SUPPORTS, ANCHORS, AND SEALS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Types of supports, anchors and seals specified in this section include the following:

Horizontal-Piping Hangers and Supports
Vertical-Piping Clamps
Hanger-Rod Attachments
Saddles
Anchors
Pipe Sleeves
Link Seals

B. The temporary bridge force main installation can use carbon steel hangers and supports.

C. The permanent bridge force main installation shall use galvanized steel or 304 stainless steel hangers and supports.

1.02 RELATED SECTIONS

A. Section 02700 – Sewerage

B. Section 02701 – Sewer Crossing of Bridge

C. Section 05500 – Metal Fabrications

1.03 QUALITY ASSURANCE

A. Manufacturers: Firms regularly engaged in manufacture of supports, anchors and seals, of types and sizes required, whose products have been in satisfactory use in similar service.

B. Code Compliance: Comply with applicable plumbing codes pertaining to product materials and installation of supports, anchors and seals.

C. MSS (Manufacturer's Standardization Society) Standard Compliance:

1. Provide pipe hangers and supports of which materials, design and manufacture comply with ANSI/MSS SP-58, Pipe Hangers and Supports - Materials, Design, and Manufacture.

2. Select and apply pipe hangers and supports, complying with MSS SP-69, Pipe Hangers and Supports - Selection and Application. Fabricate and install pipe hangers and supports, complying with MSS SP-89.

3. Terminology used in this section is defined in MSS SP-90.

1.04 SUBMITTALS

A. Product Data: Submit catalog cuts, specifications, installation instructions, dimensioned drawings and AIS certifications for each type of support, anchor and seal.

PART 2 - PRODUCTS

2.01 GENERAL MATERIALS

A. Dissimilar metals shall not come in contact with each other to eliminate the possibility of galvanic corrosion. If dissimilar metals must make contact insert spacer material such as neoprene, rubber or corrosion protection tape between the two metals.

2.02 HORIZONTAL-PIPING HANGERS AND SUPPORTS

A. General: Except as otherwise indicated, provide factory-fabricated horizontal-piping hangers and supports complying with ANSI/MSS SP-58, of one of the following MSS types listed, selected by Contractor to suit horizontal-piping systems, in accordance with MSS SP-69 and manufacturer's published product information. Use only one type by one manufacturer for each piping service. Select size of hangers and supports to exactly fit pipe size for bare piping, and to exactly fit around piping insulation with saddle or shield for insulated piping.

B. Adjustable Steel Clevises: National Pipe Hanger Corporation fig. 200 (MSS Type 1) or equal.

C. Steel Pipe Clamps: National Pipe Hanger Corporation (MSS Type 4) or equal.

D. Pipe Hangers: MSS Type 5.

E. Adjustable Swivel Ring Hangers: National Pipe Hanger Corporation fig. 110 (MSS Type 10) or equal.

F. Pipe Saddle Supports: National Pipe Hanger Corporation fig. 525 (MSS Type 36) or equal, including steel pipe base support and cast-iron floor flange.

G. Pipe Stanchion Saddles: National Pipe Hanger Corporation fig. 538 or fig. 539 (MSS Type 37) or equal, including steel pipe base support and cast-iron floor flange.

H. Adjustable Roller Hangers: National Pipe Hanger Corporation fig. 250 (MSS Type 43) or equal.

I. Pipe Roll Stands: National Pipe Hanger Corporation fig. 248 (MSS Type 44) or equal.

J. Protective Sleeves: Galvanized, 14 gage sheet metal, minimum length to match thickness of wall abutment.

2.03 VERTICAL-PIPING CLAMPS

A. General: Except as otherwise indicated, provide factory-fabricated vertical-piping clamps complying with ANSI/MSS SP-58, of one of the following types listed, selected by Contractor to suit vertical piping systems, in accordance with MSS SP-69 and manufacturer's published product information. Select size of vertical piping clamps to exactly fit pipe size of bare pipe.

B. Two-Bolt Riser Clamps: National Pipe Hanger Corporation fig. 420, National Pipe Hanger Corporation fig. 410 (MSS Type 8) or equal.

C. Four-Bolt Riser Clamps: MSS Type 42.

2.04 HANGER-ROD ATTACHMENTS

A. General: Except as otherwise indicated, provide factory-fabricated hanger-rod attachments complying with ANSI/MSS SP-58, selected by Contractor to suit horizontal-piping hangers and building attachments, in accordance with MSS SP-69 and manufacturer's published product information. Use only one type by one manufacturer for each piping service. Select size of hanger-rod attachments to suit hanger rods.

2.05 ATTACHMENTS

A. General: Except as otherwise indicated, provide factory- fabricated building attachments complying with ANSI/MSS SP-58, of one of the following MSS types listed, selected by Contractor to suit building substrate conditions, in accordance with MSS SP-69 and manufacturer's published product information. Select size of building attachments to suit hanger rods.

B. Expansion Anchors: Equal to Hilti Kwik-bolt, sized as required for proper support.

2.06 PIPE SADDLE SUPPORTS

A. Adjustable type with pipe and floor flanges.

B. When used under base fittings, substitute matching floor flanges for saddle sections.

C. Acceptable manufacturers:

1. National Pipe Hanger Corporation
2. PHD Manufacturing
3. Or approved equal

2.07 WALL AND COLUMN SUPPORTS

A. Welded steel brackets with anchor chains.

B. Install additional wall bearing plates where required for wall brackets.

C. Acceptable manufacturers:

1. National Pipe Hanger Corporation
2. PHD Manufacturing
3. Or approved equal.

2.08 MISCELLANEOUS HANGERS

A. As approved by the Engineer or as shown on the plans.

2.09 WALL AND FLOOR PIPES

A. Unless otherwise indicated, all piping penetrations of concrete walls which are new work shall be ductile iron wall pipes with thrust collars. Wall pipe and connections shall be located as shown on Drawings.

B. Wall pipes shall be provided with integrally cast thrust collars wherever possible. Wall pipes which cannot be fabricated with integral collars shall have collars attached at the fabrication shop using continuous welds around the pipe on both sides of the collar.

2.10 SEALS

A. Concrete Walls:

1. Steel pipe with 1" x 1/8" thick welded fin in middle, hot-dip galvanize after fabrication.

2. Schedule of pipe and size of pipe as required by seal manufacturer.

3. Rubber link compression seal.

B. Rubber Link Seals:

1. Multi-rubber link type with pressure plates, bolts, nuts and sealing element providing a leakproof seal. All hardware to be stainless steel.

2. Corrosive Service:

a. Use: In all protrusions through walls
b. Pressure plate: Delrin plastic
c. Bolt and nut, 18-8 stainless steel
d. Sealing element: EPDM rubber

3. Acceptable Manufacturers:

a. Link Seal by Thunderline Company or Innerlynx by Advance Products & Systems, Inc.
b. Or approved equal

PART 3 - EXECUTION

3.01 INSTALLATION OF ATTACHMENTS

A. Install attachments at required locations within concrete. Space attachments within maximum piping span length indicated in MSS SP-69. Install additional building attachments where support is required for additional concentrated loads, including valves, flanges, guides, strainers, expansion joints, and at changes in direction of piping.

3.02 INSTALLATION OF HANGERS AND SUPPORTS

A. General: Install hangers, supports, clamps and attachments to support piping properly from building structure; comply with MSS SP-69. Arrange for grouping of parallel runs of horizontal piping to be supported together on trapeze type hangers where possible. Install supports with maximum spacings complying with MSS SP-69. Where piping of various sizes is to be supported together by trapeze hangers, space hangers for smallest pipe size or install intermediate supports for smaller diameter pipe. Do not use wire or perforated metal to support piping, and do not support piping from other piping.

B. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers and other accessories. Except as otherwise indicated for exposed continuous pipe runs, install hangers and supports of same type and style as installed for adjacent similar piping.

C. Set all inserts before the concrete is placed.

D. Install hangers and supports to allow controlled movement of piping systems and to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends and similar units. Lateral movement of piping shall be controlled along straight runs.

E. Load Distribution: Install hangers and supports so that piping live and dead loading and stresses from movement will not be transmitted to connected equipment.

F. Except as otherwise permitted, make provisions for vertical adjustment of all hangers after installation.

G. Provide additional guides or supports at offsets in piping as necessary to prevent deflection of pipe axis due to expansion or pressure forces except where right angle bends are utilized to compensate for expansion.

H. Spacing:

1. Install hangers and supports at sufficiently close intervals to maintain alignment and prevent sagging.

2. Maximum spacing of hangers and supports:

Pipe Size (inches)	Spacing (feet)
4 and larger	as shown on plans or as directed by Engineer

3.03 INSTALLATION OF WALL PIPE, PIPE SLEEVES, AND SEALS

A. New Construction:

1. Sleeves: Install wall pipes or pipe sleeves of types indicated where piping passes through concrete walls or slabs. Install accurately centered on pipe runs. Size sleeves so that piping and insulation (if any) will have free movement in sleeve, including allowance for thermal expansion; but not less than 2 pipe sizes larger than piping run. Install length of sleeve equal to thickness of construction penetrated, and finish flush to surface. Provide temporary support of sleeves during placement of concrete and other work around sleeves, and provide temporary closure to prevent concrete and other materials from entering sleeves or wall pipes.

END OF SECTION

DIVISION 16

ELECTRICAL

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 16100

BASIC ELECTRICAL SYSTEMS

SECTION 16100 - BASIC ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Furnish all labor, materials, and equipment necessary to complete all work as shown on drawings and specified. This work is to include but not limited to the following: Supply and install all load wiring, boxes, wireways, conduits, receptacles, switches, devices, etc.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02701 – Sewer Crossing of Bridge.

B. Section 16400 - Electrical Service and Distribution.

C. Section 16898 - Electrical Protective Heating Cables.

1.03 REFERENCES

A. All work shall conform to the NFPA National Electrical Code and all Federal, State and Local Codes and Utility Company Regulations as applicable.

B. All equipment shall be UL listed.

1.04 QUALITY ASSURANCE

A. Demonstrate the correct operation of all installed equipment and circuits to the satisfaction and requirements of the Engineers.

1.05 SUBMITTALS

A. Only qualified and experienced workman shall conduct wiring.

B. Supply all information necessary to update "record" drawings.

C. Submit shop drawings for the following:

Conduits
Junction Boxes

PART 2 - PRODUCTS

2.01 WIRE

A. Individual conductors in conduits shall be copper with THHW/THWN or XHHW insulation. Conductors in exterior or below grade conduits shall be THWN or XHHW.

B. Load and branch circuit conductors shall be soft drawn copper with 98% of conductivity of pure copper. In no case shall aluminum conductors be used for load or branch circuits.

C. Wire larger than #8 AWG shall be stranded.

D. Color code conductors as per the following service voltage with permanent color markings:

Conductor	120/240V
Phase A	Black
Phase B	Red
Phase C	
Neutral	White
Ground	Green

2.02 CONDUITS AND WIREWAYS

A. All wiring will be enclosed in metallic raceways, GRS conduit, or flexible metallic wireways.

B. All electrical conduits buried in earth or concrete shall be GRS except as noted.

C. Expansion joints shall be installed where shown on plans.

D. Liquid tight for connection of controls shall be flexible, plastic coated metallic conduit with metallic interior, equal to Electri-Flex types LT, LA or EF. Exterior types shall be sunlight resistant types LT or EF. Do not use NM types unless shown otherwise.

E. All wiring located inside control panels shall be encased in Type E Panduct plastic wiring duct or approved equal.

2.03 BOXES, GENERAL

A. Exterior boxes shall be corrosion resistant construction designed for exterior use.

B. Surface Junction boxes shall be cast Weatherproof Construction.

2.04 CORROSION RESISTANT EQUIPMENT

A. NEMA 4X devices shall be used where designated on drawings.

B. Junction boxes and other control equipment enclosures shall be NEMA 4X, gasketed, either FRP (fiberglass reinforced plastic) or high-density polymer approved for purpose.

2.05 EMERGENCY BATTERY SUPPLY

A. Provide emergency 12VDC backup power supply to operate alarm beacon. Unit shall be industrial application emergency lighting battery unit, designed to provide a minimum of 90 minutes at 12W when primary power is lost. Body is flame-rated, UV stable thermoplastic NEMA 4X housing, fully gasketed and corrosion resistant with a gray finish. Include micro-controller based 3-stage charger and Lithium Iron Phosphate (LiFePO4) battery. Input power is 120 through 277VAC at 60Hz. Unit shall be designed for demanding environments, high reliability operation in industrial settings and wet location rated. Provide with internal heater for -20°F operation. Warranty will be 5 Year Full.

B. Supply with no emergency lighting heads or remove and seal openings to maintain NEMA 4X rating.

C. Provide unit equal to Dual Lite Dynamo Series DYN-12-I-4X-HTR.

2.06 ALARM LIGHT

A. Provide daylight visible LED flashing alarm beacon. Meets UL Type 3, 3R, 4, 4X, 12, and, 13 requirements.

B. Features:

2 operation modes: steady on and flash
Lens Molded from GE Lexan
Hermetically sealed for corrosion resistance and reliability
Provide with Red lens with 360° visibility
UL Recognized - File E121431
125mA flashing @ 12V
Flash rate: 60 flashes per minute

C. Provide Flashing alarm beacon equal to Ingram Products model SBN1224AD.

2.07 PHOTO CELL

A. Provide photo cell compatible with proposed lighting systems for bridge.

2.08 IDENTIFICATION

A. Conductor/cable label tape shall be vinyl cloth continuously printed with numbers and letters equal to Brady B-500 or Panduit GMC1 or Scotch.

B. Underground buried electric line marking tape shall be heavy-duty .0045", metal detection tape, 3" wide supplied in continuous lengths up to 1000'. Tape shall have red with black lettering, continuously duplicated, wording equal to "CAUTION BURIED ELECTRIC LINE BELOW"

Supply equal to Seton Model number 85508 or equivalent Champion America, D&G Sign or Label, SA-SO Company products.

PART 3 - EXECUTION

3.01 COORDINATION

A. Coordinate routing of conduits and wiring to minimize conflicts.

3.02 INSTALLATION, GENERAL

A. All wiring shall be installed in a workman-like manner.

B. All exposed exterior wiring shall be weatherproof construction.

3.03 INSTALLATION, WIREWAYS AND CONDUITS

A. Terminate all conduit and tubing with insulated bushings or insulated throat connectors as per code requirements.

B. Provide expansion joints on all vertical conduit risers subject to frost action. If conduit is encased in concrete, expansion joints shall be omitted.

C. Conduits shall include bonding conductor.

D. Conduits installed into NEMA 4X panels shall be sealed with rubber "O" ring type connectors. Connections shall be water tight.

E. Thoroughly clean conduits of water and debris before wire is installed.

F. Install nylon pull string in all empty conduits.

3.04 INSTALLATION, UNDERGROUND CONDUITS

A. Aluminum conduits shall not be allowed underground.

B. Install conduits subject to the admittance of water either so that the system is water tight or installed in such a manner that water may drain (from weep holes, etc.) to an area where no harm may occur. Use conduit seal connections where necessary and appropriate.

C. Provide yellow marking tape buried just below surface indicating buried power line below.

3.05 JOB COMPLETION

A. All equipment shall be free of dents, scratches or other damage and shall be thoroughly cleaned as appropriate before final acceptance by Owner.

*** END OF SECTION ***

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 16400

ELECTRICAL SERVICE AND DISTRIBUTION

SECTION 16400 – ELECTRICAL SERVICE AND DISTRIBUTION

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Furnish all labor, materials, and equipment necessary to complete all work as shown on drawings and specified. This work is to include but not limited to the following.

1. Furnish and install new entrance, ground rods, metering equipment, load panels, circuit breakers, and distribution cables to new service equipment, manual transfer switch, and generator inlet receptacle.

B. Coordinate all work with current electrical service provider.

C. Supply panel identification tags and label panel circuit identification cards and write-in spaces, labels, cable tags, circuit tags, etc.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02701 – Sewer Crossing of Bridge.

B. Section 16100 – Basic Electrical Systems.

C. Section 16898 - Electrical Protective Heat Cables.

1.03 REFERENCES

A. All work shall conform to the NFPA National Electrical Code and all Federal, State and Local Codes and Utility Company Regulations as applicable.

B. All equipment shall be UL listed.

1.03 QUALITY ASSURANCE

A. Demonstrate the correct operation of all installed equipment and circuits to the satisfaction and requirements of the Engineers.

1.04 SUBMITTALS

A. Supply all information necessary to update "record" drawings.

B. Submit shop drawings for the following:

Metering Equipment
Ground Rods
Load Panels
Circuit Breakers
Surge Protective Breaker
Transfer Switch
Generator Power Inlet Receptacle
Generator Connection Cable
Typewritten list of engraved tags

C. Shop drawings for breaker panels shall include separate sheet for each panel with the following information:

NOTE: This is not optional. Shop drawings submitted without individual sheets for each panel with following information will be rejected for resubmittal.

1. Panel designation as shown in drawings and specifications
2. Panel amperage, voltage and phase information
3. Instantaneous interrupt current capacity
4. Whether main lug or main breaker and rating of main
5. Whether surface or flush mounting
6. Other manufacturing details or specifications as appropriate
7. Diagram of breaker panel and breaker layout (Breakers shall be installed in configurations shown in panel schedules in drawings. Explain any discrepancies.)

Note the following on the diagram:

Breaker amperage and indicate number of poles
Any GFI breakers
Any shunt trip breakers
Any remote control breakers

PART 2 - PRODUCTS

2.01 WIRE

A. Aluminum conductors for feeders shall not be used.

B. Main panel feeds shall be run in GRS conduit.

C. Single conductors in conduits shall be copper with THHN or XHHW insulation.

2.02 GROUND RODS

A. Ground rods shall be galvanized coated, carbon steel ITT Blackburn or equal. Minimum size 3/4" x 8'-0".

2.03 METER SOCKETS

A. Meter shall be equal to Anchor, Bryant, General Electric, ITE Siemens, Milbank, Square-D or Westinghouse meeting requirements of electrical utility service provider.

B. Units shall be raintight enclosure suitable for exterior wall mounting and have a minimum of 100 Ampere internal bussing, bolted connections and 10,000 AIC rating.

2.04 PANELS, LOAD & LIGHTING

A. Panels shall be 100A, 120/240V, 1 phase, with 100A Main Breaker, NEMA 3R, Surface mounted. Provide with at least (20) 1" breaker circuit spaces.

B. Panel cover doors shall be equipped with locking mechanisms per Town's requirements.

2.05 BREAKERS, LOAD AND LIGHTING PANELS

A. Breakers shall be molded case, toggle type, thermal-magnetic with common trip for multiple pole types with minimum symmetrical interrupt capacity of 10,000 amperes RMS at 240 volts.

B. Breakers may be either bolt-in or stab-in type.

C. Provide in-panel, 2-pole breaker space, transient surge protection device. Unit shall be similar to THQLSURGE, Siemens QSA2020SPD, or Square D QO2175SB, Surge Protection Breakers.

2.06 MANUAL TRANSFER SWITCH

A. Transfer switch shall be manual type, 120/240 volt rated, single phase, 2 pole, 30 amp capacity, Bryant, Cutler-Hammer, GE, ITE, Square D, Westinghouse or approved equal.

B. Supply switch in NEMA 1 enclosure.

2.07 BACKBOARD AND POSTS

A. Provide ¾" Marine Grade Plywood backboard for installing electrical equipment mounted on two 6" x 6" posts.

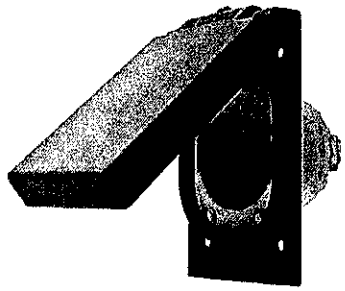
B. Backboard shall be painted with 1 coat primer and 1 coat gray enamel.

C. Posts shall be pressure treated.

D. Set posts in 16" Ø sonotubes filled with concrete.

2.08 GENERATOR POWER INLET CONNECTOR

A. Provide genset power inlet receptacle 125/250, 20A, 4 wire, male twistlock, weatherproof power Inlet, NEMA L15-20, Bryant 71520MBWP.



B. Supply matching cable assembly with Bryant 71520NC cord type receptacle plugcap and Type STO, 4-wire, #12 CU 20' long cable to Owner for use with generator.

2.09 IDENTIFICATION

A. Breaker panel circuit identification cards shall be heavy cardboard as supplied by manufacturer. Identification tags shall be protected by a separately removable, transparent plastic cover.

PART 3 - EXECUTION

3.01 COORDINATION

A. Coordinate power entrance, and metering equipment requirements and charges with utility company at beginning of project.

B. Coordinate installation of footing ground wire at beginning of project.

C. Coordinate installation of conduits for best routing to avoid conflicts.

D. Coordinate painting of plywood backboards for panel and equipment mounting before installation of panels.

3.02 INSTALLATION, PANELBOARDS

A. The final circuit breaker identification cards shall have typewritten identification of circuits under a clear plastic sheet.

3.03 INSTALLATION, GROUND SYSTEM

A. Furnish and install Code required ground rods.

B. Provide and install 600 volt insulated bonding conductors throughout the distribution system with connection to bonding (or grounding) terminal on each panel and panelboard.

C. Provide and install bonding conductor to each item of electrical equipment.

D. Bonding conductors shall be continuous where possible. Where splices are required, provide compression connectors of approved pattern. Insulate connectors to equivalent thickness of conductors.

3.04 INSTALLATION, POSTS

A. Posts: Drill holes for posts of diameters and spacings required, in firm, undisturbed or compacted soil.

1. Unless otherwise indicated, excavate hole depths approximately 3" lower than post bottom, with bottom of posts set not less than 60" below finish grade surface.

2. Provide sonotube in 16" Ø where indicated on Drawings.

3. Place 3/4" crushed stone in bottom 3" of hole to post bottom.

4. Provide concrete fill in sonotube.

END OF SECTION

TOWN OF MATTAWAMKEAG, MAINE
MATTAWAMKEAG BRIDGE SEWER FORCE MAIN REPLACEMENT

SECTION 16898

ELECTRIC PROTECTIVE HEATING CABLES

SECTION 16898 - ELECTRIC PROTECTIVE HEATING CABLES

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Furnish all labor, materials, and equipment necessary to complete all work as shown on drawings and specified. This work is to include but not limited to the following: Furnish and install a complete UL Listed, CSA Certified, or FM Approved system of heating cables, components, and controllers, etc. to prevent piping from freezing. Provide sensor for monitoring pipe temperature.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02701 - Sewer Crossing of Bridge

B. Section 16100 - Basic Electrical Systems.

1.03 REFERENCES

A. All work shall conform to all NFPA Codes and all Federal, State and Local Codes as applicable.

B. Products shall be UL listed.

1.04 QUALITY ASSURANCE

A. The proper installation and operation of all equipment and circuits shall be demonstrated to the satisfaction and requirements of the Engineers.

B. Check cables for ground leakage and provide report of leakage current for cable.

1.05 SUBMITTALS

A. Supply all changes and information necessary to update "record" drawings.

B. Submit shop drawings for the following:

Electric heat trace cable
Sensor extension shielded cable
Aluminum application tape
Cable splice units and terminators
Heat Trace Cable Controller
RTD Temperature sensors

PART 2 - PRODUCTS

2.01 WIRE

A. Supply power wire shall be THWN in conduit up to heat trace connection junction box.

B. Sensor extension cable is 18 gauge, 3 conductor CU with 100% shield with copper drain wire and overall PVC jacket, equal to Belden 8770.

2.02 HEAT TRACE CABLE

A. Heat Trace Cable: The heating cable for metal-pipe freeze protection shall operate on 240V line voltage and be sized for 5 watts per linear foot with Fluoropolymer jacket.

B. In order to conserve energy and to prevent overheating, the heating cable shall have a self-regulating factor of at least 90 percent. The self-regulating factor is defined as the percentage reduction, without thermostatic control, of the heating cable output going from 40°F pipe temperature operation to 150°F pipe temperature operation.

C. Supply equal to self-regulating heat trace by Raychem, Model No. 5-XL-2-CT.

2.03 PERIPHERAL EQUIPMENT

A. Accessories: Provide all necessary accessories for power connection, end seal, and taping as recommended by the manufacturer to make a complete system.

B. Installation shall not require the installing contractor to cut into the heating-cable core to expose the bus wires. Connection systems that require the installing contractor to strip the bus wires, or that use crimps or terminal blocks, shall not be acceptable. All components that make an electrical connection shall be re-enterable for servicing. No component shall use silicone to seal the electrical connections.

C. Provide auxiliary manufacturer's approved equipment and fittings including but not limited to: model GMK-P power connection kits, GMK-E end seal kits, and AT-180 aluminum tape or equivalent Chromalox, Easyheat or Tyco Products.

2.04 HEAT TRACE CABLE CONTROLLER

A. Controller Overview: Provide microprocessor-based, single-point commercial heating cable control system with integrated equipment ground-fault protection. The controller shall monitor and alarm high and low temperature, low current, and ground-fault conditions. Controller shall have RS-485 communication for possible future connection to remote telemetry systems. Controller enclosure shall be rated NEMA 4X to prevent water ingress and corrosion.

B. Sensor Inputs: Equip controller with two inputs from two 3-wire 100-ohm platinum RTD's. Control shall be designed for line-sensing, ambient-sensing and proportional ambient-sensing control (PASC) modes.

