

Updated 05/22/19

FEDERAL PROJECT

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:

- 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, November 2014 Edition.*

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, executors, 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:

WITNESS

PRINCIPAL:

By _____

By: _____

By: _____

SURETY:

By _____

By: _____

Name of Local Agency: _____

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.

RFI No: _____

Date _____ **Time** _____

WIN(S): _____ **Town(s):** _____ **Bid Date:** _____

Question(s):_____

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

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

7

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

W B E	D B E	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 **Intersection Improvements** in the Town of **Gray**" 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 **October 23, 2019** 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 **(Highway Construction prequalification)**, 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. STP-1876(600) WIN. 018766.00

Location: In Cumberland County, project is located at the intersection of Rte. 26 with No. Raymond Rd.

Outline of Work: Intersection Improvements and 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 Brian Keezer** 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 Scarborough. 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 **\$44.00 (\$48.50 by mail)**. Half size plans **\$22.00 (\$25.00 by mail)**, Bid Book \$10 (\$13 by mail), Single Sheets \$2, payment in advance, all non-refundable.

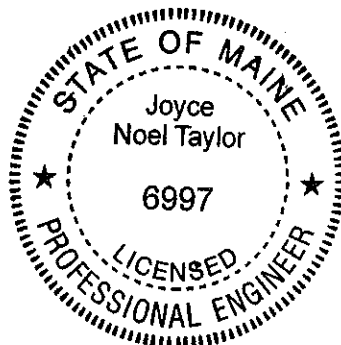
Each Bid must be made upon blank forms provided by the Department and must be accompanied by a bid bond at 5% of the bid amount or an official bank check, cashier's check, certified check, certificate of deposit, or United States postal money order in the amount of **\$60,000.00** payable to Treasurer, 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, November 2014 Edition*, price \$10 [\$15 by mail], and *Standard Details, November 2014 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
October 2, 2019



A handwritten signature in black ink that reads "Joyce Noel Taylor".

JOYCE NOEL TAYLOR P. E.
CHIEF ENGINEER

NOTICE

All bids for Federal Projects **shall** be accompanied by the DBE Proposed Utilization form. If you are submitting an electronic bid, the DBE Utilization Form may be faxed to 207-624-3431. Failure to submit the form with the bid will be considered a curable defect.

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)

9/23/2019

Maine Department of Transportation

Proposal Schedule of Items

Page 1 of 8

Proposal ID: 018766.00

Project(s): 018766.00

SECTION: 1 Project Items

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0010	202.08 REMOVING BUILDING NO.: 1	LUMP SUM	LUMP	SUM	_____	_____
0020	202.08 REMOVING BUILDING NO.: 2	LUMP SUM	LUMP	SUM	_____	_____
0030	202.17 REMOVING EXISTING STRUCTURAL CONCRETE	LUMP SUM	LUMP	SUM	_____	_____
0040	202.20 REMOVING BITUMINOUS CONCRETE PAVEMENT	33.000 SY	_____	_____	_____	_____
0050	202.202 REMOVING PAVEMENT SURFACE	2,450.000 SY	_____	_____	_____	_____
0060	203.20 COMMON EXCAVATION	4,600.000 CY	_____	_____	_____	_____
0070	203.2315 DISPOSAL OF DREDGE MATERIAL	56.000 T	_____	_____	_____	_____
0080	203.25 GRANULAR BORROW	5.000 CY	_____	_____	_____	_____
0090	304.10 AGGREGATE SUBBASE COURSE - GRAVEL	3,175.000 CY	_____	_____	_____	_____
0100	403.2081 12.5 MM POLYMER MODIFIED HOT MIX ASPHALT	587.000 T	_____	_____	_____	_____
0110	403.209 HOT MIX ASPHALT 9.5 MM (SIDEWALKS, DRIVES, INCIDENTALS)	85.000 T	_____	_____	_____	_____
0120	403.211 HOT MIX ASPHALT (SHIMMING)	10.000 T	_____	_____	_____	_____

9/23/2019

Maine Department of Transportation

Proposal Schedule of Items

Page 2 of 8

Proposal ID: 018766.00

Project(s): 018766.00

SECTION: 1 Project Items

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0130	403.2131 12.5 MM POLYMER MODIFIED HMA BASE	1,125.000 T	_____	 _____	_____	 _____
0140	409.15 BITUMINOUS TACK COAT - APPLIED	230.000 G	_____	 _____	_____	 _____
0150	502.3412 STRUCTURAL CONCRETE, RAISED ISLAND	2.000 CY	_____	 _____	_____	 _____
0160	511.07 COFFERDAM: Downstream	LUMP SUM	LUMP SUM	 LUMP SUM	_____	 _____
0170	511.07 COFFERDAM: Upstream	LUMP SUM	LUMP SUM	 LUMP SUM	_____	 _____
0180	515.21 PROTECTIVE COATING FOR CONCRETE SURFACES	LUMP SUM	LUMP SUM	 LUMP SUM	_____	 _____
0190	518.60 REPAIR OF VERTICAL SURFACES < 8 IN.	130.000 SF	_____	 _____	_____	 _____
0200	534.71 PRECAST CONCRETE BOX CULVERT	LUMP SUM	LUMP SUM	 LUMP SUM	_____	 _____
0210	603.205 30 INCH REINFORCED CONCRETE PIPE CLASS III	150.000 LF	_____	 _____	_____	 _____
0220	604.092 CATCH BASIN TYPE B1-C	1.250 EA	_____	 _____	_____	 _____
0230	604.096 60 INCH CATCH BASIN TYPE B1-C	4.500 EA	_____	 _____	_____	 _____
0240	604.18 ADJUSTING MANHOLE OR CATCH BASIN TO GRADE	1.000 EA	_____	 _____	_____	 _____