C. Alarms: Provide a dry contact relay output for control of an external alarm light circuit. An alarm will be generated for: ground fault, temperature, and current to ensure system integrity. The system shall be settable to periodically check the heating cable for faults.

D. Ground-fault protection: Incorporate ground-fault sensing, alarm, and trip functionality internally. Unit shall automatically test integrity of the integrated ground-fault circuitry, ensuring protection in the event of a ground fault.

2.05 TEMPERATURE SENSORS

A. Supply heat trace cable controller compatible sensors: RTD 100-ohm, platinum temperature sensors, 3-wire, with a temperature coefficient of 0.00385/ohms/ohm/°C in a stainless-steel probe.

B. Units shall be equal to TE Connectivity Model 100M P2C 3S 6 C N.

100M: Moderate temperature range: -58 to 482F
P2C: Platinum 100 ohm +/- .5% at 0°C, .00385 temp coefficient
3S: Three wire, single
6: "L" Sheath Length 6"
C: "D" 0.250" Sheath diameter
N: No options, Stranded TFE Leadwires, (36" Standard)

PART 3 - EXECUTION

3.01 COORDINATION

A. Coordinate installation of electric heat cable with installation of piping before installation of insulation.

3.02 INSTALLATION, HEAT TRACE ON PIPING

A. Install as per manufacturer's installation instructions.

1. Provide extra length and wraps at pipe tees and valves.

2. Terminate cable ends with manufacturer's approved end seals.

3. Make heat tape repairs and splices only using approved splice kits provided by the manufacturer.

B. Layout (see Drawings):

1. Two runs of heat tracing shall start at junction box as shown on Electrical Drawings near south end of bridge and run along the pipe across bridge to terminate at the north end of bridge. Locate heat tracing at 4:00 and 8:00 positions in pipe. Spiraling heat tape is not permitted.

C. Heat tracing shall not be in contact with protection saddles.

D. Apply the heating cable linearly on the pipe after piping has been successfully pressure-tested. Secure the heating cable to piping with aluminum tape and ties.

E. Apply "Electric Traced" labels to the outside of the thermal insulation.

F. Test cable after installation and before and after installing the thermal insulation using a 2500 VDC Megger. Minimum insulation resistance shall be 20 megohms or greater.

G. Refer to Section 02701 for additional installation information.

H. Power connection, end seal, splice, and tee kit components shall be applied in the field.

3.03 INSTALLATION, CONTROLS

A. Connect controller to relay, emergency battery supply and alarm light. Program controller alarm output circuit to open on alarm condition.

B. Program controller to activate heat trace at 35°F (adjustable). When temperature is above setpoint, the heat trace cable shall not draw any power.

C. Connect controls to non-heating portion of the conductors.

*** END OF SECTION ***

SUPPLEMENTAL SPECIFICATIONS

(Corrections, Additions, & Revisions to Standard Specifications – March 2020)

SECTION 104
GENERAL RIGHTS AND RESPONSIBILITIES

104.2.1 Furnishing of Right-of-Way Revise the last sentence in the first paragraph by removing "105.4.5 – Special Detours" and replacing it with "**105.4.5 – Maintenance of Existing Structures**.".

SECTION 401
HOT MIX ASPHALT PAVEMENT

401.19 Contractor Quality Control Amend this Section by adding the following to the end:
"Failure to comply with the approved QCP will result in work suspension and pay reductions as outlined in Section 106.4.6. The Quality Control Plan Value shall be the total bid value for all items covered by the QCP as identified in Special Provision 403."

SECTION 502
STRUCTURAL CONCRETE

502.09 Forms and Falsework Amend this subsection by adding the subsection title "**502.10 Placing Concrete**" after section "D" Removal of Forms and False work" and after the paragraph beginning with "2. Forms and False work, including blocking…". So that a new subsection starts and reads:

"**502.10 Placing Concrete**

A. **General Concrete shall not be placed until forms** …."

502.1701 Quality Control, Method A and B Revise this Section so that the first paragraph and the first sentence of the second paragraph read:

"**502.17 Quality Control The Contractor shall control the quality of the concrete through testing, inspection, and practices which shall be described in the QCP, sufficient to assure a product meeting the Contract requirements. The QCP shall meet the requirements of Section 106, Quality, and this specification. No work under this item shall proceed until the QCP is submitted to and approved by the Department. Failure to comply with the approved QCP will result in work suspension and pay reductions as outlined in Section 106.4.6. The Quality Control Plan Value shall be the total bid value for all cast-in-place items covered by the QCP, using the P value listed in Special Provision 502. If no P value is listed, a value of $350, or bid value per cubic yard, whichever is less, shall be used.**

502.1701 Quality Control, Method A and B The QCP shall address all elements that affect the quality of the structural concrete including, but not limited to, the following: "

SECTION 606
GUARDRAIL

Amend this section by replacing it with the following:

606.01 Description This work shall consist of furnishing and installing guardrail components in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans or as established. Guardrail is designated as:

31" W-Beam Guardrail - Mid-Way Splice
Galvanized steel w-beam, 8" wood or composite offset blocks, galvanized steel posts

Thrie Beam
Galvanized steel thrie beam, 8" wood or composite offset blocks, galvanized steel posts

Median guardrail shall consist of two beams of the above types, mounted on single posts.

Bridge mounted guardrail shall consist of furnishing all labor, materials, and equipment necessary to install guardrail as shown on the plans. This work shall also include drilling for and installation of offset blocks if specified, and incidental hardware necessary for satisfactory completion of the work.

Remove and Reset and Remove, Modify, and Reset guardrail shall consist of removing the existing designated guardrail and resetting in a new location as shown on the plans or directed by the Resident. Remove, Modify, and Reset guardrail and Modify guardrail include the following guardrail modifications: Removing plate washers at all posts, except at anchorage assemblies as noted on the Standard Details, adding offset blocks, and other modifications as listed in the Construction Notes or General Notes. Modifications shall conform to the guardrail Standard Details.

Bridge Connection shall consist of the installation and attachment of beam guardrail to the existing bridge. This work shall consist of constructing a concrete end post or modifying an existing end post as required, furnishing, and installing a terminal connector, necessary hardware, and incidentals required to complete the work as shown on the plans. Bridge Transition shall consist of a bridge connection and furnishing and installing guardrail components as shown in the Standard Details.

606.02 Materials Materials shall meet the requirements specified in the following Sections of Division 700 - Materials:

Timber Preservative	708.05
Metal Beam Rail	710.04
Guardrail Posts	710.07
Guardrail Hardware	710.08

Guardrail components shall meet the applicable standards of "A Guide to Standardized Highway Barrier Hardware" prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Task Force 13 Report.

Posts for underdrain delineators shall be "U" channel steel, 8 ft long, 2 ½ lb/ft minimum and have 3/8-inch round holes, 1-inch center to center for a minimum distance of 2 ft from the top of the post.

Reflectorized Flexible Guardrail Markers shall be mounted on all guardrails. A marker shall be mounted onto guardrail posts at the flared guardrail terminal end point and tangent point, both at the leading and trailing ends of each run of guardrail. The marker's flexible posts shall be gray with either silver-white or yellow reflectors (to match the edge line striping) at the tangents, red at leading ends, and green at trailing ends. Whenever the guardrail terminal is not flared, markers will only be required at the terminal end point. These shall be red or green as appropriate. Markers shall be installed on the protected side of guardrail posts unless otherwise approved by the Resident. Reflectorized flexible guardrail markers shall be from the Department's Qualified Products List of Delineators. The marker shall be gray, flexible, durable, and of a non-discoloring material to which 3-inch by 9-inch reflectors shall be applied, and capable of recovering from repeated impacts and meeting MASH 16 requirements. Reflective material shall meet the requirements of Section 719.01 for ASTM D 4956 Type III reflective sheeting. The marker shall be secured to the guardrail post with two fasteners, as shown in the Standard Details.

Reflectorized beam guardrail ("butterfly"-type) delineators shall be mounted on all "w"-beam guardrail. The delineators shall be mounted within the guardrail beam at guardrail posts. Delineators shall be fabricated from high-impact, ultraviolet & weather resistant thermoplastic. Reflectorized beam guardrail delineators shall be placed at approximately 62.5 ft intervals or every tenth post on tangents and at approximately 31.25 ft intervals or every fifth post on curves. Exact locations of the delineators shall be as directed by the Resident. On divided highways, the left-hand delineators shall be yellow, and the right-hand delineators shall be silver/white. On two directional highways, the right-hand side shall be silver/white, and no reflectorized delineator used on the left. All reflectors shall have reflective sheeting applied to only one side of the delineator facing the direction of traffic as shown in the Standard Details. Reflectorized sheeting for guardrail delineators shall meet the requirements of Section 719.01.

Single wood post shall be of cedar, white oak, or tamarack, well-seasoned, straight, and sound and have been cut from live trees. The outer and inner bark shall be removed, and all knots trimmed flush with the surface of the post. Posts shall be uniform taper and free of kinks and bends.

Single steel post shall conform to the requirements of Section 710.07 b.

Single steel pipe post shall be galvanized, seamless steel pipe conforming to the requirements of ASTM A120, Schedule No. 40, Standard Weight.

Acceptable multiple mailbox assemblies shall be listed on the Department's Qualified Products List and shall be MASH 16 tested and approved.

Flared and Tangent w-beam guardrail terminals and guardrail offset blocks shall be from the Department's Qualified Products List. Flared terminals shall be installed with a 4 ft offset as shown in the Manufacturer's installation instructions.

Anchorage assemblies used to anchor trailing ends, radius guardrail, or other ends not exposed to traffic shall meet the applicable standards of "A Guide to Standardized Highway Barrier Hardware" prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Task Force 13 Report, Drawing SEW02a.

Existing materials damaged or lost during adjusting, removing and resetting, or removing, modifying, and resetting, shall be replaced by the Contractor without additional compensation. Existing guardrail posts and guardrail beams found to be unfit for reuse shall be replaced when directed by the Resident.

606.03 Posts Posts for guardrail shall be set plumb in holes or they may be driven if suitable driving equipment is used to prevent battering and distorting the post. When posts are driven through pavement, the damaged area around the post shall be repaired with approved bituminous patching. Damage to lighting and signal conduit and conductors shall be repaired by the Contractor.

When set in holes, posts shall be on a stable foundation and the space around the posts, backfilled in layers with suitable material, thoroughly tamped.

The reflectorized flexible guardrail markers shall be set plumb with the reflective surface facing the oncoming traffic. Markers shall be installed on the protected side of guardrail posts. Markers, which become bent or otherwise damaged, shall be removed and replaced with new markers.

Single wood posts shall be set plumb in holes and backfilled in layers with suitable material, thoroughly tamped. The Resident will designate the elevation and shape of the top. The posts, that are not pressure treated, shall be painted two coats of good quality oil base exterior house paint.

Single steel posts shall be set plumb in holes as specified for single wood posts or they may be driven if suitable driving equipment is used to prevent battering and distorting the post.

Additional bolt holes required in existing posts shall be drilled or punched, but the size of the holes shall not exceed the dimensions given in the Standard Details. Metal around the holes shall be thoroughly cleaned and painted with two coats of approved aluminum rust resistant paint. Holes shall not be burned.

606.04 Rails Brackets and fittings shall be placed and fastened as shown on the plans. Rail beams shall be erected and aligned to provide a smooth, continuous barrier. Beams shall be lapped with the exposed end away from approaching traffic.

End assemblies shall be installed as shown on the plans and shall be securely attached to the rail section and end post.

All bolts shall be of sufficient length to extend beyond the nuts but not more than ½ inch. Nuts shall be drawn tight.

Additional bolt holes required in existing beams shall be drilled or punched, but the size of the holes shall not exceed the dimensions given in the Standard Details. Metal around the holes shall be thoroughly cleaned and painted with two coats of approved aluminum rust resistant paint. Holes shall not be burned.

606.045 Offset Blocks The same offset block material is to be provided for the entire project unless otherwise specified.

606.05 Shoulder Widening At designated locations the existing shoulder of the roadway shall be widened as shown on the plans. All grading, paving, seeding, and other necessary work shall be in accordance with the Specifications for the type work being done.

606.06 Mail Box Post Single wood post shall be installed at the designated location for the support of the mailbox. The multiple mailbox assemblies shall be installed at the designated location in accordance with the Standard Details and as recommended by the Manufacturer. Attachment of the mailbox to the post will be the responsibility of the home or business owner.

606.07 Abraded Surfaces All galvanized surfaces of new guardrail and posts, which have been abraded so that the base metal is exposed, and the threaded portions of all fittings and fasteners and cut ends of bolts shall be cleaned and painted with two coats of approved rust resistant paint.

606.08 Method of Measurement Guardrail will be measured by the linear foot from center to center of end posts along the gradient of the rail except where end connections are made to masonry or steel structures, in which case measurement will be as shown on the plans. When connected to radius rail, measurement will be to the end of the last tangent beam.

Guardrail terminal, reflectorized flexible guardrail marker, terminal end, anchorage assembly, bridge transition, bridge connection, multiple mailbox post, and single post will be measured by each unit of the kind specified and installed.

Widened shoulder will be measured as a unit of grading within the limits shown on the plans.

Excavation in solid rock for placement of posts will be paid under force account unless otherwise indicated in the Bid Documents.

606.09 Basis of Payment The accepted quantities of guardrail will be paid for at the contract unit price per linear foot for the type specified, complete in place. Reflectorized beam guardrail (“butterfly”-type) delineators will not be paid for directly but will be considered incidental to guardrail items. Reflectorized flexible guardrail marker, terminal end, anchorage assembly, bridge transition, bridge connection, multiple mailbox post, and single post will be paid for at the contract unit price each for the kind specified complete in place.

Guardrail terminals will be paid for at the contract price each, complete in place which price shall be full payment for furnishing and installing all components including the terminal section, posts, offset blocks, "w" beam, cable foundation posts, plates and for all incidentals necessary to complete the installation within the limits as shown on the Standard Details or the Manufacturer's installation instructions. Pay limits for a flared terminal will be 37.5 feet. Pay limits for a tangent terminal will be 50 feet. Each guardrail terminal will be clearly marked with the Manufacturer's name and model number to facilitate any future needed repair. Such payment shall also be full compensation for furnishing all material, excavating, backfilling holes, assembling, and all incidentals necessary to complete the work, except that for excavation for posts or anchorages in solid ledge rock, payment will be made under 109.7.5 – Force Account. Type III Retroreflective Adhesive Sheeting shall be applied to the approach buffer end sections and sized to substantially cover the end section. On all roadways, the ends shall be marked with alternating black and retroreflective yellow stripes. The stripes shall be 3 in wide and sloped down at an angle of 45 degrees toward the side on which traffic is to pass the end section. Guardrail terminals shall also include a set of installation drawings supplied to the Resident.

Anchorages to bridge end posts will be part of the bridge work. Connections thereto will be considered included in the unit bid price for guardrail.

Guardrail to be placed on a radius of curvature of 150 ft or less will be paid for under the designated radius pay item for the type guardrail being placed.

Widened shoulder will be paid for at the contract unit price each complete in place and will be full compensation for furnishing and placing, grading and compaction of aggregate subbase and any required fill material.

Adjust guardrail will be paid for at the contract unit price per linear foot and will be full compensation for adjusting to grade. Payment shall also include adjusting guardrail terminals where required.

Modify guardrail will be paid for at the contract unit price per linear foot and will be full compensation for furnishing and installing offset blocks, additional posts, and other specified modifications; removing, modifying, installing, and adjusting to grade existing posts and beams; removing plate washers and backup plates, and all incidentals necessary to complete the work. Payment shall also include removing and resetting guardrail terminals where required.

Remove and Reset guardrail will be paid for at the contract unit price per linear foot and will be full compensation for removing, transporting, storing, reassembling all parts, necessary cutting, furnishing new parts when necessary, reinstalling at the new location, and all other incidentals necessary to complete the work. Payment shall also include removing and resetting guardrail terminals when required.

Remove, Modify, and Reset guardrail will be paid for at the contract unit price per foot and will be full compensation for the requirements listed in Modify guardrail and Remove and Reset guardrail.

Bridge Connections will be paid for at the contract unit price each. Payment shall include, attaching the connection to the endpost including furnishing and placing concrete and reinforcing steel necessary to construct new endposts if required, furnishing and installing the terminal connector, and all miscellaneous hardware, labor, equipment, and incidentals necessary to complete the work.

Bridge Transitions will be paid for at the contract unit price each. Payment shall include furnishing and installing the thrie beam or "w"-beam terminal connector, doubled beam section, and transition section, where called for, posts, hardware, precast concrete transition curb, and any other necessary materials and labor, including the bridge connection as stated in the previous paragraph.

No payment will be made for guardrail removed, but not reset and all costs for such removal shall be considered incidental to the various contract pay items.

Payment will be made under:

Pay Item		Pay Unit
606.1301	31" W-Beam Guardrail - Mid-Way Splice – Single Faced	Linear Foot
606.1302	31" W-Beam Guardrail - Mid-Way Splice – Double Faced	Linear Foot
606.1303	31" W-Beam Guardrail - Mid-Way Splice, 15' Radius and Less	Linear Foot
606.1304	31" W-Beam Guardrail - Mid-Way Splice, Over 15' Radius	Linear Foot
606.1305	31" W-Beam Guardrail - Mid-Way Splice Flared Terminal	Each
606.1306	31" W-Beam Guardrail - Mid-Way Splice Tangent Terminal	Each
606.1307	Bridge Transition (Asymmetrical) – Type IA	Each
606.1721	Bridge Transition - Type I	Each
606.1722	Bridge Transition - Type II	Each
606.1731	Bridge Connection - Type I	Each
606.1732	Bridge Connection - Type II	Each
606.178	Guardrail Beam	Linear Foot
606.25	Terminal Connector	Each
606.257	Terminal Connector - Thrie Beam	Each
606.259	Anchorage Assembly	Each
606.265	Terminal End-Single Rail - Galvanized Steel	Each
606.266	Terminal End-Single Rail - Corrosion Resistant Steel	Each
606.275	Terminal End-Double Rail - Galvanized Steel	Each
606.276	Terminal End-Double Rail - Corrosion Resistant Steel	Each
606.353	Reflectorized Flexible Guardrail Marker	Each
606.354	Remove and Reset Reflectorized Flexible Guardrail Marker	Each
606.356	Underdrain Delineator Post	Each
606.358	Guardrail, Modify	Linear Foot
606.362	Guardrail, Adjust	Linear Foot
606.365	Guardrail, Remove, Modify, and Reset	Linear Foot
606.366	Guardrail, Remove and Reset	Linear Foot

606.367	Replace Unusable Existing Guardrail Posts	Each
606.47	Single Wood Post	Each
606.48	Single Galvanized Steel Post	Each
606.50	Single Steel Pipe Post	Each
606.51	Multiple Mailbox Support	Each
606.568	Guardrail, Modify - Double Rail	Linear Foot
606.63	Thrie Beam Rail Beam	Linear Foot
606.64	Guardrail Thrie Beam - Double Rail	Linear Foot
606.65	Guardrail Thrie Beam - Single Rail	Linear Foot
606.66	Terminal End Thrie Beam	Each
606.70	Transition Section - Thrie Beam	Each
606.71	Guardrail Thrie Beam - 15 ft radius and less	Linear Foot
606.72	Guardrail Thrie Beam - over 15 ft radius	Linear Foot
606.73	Guardrail Thrie Beam - Single Rail Bridge Mounted	Linear Foot
606.74	Guardrail - Single Rail Bridge Mounted	Linear Foot
606.753	Widen Shoulder for Low Volume Guardrail End	Each
606.754	Widen Shoulder for Flared Guardrail Terminal	Each
606.78	Low Volume Guardrail End	Each
606.80	Buried-in-Slope Guardrail End	Each

SECTION 618
SEEDING

618.08 Mulching Revise this Section so that the third sentence reads: "Mulch for Seeding Method Number 1 shall only be cellulous fiber mulch Section 619.04 **(b)** or straw mulch Section 619.04 (**a**)."

SECTION 626
FOUNDATIONS, CONDUIT, AND JUNCTION BOXES FOR HIGHWAY SIGNING, LIGHTING, AND SIGNALS

626.034 Concrete Foundations Revise this Section by changing '626.037' to '**626.036**' in the Second Paragraph which begins with "Foundations shall consist of cast-in-place…".

Revise the 10th paragraph beginning with "Before placing concrete, the required elbows…" by removing "…**in accordance with Standard Specification 633**."

SECTION 645
HIGHWAY SIGNING

Section 645.023 Sign Support Structures. Under letter "c.", revise the fifth paragraph beginning with "In addition to the required details…" by removing the words "**and foundation**" from the 5th sentence.

Section 645.08 Method of Measurement. Revise the second paragraph beginning with "Bridge-type, cantilever and…" by removing the words "**including the foundation**" .

Section 645.09 Basis of Payment. Revise the third paragraph beginning with "The accepted bridge-type, cantilever and…" by removing the word "**foundation**" from the second sentence. Add the following sentence to the end of the paragraph "**Conduits, Junction Boxes, and Foundations will be paid for under Section 626.**"

SECTION 681
PRECAST AGGREGATE-FILLED, CONCRETE BLOCK GRAVITY WALL

681.08 Basis of Payment Amend this section by adding the Item Number "**681.10**' in front of the item "Precast Aggregate-Filled Concrete Block Gravity Wall" at the end of the section.

SECTION 703
AGGREGATES

Add the following to the beginning of Section 703 - Aggregates

703.01 Fine Aggregate for Concrete Fine aggregate for concrete shall consist of natural sand or, when approved by the Resident, other inert materials with similar characteristics or combinations thereof, having strong, durable particles. Fine aggregate from different sources of supply shall not be mixed or stored in the same pile nor used alternately in the same class of construction or mix without permission of the Resident.

All fine aggregate shall be free from injurious amounts of organic impurities. Should the fine aggregate, when subjected to the colorimetric test for organic impurities, AASHTO T 21, produce a color darker than the reference standard color solution (laboratory designation Plate III), the fine aggregate shall be rejected.

Fine aggregate shall have a sand equivalent value of not less than 75 when tested in accordance with AASHTO T 176.
Fine aggregate sources shall meet the Alkali Silica Reactivity (ASR) requirements of Section 703.0201.

The fineness modulus shall not be less than 2.26 or more than 3.14. If this value is exceeded, the fine aggregate will be rejected unless suitable adjustments are made in proportions of coarse and fine aggregate. The fineness modulus of fine aggregate shall be determined by adding the cumulative percentages of material by weight retained on the following sieves: Nos. 4, 8, 16, 30, 50, 100 and dividing by 100.

Fine aggregate, from an individual source when tested for absorption as specified in AASHTO T 84, shall show an absorption of not more than 2.3 percent.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
⅜ inch	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	10-30
No. 100	2-10
No. 200	0-5.0

703.02 Coarse Aggregate for Concrete Coarse aggregate for concrete shall consist of crushed stone or gravel having hard, strong, durable pieces, free from adherent coatings and of which the composite blend retained on the ⅜ inch sieve shall contain no more than 15 percent, by weight of flat and elongated particles when performed in accordance with test method ASTM D 4791, Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate, using a dimensional ratio of 1:5.

The coarse aggregate from an individual source shall have an absorption no greater than 2.0 percent by weight determined in accordance with AASHTO T 85 modified for weight of sample.

The composite blend shall have a Micro-Deval value of 18.0 percent or less as determined by AASHTO T 327 or not exceed 40 percent loss as determined by AASHTO T 96.

Coarse aggregate sources shall meet the Alkali Silica Reactivity (ASR) requirements of Section 703.0201.

Coarse aggregate shall conform to the requirements of the following table for the size or sizes designated and shall be well graded between the limits specified.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves			
Grading	A	AA	S	LATEX
Aggregate Size	1 inch	¾ inch	1½ inch	½ inch
2 inch			100	
1½ inch	100		95-100	
1 inch	95-100	100	-	
¾ inch	-	90-100	35-70	100
½ inch	25-60	-	-	90-100
⅜ inch	-	20-55	10-30	40-70
No. 4	0-10	0-10	0-5	0-15
No. 8	0-5	0-5	-	0-5
No. 16	-	-	-	-
No. 50	-	-	-	-
No. 200	0 - 1.5	0 - 1.5	0 - 1.5	0 - 1.5

703.0201 Alkali Silica Reactive Aggregates. All coarse and fine aggregates proposed for use in concrete shall be tested for Alkali Silica Reactivity (ASR) potential under AASHTO T 303 (ASTM C 1260), Accelerated Detection of Potentially Deleterious Expansion of Mortar Bars Due to Alkali-Silica Reaction, prior to being accepted for use. Acceptance will be based on testing performed by the Department. Sampling will be performed by the Department from stockpiles located at the Contractor's/supplier's ready mixed concrete plants. Aggregate approvals will be performed on a 3-year cycle, unless the source or character of the aggregate in question has changed within 3 years from the last test date.

A list of pre-approved coarse aggregate and aggregate-cement/pozzolan blends is maintained by the Department and will determine the acceptability of concrete mix designs proposed for use.

As per AASHTO T 303 (ASTM C 1260): Use of a particular coarse or fine aggregate will be allowed with no restrictions when the mortar bars made with this aggregate expand less than or equal to 0.10 percent at 30 days from casting. Use of a particular coarse or fine aggregate will be classified as potentially reactive when the mortar bars made with this aggregate expand greater than 0.10 percent at 30 days from casting. Use of this aggregate will only be allowed with the use of cement-pozzolan blends and/or chemical admixtures that result in mortar bar expansion of less than 0.10 percent at 30 days from casting.

Acceptable pozzolans and chemical admixtures that may be used when an aggregate is classified as potentially reactive include the following:

a. Class F Coal Fly Ash meeting the requirements of AASHTO M 295.

b. Ground Granulated Blast Furnace Slag (Grade 100 or 120) meeting the requirements of AASHTO M 302.
c. Densified Silica Fume meeting the requirements of AASHTO M 307.
d. Lithium Hydroxide Monohydrate ($LiOH\text{-}H_2O$).

Pozzolans or chemical admixtures required to offset the effects of potentially reactive aggregates will be incorporated into the concrete at no additional cost to the Department.

Aggregates classified as potentially reactive by the requirements of this specification may be used if certified test results from an accredited independent laboratory utilizing the current AASHTO T 303 (ASTM C 1260) Accelerated Detection of Potentially Deleterious Expansion of Mortar Bars Due to Alkali-Silica Reaction, indicating an acceptable alkali-aggregate combination, are submitted to the Department.

703.05 Aggregate for Sand Leveling Aggregate for sand leveling shall be sand of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The aggregate shall meet the grading requirements of the following table.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
⅜ inch	85-100
No. 200	0-5.0

703.06 Aggregate for Base and Subbase The following shall apply to Sections (a.) and (c.) below. The material shall have a Micro-Deval…" and replace with "The material shall have a minimum degradation value of 25.0 or less15 as determined by AASHTO T 327. If the Micro-Deval value exceeds 25.0, the Washington State Degradation DOT Test Method T 113T113, Method of Test for Determination of Degradation Value (January 2009 version) shall be performed), except that the test shall be performed on the reported degradation value will be the result of testing a single specimen from that portion of the sample that passes the ½ in sieve and is retained on the No. 10 sieve. If the material has a Washington Degradation value of less than 15, the material shall be rejected.

The material, minus any reclaimed asphalt pavement used in Section (b.) below shall have a Micro-Deval value of 25.0 or less as determined by AASHTO T 327. If the Micro-Deval value exceeds 25.0 the material may be used if it does not exceed 25 percent loss on AASHTO T 96, Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine. If AASHTO T 96 is used for acceptance of the material, the material shall be retested at intervals of 25%, 50% and 75% completion of the course.

Recycled Asphalt Pavement (RAP) shall not be used for or blended with aggregate base or subbase.

a. Aggregate for base, Type A and B shall be crushed ledge or crushed gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation of the part that passes a 3 inch sieve shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	Type A	Type B
½ inch	45-70	35-75
¼ inch	30-55	25-60
No. 40	0-20	0-25
No. 200	0-6.0	0-6.0

At least 50 percent by weight of the material retained on the No. 4 sieve shall have at least one fractured face as tested by AASHTO T 335.

Type A aggregate for base shall only contain particles of rock that will pass the 2 inch square mesh sieve.

Type B aggregate for base shall only contain particles of rock that will pass the 4 inch square mesh sieve.

b. Aggregate for base, Type C shall be crushed ledge or crushed gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The material shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
	Type C
4 inches	100
3 inches	90-100
2 inches	75-100
1 inch	50-80
½ inch	30-60
No. 4	15-40
No. 200	0-6.0

At least 50 percent by weight of the material coarser than the No. 4 sieve shall have at least one fractured face as tested by AASHTO T 335.

c. Aggregate for subbase shall be sand or gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation of the part that passes a 3 inch sieve shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	Type D	Type E
½ in	35-80	
¼ inch	25-65	25-100
No. 40	0-30	0-50
No. 200	0-7.0	0-7.0

Type D aggregate for subbase gravel may contain up to 50 percent by weight Recycled Concrete Aggregate (RCA). When RCA is used, the portion of the resulting blend of gravel and RCA retained on a ½" square mesh sieve shall contain a total of no more than 5 percent by weight of other recycled materials such as brick, concrete masonry block, or asphalt pavement as determined by visual inspection.

RCA shall be substantially free of wood, metal, plaster, and gypsum board as defined in Note 9 in Section 7.4 of AASHTO M 319. RCA shall also be free of all substances that fall under the category of solid waste or hazardous materials.

Aggregate for subbase shall not contain particles of rock which will not pass the 6 inch square mesh sieve.

APPENDIX A TO DIVISION 100

SECTION 1 - BIDDING PROVISIONS

A. Federally Required Certifications By signing and delivering a Bid, the Bidder certifies as provided in all certifications set forth in this Appendix A - Federal Contract Provisions Supplement including:

- Certification Regarding No Kickbacks to Procure Contract as provided on this page 1 below.
- Certification Regarding Non-collusion as provided on page 1 below.
- Certification Regarding Non-segregated Facilities as provided by FHWA Form 1273, section III set forth on page 21 below.
- "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion" as provided by FHWA Form 1273, section XI set forth on page 32 below.
- "Certification Regarding Use of Contract Funds for Lobbying" as provided by FHWA Form 1273, section XII set forth on page 35 below.

Unless otherwise provided below, the term "Bidder", for the purposes of these certifications, includes the Bidder, its principals, and the person(s) signing the Bid. Upon execution of the Contract, the Bidder (then called the Contractor) will again make all the certifications indicated in this paragraph above.

CERTIFICATION REGARDING NO KICKBACKS TO PROCURE CONTRACT Except expressly stated by the Bidder on sheets submitted with the Bid (if any), the Bidder hereby certifies, to the best of its knowledge and belief, that it has not:

(A) employed or retained for a commission, percentage, brokerage, contingent fee, or other consideration, any firm or person (other then a bona fide employee working solely for me) to solicit or secure this contract;

(B) agreed, as an express or implied condition for obtaining this contract, to employ or retain the services of any firm or person in connection with carrying out the contract, or;

C) paid, or agreed to pay, to any firm, organization, or person (other than a bona fide employee working solely for me) any fee, contribution, donation, or consideration of any kind for, or in connection with, procuring or carrying out the contract;

By signing and submitting a Bid, the Bidder acknowledges that this certification is to be furnished to the Maine Department of Transportation and the Federal Highway Administration, U.S. Department of Transportation in connection with this contract in anticipation of federal aid highway funds and is subject to applicable state and federal laws, both criminal and civil.

CERTIFICATION REGARDING NONCOLLUSION Under penalty of perjury as provided by federal law (28 U.S.C. §1746), the Bidder hereby certifies, to the best of its knowledge and belief, that:

> the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with the Contract.

For a related provisions, see Section 102.7.2 (C) of the Standard Specifications - "Effects of Signing and Delivery of Bids" - "Certifications", Section 3 of this Appendix A entitled "Other Federal Requirements" including section XI - "Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion" and section XII. - "Certification Regarding Use of Contract Funds for Lobbying."

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B. Bid Rigging Hotline To report bid rigging activities call: **1-800-424-9071**

The U.S. Department of Transportation (DOT) operates the above toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m., eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

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SECTION 2 - FEDERAL EEO AND CIVIL RIGHTS REQUIREMENTS

Unless expressly otherwise provided in the Bid Documents, the provisions contained in this Section 2 of this "Federal Contract Provisions Supplement" are hereby incorporated into the Bid Documents and Contract.

A. Nondiscrimination & Civil Rights - Title VI The Contractor and its subcontractors 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 Department deems appropriate. The Contractor and subcontractors shall comply with Title VI of the Civil Rights Act of 1964, as amended, and with all State of Maine and other Federal Civil Rights laws.

For related provisions, see Subsection B - "Nondiscrimination and Affirmative Action - Executive Order 11246" of this Section 2 and Section 3 - Other Federal Requirements of this "Federal Contract Provisions Supplement" including section II - "Nondiscrimination" of the "Required Contract Provisions, Federal Aid Construction Contracts", FHWA-1273.

B. Nondiscrimination and Affirmative Action - Executive Order 11246 Pursuant to Executive Order 11246, which was issued by President Johnson in 1965 and amended in 1967 and 1978, this Contract provides as follows.

The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its efforts to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

Ensure and maintain a working environment free of harassment, intimidations, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all forepersons, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its union have employment opportunities available, and to maintain a record of the organization's responses.

Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

Provide immediate written notification to the Department's Civil Rights Office when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Design-Builder's efforts to meet its obligations.

Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under B above.

Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligation; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Forepersons, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractor's and Subcontractors with whom the Contractor does or anticipates doing business.

Direct its recruitment efforts, both orally and written to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later that one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above describing the openings, screenings, procedures, and test to be used in the selection process.

Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth, both on the site and in other areas of a Contractor's workforce.

Validate all tests and other selection requirements.

Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

Ensure that all facilities and company activities are non segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction Contractor's and suppliers, including circulation of solicitations to minority and female Contractor associations and other business associations.

Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

C. Goals for Employment of Women and Minorities Per Executive Order 11246, craft tradesperson goals are 6.9% women and .5% minorities employed. However, goals may be adjusted upward at the mutual agreement of the Contractor and the Department. Calculation of these percentages shall not include On-the-Job Training Program trainees, and shall not include clerical or field clerk position employees.

For a more complete presentation of requirements for such Goals, see the federally required document "Goals for Employment of Females and Minorities" set forth in the next 6 pages below.

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Start of GOALS FOR EMPLOYMENT OF FEMALES AND MINORITIES
Federally Required Contract Document

§60-4.2 Solicitations

(d) The following notice shall be included in, and shall be part of, all solicitations for offers and bids on all Federal and federally assisted construction contracts or subcontracts in excess of $10,000 to be performed in geographical areas designated by the Director pursuant to §60-4.6 of this part (see 41 CFR 60-4.2(a)):

Notice of Requirement for Affirmative Action to Ensure Equal Opportunity (Executive Order 11246)

1. The Offeror's or bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

Goals for female participation in each trade	6.9%

Goals for minority participation for each trade

Maine

001 Bangor, ME	0.8%
Non-SMSA Counties (Aroostook, Hancock, Penobscot, Piscataquis, Waldo, Washington)	
002 Portland-Lewiston, ME	
SMSA Counties: 4243 Lewiston-Auburn, ME (Androscoggin)	0.5%
6403 Portland, ME (Cumberland, Sagadahoc)	0.6%

Non-SMSA Counties: 0.5%
(Franklin, Kennebec, Knox, Lincoln, Oxford, Somerset, York)

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 non federally 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 in 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 started and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the Contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any).

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

   c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department form 941;

   d. "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of the North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the contractor, is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors for Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a. through p. of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical areas where the work is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specific.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant, thereto.

6. In order for the non working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as expensive as the following:

   a. Ensure and maintain a working environment free of harassment, intimidation, coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, when possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

   b. Establish and maintain a current list of minority and female recruitment sources provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.

   c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment sources or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

   d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

   e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment, efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing prior to the date for the acceptance of applications for apprenticeship or the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitation to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7 a through p.). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7 a through p. of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program and reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions take on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both make and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, specific minority group of women is underutilized.)

10. The Contractor shall not use the goals and timetables or affirmative action even through the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementation regulations by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.6.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g. mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and location sat which the work was performed. Records be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

End of GOALS FOR EMPLOYMENT OF FEMALES AND MINORITIES
Federally Required Contract Document

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D. Section '**D Disadvantaged Business Enterprise (DBE) Requirements**' is removed in its entirety. The DBE material is in:

Section 105.10 EQUAL OPPORTUNITY AND CIVIL RIGHTS.

SECTION 3 - OTHER FEDERAL REQUIREMENTS

Unless expressly otherwise provided in the Bid Documents, the provisions contained in this Section 3 of this "Federal Contract Provisions Supplement" are hereby incorporated into the Bid Documents and Contract.

A. Buy America

If the cost of products purchased for permanent use in this project which are manufactured of steel, iron or the application of any coating to products of these materials exceeds 0.1 percent of the contract amount, or $2,500.00, whichever is greater, the products shall have been manufactured and the coating applied in the United States. The coating materials are not subject to this clause, only the application of the coating. In computing that amount, only the cost of the product and coating application cost will be included.

Ore, for the manufacture of steel or iron, may be from outside the United States; however, all other manufacturing processes of steel or iron must be in the United States to qualify as having been manufactured in the United States.

United States includes the 50 United States and any place subject to the jurisdiction thereof.

Products of steel include, but are not limited to, such products as structural steel, piles, guardrail, steel culverts, reinforcing steel, structural plate and steel supports for signs, luminaries and signals.

Products of iron include, but are not limited to, such products as cast iron grates.

Application of coatings include, but are not limited to, such applications as epoxy, galvanized and paint.

To assure compliance with this section, the Contractor shall submit a certification letter on its letterhead to the Department stating the following:

> "This is to certify that products made of steel, iron or the application of any coating to products of these materials whose costs are in excess of $2,500.00 or 0.1 percent of the original contract amount, whichever is greater, were manufactured and the coating, if one was required, was applied in the United States."

B. Materials

a. Convict Produced Materials References: 23 U.S.C. 114(b)(2), 23 CFR 635.417
Applicability: FHWA's prohibition against the use of convict material only applies to Federal-aid highways. Materials produced after July 1, 1991, by convict labor may only be incorporated in a Federal-aid highway construction project if: 1) such materials have been produced by convicts who are on parole, supervised release, or probation from a prison; or
2) such material has been produced in a qualified prison facility, e.g., prison industry, with the amount produced during any 12-month period, for use in Federal-aid projects, not exceeding the amount produced, for such use, during the 12-month period ending July 1, 1987.

Materials obtained from prison facilities (e.g., prison industries) are subject to the same requirements for Federal-aid participation that are imposed upon materials acquired from other sources. Materials manufactured or produced by convict labor will be given no preferential treatment.

The preferred method of obtaining materials for a project is through normal contracting procedures which require the contractor to furnish all materials to be incorporated in the work. The contractor selects the source, public or private, from which the materials are to be obtained (23 CFR 635.407). Prison industries are prohibited from bidding on projects directly (23 CFR 635.112e), but may act as material supplier to construction contractors.

Prison materials may also be approved as State-furnished material. However, since public agencies may not bid in competition with private firms, direct acquisition of materials from a

prison industry for use as State-furnished material is subject to a public interest finding with the Division Administrator's concurrence (23 CFR 635.407d). Selection of materials produced by convict labor as State-furnished materials for mandatory use should be cleared prior to the submittal of the Plans Specifications & Estimates (PS&E).

b. Patented/Proprietary Products References: 23 U.S.C. 112, 23 CFR 635.411

FHWA will not participate, directly or indirectly, in payment for any premium or royalty on any patented or proprietary material, specification, or process specifically set forth in the plans and specifications for a project, unless:

- the item is purchased or obtained through competitive bidding with equally suitable unpatented items,
- the STA certifies either that the proprietary or patented item is essential for synchronization with the existing highway facilities or that no equally suitable alternative exists, or
- the item is used for research or for a special type of construction on relatively short sections of road for experimental purposes. States should follow FHWA's procedures for "Construction Projects Incorporating Experimental Features" (expermnt.htm) for the submittal of work plans and evaluations.

The primary purpose of the policy is to have competition in selection of materials and allow for development of new materials and products. The policy further permits materials and products that are judged equal may be bid under generic specifications. If only patented or proprietary products are acceptable, they shall be bid as alternatives with all, or at least a reasonable number of, acceptable materials or products listed; and the Division Administrator may approve a single source if it can be found that its utilization is in the public interest.

Trade names are generally the key to identifying patented or proprietary materials. Trade name examples include 3M, Corten, etc. Generally, products identified by their brand or trade name are not to be specified without an "or equal" phrase, and, if trade names are used, all, or at least a reasonable number of acceptable "equal" materials or products should be listed. The licensing of several suppliers to produce a product does not change the fact that it is a single product and should not be specified to the exclusion of other equally suitable products.

c. State Preference References: 23 U.S.C. 112, 23 CFR 635.409

Materials produced within Maine shall not be favored to the exclusion of comparable materials produced outside of Maine. State preference clauses give particular advantage to the designated source and thus restrict competition. Therefore, State preference provisions shall not be used on any Federal-aid construction projects.

This policy also applies to State preference actions against materials of foreign origin, except as otherwise permitted by Federal law. Thus, States cannot give preference to in-State material sources over foreign material sources. Under the Buy America provisions, the States are

permitted to expand the Buy America restrictions provided that the STA is legally authorized under State law to impose more stringent requirements.

d. State Owned/Furnished/Designated Materials References: 23 U.S.C. 112, 23 CFR 635.407

Current FHWA policy requires that the contractor must furnish all materials to be incorporated in the work, and the contractor shall be permitted to select the sources from which the materials are to be obtained. Exceptions to this requirement may be made when there is a definite finding, by MaineDOT and concurred in by Federal Highway Administration's (FHWA) Division Administrator, that it is in the public interest to require the contractor to use materials furnished by the MaineDOT or from sources designated by MaineDOT. The exception policy can best be understood by separating State-furnished materials into the categories of manufactured materials and local natural materials.

Manufactured Materials When the use of State-furnished manufactured materials is approved based on a public interest finding, such use must be made mandatory. The optional use of State-furnished manufactured materials is in violation of our policy prohibiting public agencies from competing with private firms. Manufactured materials to be furnished by MaineDOT must be acquired through competitive bidding, unless there is a public interest finding for another method, and concurred in by FHWA's Division Administrator.

Local Natural Materials When MaineDOT owns or controls a local natural materials source such as a borrow pit or a stockpile of salvaged pavement material, etc., the materials may be designated for either optional or mandatory use; however, mandatory use will require a public interest finding (PIF) and FHWA's Division Administrator's concurrence.

In order to permit prospective bidders to properly prepare their bids, the location, cost, and any conditions to be met for obtaining materials that are made available to the contractor shall be stated in the bidding documents.

Mandatory Disposal Sites Normally, the disposal site for surplus excavated materials is to be of the contractor's choosing; although, an optional site(s) may be shown in the contract provisions. A mandatory site shall be specified when there is a finding by MaineDOT, with the concurrence of the Division Administrator, that such placement is the most economical or that the environment would be substantially enhanced without excessive cost. Discussion of the mandatory use of a disposal site in the environmental document may serve as the basis for the public interest finding.

Summarizing FHWA policy for the mandatory use of borrow or disposal sites:

- mandatory use of either requires a public interest finding and FHWA's Division Administrator's concurrence,
- mandatory use of either may be based on environmental consideration where the environment will be substantially enhanced without excessive additional cost, and
- where the use is based on environmental considerations, the discussion in the environmental document may be used as the basis for the public interest finding.

Factors to justify a public interest finding should include such items as cost effectiveness, system integrity, and local shortages of material.

C. Standard FHWA Contract Provisions - FHWA 1273

Unless expressly otherwise provided in the Bid Documents, the following "Required Contract Provisions, Federal Aid Construction Contracts", FHWA-1273, are hereby incorporated into the Bid Documents and Contract.

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Cargo Preference Act : Contractor and Subcontractor Clauses. "Use of United States-flag vessels: The contractor agrees—"(1) To 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."(2) To 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 paragraph (1) of this section 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."(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract."(Reorganization Plans No. 21 of 1950 (64 Stat. 1273) and No. 7 of 1961 (75 Stat. 840) as amended by Pub. L. 91-469 (84 Stat. 1036) and Department of Commerce Organization Order 10-8 (38 FR 19707, July 23, 1973)) [42 FR 57126, Nov. 1, 1977]

The Cargo Preference Act requirements apply to materials or equipment that are acquired for a specific Federal-aid highway project. In general, the requirements are not applicable to goods or materials that come into inventories independent of an FHWA funded-contract. For example, the requirements would not apply to shipments of Portland cement, asphalt cement, or aggregates, as industry suppliers and contractors use these materials to replenish existing inventories. In general, most of the materials used for highway construction originate from existing inventories and are not acquired solely for a specific Federal-aid project. However, if materials or equipment are acquired solely for a Federal-aid project, then the Cargo Preference Act requirements apply."

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Start of FHWA 1273 REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS (As revised through May 1, 2012)

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.

End of FHWA 1273

The United States Department of Transportation (USDOT) Standard Title VI/Non-Discrimination Assurances

DOT Order No. 1050.2A

The ***Maine Department of Transportation*** (herein referred to as the "Recipient"), **HEREBY AGREES THAT**, as a condition to receiving any Federal financial assistance from the U.S. Department of Transportation (DOT), through the ***Federal Highway Administration (FHWA***), is subject to and will comply with the following:

Statutory/Regulatory Authorities

- 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);
- 49 C.F.R. Part 21 (entitled Non-discrimination In Federally-Assisted Programs Of The Department Of Transportation-Effectuation Of Title VI Of The Civil Rights Act Of 1964);
- 28 C.F.R. Section 50.3 (U.S. Department of Justice Guidelines for Enforcement of Title VI of the Civil Rights Act of 1964);

The preceding statutory and regulatory cites hereinafter are referred to as the "Acts" and "Regulations," respectively.

General Assurances

In accordance with the Acts, the Regulations, and other pertinent directives, circulars, policy, memoranda, and/or guidance, the Recipient hereby gives assurance that it will promptly take any measures necessary to ensure that:

> *"No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity, "for which the Recipient receives Federal financial assistance from DOT, including the* ***FHWA****.*

The Civil Rights Restoration Act of 1987 clarified the original intent of Congress, with respect to Title VI and other Non-discrimination requirements (The Age Discrimination Act of 1975, and Section 504 of the Rehabilitation Act of 1973), by restoring the broad, institutional-wide scope and coverage of these non-discrimination statutes and requirements to include all programs and activities of the Recipient, so long as any portion of the program is Federally assisted.

Specific Assurances

More specifically, and without limiting the above general Assurance, the Recipient agrees with and gives the following Assurances with respect to its Federally assisted ***Highway Program***:

1. The Recipient agrees that each "activity," "facility," or "program," as defined in §§ 21.23(b) and 21.23(e) of 49 C.F.R. § 21 will be (with regard to an "activity") facilitated, or will be (with regard

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to a "facility") operated, or will be (with regard to a "program") conducted in compliance with all requirements imposed by, or pursuant to the Acts and the Regulations.

2. The Recipient will insert the following notification in all solicitations for bids, Requests For Proposals for work, or material subject to the Acts and the Regulations made in connection with all ***Federal-Aid Highway Program activities*** and, in adapted form, in all proposals for negotiated agreements regardless of funding source:

> "The ***Maine Department of Transportation***, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 US.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award."

3. The Recipient will insert the clauses of Appendix A and E of this Assurance in every contract or agreement subject to the Acts and the Regulations.

4. The Recipient will insert the clauses of Appendix B of this Assurance, as a covenant running with the land, in any deed from the United States effecting or recording a transfer of real property, structures, use, or improvements thereon or interest therein to a Recipient.

5. That where the Recipient receives Federal financial assistance to construct a facility, or part of a facility, the Assurance will extend to the entire facility and facilities operated in connection therewith.

6. That where the Recipient receives Federal financial assistance in the form, or for the acquisition of real property or an interest in real property, the Assurance will extend to rights to space on, over, or under such property.

7. That the Recipient will include the clauses set forth in Appendix C and Appendix D of this Assurance, as a covenant running with the land, in any future deeds, leases, licenses, permits, or similar instruments entered into by the Recipient with other parties:

   a. for the subsequent transfer of real property acquired or improved under the applicable activity, project, or program; and
   b. for the construction or use of, or access to, space on, over, or under real property acquired or improved under the applicable activity, project, or program.

8. That this Assurance obligates the Recipient for the period during which Federal financial assistance is extended to the program, except where the Federal financial assistance is to provide, or is in the form of, personal property, or real property, or interest therein, or structures or improvements thereon, in which case the Assurance obligates the Recipient, or any transferee for the longer of the following periods:

a. the period during which the property is used for a purpose for which the Federal financial assistance is extended, or for another purpose involving the provision of similar services or benefits; or
b. the period during which the Recipient retains ownership or possession of the property.

9. The Recipient will provide for such methods of administration for the program as are found by the Secretary of Transportation or the official to whom he/she delegates specific authority to give reasonable guarantee that it, other recipients, sub-recipients, sub-grantees, contractors, subcontractors, consultants, transferees, successors in interest, and other participants of Federal financial assistance under such program will comply with all requirements imposed or pursuant to the Acts, the Regulations, and this Assurance.

10. The Recipient agrees that the United States has a right to seek judicial enforcement with regard to any matter arising under the Acts, the Regulations, and this Assurance.

By signing this ASSURANCE, the ***Maine Department of Transportation*** also agrees to comply (and require any sub-recipients, sub-grantees, contractors, successors, transferees, and/or assignees to comply) with all applicable provisions governing the ***FHWA and USDOT*** access to records, accounts, documents, information, facilities, and staff. You also recognize that you must comply with any program or compliance reviews, and/or complaint investigations conducted by the ***FHWA and USDOT***. You must keep records, reports, and submit the material for review upon request to ***FHWA and USDOT***, or its designee in a timely, complete, and accurate way. Additionally, you must comply with all other reporting, data collection, and evaluation requirements, as prescribed by law or detailed in program guidance.

The ***Maine Department of Transportation*** gives this ASSURANCE in consideration of and for obtaining any Federal grants, loans, contracts, agreements, property, and/or discounts, or other Federal-aid and Federal financial assistance extended after the date hereof to the recipients by the U.S. Department of Transportation under the ***Federal Aid Highway Program***. This ASSURANCE is binding on [***insert State***], other recipients, sub-recipients, sub-grantees, contractors, subcontractors and their subcontractors', transferees, successors in interest, and any other participants in the ***Federal Aid Highway Program***. The person(s) signing below is authorized to sign this ASSURANCE on behalf of the Recipient.