9/23/2019

Maine Department of Transportation

Proposal Schedule of Items

Page 3 of 8

Proposal ID: 018766.00

Project(s): 018766.00

SECTION: 1 Project Items

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0250	605.09 6 INCH UNDERDRAIN TYPE B	1,380.000 LF				
0260	605.11 12 INCH UNDERDRAIN TYPE C	145.000 LF				
0270	605.17 30 INCH UNDERDRAIN TYPE C	420.000 LF				
0280	606.1301 31" W-BM GR, MID-WAY SPLICE-SGL FACED	480.000 LF				
0290	606.1304 31" W-BM GR, MID-WAY SPLICE-OVER 15' RAD	50.000 LF				
0300	606.1305 31" W-BM GR, MID-WAY SPLICE FLARED TERMINAL	4.000 EA				
0310	606.265 TERMINAL END - SINGLE RAIL - GALVANIZED STEEL	2.000 EA				
0320	609.31 CURB TYPE 3	1,410.000 LF				
0330	609.34 CURB TYPE 5	45.000 LF				
0340	610.08 PLAIN RIPRAP	295.000 CY				
0350	613.319 EROSION CONTROL BLANKET	90.000 SY				
0360	615.07 LOAM	200.000 CY				

9/23/2019

Maine Department of Transportation

Proposal Schedule of Items

Page 4 of 8

Proposal ID: 018766.00

Project(s): 018766.00

SECTION: 1 Project Items

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0370	618.13 SEEDING METHOD NUMBER 1	11.000 UN	_____	_____	_____	_____
0380	618.14 SEEDING METHOD NUMBER 2	11.000 UN	_____	_____	_____	_____
0390	619.12 MULCH	22.000 UN	_____	_____	_____	_____
0400	620.58 EROSION CONTROL GEOTEXTILE	710.000 SY	_____	_____	_____	_____
0410	626.11 PRECAST CONCRETE JUNCTION BOX	3.000 EA	_____	_____	_____	_____
0420	626.22 NON-METALLIC CONDUIT	420.000 LF	_____	_____	_____	_____
0430	626.32 24 INCH FOUNDATION	2.000 EA	_____	_____	_____	_____
0440	626.332 30 INCH DIAMATER GREATER THAN 8 FEET LONG & 36 INCH DIAMETER, 42 INCH DIAMETER FOUNDATION	12.000 CY	_____	_____	_____	_____
0450	626.35 CONTROLLER CABINET FOUNDATION	1.000 EA	_____	_____	_____	_____
0460	627.733 4" WHITE OR YELLOW PAINTED PAVEMENT MARKING LINE	4,150.000 LF	_____	_____	_____	_____
0470	627.75 WHITE OR YELLOW PAVEMENT & CURB MARKING	675.000 SF	_____	_____	_____	_____

9/23/2019

Maine Department of Transportation

Proposal Schedule of Items

Page 5 of 8

Proposal ID: 018766.00

Project(s): 018766.00

SECTION: 1 Project Items

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0480	627.78 TEMPORARY 4 INCH PAINTED PAVEMENT MARKING LINE, WHITE OR YELLOW	12,100.000 LF	_____	_____	_____	_____
0490	629.05 HAND LABOR, STRAIGHT TIME	48.000 HR	_____	_____	_____	_____
0500	631.12 ALL PURPOSE EXCAVATOR (INCLUDING OPERATOR)	16.000 HR	_____	_____	_____	_____
0510	631.172 TRUCK - LARGE (INCLUDING OPERATOR)	20.000 HR	_____	_____	_____	_____
0520	639.18 FIELD OFFICE TYPE A	1.000 EA	_____	_____	_____	_____
0530	643.71 TRAFFIC SIGNAL MODIFICATION Rte. 26 / No. Raymond Rd.	LUMP SUM	LUMP SUM		_____	_____
0540	643.83 VIDEO DETECTION SYSTEM	LUMP SUM	LUMP SUM		_____	_____
0550	643.91 MAST ARM POLE - w/ 30' Arm	2.000 EA	_____	_____	_____	_____
0560	643.91 MAST ARM POLE - w/ 40' Arm	1.000 EA	_____	_____	_____	_____
0570	643.92 PEDESTAL POLE	2.000 EA	_____	_____	_____	_____
0580	645.106 DEMOUNT REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGN	6.000 EA	_____	_____	_____	_____

9/23/2019

Maine Department of Transportation

Proposal Schedule of Items

Page 6 of 8

Proposal ID: 018766.00

Project(s): 018766.00

SECTION: 1 Project Items

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0590	645.292 REGULATORY, WARNING, CONFIRMATION AND ROUTE MARKER ASSEMBLY SIGNS TYPE II	65.000 SF				
0600	652.33 DRUM	4.000 EA				
0610	652.34 CONE	90.000 EA				
0620	652.35 CONSTRUCTION SIGNS	450.000 SF				
0630	652.36 MAINTENANCE OF TRAFFIC CONTROL DEVICES	100.000 CD				
0640	652.38 FLAGGER	4,000.000 HR				
0650	652.41 PORTABLE CHANGEABLE MESSAGE SIGN	3.000 EA				
0660	656.75 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL	LUMP SUM		LUMP SUM		
0670	658.20 ACRYLIC LATEX COLOR FINISH, GREEN	52.000 SY				
0680	659.10 MOBILIZATION	LUMP SUM		LUMP SUM		
0690	822.3410 8" WATER MAIN	15.000 LF				
0700	822.354 10" INSERTION VALVE	1.000 EA				