MAINE DEPARTMENT OF TRANSPORTATION
(*Name of Recipient*)

by _____
Bruce A. Van Note, Commissioner

DATED 2/13/19

APPENDIX A

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations**: The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, ***Federal Highway Administration (FWHA)***, 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**: The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. **Solicitations for Subcontracts, Including Procurements of Materials and Equipment**: In all solicitations, either by competitive bidding, or negotiation made by the contractor 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 contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.

4. **Information and Reports**: The contractor will provide all information and reports required by the Acts, the 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 the Recipient or the ***FHWA*** 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 contractor will so certify to the Recipient or the ***FHWA***, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance**: In the event of a contractor's noncompliance with the Non discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the ***FHWA*** may determine to be appropriate, including, but not limited to:

    a. withholding payments to the contractor under the contract until the contractor complies; and/or
    b. cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions**: The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as the Recipient or the ***FHWA*** may direct as a means of enforcing such provisions including sanctions for

noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

APPENDIX B

CLAUSES FOR DEEDS TRANSFERRING UNITED STATES PROPERTY

The following clauses will be included in deeds effecting or recording the transfer of real property, structures, or improvements thereon, or granting interest therein from the United States pursuant to the provisions of Assurance 4:

NOW, THEREFORE, the U.S. Department of Transportation as authorized by law and upon the condition that the ***Maine Department of Transportation*** will accept title to the lands and maintain the project constructed thereon in accordance with ***23 U.S. Code § 107***, the Regulations for the Administration of ***the Federal Aid Highway Program***, and the policies and procedures prescribed by the ***FHWA*** of the U.S. Department of Transportation in accordance and in compliance with all requirements imposed by Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Non-discrimination in Federally-assisted programs of the U.S Department of Transportation pertaining to and effectuating the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252; 42 U.S.C. § 2000d to 2000d-4), does hereby remise, release, quitclaim and convey unto the ***Maine Department of Transportation*** all the right, title and interest of the U.S. Department of Transportation in and to said lands described in Exhibit A attached hereto and made a part hereof.

(HABENDUM CLAUSE)

TO HAVE AND TO HOLD said lands and interests therein unto ***Maine Department of Transportation*** and its successors forever, subject, however, to the covenants, conditions, restrictions and reservations herein contained as follows, which will remain in effect for the period during which the real property or structures are used for a purpose for which Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits and will be binding on the ***Maine Department of Transportation***, its successors and assigns.

The ***Maine Department of Transportation***, in consideration of the conveyance of said lands and interests in lands, does hereby covenant and agree as a covenant running with the land for itself, its successors and assigns, that (1) no person will on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination with regard to any facility located wholly or in part on, over, or under such lands hereby conveyed [,] [and]* (2) that the ***Maine Department of Transportation*** will use the lands and interests in lands and interests in lands so conveyed, in compliance with all requirements imposed by or pursuant to Title 49, Code of Federal Regulations, U.S. Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation, Effectuation of Title VI of the Civil Rights Act of 1964, and as said Regulations and Acts may be amended [, and (3) that in the event of breach of any of the above-mentioned non-discrimination conditions, the Department will have a right to enter or re-enter said lands and facilities on said land, and that above described land and facilities will thereon revert to and vest in and become the absolute property of the U.S. Department of Transportation and its assigns as such interest existed prior to this instruction].*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary in order to make clear the purpose of Title VI.)

APPENDIX C

CLAUSES FOR TRANSFER OF REAL PROPERTY ACQUIRED OR IMPROVED UNDER THE ACTIVITY, FACILITY, OR PROGRAM

The following clauses will be included in deeds, licenses, leases, permits, or similar instruments entered into by the ***Maine Department of Transportation*** pursuant to the provisions of Assurance 7(a):

A. The (grantee, lessee, permittee, etc. as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree [in the case of deeds and leases add "as a covenant running with the land"] that:

    1. In the event facilities are constructed, maintained, or otherwise operated on the property described in this (deed, license, lease, permit, etc.) for a purpose for which a U.S. Department of Transportation activity, facility, or program is extended or for another purpose involving the provision of similar services or benefits, the (grantee, licensee, lessee, permittee, etc.) will maintain and operate such facilities and services in compliance with all requirements imposed by the Acts and Regulations (as may be amended) such that no person on the grounds of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities.

B. With respect to licenses, leases, permits, etc., in the event of breach of any of the above Non-discrimination covenants, ***Maine Department of Transportation*** will have the right to terminate the (lease, license, permit, etc.) and to enter, re-enter, and repossess said lands and facilities thereon, and hold the same as if the (lease, license, permit, etc.) had never been made or issued.*

C. With respect to a deed, in the event of breach of any of the above Non-discrimination covenants, the ***Maine Department of Transportation*** will have the right to enter or re-enter the lands and facilities thereon, and the above described lands and facilities will there upon revert to and vest in and become the absolute property of the ***Maine Department of Transportation*** and its assigns.*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

APPENDIX D

CLAUSES FOR CONSTRUCTION/USE/ACCESS TO REAL PROPERTY ACQUIRED UNDER THE ACTIVITY, FACILITY OR PROGRAM

The following clauses will be included in deeds, licenses, permits, or similar instruments/agreements entered into by the ***Maine Department of Transportation*** pursuant to the provisions of Assurance 7(b):

A. The (grantee, licensee, permittee, etc., as appropriate) for himself/herself, his/her heirs, personal representatives, successors in interest, and assigns, as a part of the consideration hereof, does hereby covenant and agree (in the case of deeds and leases add, "as a covenant running with the land") that (1) no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or be otherwise subjected to discrimination in the use of said facilities, (2) that in the construction of any improvements on, over, or under such land, and the furnishing of services thereon, no person on the ground of race, color, or national origin, will be excluded from participation in, denied the benefits of, or otherwise be subjected to discrimination, (3) that the (grantee, licensee, lessee, permittee, etc.) will use the premises in compliance with all other requirements imposed by or pursuant to the Acts and Regulations, as amended, set forth in this Assurance.

B. With respect to (licenses, leases, permits, etc.), in the event of breach of any of the above Non discrimination covenants, the ***Maine Department of Transportation*** will have the right to terminate the (license, permit, etc., as appropriate) and to enter or re-enter and repossess said land and the facilities thereon, and hold the same as if said (license, permit, etc., as appropriate) had never been made or issued.*

C. With respect to deeds, in the event of breach of any of the above Non-discrimination covenants, the ***Maine Department of Transportation*** will there upon revert to and vest in and become the absolute property of the ***Maine Department of Transportation*** and its assigns.*

(*Reverter clause and related language to be used only when it is determined that such a clause is necessary to make clear the purpose of Title VI.)

APPENDIX E

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

- 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 Airway Improvement Act of 1982, (49 USC § 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 prohibit 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 C.F.R. 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 ensures Non-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).

DEPARTMENT OF ENVIRONMENTAL PROTECTION

PERMIT BY RULE NOTIFICATION FORM

(For use with DEP Regulation, Natural Resouces Protection Act - Permit by Rule Standards, Chapter 305)

APPLICANT INFORMATION (Owner)		AGENT INFORMATION (If Applying on Behalf of Owner)	
Name:	Maine Department of Transportation	Name:	Andrea F Brady
Mailing Address:	16 State House Station	Mailing Address:	
Town:	Augusta	Town:	
State & Zip Code:	ME 04333	State & Zip Code:	
Daytime Phone #:	Ext:	Daytime Phone #:	(207) 592-0523 Ext:
Email Address:		Email Address:	andrea.f.brady@maine.gov

PROJECT INFORMATION

Part of a larger project? (check 1):	❑ Yes ☑ No	After the Fact? (check 1):	❑ Yes ☑ No	Project involves work below mean low water? (check 1):	☑ Yes ❑ No	Name of waterbody:	Mattawamkeag River
Project Town:	Mattawamkeag			Town Email Address:		Map and Lot Number:	
Brief Project Description:	Replace Mattawamkeag Bridge #2522 with a 3 span bridge in approximately the same footprint as the existing bridge.Temp work trestle and detour bridge will be located upstream of existing bridge.						
Project Location & Brief Directions to Site:	Mattawamkeag Bridge #2522, carries Route 2 (Main St) over the Mattawamkeag River, located approximately 0.18 miles south of Route 157 in Mattawamkeag.						

PERMIT BY RULE (PBR) SECTIONS (Check at least one): I am filing notice of my intent to carry out work that meets the requirements for Permit-by-Rule (PBR) under DEP Rules, Chapter 305. I and my agent(s), if any, have read and will comply with all of the standards in the Sections checked below.

- ❑ **Sec. (2) Act. Adj. to Prot. Natural Res.**
- ❑ **Sec. (3) Intake Pipes**
- ❑ **Sec. (4) Replacement of Structures**
- ❑ **Sec. (6) Movement of Rocks or Veg.**
- ❑ **Sec. (7) Outfall Pipes**
- ❑ **Sec. (8) Shoreline Stabilization**
- ❑ **Sec. (9) Utility Crossing**
- ❑ **Sec. (10) Stream Crossing**
- ☑ **Sec. (11) State Transportation Facilities**
- ❑ **Sec. (12) Restoration of Natural Areas**
- ❑ **Sec. (13) F&W Creat./Water Qual. Improv.**
- ❑ **Sec. (15) Public Boat Ramps**
- ❑ **Sec. (16) Coastal Sand Dune Projects**
- ❑ **Sec. (17) Transfer/Permit Extension**
- ❑ **Sec. (18) Maintenance Dredging**
- ❑ **Sec. (19) Act. Near SVP Habitat**
- ❑ **Sec. (20) Act. Near Waterfowl/Bird Habitat**

NOTE: Municipal permits also *may* be required. Contact your local code enforcement office for information. Federal permits may be required for stream crossings and for projects involving wetland fill. Contact the Army Corps of Engineers at the Maine Project Office for information.

NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS AND FEE

- ☑ ***Attach*** all required submissions for the PBR Section(s) checked above. The required submissions for each PBR Section are outlined in Chapter 305 and may differ depending on the Section you are submitting under.
- ☑ ***Attach*** a location map that clearly identifies the site (U.S.G.S. topo map, Maine Atlas & Gazetteer, or similar).
- ☑ ***Attach*** *Proof of Legal Name* if applicant is a corporation, LLC, or other legal entity. Provide a copy of Secretary of State's *registration information* (available at http://icrs.informe.org/nei-sos-icrs/ICRS?MainPage=x). Individuals and municipalities are not required to provide any proof of identity.

FEE: I will pay the Permit-by-Rule fee (https://www.maine.gov/dep/feeschedule.pdf) by: ***State Agency - Central Billing WIN 23234***

- ❑ **Check** – Fill in all the information below and mail a copy of this form (without attachments) and a check made payable to "Treasurer, State of Maine," to: Maine DEP, 17 State House Station, Augusta, ME 04333-0017.
- ❑ **Credit Card** – Fill in the name and phone number of the person who will pay below and the DEP will call to collect the fee.

Name: **Phone:** **Ext:** **Check #:** **Email Filing Date:**

Signature & Certification:

- I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules.
- I understand that this PBR becomes effective 14 calendar days after receipt by the Department of this completed form, the required submissions, and fee, *unless the Department approves or denies the PBR prior to that date.*

By signing this Notification Form, I represent that the project meets all applicability requirements and standards in the Chapter 305 rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.

Signature of Agent or Applicant (may be typed):	Andrea F. Brady on behalf of MaineDOT	Date:	6/12/20

Keep a copy as a record of permit. Email this completed form with attachments to DEP at: DEP.PBRNotification@maine.gov. DEP will send a copy to the Town Office as evidence of DEP's receipt of notification. No further authorization will be issued by DEP after receipt of notice. A PBR is valid for two years, except Section 4, "Replacement of Structures," are valid for three years. **Work carried out in violation of the Natural Resources Protection Act or any provision in Chapter 305 is subject to enforcement.**

Approved 6/15/2020

Maine PBR Section 11 Supporting Information

Project Summary

Project Scope: Bridge Replacement.

Project Description: MaineDOT proposes to replace the existing 357', 7 span, Mattawamkeag Bridge #2522 with a 387', 3 span bridge in approximately the same footprint as the existing bridge. A temporary work trestle and temporary detour bridge, both supported by temporary pipe pile bents will be located immediately upstream of the existing bridge. The temporary, single lane, detour bridge with alternating traffic will be located approximately 40' upstream of the existing bridge. A 30' wide temporary work trestle is necessary for the demolition of the existing bridge and construction of the new bridge and will be located between the existing and detour bridges. An unnamed, intermittent tributary located at the northeast corner of the bridge will need to be relocated. Approximately 100 linear feet of the stream relocation would be permanent and an additional 70 linear feet would be temporarily impacted by construction activities.

Funding Sources: Federal / State

Resource Impacts:

Perm. RUS: (new piers / riprap / stream relocation) = 3230 s.f.
Temp. RUS: (cofferdams / de-watered area / temp. fill) = 4425+/- s.f.

Perm. PEM: (fill / riprap) = 710+/- s.f.
Temp. PEM: (temp. fill) = 2060+/- s.f.

Maintenance of Traffic: Bridge closure. The bridge will be closed to traffic during construction and traffic will be detoured on a temporary bridge located just upstream of the current bridge. The temporary bridge will be supported on pile bents and utilize alternating, one way traffic.

In-water work window:

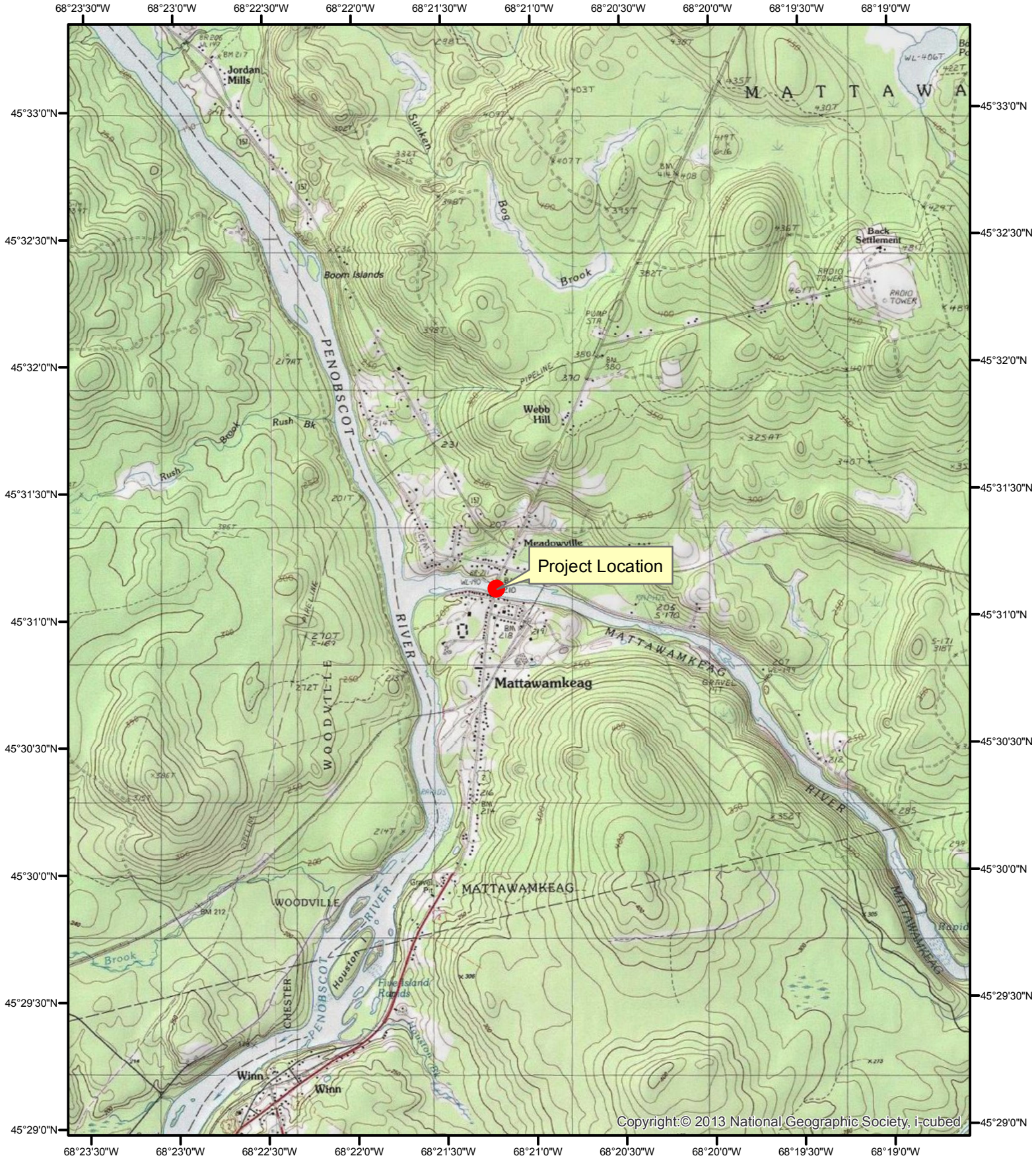
Fill placement for temporary bridge	July 15 to April 15
Installation of work trestle	July 15 to April 15
Pier demolition	July 15 to April 15
Pile driving	July 15 to April 15
Cofferdam construction	July 15 to April 15
Work within cofferdam	Any time
Cofferdam removal	Any time
Temporary fill removal	Any time
Temporary structure removal	Any time

Mitigation: Because impacts to freshwater wetlands and the river are anticipated to be minor, compensatory mitigation is not being proposed.

Avoidance & minimization: Proposed abutments are set back behind the existing abutments and front rip-rap slopes will be constructed at 1.75:1 to minimize impacts into the waterway. The number of piers is being reduced from six (1350 s.f.) to two (1200 s.f.), to reduce permanent impacts to the River. Time-of-year (TOY) restrictions related to in-water work windows will reduce the Project's potential effects to various species life stages that potentially utilize EFH in the action area. In-water work windows and TOY restrictions are avoidance and minimization measures designed to direct construction activities.

Erosion & Sedimentation Control Best Management Practices (BMP's): The project will be performed in accordance with erosion control measures conforming with the latest versions of the *State of Maine Department of Transportation Standard Specifications for Highways and Bridges* and the *Department of Transportation's Best Management Practices for Erosion and Sediment Control.*

Additional Information Supporting PBR Application
Location Map, Photographic Log, and Proposed Project Plans are included below.



MaineDOT WIN 23234.00
Mattawamkeag, ME Bridge Replacement
Mattawamkeag Br. #2522 over Mattawamkeag River
45.51878, -68.353477
24K

N

0 800 1,600 3,200 Feet

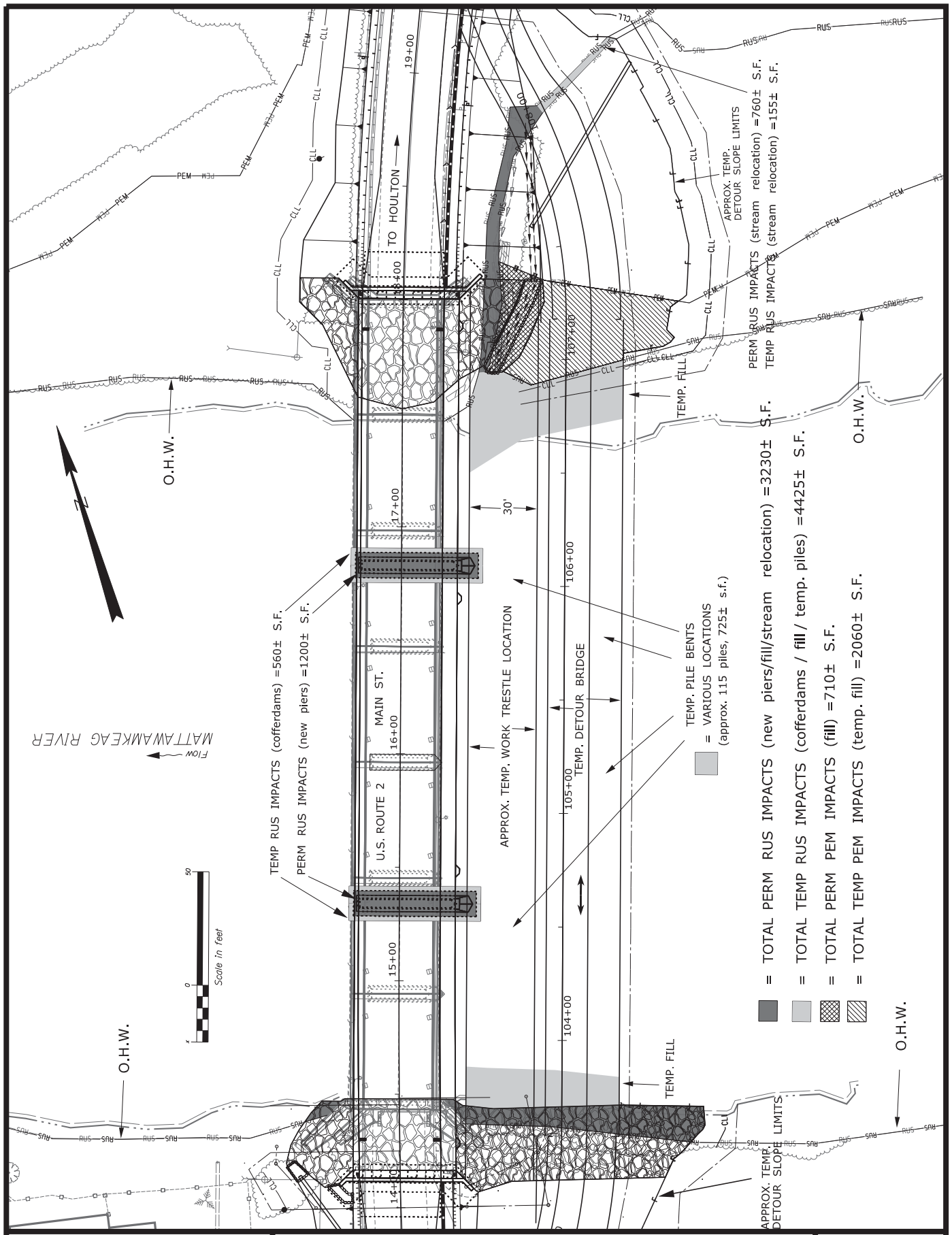
APPENDIX A. Photographs

Figure A-1. View of bridge over Mattawamkeag River (#2522) looking upstream

Figure B-1. Granite sluiceway at outlet of tributary stream

Figure B-2. View of tributary at Route 2 toe of slope just upstream of outlet.

Arrow shows location of stream beneath snow.



STATE OF MAINE DEPARTMENT OF TRANSPORTATION	U.S. ROUTE 2 MATTAWAMKEAG PENOBSCOT COUNTY	SHEET NUMBER 1 OF1
23234.00	PLANS	

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Eighth Edition 2017.

DESIGN LOADING

Live Load ..... HL - 93 Modified for Strength 1

TRAFFIC DATA

Current (2019) AADT	1850
Future (2039) AADT	2040
DHV - % of AADT	10%
Design Hour Volume	204
Heavy Trucks (% of AADT)	10%
Heavy Trucks (% of DHV)	4%
Directional Distribution (% of DHV)	61%
18 kip Equivalent P 2.0	165
18 kip Equivalent P 2.5	157
Design Speed (mph)	25

HYDROLOGIC DATA

Drainage Area	1508 sq mi
Design Discharge (Q50)	32,533 cfs
Check Discharge (Q100)	35,478 cfs
Headwater Elevation (Q1.1)	194.73 ft
Headwater Elevation (Q10)	199.33 ft
Headwater Elevation (Q25)	200.44 ft
Headwater Elevation (Q50)	201.22 ft
Headwater Elevation (Q100)	201.85 ft
Discharge Velocity (Q1.1)	3.68 fps
Discharge Velocity (Q10)	5.32 fps
Discharge Velocity (Q25)	5.70 fps
Discharge Velocity (Q50)	5.97 fps
Discharge Velocity (Q100)	6.25 fps

MATERIALS

Concrete:
- Curbs, Sidewalks & Transition Barriers ..... Class "LP"
- Seals ..... Class "S"
- All Other ..... Class "A"

Reinforcing Steel:
- Plain Reinforcing Steel ..... ASTM A 615/A 615M, Grade 60
- Stainless Reinforcing Steel ..... ASTM A 955, Grade 75
- Glass Fiber Reinforced Polymer (GFRP) ..... CSA S807-10, ACI 440.1R-15

Structural Steel:
- All Material (except as noted) ..... ASTM A 709, Grade 50W (unpainted)
- High Strength Bolts ..... ASTM F 3125, Grade A325, Type 3

BASIC DESIGN STRESSES

Concrete, Class "A"	f 'c = 4,000 psi
Concrete, Class "LP"	f 'c = 5,000 psi
Plain Reinforcing Steel	f y = 60,000 psi
Stainless Reinforcing Steel	f y = 75,000 psi
Glass Fiber Reinforced Polymer:	
#5 Bar	f fu = 100,000 psi
#6 Bar	f fu = 100,000 psi
#7 Bar	f fu = 95,000 psi
Minimum Elastic Modulus	E f = 6,150,000 psi
Structural Steel:	
ASTM A 709, Grade 50W	F y = 50,000 psi
ASTM F 3125, Grade A325, Type 3	F μ = 120,000 psi

MATTAWAMKEAG
PENOBSCOT COUNTY
MATTAWAMKEAG BRIDGE
OVER
MATTAWAMKEAG RIVER
U.S. ROUTE 2
FEDERAL AID PROJECT NO. 2323400
PROJECT LENGTH 0.090 mi.
BRIDGE NO. 2522

PDR PLANS
JULY 5, 2019

LIST OF DRAWINGS

Title Sheet 1
Typical Sections 2
General Plan 3-4
Profile 5-6

UTILITIES

Emera Maine — Spectrum
Fairpoint Communications
Town of Mattawamkeag

MAINTENANCE OF TRAFFIC

Maintain one 11'-0" wide lane of alternating one - way traffic and a 5' separated sidewalk on a temporary bridge using temporary traffic signals.

PROJECT LOCATION:	Mattawamkeag Bridge #2522 in Mattawamkeag carrying U.S. Route 2 over Mattawamkeag River, located 0.18 miles south of Route 157 Lat./Long. 45°31'08" N 68°21'13" W
PROGRAM AREA:	Bridge
OUTLINE OF WORK:	Replacement of Mattawamkeag Bridge #2522 in Mattawamkeag with associated approach work.

WIN 023234.00

023234.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
APPROVED — DATE
COMMISSIONER:
CHIEF ENGINEER:

PROJECT INFORMATION

PROGRAM	BRIDGE	SIGNATURE	
PROJECT MANAGER	ANDY LAINE		
DESIGNER	ASHLEY STEPHENS, P.E.	P.E. NUMBER	
CONSULTANT	HNTB		
PROJECT RESIDENT			
CONTRACTOR		DATE	
PROJECT COMPLETION DATE			

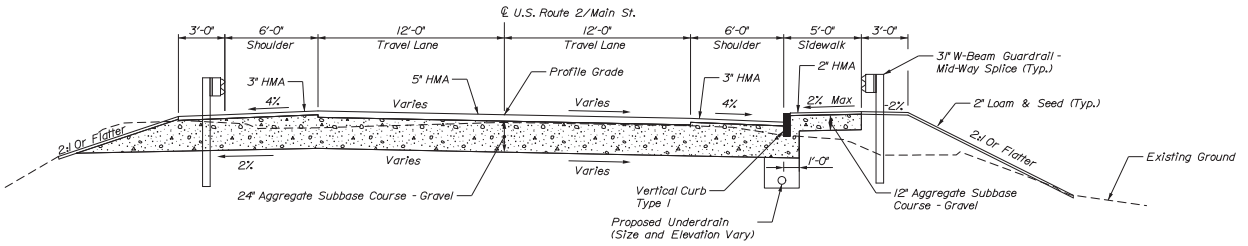
MATTAWAMKEAG
MATTAWAMKEAG BRIDGE

TITLE SHEET

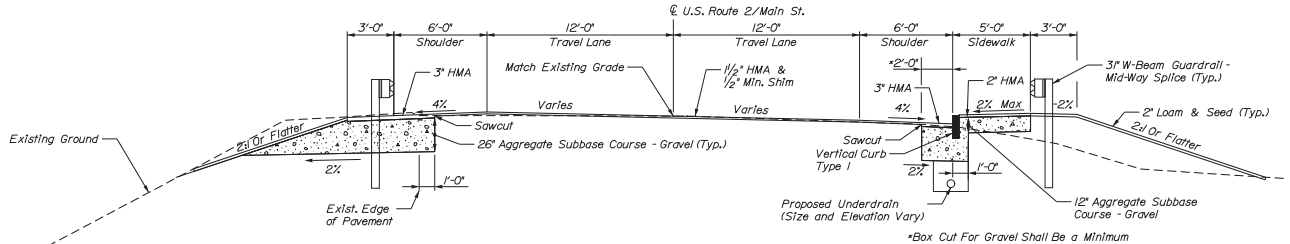
SHEET NUMBER
1
OF 6

Date:7/7/2019 Username: Division: Filename801_TITLE.dgn

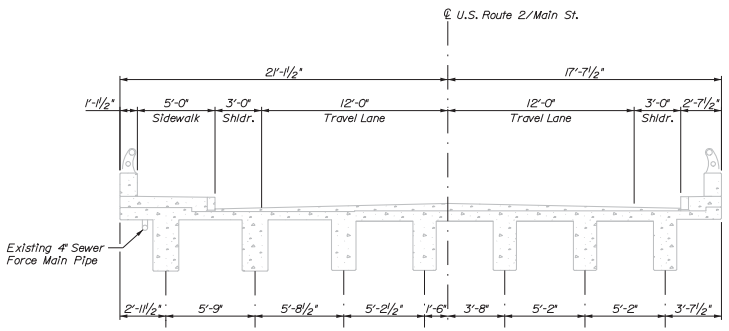
PDR PLANS
JULY 5, 2019



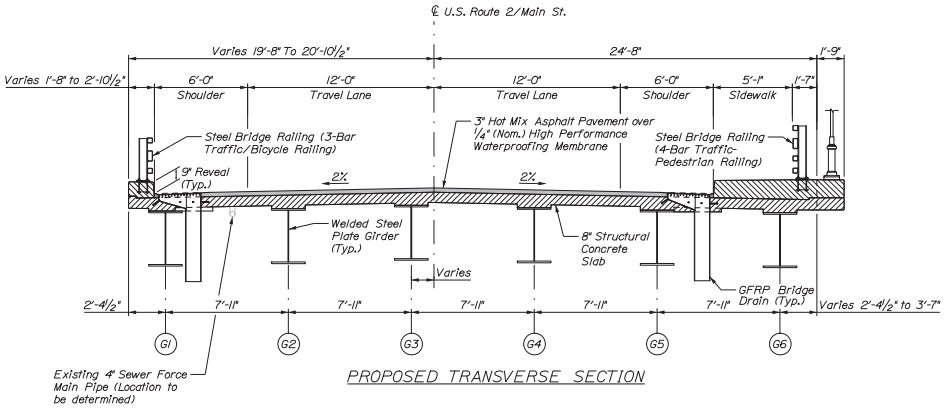
TYPICAL APPROACH SECTION
Full Construction



TYPICAL APPROACH SECTION
Shoulder Reconstruction With
Variable Depth Mill, Shim & 1½" Overlay



EXISTING TRANSVERSE SECTION



PROPOSED TRANSVERSE SECTION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

023234.00

BRIDGE NO. 2522 | WIN 023234.00 | BRIDGE PLANS

	BY:	DATE
PROJ. MANAGER		
DESIGN DETAILED	C. Merrick	5/19
DESIGN CHECKED	L. Driscoll	5/19
DESIGN2 DETAILED2	A. Stephens	5/19
DESIGN3 DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

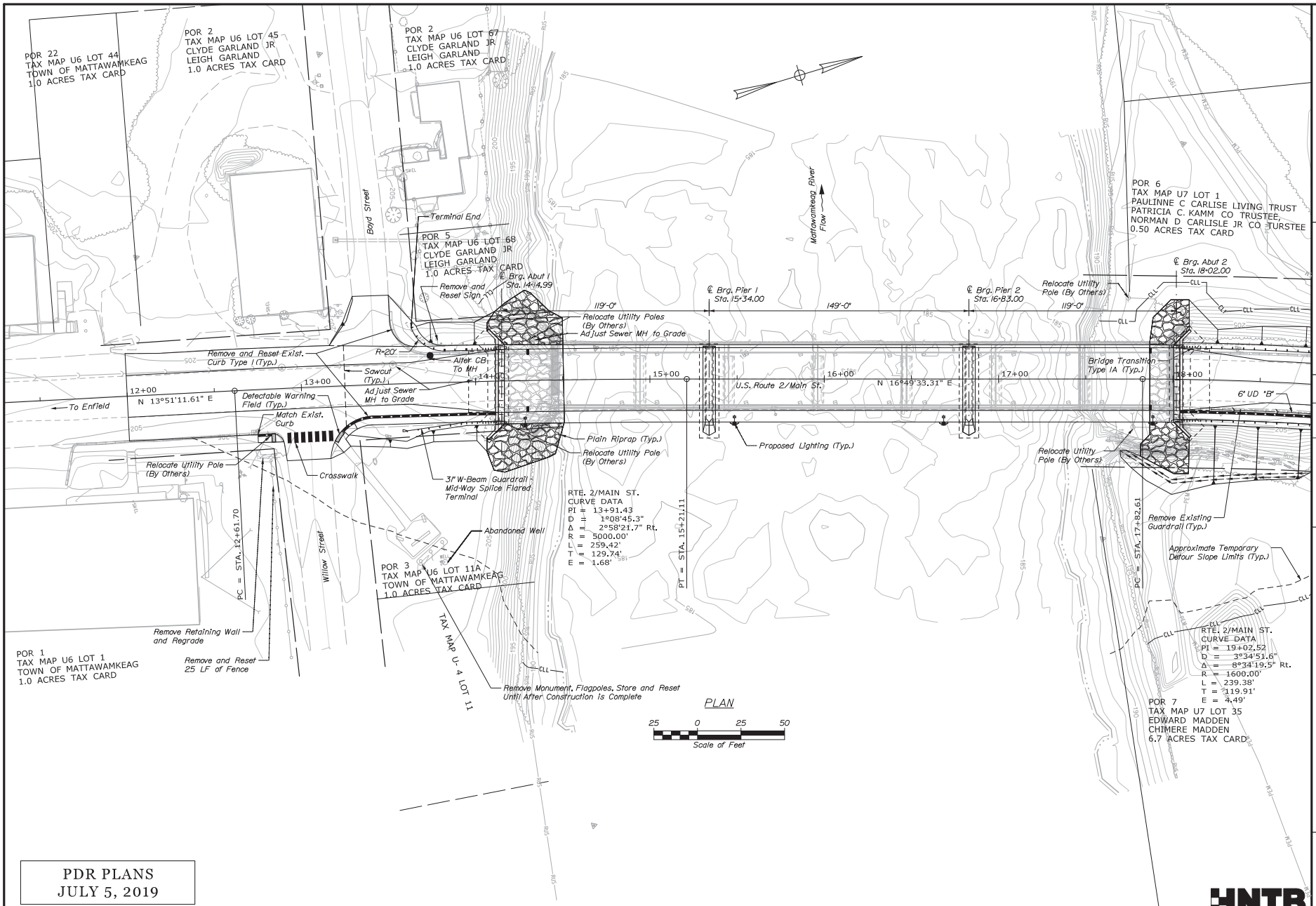
SIGNATURE
P.E. NUMBER
DATE

MATTAWAMKEAG BRIDGE
MATTAWAMKEAG RIVER
MATTAWAMKEAG PENOBSCOT COUNTY

TYPICAL SECTIONS

SHEET NUMBER
2
OF 6

Filename: 002_Typical Sections.dgn Division: Username: Date:7/7/2019



PDR PLANS
JULY 5, 2019

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

023234.00

BRIDGE NO. 2522 | WIN 023234.00 | BRIDGE PLANS

	BY	DATE	SIGNATURE
PROJ. MANAGER			
DESIGN DETAILED	C. Merrick	5/19	
CHECKED/APPROVED	L.Driscoll	5/19	P.E. NUMBER
DESIGN2 DETAILED3			
REVISIONS 1			
REVISIONS 2			DATE
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

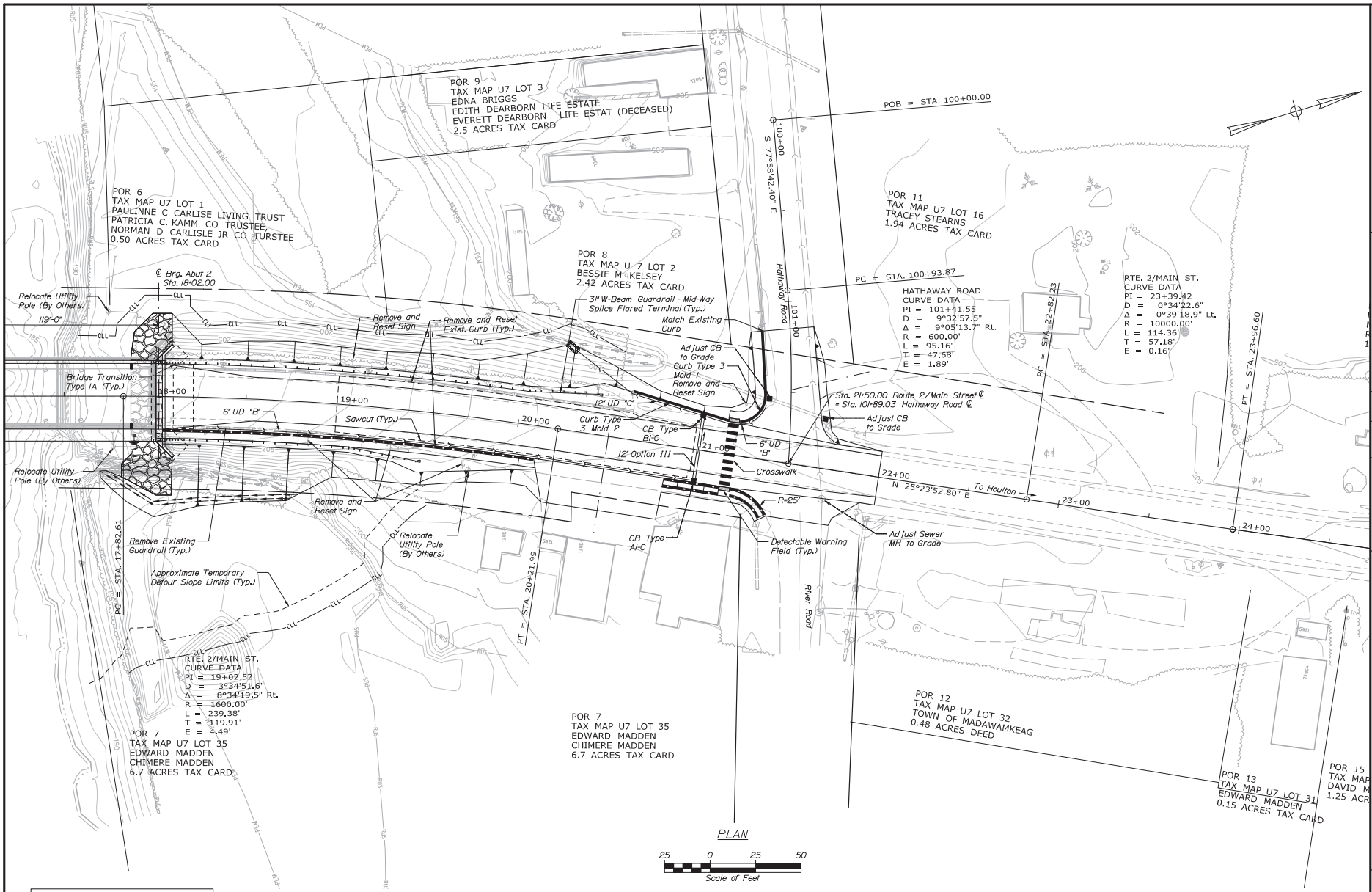
MATTAWAMKEAG BRIDGE
MATTAWAMKEAG RIVER
MATTAWAMKEAG PENOBSCOT COUNTY

GENERAL PLAN 1

SHEET NUMBER
3
OF 6

HNTB

Filename: 003_General Plan_01.dgn Division: Username: Date:7/7/2019



PDR PLANS
JULY 5, 2019

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

023234.00

WIN 023234.00

BRIDGE NO. 2522

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER		
DESIGN DETAILED	C. Hennick	S/18
DESIGN CHECKED	E. Bishop	S/18
DESIGN2 DETAILED2	A. Stephens	S/18
DESIGN3 DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

MATTAWAMKEAG BRIDGE
MATTAWAMKEAG RIVER
MATTAWAMKEAG PENOBSCOT COUNTY

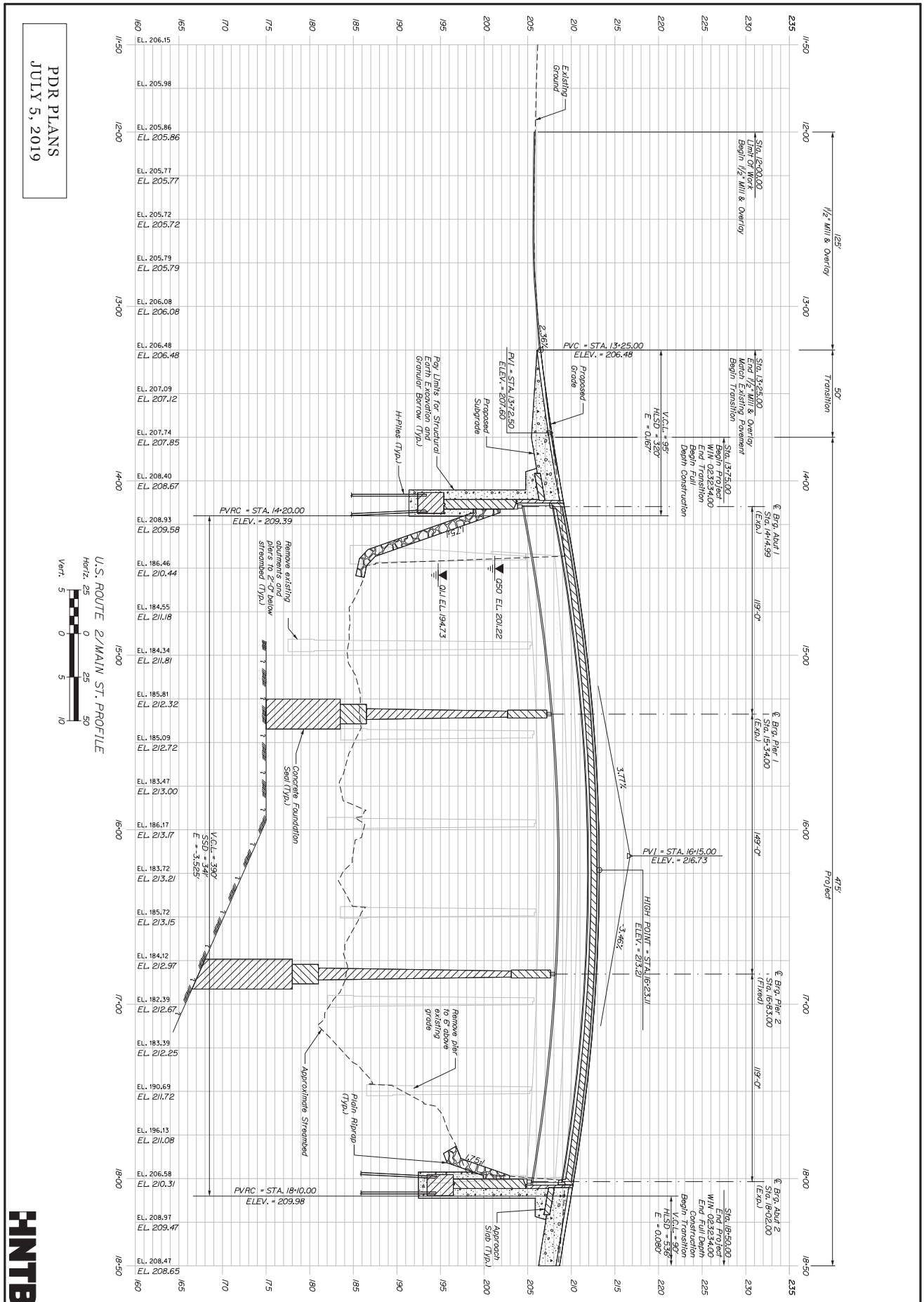
GENERAL PLAN 2

SHEET NUMBER
4
OF 6

Filename: 004_GeneralPlan_02.dgn Division: Username: Date:7/7/2019

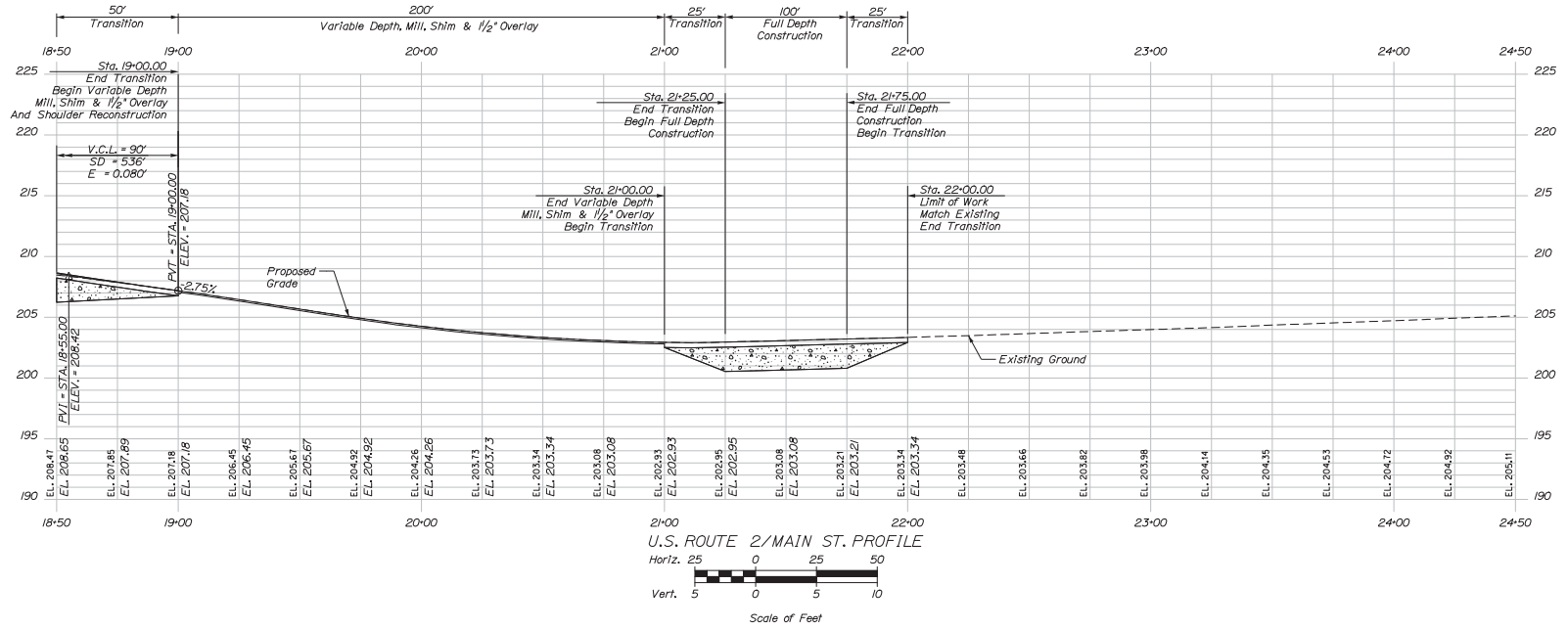
Filename: 005_Profile.dgn Division: Username: Date:7/7/2019

PDR PLANS
JULY 5, 2019



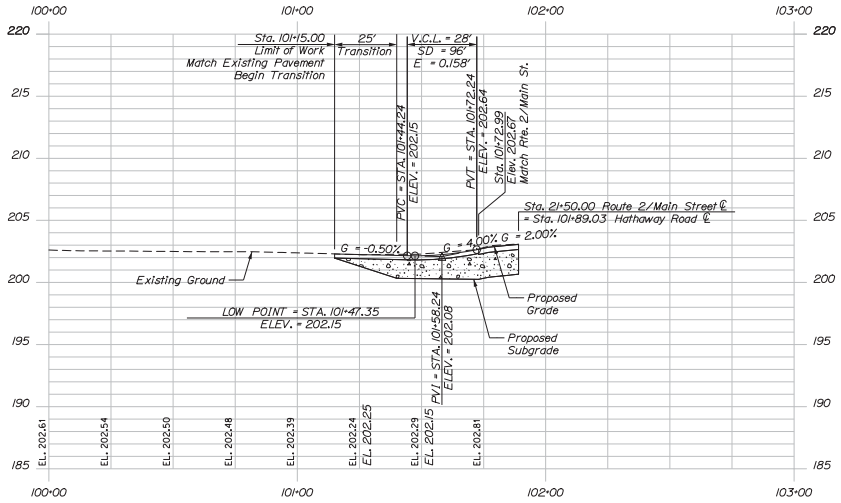
HNTB

SHEET NUMBER	MATTAWAMKEAG BRIDGE MATTAWAMKEAG RIVER MATTAWAMKEAG PENOBSCOT COUNTY	PROJ. MANAGER		BY	DATE	STATE OF MAINE DEPARTMENT OF TRANSPORTATION
5 OF 6	PROFILE 1	DESIGN-DETAILED	C. Helmick	P. Bishop	5\19	023234.00
		CHECKED-REVIEWED	L. Driscoll	A. Stephens	5\19	SIGNATURE
		DESIGN2-DETAILED2				P.E. NUMBER
		DESIGN3-DETAILED3				DATE
		REVISIONS 1				WIN
		REVISIONS 2				BRIDGE NO. 2522 023234.00 BRIDGE PLANS
		REVISIONS 3				
		REVISIONS 4				
		FIELD CHANGES				



U.S. ROUTE 2/MAIN ST. PROFILE

Horiz. 25 0 25 50
Vert. 5 0 5 10
Scale of Feet



HATHAWAY ROAD PROFILE

Horiz. 25 0 25 50
Vert. 5 0 5 10
Scale of Feet

PDR PLANS
JULY 5, 2019

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

023234.00

BRIDGE NO. 2522 WIN 023234.00 BRIDGE PLANS

	BY:	DATE
PROJ. MANAGER		
DESIGN DETAILED	C. Hennick	5/19
DESIGN1 DETAILED	P. Bishop	5/19
DESIGN2 DETAILED	L. Driscoll	A. Signatera
DESIGN3 DETAILED		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

MATTAWAMKEAG BRIDGE
MATTAWAMKEAG RIVER
MATTAWAMKEAG PENOBSCOT COUNTY

PROFILE 2

SHEET NUMBER
6
OF 6

Filename: 006_Profile.dgn Division: Username: Date:7/7/2019

11. State transportation facilities

A. Applicability

(1) This section applies to the maintenance, repair, reconstruction, rehabilitation, replacement or minor construction of a State Transportation Facility carried out by, or under the authority of, the Maine Department of Transportation (MaineDOT) or the Maine Turnpike Authority, including any testing or preconstruction engineering, and associated technical support services.