9/23/2019

Maine Department of Transportation

Proposal Schedule of Items

Page 7 of 8

Proposal ID: 018766.00

Project(s): 018766.00

SECTION: 1 Project Items

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0710	822.355 10" SOLID SLEEVE	1.000 EA	_____	_____	_____	_____
0720	822.36 12 INCH DUCTILE IRON PIPE	500.000 LF	_____	_____	_____	_____
0730	822.3611 12 INCH DUCTILE IRON PIPE SDR11	550.000 LF	_____	_____	_____	_____
0740	823.31 12 INCH GATE VALVE	5.000 EA	_____	_____	_____	_____
0750	823.312 12 " BENDS	5.000 EA	_____	_____	_____	_____
0760	823.3132 12" X 8" TEE	2.000 EA	_____	_____	_____	_____
0770	823.3134 12" X 12" TEE	1.000 EA	_____	_____	_____	_____
0780	823.3144 12 " X 10 " REDUCER	1.000 EA	_____	_____	_____	_____
0790	823.316 12 INCH CAP	2.000 EA	_____	_____	_____	_____
0800	823.317 12 INCH X 6 INCH SWIVEL TEE	1.000 EA	_____	_____	_____	_____
0810	823.325 8 INCH GATE VALVE	1.000 EA	_____	_____	_____	_____
0820	823.3252 8" TAPPING SLEEVE AND VALVE	1.000 EA	_____	_____	_____	_____
0830	823.3254 8" INSERTION VALVE	3.000 EA	_____	_____	_____	_____

9/23/2019

Maine Department of Transportation

Proposal Schedule of Items

Page 8 of 8

Proposal ID: 018766.00

Project(s): 018766.00

SECTION: 1 Project Items

Alt Set ID: Alt Mbr ID:

Contractor: _____

Proposal Line Number	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
			Dollars	Cents	Dollars	Cents
0840	823.3255 8" X 6" SWIVEL TEE	1.000 EA	_____	_____	_____	_____
0850	823.3256 8" BEND	2.000 EA	_____	_____	_____	_____
0860	823.3257 8" CAP	2.000 EA	_____	_____	_____	_____
0870	823.3258 8" AC TO DI ADAPTER	2.000 EA	_____	_____	_____	_____
0880	823.341 AIR RELEASE VALVE - w/ Box	3.000 EA	_____	_____	_____	_____
0890	824.30 FIRE HYDRANT	2.000 EA	_____	_____	_____	_____
0900	825.434 1" COPPER SERVICE	150.000 LF	_____	_____	_____	_____
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. 018766.00** for **Intersection Improvements** in the town of **Gray**, County of **Cumberland**, 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 **October 16, 2020**. 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, November 2014 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, November 2014 Edition, Standard Details November 2014 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 November 2014 Edition*, *Standard Details November 2014 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

WIN. 018766.00 - Intersection Improvements - in the town of Gray,

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, November 2014 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 November 2014 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.
documents referenced herein.

This award consummates the Contract, and the

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. 018766.00** for **Intersection Improvements** in the town of **Gray**, County of **Cumberland**, 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 **October 16, 2020**. 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, November 2014 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, November 2014 Edition, Standard Details November 2014 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 November 2014 Edition*, *Standard Details November 2014 Edition* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

WIN. 018766.00 - Intersection Improvements - in the town of Gray,

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, November 2014 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 November 2014 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.
documents referenced herein.

This award consummates the Contract, and the

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:

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. **1224.00**, 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, November 2014 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, November 2014 Edition*, *Standard Details November 2014 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.

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 November 2014 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, November 2014 Edition, Standard Details November 2014 Edition*, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

PIN 1234.00 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.

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, November 2014 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 November 2014 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.

Date

(Witness Sign Here)
Witness

CONTRACTOR

(Sign Here)
(Signature of Legally Authorized Representative
of the Contractor)

(Print Name Here)
(Name and Title Printed)

G. Award.

Your offer is hereby accepted.
documents referenced herein.

This award consummates the Contract, and the

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:

Signature.....
Print Name Legibly

Signature
Print Name Legibly

SURETY ADDRESS:

.....
.....
.....

TELEPHONE.....

SIGNATURES:

CONTRACTOR:

.....
Print Name Legibly

SURETY:

.....
Print Name Legibly

NAME OF LOCAL AGENCY:

ADDRESS
.....
.....

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

.....

"General Decision Number: ME20190046 01/04/2019

Superseded General Decision Number: ME20180122

State: Maine

Construction Type: Highway

County: Cumberland County in Maine.

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of \$10.60 for calendar year 2019 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 \$10.60 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 2019. 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.

Modification Number	Publication Date
0	01/04/2019

SUME2014-041 06/23/2017

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 18.95	3.23
CEMENT MASON/CONCRETE FINISHER...	\$ 19.27	1.13
ELECTRICIAN.....	\$ 26.40	6.66
HIGHWAY/PARKING LOT STRIPING:		
Laborer.....	\$ 15.53	2.04
INSTALLER - GUARDRAIL.....	\$ 19.98	2.55
IRONWORKER, REINFORCING.....	\$ 21.85	0.00
IRONWORKER, STRUCTURAL.....	\$ 22.33	4.50
LABORER: Asphalt, Includes Raker, Shoveler, Spreader and Distributor.....	\$ 17.44	2.07
LABORER: Common or General.....	\$ 15.29	2.08
LABORER: Epoxy Injector (Concrete).....	\$ 13.43	1.15
LABORER: Wheelman.....	\$ 20.34	3.43
OPERATOR:		
Backhoe/Excavator/Trackhoe.....	\$ 21.07	4.39
OPERATOR: Bobcat/Skid Steer/Skid Loader.....	\$ 21.97	1.74

OPERATOR: Broom/Sweeper.....\$ 19.02	0.00
OPERATOR: Bulldozer.....\$ 21.71	5.67
OPERATOR: Grader/Blade.....\$ 27.40	8.13
OPERATOR: Loader.....\$ 19.95	2.86
OPERATOR: Mechanic.....\$ 24.69	8.18
OPERATOR: Milling Machine.....\$ 28.51	5.44
OPERATOR: Paver (Asphalt, Aggregate, and Concrete).....\$ 19.98	4.95
OPERATOR: Roller (Earth).....\$ 18.57	2.50
OPERATOR: Roller Asphalt.....\$ 19.30	4.09
TRAFFIC CONTROL: Flagger.....\$ 9.00	0.00
TRAFFIC CONTROL: Laborer-Cones/ Barricades/Barrels - Setter/Mover/Sweeper.....\$ 17.02	5.37
TRUCK DRIVER: Dump Truck.....\$ 16.71	2.80

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

=====

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave
for Federal Contractors applies to all contracts subject to the
Davis-Bacon Act for which the contract is awarded (and any
solicitation was issued) on or after January 1, 2017. If this
contract is covered by the EO, the contractor must provide
employees with 1 hour of paid sick leave for every 30 hours

they work, up to 56 hours of paid sick leave each year.

Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number,

005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator

(See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISION

"

**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.

Title of Project -----Gray Intersection Improvements

Location of Project –Gray, Cumberland County

**2019 Fair Minimum Wage Rates
Highway & Earth Cumberland County**

<u>Occupation Title</u>	<u>Minimum Wage</u>	<u>Minimum Benefit</u>	<u>Total</u>	<u>Occupation Title</u>	<u>Minimum Wage</u>	<u>Minimum Benefit</u>	<u>Total</u>
Asphalt Raker	\$16.00	\$0.79	\$16.79	Line Erector - Power/Cable	\$31.00	\$5.32	\$36.32
Backhoe Loader Operator	\$22.00	\$5.08	\$27.08	Loader Operator - Front-End	\$20.00	\$2.97	\$22.97
Bulldozer Operator	\$23.85	\$4.32	\$28.17	Mechanic- Maintenance	\$20.50	\$2.96	\$23.46
Carpenter	\$20.00	\$2.64	\$22.64	Millwright	\$24.25	\$8.80	\$33.05
Carpenter - Rough	\$19.00	\$1.88	\$20.88	Oil/Fuel Burner Serv. & Install	\$23.00	\$3.51	\$26.51
Cement Mason/Finisher	\$17.00	\$1.34	\$18.34	Painter	\$17.50	\$0.42	\$17.92
Concrete Mixing Plant Operator	\$22.11	\$4.89	\$27.00	Paver Operator	\$21.00	\$0.27	\$21.27
Crane Operator =>15 Tons)	\$26.80	\$4.74	\$31.54	Pipe-layer	\$22.00	\$1.49	\$23.49
Crusher Plant Operator	\$17.00	\$3.86	\$20.86	Re-claimer Operator	\$21.58	\$1.80	\$23.38
Driller - Well	\$19.83	\$2.66	\$22.49	Roller Operator - Earth	\$22.11	\$3.02	\$25.13
Electrician - Licensed	\$22.55	\$14.26	\$36.81	Roller Operator - Pavement	\$19.00	\$1.38	\$20.38
Electrician Helper/Cable Puller	\$17.00	\$1.34	\$18.34	Screed/Wheelman	\$19.00	\$0.94	\$19.94
Excavator Operator	\$21.00	\$3.11	\$24.11	Sider	\$16.75	\$1.38	\$18.13
Fence Setter	\$17.50	\$2.94	\$20.44	Stone Mason	\$21.00	\$0.95	\$21.95
Flagger	\$13.00	\$0.00	\$13.00	Truck Driver - Light	\$17.00	\$1.15	\$18.15
Grader/Scraper Operator	\$18.00	\$1.62	\$19.62	Truck Driver - Medium	\$19.00	\$3.13	\$22.13
Highway Worker/Guardrail Install	\$17.50	\$1.76	\$19.26	Truck Driver - Heavy	\$17.50	\$1.41	\$18.91
Ironworker - Reinforcing	\$22.11	\$2.79	\$24.90	Truck Driver - Tractor Trailer	\$18.50	\$3.20	\$21.70
Laborers (Incl. Helpers & Tenders)	\$15.00	\$0.84	\$15.84	Truck Driver - Mixer (Cement)	\$17.19	\$1.07	\$18.26
Laborer - Skilled	\$17.85	\$1.50	\$19.35				

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.

Posting of Schedule - Posting of this schedule is required in accordance with 26 MRSA §1301 et. seq., by any contractor holding a State contract for construction valued at \$50,000 or more and any subcontractors to such a contractor.

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.

Determination No: HI-146-2019

A true copy

Filing Date: September 19, 2019

Attest: Scott R. Cotnoir

Expiration Date: 12-31-2019

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

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.

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 his 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	Aboveground	Underground
Central Maine Power	X	
Spectrum	X	
OTELCO	X	
Gray Water District		X

Utility working days for utility crews 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.

If the **Contractor** feels temporary relocation is necessary, they must notify the **Department** of their concerns prior to bid.

In all cases, the utilities shall be notified by the Contractor, well in advance (two weeks) before work in any area is to commence.