(2) This section does not apply to an activity within a coastal sand dune system.

NOTE: The construction of a transportation facility other than roads and associated facilities may be subject to the Storm Water Management Law, 38 M.R.S.A. Section 420-D.

B. Standards

(1) Photographs of the area to be altered by the activity must be taken before work on the site begins. The photographs must be kept on file and be made available at the request of the DEP.

(2) The activity must be reviewed by the Department of Inland Fisheries and Wildlife and the Department of Marine Resources, as applicable. The applicant must coordinate with the reviewing agencies and incorporate any recommendations from those agencies into the performance of the activity.

(3) All construction activities undertaken must be detailed in a site-specific Soil Erosion and Water Pollution Control Plan and conducted in accordance with MaineDOT's Best Management Practices for Erosion and Sediment Control, dated January 2000, and Standard Specifications, dated December 2002.

(4) Alignment changes may not exceed a distance of 200 feet between the old and new center lines in any natural resource.

(5) The activity may not alter more than 300 feet of shoreline (both shores added together) within a mile stretch of any river, stream or brook, including any bridge width or length of culvert.

(6) The activity may not alter more than 150 feet of shoreline (both shores added together) within a mile stretch of any outstanding river segment identified in 38 M.R.S.A. 480-P, including any bridge width or length of culvert.

(7) The activity must minimize wetland intrusion. The activity is exempt from the provisions of Chapter 310, the Wetland and Waterbodies Protection Rules, if the activity alters less than 15,000 square feet of natural resources per mile of roadway (centerline measurement) provided that the following impacts are not exceeded within the 15,000 square foot area:

(a) 1,000 square feet of coastal wetland consisting of salt tolerant vegetation or shellfish habitat; or

(b) 5,000 square feet of coastal wetland not containing salt tolerant vegetation or shellfish habitat; or

(c) 1,000 square feet of a great pond.

All other activities must be performed in compliance with all sections of Chapter 310, the Wetland Protection Rules, except 310.2(C), 5(A), 9(A), 9(B) and 9(C).

(8) The activity may not permanently block any fish passage in any watercourse containing fish. The applicant must coordinate with the reviewing agencies listed in paragraph 2 above to improve fish passage and incorporate any recommendations from those agencies into the performance of the activity.

NOTE: For guidance on meeting the design objectives for fish passage, including peak flow, maximum velocity, mining depth and gradient, see the MaineDOT Waterbody and Wildlife Crossing Policy and Design Guide (July 2008), developed in conjunction with state and federal resource and regulatory agencies.

(9) Rocks may not be removed from below the normal high water line of any coastal wetland, freshwater wetland, great pond, river, stream or brook except to the minimum extent necessary for completion of work within the limits of construction.

(10) If work is performed in a river, stream or brook that is less than three feet deep at the time and location of the activity, the applicant must isolate the work area from the resource and divert stream flows around the work area, maintaining downstream flows while work is in progress.

(11) Wheeled or tracked equipment may not operate in the water. Equipment operating on the shore may reach into the water with a bucket or similar extension. Equipment may cross streams on rock, gravel or ledge bottom. If avoiding the operation of wheeled or tracked equipment in the water is not possible, the applicant must explain the need to operate in the water. Approval from the DEP to operate in the water must be in writing, and any recommendations from the DEP must be incorporated into the performance of the activity.

(12) All wheeled or tracked equipment that must travel or work in a vegetated wetland area must travel and work on mats or platforms.

(13) Any debris or excavated material must be stockpiled either outside the wetland or on mats or platforms. Erosion and sediment control best management practices must be used, where necessary, to prevent sedimentation. Any debris generated during the activity must be prevented from washing downstream and must be removed from the wetland or water body. Disposal of debris must be in conformance with the Maine Hazardous Waste, Septage and Solid Waste Management Act, 38 M.R.S.A. Section 1301 *et seq.*

(14) Work below the normal high water line of a great pond, river, stream or brook must be done at low water except for emergency work or work agreed to by the resource agencies listed in paragraph 2 above.

(15) Perimeter controls must be installed before the work starts. Disturbance of natural resources beyond the construction limits shown on the plans is not allowed under this rule.

NOTE: Guidance on the location of construction limits can be obtained from the on site Construction Manager.

(16) The use of untreated lumber is preferred. Lumber pressure treated with chromated copper arsenate (CCA) may be used only if necessary and only if use is allowed under federal law and not prohibited from sale under 38 M.R.S.A. 1682, and provided it is cured on dry land in a manner that exposes all surfaces to the air for a period of at least 21 days prior to construction. Wood treated with creosote or pentachlorophenol may not be used where it will contact water.

(17) A temporary road for equipment access must be constructed of crushed stone, blasted ledge, or similar materials that will not cause sedimentation or restrict fish passage. Such roads must be completely removed at the completion of the activity. In addition, any such temporary roads which are in rivers, streams or brooks, must allow for a passage of stormwater flows associated with a 10-year storm.

(18) Non-native species may not be planted in restored areas.

(19) Disposal of debris must be in conformance with Maine Hazardous Waste, Septage and Solid Waste Management Act, 38 M.R.S.A. Sections 1301 *et seq.*

(20) Disturbance of vegetation must be avoided, if possible. Where vegetation is disturbed outside of the area covered by any road or structure construction, it must be reestablished immediately upon completion of the activity and must be maintained.

(21) A vegetated area at least 25 feet wide must be established and maintained between any new stormwater outfall structure and the high water line of any open water body. A velocity reducing structure must be constructed at the outlet of the stormwater outfall that will create sheet flow of stormwater, and prevent erosion of soil within the vegetated buffer. If the 25 foot vegetated buffer is not practicable, the applicant must explain the reason for a lesser setback in writing. Approval from the DEP must be in writing and any recommendations must be incorporated into the activity.

C. Definitions. The following terms, as used in this chapter, have the following meanings, unless the context indicates otherwise:

(1) Diversion. The rerouting of a river, stream or brook around a construction site and then back to the downstream channel.

(2) Fill. a. (verb) To put into or upon, supply to, or allow to enter a water body or wetland any earth, rock, gravel, sand, silt, clay, peat, or debris; b. (noun) Material, other than structures, placed in or immediately adjacent to a wetland or water body.

(3) Floodplain wetlands. Freshwater wetlands that are inundated with flood water during a 100-year flood event based on flood insurance maps produced by the Federal Emergency Agency or other site specific information.

(4) Riprap. Heavy, irregularly shaped rocks that are fit into place, without mortar, on a slope as defined in the MaineDOT Standard Specifications, dated **November 2014**.

DEPARTMENT OF THE ARMY PERMIT

Permittee **Maine Dept. of Transportation, 16 State House Station, Augusta, Maine 04333**

Permit No. **NAE-2020-01502**

Issuing Office **New England District**

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

Place temporary and permanent fill in order to replace the existing deteriorated Route 2 bridge. The project will result in approximately 3,230 s.f. of permanent and 4,425 s.f. of temporary stream bed impact, and 710 s.f. of permanent and 2,060 s.f. of temporary wetland impact.

This work is shown on the attached plans entitled, "U.S. ROUTE 2 MATTAWAMKEAG, PENOBSCOT COUNTY" in two sheets undated, "MATTAWAMKEAG, MATTAWAMKEAG BRIDGE" in one sheet undated, and "MATTAWAMKEAG BRIDGE, MATTAWAMKEAG RIVER, MATTAWAMKEAG, PENOBSCOT COUNTY" in five sheets dated "5/19".

Project Location:

In the Mattawamkeag River and in adjacent freshwaterwetlands at Mattawamkeag, Maine

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 2025. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. The permittee shall ensure that a copy of this permit is at the work site whenever work is being performed and that all personnel performing work at the site of the work authorized by this permit are fully aware of the terms and conditions of the permit. This permit, including its drawings and any appendices and other attachments, shall be made a part of any and all contracts and subcontracts for work which affects areas of Corps of Engineers jurisdiction at the site of the work authorized by this permit. This shall be done by including the entire permit in the specifications for work.

Special Conditions continued on Page 4

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

8/4/2020

(PERMITTEE) *(DATE)*

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

DELGIUDICE.FRANK.J.12 28916567 Digitally signed by DELGIUDICE.FRANK.J.1228916567 Date: 2020.07.29 07:30:15 -04'00'

(DATE)

Frank J. Del Giudice
Chief, Permits & Enforcement Branch
For District Engineer

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) *(DATE)*

☆U.S. GOVERNMENT PRINTING OFFICE: 1986 — 717-425

Special Conditions continued from Page 2

If the permit is issued after the construction specifications but before receipt of bids or quotes, the entire permit shall be included as an addendum to the specifications. If the permit is issued after receipt of bids or quotes, the entire permit shall be included in the contract or sub-contract as a change order. The term "entire permit" includes permit amendments. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions of the entire permit, and no contract or sub-contract shall require or allow unauthorized work in areas of Corps jurisdiction.

2. This authorization requires you to 1) notify us before beginning work so we may inspect the project, and 2) submit a Compliance Certification Form. You must complete and return the enclosed Work Start Notification Form(s) to this office at least two weeks before the anticipated starting date. The permittee shall complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work.

3. Adequate sedimentation and erosion control devices, such as geo-textile silt fences or other devices capable of filtering the fines involved, shall be installed and properly maintained to minimize impacts during construction. These devices must be removed upon completion of work and stabilization of disturbed areas. The sediment collected by these devices must also be removed and placed upland, in a manner that will prevent its later erosion and transport to a waterway or wetland.

4. No temporary fill (e.g., access roads, cofferdams) may be placed in waters or wetlands unless specifically authorized by this permit. If temporary fill is used, it shall be disposed of at an upland site and suitably contained to prevent its subsequent erosion into a water of the U.S., and the area shall be restored to its original contours (but not higher) and character upon completion of the project. During use, such temporary fill must be stabilized to prevent erosion or, in the case fill placed in flowing water (rivers or streams), clean washed stone should be used.

5. Except where stated otherwise, reports, drawings, correspondence and any other submittals required by this permit shall be marked with the words "Permit No. NAE-2020-01502" and shall be addressed to "Inspection Section, CENAE-R, U.S. Army Corps of Engineers, 696 Virginia Road, Concord, MA 01742-2751." Documents which are not marked and addressed in this manner may not reach their intended destination and do not comply with the requirements of this permit.

6. In water work may only occur between July 15 and September 30 and from December 1 to March 31 of any year in order to minimize potential impacts to fisheries and local water quality.

Corps of Engineers Permit No. NAE-2020-01502
Permit Special Conditions Resulting From
Formal Endangered Species Act Consultation
Between the Federal Highway Administration (FHWA) and
the U.S. Fish & Wildlife Service (USFWS)
(Reference USFWS Biological Opinion (BO) dated "March 26, 2020")

1. The Maine DOT will hold a pre-construction meeting for appropriate Environmental Office staff from the Maine DOT, other Maine DOT staff, and the Maine DOT construction crew or contractor(s) to review all procedures and requirements for avoiding and lessening effects to Atlantic salmon and to ensure the protection of Atlantic salmon and its critical habitat. The Corps, the FHWA, and the Service will be provided an invitation to attend this meeting as well.

2. The Maine DOT will implement their BMPs in accordance with the Maine DOT: Best Management Practices for Erosion and Sedimentation Control (Maine DOT 2008). This BMP manual outlines means and methods to prevent sedimentation into streams from construction activities or storm events. This document is included by reference. These BMP measures include many filtering and sedimentation control techniques designed to dissipate water discharge energy (flow), filtering out sediments, and allowing particulate matter to settle out from suspension to the greatest extent practicable.

3. The Maine DOT will conduct Atlantic salmon redd surveys within the action area during the spawning season prior to start of construction.

4. All in-water work (e.g., the installation and removal of temporary bridge and cofferdam construction) will be conducted during the work windows outlined in Table 1 of the BO. The work windows are designed to minimize effects on the most sensitive life stages of Atlantic salmon.

5. Fish passage through the project area will be available at all times. The cofferdams or netting will never close off the stream, and flow will continue between the devices on either side of the stream.

6. When cofferdams are placed within the water column, they will be installed in a manner so as to avoid trapping fish. A pre-installation "sweep" of the area will be conducted to ensure there are no fish in the enclosed area. If cofferdams trap water during installation and project personnel determine that they need to be de-watered, then in order to avoid dewatering-related fish stranding, the Maine DOT (or approved consultants) will capture and carefully remove as many fish species as possible from within the dam prior to dewatering. The Maine DOT will inspect the cofferdams after installation for adult Atlantic salmon. If adult Atlantic salmon are observed during active construction, all activities shall cease and the Maine DOT shall immediately contact the Service's Maine Field Office at 207-902-1586 (Patrick Dockens) within 48 hours of occurrence. The Maine DOT will

complete a fish evacuation following the plan found in Appendix A in the Biological Assessment as water flows permit.

7. All electrofishing activities shall occur only when stream temperature is less than or equal to 22 degrees Celsius (71.6 degrees Fahrenheit). Stream temperatures shall be measured periodically during the electrofishing effort to assure that this threshold is not exceeded.

8. All Atlantic salmon mortalities from electrofishing or any other project related activities shall be reported to the Service's Maine Field Office at 207-902-1586 (Patrick Dockens) within 48 hours of occurrence. Any Atlantic salmon death(s) shall be immediately preserved (refrigerate or freeze) for delivery to the Service's office in East Orland, Maine. If the Service is not available, contact the National Marine Fisheries Service in Orono, Maine at 207-866-3755 (Dan Tierney) to arrange for delivery.

9. When utilizing pumps to dewater cofferdams, in order to prevent Atlantic salmon juvenile entrapment related to dewatering diversions, the Maine DOT will use a screen on each pump intake designed such that the approach velocity does not exceed 0.20 feet/second (6.10 centimeters/second). Square or round screen face openings are not to exceed 3/32 inches (2.38 millimeters) measured on a diagonal. Criteria for slotted face openings shall not exceed 1/16 inches (approximately 1.75 millimeters) in the narrow direction. These screen criteria follow NMFS guidance (NMFS 2008). Intake hoses shall be regularly monitored while pumping to minimize adverse effects to Atlantic salmon or other species.

10. Movement effects and other effects created from cofferdam use will be minimized by limiting cofferdam placement to the time necessary to complete instream activities, assuring that the cofferdam will be placed in the stream as shown in submitted drawings, and by maintaining a flow channel throughout the instream construction period. The cofferdams will be removed within two days of the completion of instream construction.

11. As a component of the Soil Erosion and Water Pollution Control Plan (SEWPCP) for each project, the Maine DOT or their contractor will develop and implement a Spill Prevention Control and Countermeasure Plan (SPCCP) designed to avoid any stream impacts from hazardous chemicals associated with construction activities, such as diesel fuel, oil, lubricants, and other hazardous materials. All refueling or other construction equipment maintenance will be done at a location consistent with SPCCP and in a manner that avoids chemical or other hazardous materials getting into the stream. These measures include the following:

    a. All vehicle and equipment refueling activities shall occur more than 100 feet (30.5 meters) from any water source.

    b. All vehicles carrying fuel shall have specific equipment and materials needed to contain or clean up any incidental spills at the project site. Equipment and materials would include spill kits appropriately sized for specific quantities of fuel, shovels, absorbent pads, straw bales, containment structures and liners, and/or booms.

c. During use, all pumps and generators shall have appropriate spill containment structures and/or absorbent pads in place.

d. All equipment used for in-stream work shall be cleaned of external oil, grease, dirt, and mud. Any leaks or accumulations of these materials would be corrected before entering streams or areas that drain directly to streams or wetlands.

12. All concrete shall be poured in the dry, or within confined waters not being dewatered to surface waters. Prior to release to a natural resource, any impounded water that has been in contact with concrete placed during construction shall have a pH between 6.0 and 8.5, shall be within one pH unit of the background pH level of the resource and shall have a turbidity level no greater than the receiving resource. This requirement is applicable to concrete that is placed or spilled (including leakage from forms) as well as indirect contact via tools or equipment.

13. To minimize the spread of noxious weeds into the riparian zone, all off-road equipment and vehicles (operating off of existing open and maintained roads) must be cleaned prior to entering the construction site to remove all soil, seeds, vegetation, or other debris that could contain seeds or reproductive portions of plants. All equipment will be inspected prior to off-loading to ensure that they are clean.

14. All areas of temporary waterway or wetland fill will be restored to their original contour and character upon the completion of the project.

15. Disturbed areas adjacent to the stream will be stabilized and revegetated with a seed mix appropriate for riparian areas in Maine, except where riprap has been placed.

16. The Maine DOT will minimize the potential hydro-acoustic impacts by following the recommendations below:

    a. Attenuation measures (bubble curtains) will be employed during all impact pile driving.

    b. Piles cannot be greater than 30-inch diameter if round pipe piles or 14 inches if H-piles.

    c. The contractor will be limited to using the impact driver on no more than 3 piles per day.

    d. Vibratory driving will be utilized as much as possible during the installation of any piles.

    e. Hoe ram removal of the existing abutment will occur behind dewatered cofferdams.

17. Minimize the adverse effects to and incidental take of Atlantic salmon by employing construction techniques and Atlantic salmon handling methods that avoid or minimize adverse effects to water quality, aquatic and riparian habitats, and all aquatic organisms.

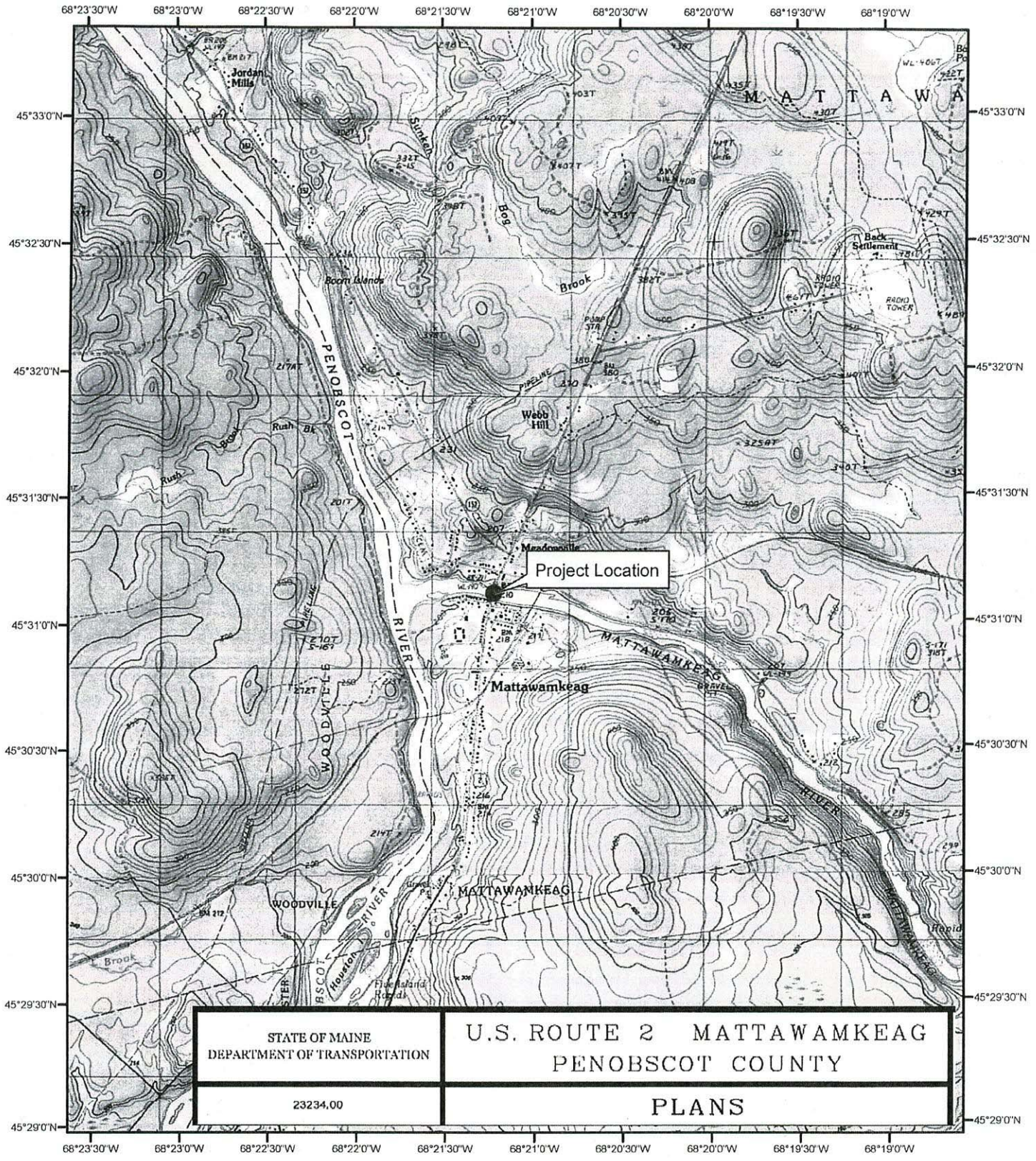
18. Minimize the adverse effects to, and incidental take of Atlantic salmon related to aquatic habitat connectivity and fish passage by ensuring that the project is built as proposed.

19. Construction impacts shall be confined to the minimum area necessary to complete the project.

20. Ensure the completion of a monitoring, evaluation, and reporting program to monitor project implementation and compliance with conservation and best management practices measures and to confirm that this project has been effective in minimizing incidental take from the FHWA funded and the Corps authorized activity. Efforts to minimize incidental take shall be conducted in accordance with BMPs, conservation measures, and as the action is further described in Section 2 of the BO, and such that the amount of allowable incidental take is not exceeded.

21. Hydroacoustic monitoring will be completed on at least one complete installation of a pile for the temporary bridge. Preliminary results of monitoring event(s) will be reported to the Service within five business days. Submittal of final data/report will occur within two months.

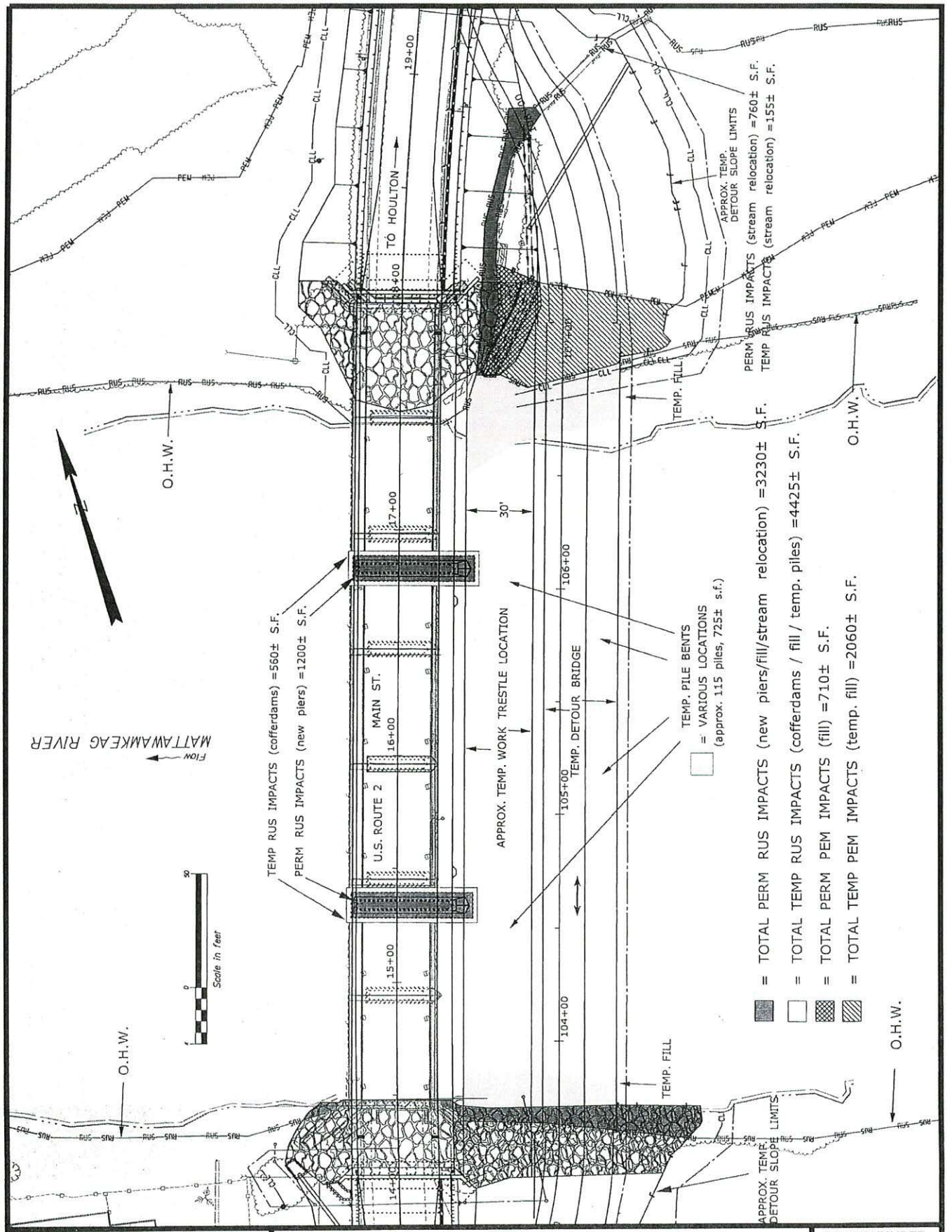
22. Turbidity monitoring will be completed for installation of cofferdams and pile driving. Preliminary results of monitoring event(s) will be reported to the Service within five business days. Submittal of final data/report will occur within two months.