The Contractor shall plan and schedule his work in such a manner that the utilities that are located on this project will not be harmed, damaged or impacted in any way. The Contractor and Utility will coordinate and communicate their work plans in an effort not to interfere with each other's progress or the completion of the project. The Contractor must give the utilities at least 2 weeks prior notification on when the utilities may start their work. If this communication breaks down then the Contractor shall notify the Utility Coordinator.

AERIAL

The following list is the proposed aerial utility adjustments that are anticipated as part of this project. The Department, in cooperation with our designer, has placed these pole locations in a way so the contractor can rebuild the bridge and still maintain safety clearances for crane work. The bidding contractors are encouraged to review the site and review these locations prior to bid. Once the utilities locate to these locations the utility service will remain uninterrupted for the remainder of the project. The **Contractor** will provide an initial layout (stakes/nails) of the pole locations based on the pole list that is in the project proposal/specification book (below). The Utility will then place their own stakes keeping in mind that minor alignment changes may be needed. Once staked, the poles should be checked by the Contractors GPS for any possible conflicts with curb or drainage. The **Contractor** is then responsible for maintaining and or replacing the pole location stakes/nails until the poles are set by the respective utilities. The **Contractor** shall employ or retain competent Engineering and/or surveying personnel to fulfill these responsibilities. The **Contractor** must notify the **Department** of any errors or inconsistencies regarding the data and layout provided by the utilities.

Clearing and tree removal which is a part of this contract in areas where utilities are involved must be completed by the Contractor before the utilities can relocate their facilities. Any tree removal or tree trimming must be done by a licensed arborist. The arborist is responsible for overseeing the work and must abide by all applicable OSHA standards including, but not limited to, those involving working within 10-20 feet of electrical hazards.

Cuts & Fills for setting utility poles must be accomplished by the Contractor before the utility can start. The Contractor must coordinate any cuts and fills with the utilities and provide accesses that are required for the completion of their work in these areas. This work must be completed as soon as possible after the pre-construction meeting. Cross sections should be used by the Contractor to determine those cuts and fills.

Central Maine Power and others will be moving their lines away from centerline as shown on the plan. This work will take time and the Contractor is urged to initiate this work with the utilities directly after the pre-construction meeting.

Depending on the method of slope construction, the Contractor may be working next to, or under the existing wires. The contractor is encouraged to visit the site prior to bid, to determine how to construct safely. Temporary utility adjustments are not anticipated. If temporary relocation becomes necessary, the Contractor shall notify the affected utilities. Any cost for temporary relocations shall be the responsibility of the Contractor. The Contractor shall not have any claims against the Department if the existing lines become a construction issue. Sufficient time will need to be allowed prior to the construction for all required temporary relocation.

The Contractor shall not excavate around any pole, guy anchor or street light to a depth that compromises the stability of the pole. Central Maine Power is the pole owner and will hold a pole if requested by the Contractor.

New Traffic Signals will be installed as part of this project. These bases, poles and mast arms will be installed close to existing wires. The Contractor shall discuss these signals and proposed locations with the Resident, prior to ordering and installation. Adjustments can be made to the communication cables if needed, but wires may run under the mast arm if other options are not available.

Pole List:

Proposed Pole
Station Offset
16+55.3 moved from 20.6' Rt to 26.5' Rt
16+55.5 moved from 22.8' Lt to 26.5' Lt
18+13.9 moved from 26.4' Rt to 30.0' Rt
19+05.0 Moved from 23.4' Rt to 25.5' Rt

SUBSURFACE

There are underground utilities and drainage pipes that run throughout the project. These consist of water and storm drains. The Contractor shall, through the digsafes process, determine where these utilities currently exist prior to staking for base locations.

Once locations of the future structure bases are determined, the Contractor may have to work in close proximity to these utilities. Payment for coordinating with and working around any utility will be considered incidental to the structure base item. It is the intent of the Department to make field changes, as much as possible, so not to impact existing utilities. The Contractor should expect some delays when in these areas and extra time should be allowed. No additional money will be granted for redesign or Contractor delays. The Contractor shall plan and schedule his work in such a manner that the utilities that are located on this project will not be harmed, damaged or impacted in any way. The Contractor and Utility will coordinate and communicate their work plans in an effort not to interfere with each other's progress or the completion of the project. This work will be done by the Contractors Superintendent and the Utility contact listed below.

All underground Utilities, in cooperation with MaineDOT designers have tried to eliminate any conflict to signal bases and curbing during design. The Contractor is urged to dig a test pit to be paid by equipment rental, in advance, to determine if a conflict exists and a field re-design is necessary. Contractor should complete these conflict checks before ordering drainage materials, especially any pre-cast items. It is the intent of the Department to make field changes, as much as possible, so not to impact existing utilities. The Contractor should expect some delays when in these areas and extra time should be allowed. No additional time or money will be granted for redesign.

The **Gray Water Department** has water main and service in the project area. The **Gray Water Department** has entered an agreement with the Department to provide replacement water main installation and adjust items, in the bid documents. These items will be in the bid document to determine low bid and **will not be** opt-out. During construction, **Gray Water Department** and the Contractor, shall communicate directly and share item totals with the Resident at the end of each day. The **Contractor** will notify the **District** at least 48 hours prior to starting any utility related items. The **Gray Water Department** will oversee and document all installation of water related items with the Department oversight on backfill. The contact for the **Gray Water Department** is Jim Foster at 207-653-3301.

UTILITY SIGNING

The Contractor shall make sure that the traveling public is adequately protected at all times regardless of any utility working within the construction limits of this project. 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.

SAFE PRACTICES AROUND UTILITY FACILITIES

The Contractor shall be responsible for complying with M.R.S.A. Title 35-A, Chapter 7-A Sections 751 -761 Overhead High-Voltage Line Safety Act. Prior to commencing any work that may come within ten (10) feet of any aerial electrical line; the Contractor shall notify the aerial utilities as per section 757 of the above act.

DIG SAFE

The Contractor shall be responsible for determining the presence of underground utility facilities prior to commencing any excavation work and shall notify utilities of proposed excavation in accordance with M.R.S.A. Title 23 §3360-A, Maine “Dig Safe” System. The contractor is also reminded that all utilities on the project may not be members of Dig Safe.

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.

The following utilities are known to be located on this project:

<u>Utility Companies</u>	<u>Utility Contact</u>	<u>Phone</u>
Central Maine Power Company	Ted Getchell	207 242-5916
Spectrum	Jake Heffernan	207-318-0213
OTELCO	Jim Knight	207-590-5111
Gray Water District	Jim Foster	207-653-3301

SPECIAL PROVISION
SECTION 104
GENERAL RIGHTS AND RESPONSIBILITIES
(Electronic Payroll Submission)
(Payment Tracking)

104.3.8.1 Electronic Payroll Submission The prime contractor and all subcontractors and lower-tier subcontractors will submit their certified payrolls electronically on this contract utilizing the Elation System web based reporting. There is no charge to the contracting community for the use of this service. The submission of paper payrolls will not be allowed or accepted. Additional information can be found at <http://www.maine.gov/mdot/contractors/> under the first “Notice”.

104.3.8.2 Payment Tracking The prime contractor and all subcontractors and lower-tier subcontractors will track and confirm the delivery and receipt of all payments through the Elation System

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

In Stream Work consists of any activity conducted below the normal high water 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/>

- I. In Stream Work shall not be allowed between the dates of October 1 and July 14.
(in stream work is allowed from July 15 to September 30, this is the “In Stream Work window”)
- II. The In Stream Work window applies to the following water bodies at the following locations:
1. Mill Brook at culvert Sta. 17+00
- III. Special Conditions:
- a. Special conditions of the U.S. Army Corps of Engineers (Corps) Category 2 permit # NAE-2019-00467 apply (see permit and conditions in contract documents).
 - b. Standards of the Maine Department of Environmental Protection (DEP) Permit By Rule #67388 apply (see permit and standards in contract documents).
- IV. Approvals:
1. Temporary Soil Erosion and Water Pollution Control Plan
 2. Permitted Resource Impacts, see Corps permit # NAE-2019-00467 for locations:
Wetland:
Permanent = 0 s.f. Temporary = 0 s.f.
Stream:
Permanent = 810 s.f. Temporary = 410 s.f.
- V. All activities are prohibited (including placement and removal of cofferdams unless otherwise permitted by Regulatory Agencies) below the normal high water 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”.

VI. No work shall be allowed that completely blocks a river, stream, or brook without providing downstream flow.

NOTE: Regulatory Review and Approval shall be required to modify the existing In Stream Work window. Requests for work window extensions shall be submitted to the MaineDOT Environmental Office. Approval of request for work window extensions shall not be guaranteed and may result in delays in construction schedule that shall be the sole responsibility of the contractor.

GRAY
INTERSECTION OF ROUTE 26 AND NORTH RAYMOND ROAD
INTERSECTION IMPROVEMENTS
WIN 18766.00

GENERAL NOTE

A Maine Department of Transportation (MaineDOT) Environmental Office investigation specific with this project encountered data suggesting petroleum related contamination was present at roughly MaineDOT Station 18+00 to roughly MaineDOT station 21+50 left of center and roughly MaineDOT station 100+00 to roughly MaineDOT station 101+00 right and left of center. Subsequent on-site work failed to unearth any issues within these areas. However, in light of the available environmental data, the contractor shall employ appropriate health and safety measures to protect its workers against hazards associated with working near petroleum-impacted soils. Furthermore, the Contractor shall remain alert for any additionally evidence of contamination. If the Contractor encounters evidence of soil or groundwater contamination, the Contractor shall secure the excavation, stop work in the contaminated area, and immediately notify the Resident. The Resident shall contact the Senior Geologist in MaineDOT's Environmental Office at 207-624-3100 and the Maine Department of Environmental Protection (MDEP) at 800-482-0777. Work may only continue with authorization from the Resident.

SPECIAL PROVISION
SECTION 105
General Scope of Work
(Limitations of Operations)

No lane closures between 6:45 a.m. to 7:45 a.m. and 4:00 p.m. to 6:00 p.m.

SPECIAL PROVISION 105
GENERAL SCOPE OF WORK
Equal Opportunity and Civil Rights
(Disadvantaged Business Enterprises Program)

105.10.1.1 Disadvantaged Business Enterprises Program The Maine Department of Transportation (MaineDOT) has established a Disadvantaged Business Enterprise (DBE) program in accordance with regulations of the United States Department of Transportation (USDOT), 49 CFR Part 26. The MaineDOT receives federal financial assistance from USDOT, and as a condition of receiving this assistance, the Department has signed an assurance that it will comply with 49 CFR Part 26. The MaineDOT is responsible for determining the eligibility of and certifying DBE firms in Maine.

A DBE is defined as a for-profit business that is owned and controlled by one or more socially and economically disadvantaged person(s). For the purpose of this definition:

1. "Socially and economically disadvantaged person" means an individual who is a citizen or lawful permanent resident of the United States and who is Black, Hispanic, Native American, Asian, Female; or a member of another group or an individual found to be disadvantaged by the Small Business Administration pursuant to Section 3 of the Small Business Act.
2. "Owned and controlled" means a business which is:
 - a. A sole proprietorship legitimately owned and controlled by an individual who is a disadvantaged person.
 - b. A partnership or limited liability company in which at least 51% of the beneficial ownership interests legitimately are held by a disadvantaged person(s).
 - c. A corporation or other entity in which at least 51% of the voting interest and 51% of the beneficial ownership interests legitimately are held by a disadvantaged person(s).