MaineDOT WIN 23234.00
Mattawamkeag, ME Bridge Replacement
Mattawamkeag Br. #2522 over Mattawamkeag River
45.51878, -68.353477
24K

N

0 800 1,600 3,200 Feet



STATE OF MAINE DEPARTMENT OF TRANSPORTATION	U.S. ROUTE 2 MATTAWAMKEAG PENOBSCOT COUNTY	SHEET NUMBER 1
23234.00	PLANS	OF1

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

SPECIFICATIONS

Design: Load and Resistance Factor Design per AASHTO LRFD Bridge Design Specifications, Eighth Edition 2017.

DESIGN LOADING

Live Load ..... HL - 93 Modified for Strength 1

TRAFFIC DATA

Current (2019) AADT	1850
Future (2039) AADT	2040
DHV - % of AADT	10%
Design Hour Volume	204
Heavy Trucks (% of AADT)	10%
Heavy Trucks (% of DHV)	4%
Directional Distribution (% of DHV)	61%
18 kip Equivalent P 2.0	165
18 kip Equivalent P 2.5	157
Design Speed (mph)	25

HYDROLOGIC DATA

Drainage Area	1508 sq mi
Design Discharge (Q50)	32,533 cfs
Check Discharge (Q100)	35,478 cfs
Headwater Elevation (Q1.1)	194.73 ft
Headwater Elevation (Q10)	199.33 ft
Headwater Elevation (Q25)	200.44 ft
Headwater Elevation (Q50)	201.22 ft
Headwater Elevation (Q100)	201.85 ft
Discharge Velocity (Q1.1)	3.68 fps
Discharge Velocity (Q10)	5.32 fps
Discharge Velocity (Q25)	5.70 fps
Discharge Velocity (Q50)	5.97 fps
Discharge Velocity (Q100)	6.25 fps

MATERIALS

Concrete:
- Curbs, Sidewalks & Transition Barriers ..... Class "LP"
- Seals ..... Class "S"
- All Other ..... Class "A"

Reinforcing Steel:
- Plain Reinforcing Steel ..... ASTM A 615/A 615M, Grade 60
- Stainless Reinforcing Steel ..... ASTM A 955, Grade 75
- Glass Fiber Reinforced Polymer (GFRP) ..... CSA S807-10, ACI 440.1R-15

Structural Steel:
- All Material (except as noted) ..... ASTM A 709, Grade 50W (unpainted)
- High Strength Bolts ..... ASTM F 3125, Grade A325, Type 3

BASIC DESIGN STRESSES

Concrete, Class "A"	f 'c = 4,000 psi
Concrete, Class "LP"	f 'c = 5,000 psi
Plain Reinforcing Steel	f y = 60,000 psi
Stainless Reinforcing Steel	f y = 75,000 psi
Glass Fiber Reinforced Polymer:	
#5 Bar	f fu = 100,000 psi
#6 Bar	f fu = 100,000 psi
#7 Bar	f fu = 95,000 psi
Minimum Elastic Modulus	E f = 6,150,000 psi
Structural Steel:	
ASTM A 709, Grade 50W	F y = 50,000 psi
ASTM F 3125, Grade A325, Type 3	F u = 120,000 psi

MATTAWAMKEAG
PENOBSCOT COUNTY
MATTAWAMKEAG BRIDGE
OVER
MATTAWAMKEAG RIVER
U.S. ROUTE 2
FEDERAL AID PROJECT NO. 2323400
PROJECT LENGTH 0.090 mi.
BRIDGE NO. 2522

PDR PLANS
JULY 5, 2019

LIST OF DRAWINGS

Title Sheet	1
Typical Sections	2
General Plan	3-4
Profile	5-6

UTILITIES

Emera Maine — Spectrum
Fairpoint Communications
Town of Mattawamkeag

MAINTENANCE OF TRAFFIC

Maintain one 11'-0" wide lane of alternating one - way traffic and a 5' separated sidewalk on a temporary bridge using temporary traffic signals.

PROJECT LOCATION:	Mattawamkeag Bridge #2522 in Mattawamkeag carrying U.S. Route 2 over Mattawamkeag River, located 0.18 miles south of Route 157 Lat./Long. 45°31'08" N 68°21'13" W
PROGRAM AREA:	Bridge
OUTLINE OF WORK:	Replacement of Mattawamkeag Bridge #2522 in Mattawamkeag with associated approach work.

WIN 023234.00

023234.00

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
APPROVED — DATE
COMMISSIONER
CHIEF ENGINEER

PROJECT INFORMATION

PROGRAM	BRIDGE		
PROJECT MANAGER	ANDY LANE	SIGNATURE	
DESIGNER	ASHLEY SIMMONS, PE		
CONSULTANT	WHTE	P.E. NUMBER	
PROJECT RESIDENT			
CONTRACTOR		DATE	
PROJECT COMPLETION DATE			

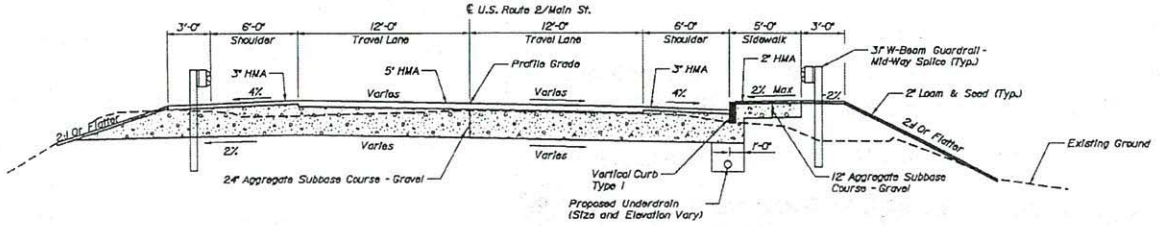
MATTAWAMKEAG
MATTAWAMKEAG BRIDGE

TITLE SHEET

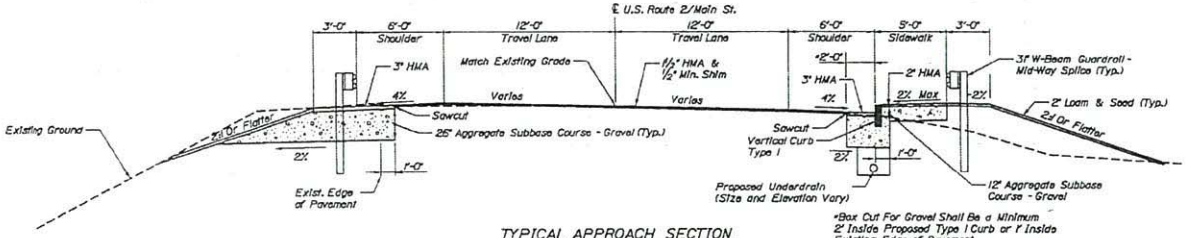
SHEET NUMBER 1 OF 6

Date:7/7/2019 Username: Division: FTenor801_TITLE.dgn

PDR PLANS
JULY 5, 2019

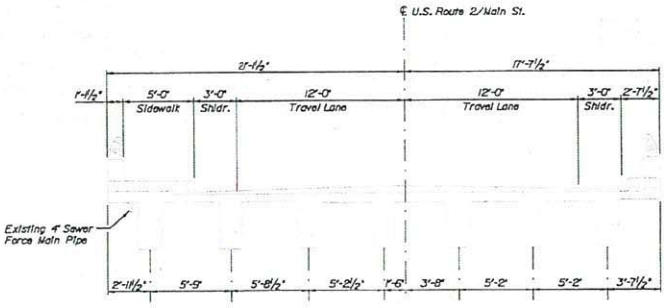


TYPICAL APPROACH SECTION
Full Construction

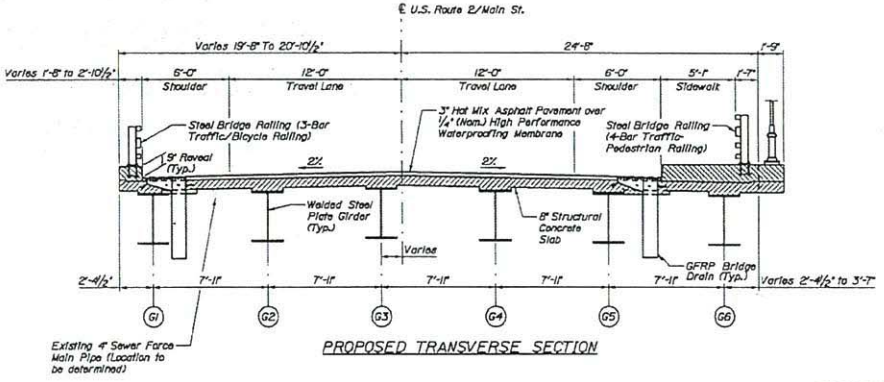


*Box Cut For Gravel Shall Be a Minimum 2' Inside Proposed Type I Curb or 1' Inside Existing Edge of Pavement.

TYPICAL APPROACH SECTION
Shoulder Reconstruction With Variable Depth Mill, Shim & ½" Overlay



EXISTING TRANSVERSE SECTION



PROPOSED TRANSVERSE SECTION

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

023234.00

WIN 023234.00
BRIDGE PLANS

BRIDGE NO. 2532

PROJ. MANAGER		BY	DATE
DESIGN DETAILED	C. Hanick	P. Bishop	3/19
DESIGNED-NOT DET.	L. Drost	A. Stephen	3/19
DESIGN CHECKED			
REVISION 1			
REVISION 2			
REVISION 3			
REVISION 4			
FIELD CHECKED			

SIGNATURE

P.E. NUMBER

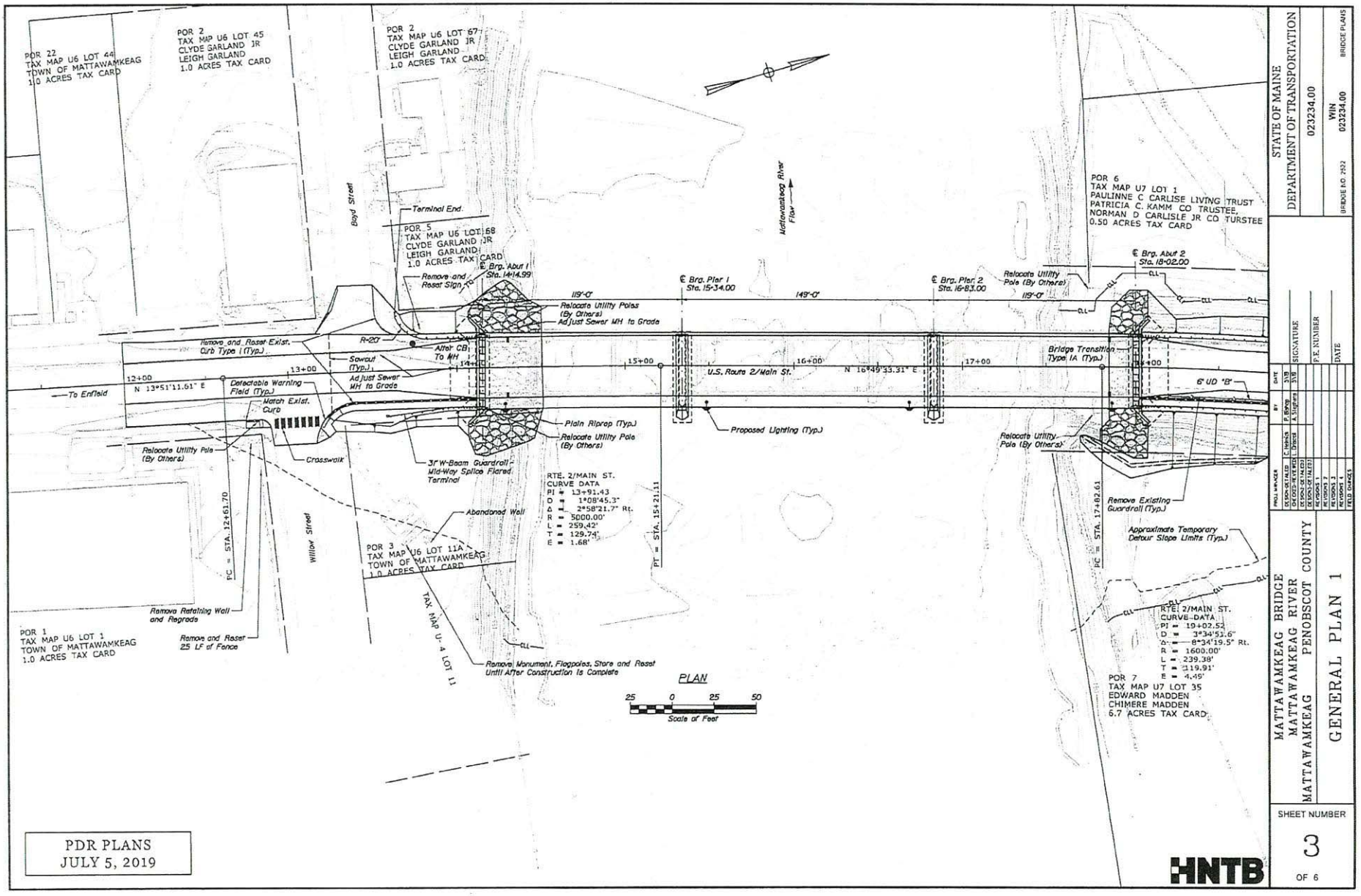
DATE

MATTAWAMKEAG BRIDGE
MATTAWAMKEAG RIVER
MATTAWAMKEAG PENOBSCOT COUNTY

TYPICAL SECTIONS

SHEET NUMBER
2
OF 6

Filename: 002_TypicalSections.dgn Division: Username: Date: 7/7/2019



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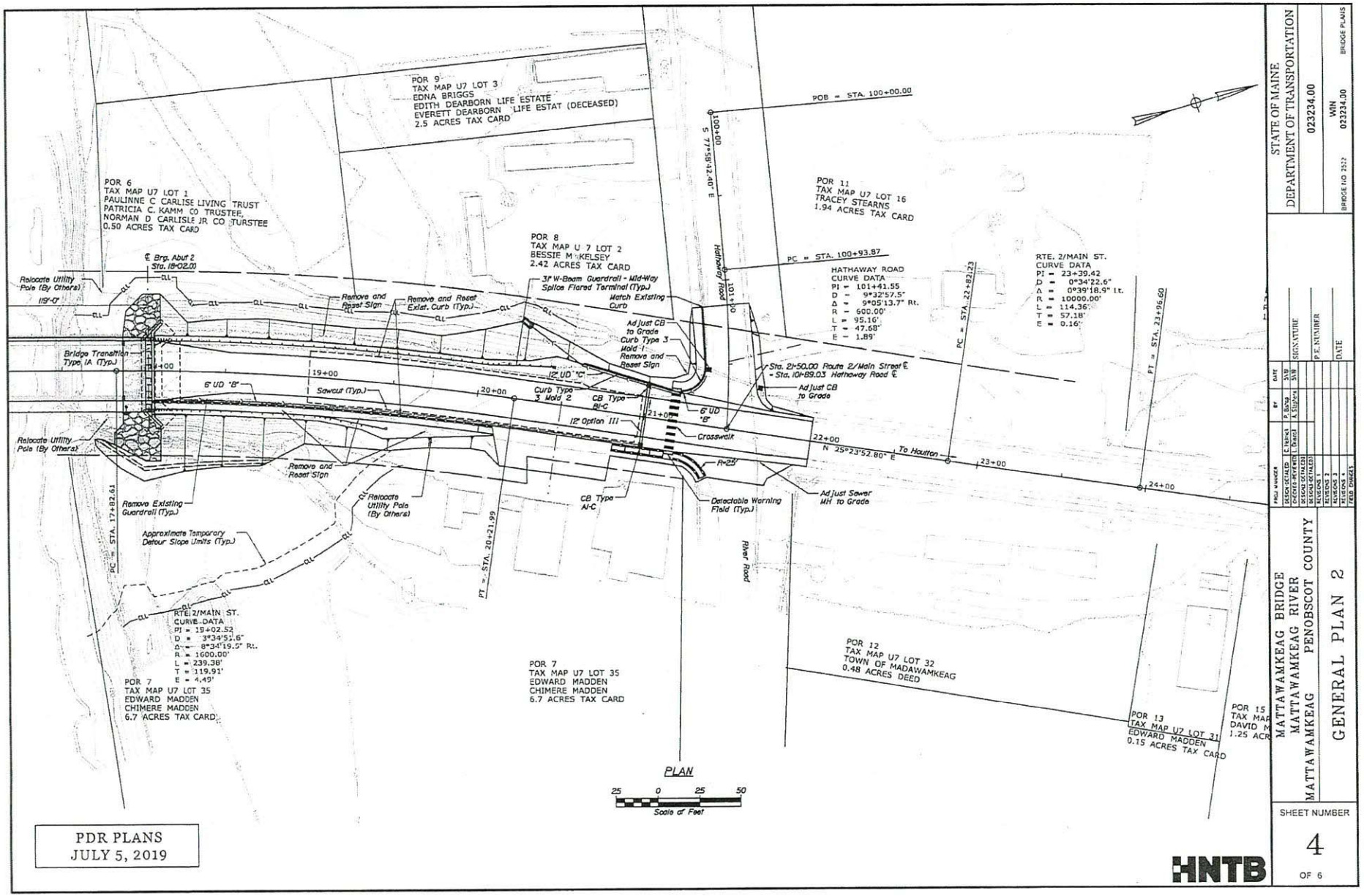
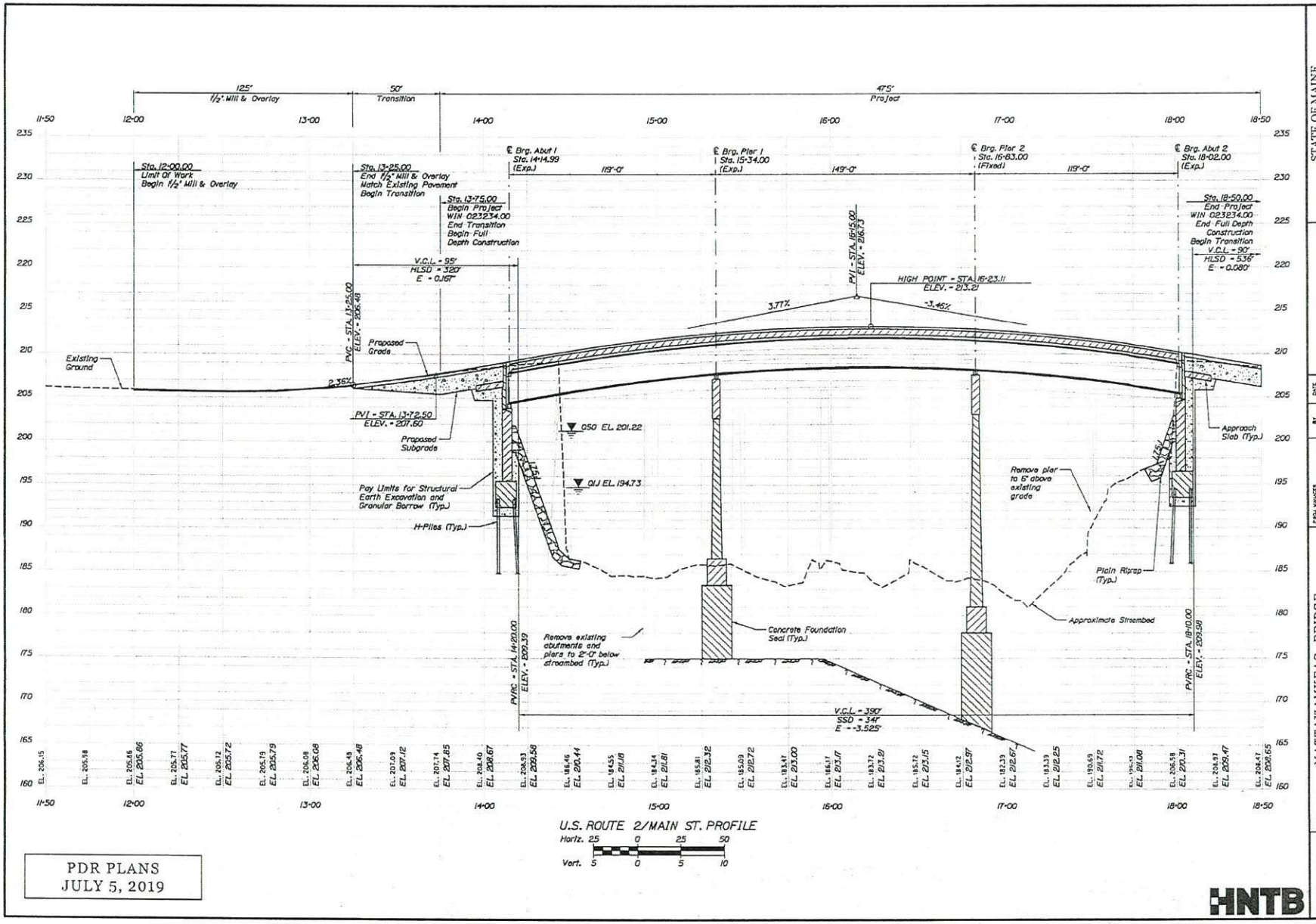

POR 9
TAX MAP U7 LOT 3
EDNA BRIGGS
EDITH DEARBORN LIFE ESTATE
EVERETT DEARBORN LIFE ESTAT (DECEASED)
2.5 ACRES TAX CARD
POB = STA. 100+00.00
S 77°55'42.40" E
100+00
POR 11
TAX MAP U7 LOT 16
TRACEY STEARNS
1.94 ACRES TAX CARD
POR 6
TAX MAP U7 LOT 1
PAULINNE C CARLISE LIVING TRUST
PATRICIA C. KAMM CO TRUSTEE,
NORMAN D CARLISLE JR CO TURSTEE
0.50 ACRES TAX CARD
POR 8
TAX MAP U 7 LOT 2
BESSIE M KELSEY
2.42 ACRES TAX CARD
PC = STA. 100+93.87
101+00
Hathaway Road
HATHAWAY ROAD
CURVE DATA
PI = 101+41.55
D = 9°32'57.5"
Δ = 9°05'13.7" Rt.
R = 600.00'
L = 95.16'
T = 47.68'
E = 1.89'
RTE. 2/MAIN ST.
CURVE DATA
PI = 23+39.42
D = 0°34'22.6"
Δ = 0°39'18.9" Lt.
R = 10000.00'
L = 114.36'
T = 57.18'
E = 0.16'
PC = STA. 22+82.23
PT = STA. 23+96.60
℄ Brg. Abut 2
Sta. 19+02.00
119'-0"
Relocate Utility Pole (By Others)
Remove and Reset Sign
Remove and Reset Exist. Curb (Typ.)
3f W-Beam Guardrail - Mid-Way Splice Flared Terminal (Typ.)
Match Existing Curb
Ad just CB to Grade
Curb Type 3 Mold 1
Remove and Reset Sign
Bridge Transition Type 1A (Typ.)
6' UD 'B'
Sawcut (Typ.)
12' UD 'C'
Curb Type 3 Mold 2
CB Type A1-C
12' Option III
6' UD 'B'
Crosswalk
Sta. 2+50.00 Route 2/Main Street ℄
= Sta. 101+89.03 Hathaway Road ℄
Ad just CB to Grade
N 25°23'52.80" E
To Houlton
Relocate Utility Pole (By Others)
Remove and Reset Sign
Remove Existing Guardrail (Typ.)
Approximate Temporary Detour Slope Limits (Typ.)
PC = STA. 17+82.61
Relocate Utility Pole (By Others)
PT = STA. 20+21.99
CB Type A1-C
R=25'
Detectable Warning Field (Typ.)
Ad just Sewer MH to Grade
River Road
RTE 2/MAIN ST.
CURVE DATA
PI = 19+02.52
D = 3°34'51.6"
Δ = 8°34'19.5" Rt.
R = 1600.00'
L = 239.38'
T = 119.91'
E = 4.49'
POR 7
TAX MAP U7 LOT 35
EDWARD MADDEN
CHIMERE MADDEN
6.7 ACRES TAX CARD
POR 7
TAX MAP U7 LOT 35
EDWARD MADDEN
CHIMERE MADDEN
6.7 ACRES TAX CARD
POR 12
TAX MAP U7 LOT 32
TOWN OF MADAWAMKEAG
0.48 ACRES DEED
POR 13
TAX MAP U7 LOT 31
EDWARD MADDEN
0.15 ACRES TAX CARD
POR 15
TAX MAP
DAVID M
1.25 ACR
PLAN
25 0 25 50
Scale of Feet
PDR PLANS
JULY 5, 2019
HNTB
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
023234.00
WIN 023234.00
BRIDGE NO 2522
BRIDGE PLANS
PROJ MANAGER
DESIGN DETAILED
PLANS CHECKED
DESIGN DETAILED
DESIGN DETAILED
REVISION 1
REVISION 2
REVISION 3
REVISION 4
FIELD CHECKS
C. Parker
T. Reed
A. Sigsbee
BY
DATE
3/19
3/19
SIGNATURE
P.E. NUMBER
DATE
MATTAWAMKEAG BRIDGE
MATTAWAMKEAG RIVER
MATTAWAMKEAG PENOBSCOT COUNTY
GENERAL PLAN 2
SHEET NUMBER
4
OF 6
Date:7/7/2019
Username:
Division:
Filename: 004_GeneralPlan_02.dgn



U.S. ROUTE 2/MAIN ST. PROFILE

Horiz. 25 0 25 50

Vert. 5 0 5 10

PDR PLANS
JULY 5, 2019

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

023234.00

WIN 023234.00

BRIDGE NO. 3922

BRIDGE PLANS

	BY	DATE
P. Bishop		3/19
A. Shipley		3/19

SIGNATURE

P.E. NUMBER

DATE

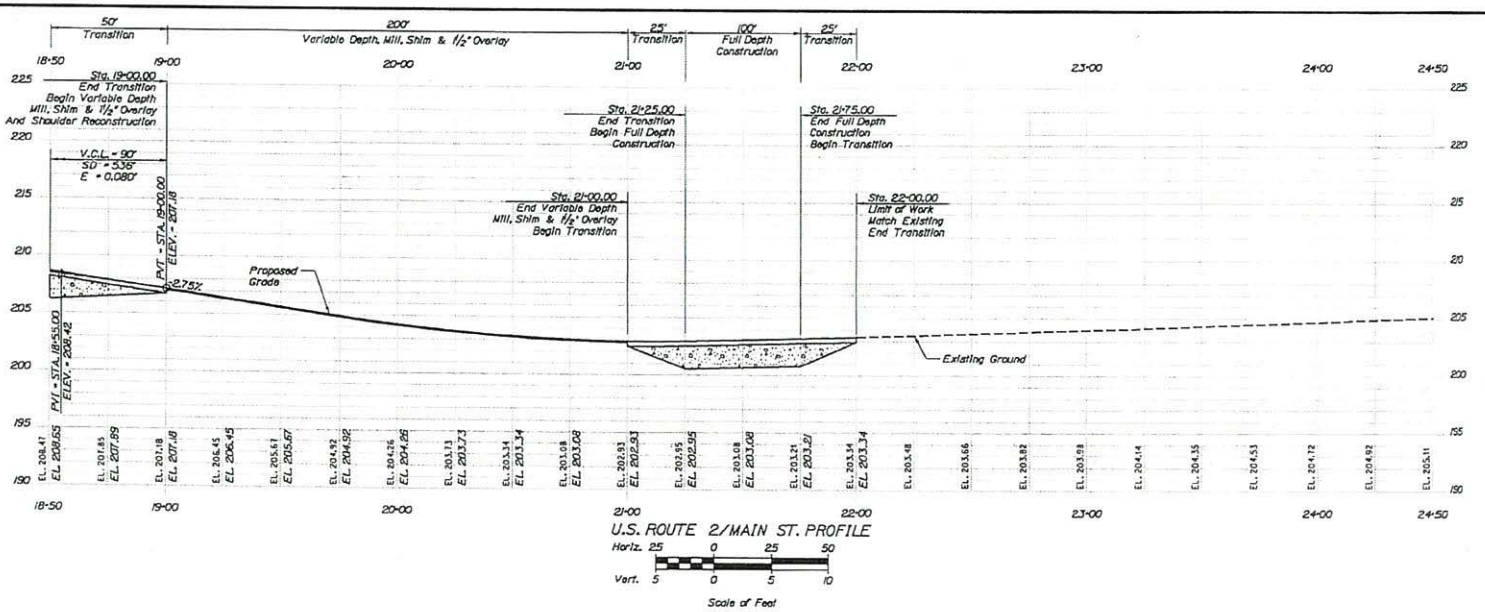
P. PAUL MAUCERI
DESIGN DETAILED: C. PATRICK
CHECKED REVIEWED: L. GRAZIL
DESIGN DETAILED:
DESIGN DETAILED:
REVIEWED 1:
REVIEWED 2:
REVIEWED 3:
FIELD CHECKED:

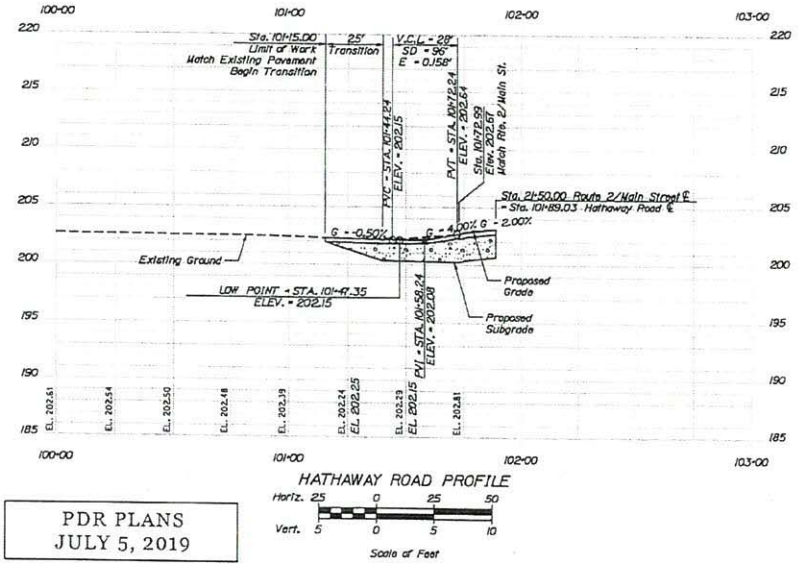
MATTAWAMKEAG BRIDGE
MATTAWAMKEAG RIVER
MATTAWAMKEAG PENOBSCOT COUNTY

PROFILE 1

SHEET NUMBER
5
OF 6

Filename: 005_Profile.dgn Division: Username: Date: 7/7/2019





PDR PLANS
JULY 5, 2019

HNTB

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

023234.00

WIN 023234.00

BRIDGE NO. 2522

BRIDGE PLANS

PROJ. MANAGER		BY	DATE
DESIGN DETAILED	C. Wood	P. Bass	3/19
CHECKED - REVIEWED	L. Dodge	K. Shapiro	3/19
DESIGN DETAILED			
REVISED 1			
REVISED 2			
REVISED 3			
REVISED 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

MATTAWAMKEAG BRIDGE
MATTAWAMKEAG RIVER
MATTAWAMKEAG PENOBSCOT COUNTY

PROFILE 2

SHEET NUMBER
6
OF 6

Filename: 006_Profile.dgn Division: Username: Date: 7/7/2019

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PJD:

B. NAME AND ADDRESS OF PERSON REQUESTING PJD: **Maine Dept. of Transportation**

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: **CENAE-RDC; Maine Dept. of Transportation; Mattawamkeag – WIN: 23234.00; NAE-2020-01502**

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:

Project Description: Place temporary and permanent fill below the ordinary high water mark of the Mattawamkeag River and an unnamed tributary and in adjacent freshwater wetlands at Mattawamkeag, Maine in order to replace the existing Route 2 bridge.

State: Maine **County/parish/borough:** Penobscot **City:** Mattawamkeag

Center coordinates of site (lat/long in degree decimal format):

Lat.: 45.518780°N **Long.:** -68.353477°W

Universal Transverse Mercator: 1802

Name of nearest waterbody: Mattawamkeag River & unnamed tributary

Identify (estimate) amount of waters in the review area:
Non-wetland waters: **200** linear feet; **325** width (ft); and/or acres.
Cowardin Class: **Riverine Unconsolidated Bottom & Shore (bridge and tributary stream);**
Stream Flow: **Perennial**
Wetlands: **70** linear feet; **20-55'** width; and/or acres.
Cowardin Class: **Palustrine emergent**

Name of any water bodies on the site that have been identified as Section 10 waters:
Tidal: **NA**
Non-Tidal: **NA, however the Mattawamkeag River discharges directly into to the Penobscot River, approximately 2,100' downstream from the Project site. The Penobscot River is the state's longest river, about 350 miles in length. Its western and eastern branches join at Medway and run in a southeasterly and then southwesterly direction to empty into the Atlantic Ocean via Penobscot Bay near Bucksport. Its drainage basin measures approximately 8,610 square miles. The Penobscot River was an early trade corridor to interior Maine from the Atlantic coast. Ocean ships could navigate upstream to Bangor. The river upstream of Bangor became an important transportation corridor for log driving to bring wooden logs and pulpwood from interior forests to sawmills and paper mills built to use water power and the entire river has a rich history of other interstate commerce including ship building, hydropower production, commercial & recreational fishing, ice production, fur trading, paper manufacturing, and food production. More modern commercial traffic includes small coastal tankers transporting petroleum and asphalt products and bulk cargo/container ships. Recreational traffic today is moderate, primarily in the lower reaches extending from Penobscot Bay upstream to Bangor. Congress has declared the Penobscot River to be navigable pursuant to Section 10 of the Rivers & Harbors Act from its mouth to the confluence of its east and west branches at Medway. Since 1884,**

the Corps has been responsible for a number of navigational improvements associated with a federal channel extending from Bucksport to Bangor. The Mattawamkeag River is the largest eastern tributary to the Penobsoct River and shares a similar history and is therefore considered a traditional navigable water.

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: 6/2/20

☒ Field Determination. Date(s): Multiple – for unrelated projects in the same area

The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.

2) In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there *"may be"* waters of the U.S. and/or that there *"may be"* navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for PJD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items:

☒ Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
Map: **Refer to Application**
☒ Data sheets prepared/submitted by or on behalf of the PJD requestor.
☒ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report. Rationale: _____.
☐ Data sheets prepared by the Corps: _____.
☐ Corps navigable waters' study: _____.
☐ U.S. Geological Survey Hydrologic Atlas: **01020003; Mattawamkeag**
☐ USGS NHD data.
☒ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: **1:25,000; Mattawamkeag**.
☒ Natural Resources Conservation Service Soil Survey. Citation: **Penobscot County**.
☒ National wetlands inventory map(s). Cite name: **Mattawamkeag Quad**.
☐ State/local wetland inventory map(s): _____.
☒ FEMA/FIRM maps: _____
☐ 100-year Floodplain Elevation is: ____. (National Geodetic Vertical Datum of 1929)
☒ Photographs: **Refer to DOA permit application – ground photos supplied by DOT**
☒ Aerial (Name & Date): **Multiple – refer to MEOGIS and Google Earth**.
☐ Other (Name & Date): _____.
☒ Previous determination(s). **Multiple determinations made within the project area during on site inspections for unrelated proposals.**
☐ Other information (please specify): _____.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

CLEMENT.JAY.LANGDON.1006350980
Digitally signed by CLEMENT.JAY.LANGDON.1006350980
Date: 2020.06.16 11:45:12 -04'00'

Jay L. Clement
Senior Project Manager
Maine Project Office

Andrea F Brady 6-15-20

Signature and date of
person requesting PJD

US Army Corps
of Engineers ®
New England District

INDIVIDUAL PERMIT
WORK-START NOTIFICATION FORM

(Minimum Notice: Two weeks before work begins)

****

* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Permits and Enforcement Branch *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *

****

Corps of Engineers Permit No. NAE-2020-01502 was issued to the Maine Dept. of Transportation on July 29, 2020 . This work is located in the Mattawamkeag River and in adjacent freshwater wetlands at Mattawamkeag, Maine. The permit authorized the permittee to place temporary and permanent fill below the ordinary high water mark and in wetlands in order to replace the existing deteriorated Route 2 bridge. The project will result in approximately 3,230 s.f. of permanent and 4,425 s.f. of temporary stream bed impact, and 710 s.f. of permanent and 2,060 s.f. of temporary wetland impact.

MaineDOT WIN 23234.00

The people (e.g., contractor) listed below will do the work, and they understand the permit's conditions and limitations.

PLEASE PRINT OR TYPE

Name of Person/Firm: _____

Business Address: _____

_____

Telephone Numbers: ( ) _____ ( ) _____

Proposed Work Dates: **Start:** _____ **Finish:** _____

Permittee/Agent Signature: _____ **Date:** _____

Printed Name: _____ **Title:** _____

Date Permit Issued: 7/29/2020 **Date Permit Expires:** 12/31/2025

****

FOR USE BY THE CORPS OF ENGINEERS

PM: Clement **Submittals Required:** No

Inspection Recommendation: Inspect as convenient

US Army Corps of Engineers ®
New England District

(Minimum Notice: Permittee must sign and return notification within one month of the completion of work.)

COMPLIANCE CERTIFICATION FORM

USACE Project Number: NAE-2020-01502 MaineDOT WIN 23234.00

Name of Permittee: Maine Dept. of Transportation

Permit Issuance Date: 7/29/2020

Please sign this certification and return it to the following address upon completion of the activity and any mitigation required by the permit. You must submit this after the mitigation is complete, but not the mitigation monitoring, which requires separate submittals.

****
* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Policy Analysis/Technical Support Branch, ATTN: Marie Farese *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *
****

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the above referenced permit, and any required mitigation was completed in accordance with the permit conditions.

_____ _____
Signature of Permittee Date

_____ _____
Printed Name Date of Work Completion

(____) _____ (____) _____
Telephone Number Telephone Number

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Maine Dept. of Transportation	File Number: NAE-2020-01502	Date:

Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
X	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
	APPROVED JURISDICTIONAL DETERMINATION	D
X	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/appeals.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

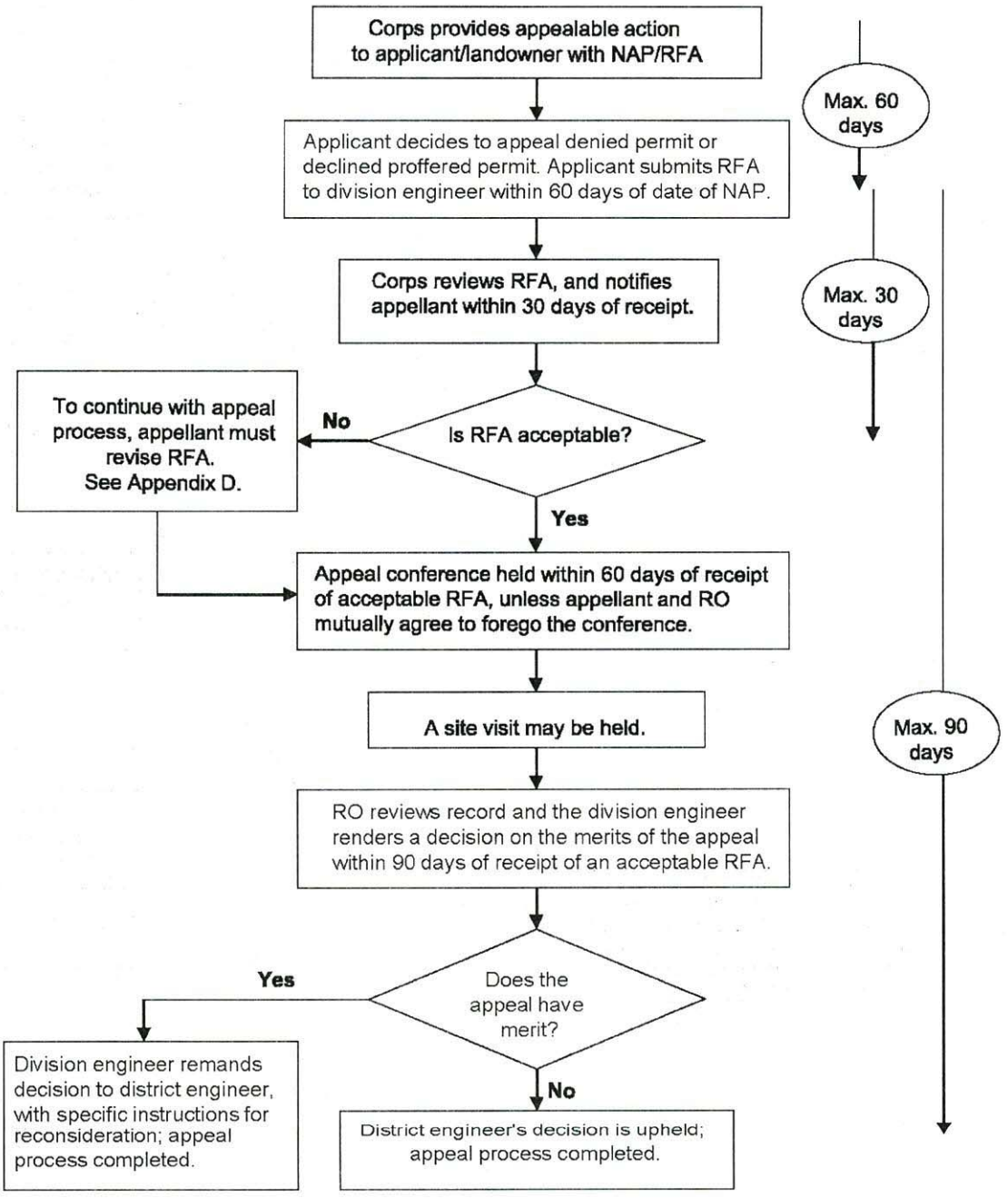
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact: Mr. James W. Haggerty Regulatory Program Manager (CENAD-PD-OR) U.S. Army Corps of Engineers Fort Hamilton Military Community 301 General Lee Avenue Brooklyn, New York 11252-6700 Telephone number: 347-370-4650

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

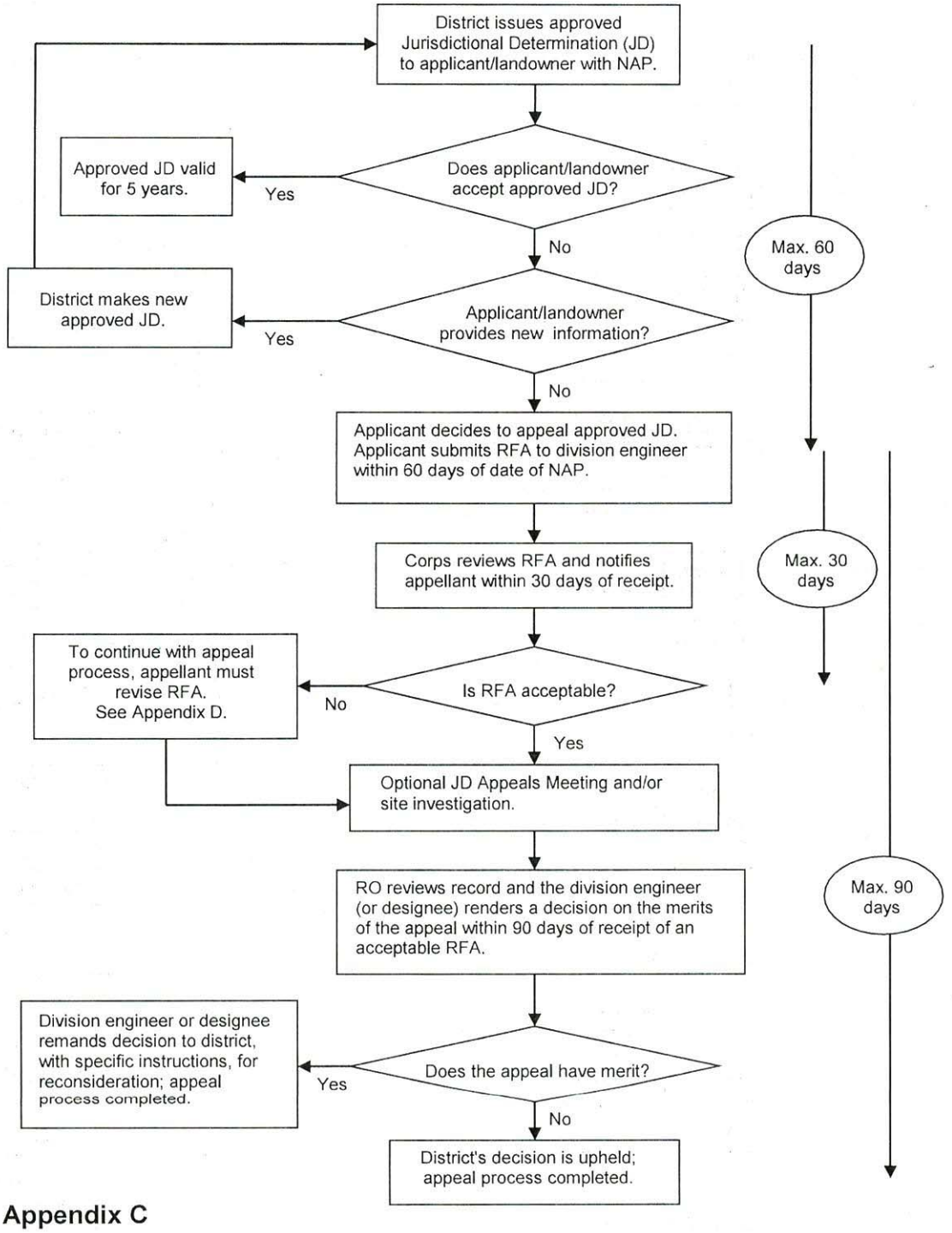
Administrative Appeal Process for Permit Denials and Proffered Permits



NOTE: If new information is provided to the Corps, the applicant will be asked if the applicant wishes to revise the project or record. If so, the appeal will be withdrawn and the case returned to the District for appropriate action. If not, then the Division Engineer will rule on the merits of the appeal based on the administrative record without consideration of the new information. However, the new information may cause the District Engineer to take action under 33 CFR 325.7, independent of the appeal process.

Appendix A

Administrative Appeal Process for Approved Jurisdictional Determination DETERMDeterminations



Appendix C

Environmental Summary Sheet

WIN: 23234.01 **Date Submitted: 8/17/20**
Town: Mattawamkeag
CPD Team Leader: Andrea Brady
ENV Field Contact: Ryan Annis

NEPA Complete: Programmatic CE 23 CFR 771.117(d)(13) – 5/8/20

☒ **Section 106**
Complete – No Effect
Section 106 Resources: none

☒ **Section 4(f) and 6(f)**
Section 4(f)
Veterans Memorial Park - de minimis determination signed by FHWA on 4/2/20.
See Special Provision 623 – Monument, Remove and Reset Memorial. This provision was prepared by the Bridge program but addresses conditions of this 4f approval.
Section 6(f)
No takes

☒ **Maine Department of Inland Fisheries and Wildlife**
Mussel survey/relocation completed August 2020 - 4 brook floaters (State Threatened) were found and relocated.

☒ **Section 7**
Species of Concern: Atlantic Salmon DPS & Critical Habitat – Likely to Adversely Affect
Comments/References: Formal consultation with USFWS complete - BO signed 3/26/20. **Special Conditions apply. See ACOE permit and Special Provision 105**

Species of Concern: Northern Long-Eared Bat – Not Likely to Adversely Affect
Comments/References: Streamlined 4d Consultation Complete

☒ **Essential Fish Habitat**
Atlantic Salmon – Adverse Effect – Not substantial. Consultation complete.

☐ **Maine Department of Conservation/Public Lands, Submerged Land Lease**
Not applicable

☐ **Maine Land Use Planning Commission**
Not Applicable

☒ **Maine Department of Environmental Protection**
Permit by Rule (PBR)
**Applicable Standards and Permit are included with the contract*

☒ **U.S. Army Corps of Engineers (ACOE): Section 404 of the Clean Water Act**
U.S. Army Corps of Engineers Individual Permit # NAE-2020-01502-IP
-Work Start Notification form to be completed by ENV Field Contact and submitted to ACOE with copy to Andrea Brady
-Compliance Certification Form to be completed by ENV Field Contact and submitted to ACOE with copy to Andrea Brady
**Applicable Standards and Permit are included with the contract*

☐ **Stormwater Review**
Not Applicable

☒ **Special Provisions Required**

Special Provision 105-Environmental Requirements	N/A☐	Applicable☒
Special Provision 656-Minor Soil Disturbance	N/A☒	Applicable☐
Standard Specification 656-Erosion Control Plan	N/A☐	Applicable☒
Special Provision 203-Dredge Material	N/A☐	Applicable☒
Special Provision 203-Special Fill-Streambed Materials	N/A☒	Applicable☐
Special Provision 610-Stream Channel Rock	N/A☒	Applicable☐
General Note for Hazardous Waste	N/A☒	Applicable☐
Special Provision 203-Hazardous Waste	N/A☐	Applicable☒

**All permits and approvals based on plans/scope as of: 5/8/2020*