The disadvantaged group owner(s) or stockholder(s) must possess control over management, interest in capital, and interest in earnings commensurate with the percentage of ownership. If the disadvantaged group ownership interests are real, substantial and continuing and not created solely to meet the requirements of this program, a firm is considered a bona fide DBE.

105.10.1.2 Commercially Useful Function MaineDOT will count expenditures of a DBE contractor toward DBE goals only if the DBE is performing a commercially useful function on that contract. A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. Credit will only be given when the DBE meets all conditions for a CUF. Credit for labor will be in accordance with the responsibilities outlined in the contract. To perform a commercially useful function, the DBE must also be responsible, with respect to materials and supplies used on the Contract, for negotiating price, determining quality and quantity, ordering the materials, and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, MaineDOT will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the Contract is commensurate with the work it is actually performing and DBE credit claimed for its performance of the work, and other relevant factors.

Rented equipment used by the DBE must not be rented from the Prime Contractor on a job that the DBE is subcontracted with that Prime Contractor for regular course of business.

A current listing of certified DBEs that may wish to participate in the highway construction program and the scope of work for which they are certified can be found at <http://www.maine.gov/mdot/disadvantaged-business-enterprises/pdf/directory.pdf>. Credit will be given for the value described by a DBE performing as:

- A. A prime contractor; 100% of actual value of work performed by own workforces.
- B. An approved subcontractor; 100% of work performed by own workforces.
- C. An owner-operator of construction equipment; 100% of expenditures committed.
- D. A manufacturer; 100% of expenditures committed. The manufacturer must be a firm that operates or maintains a factory or establishment that produces on the premises the materials or supplies obtained by the Contractor. Brokers and packagers shall not be regarded as manufacturers.
- E. A regular dealer; 60% of expenditures committed. A regular dealer is defined as a firm that owns, operates, or maintains a store, warehouse or other establishment in which the materials or supplies required for the performance of the contract are bought, kept in stock, and regularly sold to the public. For purposes of this provision a "Broker" is a DBE that has entered into a legally binding relationship to provide goods or services delivered or performed by a third party. Brokers and packagers shall not be regarded as regular dealers.
- F. A bona fide service provider; 100% of reasonable fees or commissions. Eligible services include professional, technical, consultant, or managerial, services and assistance in the procurement of essential personnel, facilities, equipment, materials or supplies required for the performance of the contract. Eligible services also include agencies providing bonding and insurance specifically required for the performance of the contract.
- G. A trucking, hauling or delivery operation. 100% of expenditures committed when trucks are owned, operated, licensed and insured by the DBE and used on the contract and, if applicable, includes the cost of the self supplied materials and supplies. 100% of expenditures committed when the DBE leases trucks from another DBE firm including an owner-operator. 100% of reasonable fees or commissions the DBE receives as a result of a lease arrangement for trucks from a non-DBE, including an owner-operator.
- H. Any combination of the above.

105.10.1.3 Race-neutral Goals The Maine DOT is required to set an annual goal (approved on a three year basis) for DBE participation in Federal-aid projects. In order to fulfill that goal, bidders are encouraged to utilize DBE businesses certified by the MaineDOT. MaineDOT seeks to meet the established DBE goal solely through race-neutral means. *Race-neutral* DBE participation occurs when a DBE is awarded a prime contract through customary competitive procurement procedures, is awarded a subcontract on a contract that does not carry a DBE contract goal, or wins a subcontract from a prime contractor that did not consider its DBE status in making the award. A DBE/subcontractor Utilization Proposed Form is required to be included in bid documents.

MaineDOT will analyze each project and create a Project Availability Target (PAT), based on a number of factors including project scope, available DBE firms, firms certified in particular project work, etc. Each bid will request that the contractor attempt to meet the PAT. This PAT is developed to assist contractors to better understand what the MaineDOT expectations are for a

specific project. The PAT is NOT a mandate but an assessment of what this particular project can bear for DBE participation. The Department anticipates that each contractor will make the best effort to reach or exceed this PAT for the project.

105.10.1.4 Race-conscious Project Goals If it is determined by the Department that the annual DBE goal will not be met through *race-neutral* means, the Department may implement *race-conscious contract goals* on some projects. Race-conscious contract goals are goals that are enforceable by the Department and require that the prime contractor use good faith effort to achieve the goal set by the Department for that particular project. If race conscious means are implemented on a project, the Prime must comply with the requirements of 49 CFR.

At the time of the bid opening, all Bidders shall submit with their bid a Disadvantaged Business Enterprise (DBE) Commitment Form provided by the Department. This form will list the DBE and non-DBE firms that are proposed to be used during the execution of the Work. The list shall show the name of the firm, the item/material/type of work involved and the dollar amount of work to be performed. The dollar total of each commitment shall be totaled and a percentage determined.

If the project goal is not met, acceptable documentation showing all good faith efforts made to obtain participation may be required in order to award the project. Failure to provide the required listing with the dollar participation total or acceptable documentation of good faith efforts to obtain DBE participation within 3 days after the bid opening date will be considered a lack of responsiveness on the part of the low bidder. Rejection of the low bid under these circumstances will require the low bidder to surrender the Proposal Guaranty to the Department. The submission and approval of the above forms does not constitute a formal subcontract.

If for any reason during the progress of the Work the Contractor finds that DBEs included on the list are unable to perform the proposed work, the Contractor, with written release by the committed DBE or approval of the Department, may substitute other DBE firms for those named on the list. If the Contractor is able to clearly document their inability to find qualified substitute firms to meet the project goal, the Contractor may request in writing approval to substitute the DBE with a non-DBE firm. If at any time during the life of the Contract it is determined that the Contractor is not fulfilling the goal or commitment(s) and is not making a good faith effort to fulfill the DBE requirement, the Department may withhold progress payments. If good faith effort is determined by the Department, failure to meet the DBE contract goal will not be a detriment to the bid award. Fulfillment of the goal percentage shall be determined by dividing the dollars committed to the DBEs by the actual contract dollars. These requirements are in addition to all other Equal Employment Opportunity requirements on Federal-aid contracts.

105.10.1.5 Certification of DBE attainment on Contracts The MaineDOT must certify that it has conducted post-award monitoring of all contracts to ensure that DBEs had done the work for which credit was claimed. The certification is for the purpose of ensuring accountability for monitoring which the regulation already requires. The MaineDOT will certify these contracts through review of CUF forms, Elations sub-contract payment tracking as well as occasional on-site reviews of projects and through the project's final closeout documentation provided by our Contracts Section.

105.10.1.6 Bidders' List Survey Pursuant to 49 CFR 26.11 the MaineDOT is required to "create and maintain" a bidders list and gather bidder information on our construction/consultant projects, Contractors will maintain information on all subcontract bids submitted by DBE and Non-DBE firms and provide that information to the Department. The Following information is required:

Firm Name

Firm Address

Firm status (DBE or non-DBE)

Age of firm (years)

And the annual gross receipts amount as indicated by defined brackets, i.e. \$500,000 to \$800,000, rather than requesting exact figures.

Not only is this information critical in determining the availability of DBE businesses relative to other businesses that do similar work, but the Federal Highway Administration requires that we obtain this information.

MaineDOT DBE Project Attainment Target (PAT) for this Project is 4%

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 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 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:

<u>Element</u>	<u>Time</u>	<u>Supplemental LD</u>
Precast Box Culvert	35 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:

Materials verification, verification of reinforcing, batching and casting of concrete, breaking of test cylinders, repairs, finishing fascia surfaces and any other times required in the 534 Standard Specifications.

The Fabricator shall notify the Fabrication Engineer a minimum of two weeks prior to the start of work if Fabrication is done in the State of Maine. Three weeks' minimum notification is required for all other locations.

SPECIAL PROVISION
SECTION 107
CONTROL OF WORK

The Contractor shall notify the Engineer three (3) working days prior to the commencement of construction activities.

The work shall not commence until the traffic control plan has been approved. Once the Contractor begins work at one project location, the Contractor shall continue to work at that location until the project is complete, unless otherwise approved by the Engineer.

SPECIAL PROVISION
SECTION 107
PROSECUTION AND PROGRESS
(Contract Time)

The contractor will be allowed to commence work on this project as long as all applicable plans required under this contract have been submitted, approved, and a pre-construction meeting held.

The completion date for this contract is **October 16, 2020.**

All work schedule changes must be submitted for approval to the Department a minimum of 48 hours prior to the requested change.

All travel lanes shall be open to traffic and the roadway in safe operating condition when the contractor suspends work for holidays or extended periods of time as directed.

Absences must be requested at least 72 hours in advance and are subject to Department approval based on existing roadway condition, paving deadlines, adherence to schedule, traffic restrictions, etc. The Contractor must assure that the roadway surface and signage are maintained for safe passage of the traveling public during any approved absences. The Contract Completion Date will not be modified due to approved absences.

SPECIAL PROVISION
SECTION 202
REMOVAL OF STRUCTURES AND OBSTRUCTIONS

Description

This work shall consist of removing wholly and satisfactory, and disposing of all designated buildings, structures and other obstructions included below.

All plywood panels, hasps, padlocks and other materials used to secure the buildings will remain the property of the Department of Transportation. These panels and padlocks will be transported to a location in the area to be determined by the MaineDOT Property Manager.

All debris and unusable materials shall be removed to an approved transfer station or approved landfill. Under no circumstances shall any material or debris be disposed of by burning on the premises nor shall the debris be burned at an off-premise site. For a related provision, see Department of Environmental Protection Maine Solid Waste Management Rules, 06-096 CMR Ch. 401, Landfill Siting, Design and Operation. All fill material used for the foundation cavities shall meet the Standard Specification requirements for Common Borrow, Section 703.18.

Demolition of the structures will be conducted entirely from the unit location. At no time will demolition vehicles or equipment be in the travel way impacting the free flow of vehicles. Contractor shall provide and maintain all temporary barricades, signs or other safety measures as necessary to complete the work. Contractor shall obtain any and all permits or licenses necessary for the performance of the work and conform to all Federal, State and local laws, regulations or ordinances applicable to the work.

Buildings to be removed under Section 202 - Removing Structures and Obstructions of the contract will be made available to the Contractor as follows: Immediately.

Unit 1: 1980 Store (vacant) 1 story, wood-frame structure (1,237± sf)
Full basement built on concrete blocks
Septic tank – empty and remove
Leach field – crush and remove
Empty, remove and dispose of fuel tank located in basement

Unit 2: One-car garage (288± sf)
Attached shed on garage (120± sf)

Reserve limits are in place around the buildings until 12/1/2019 in order to give the seller the opportunity to clean out the buildings.

Failure by the Maine State Department of Transportation to meet dates of availability may entitle the Contractor to time extension if requested by the Contractor, in writing, such request indicating delays in construction, if any, caused by changes in availability dates.

The Contractor shall not remove a building until the Contractor has certified it to be free of rodents. Should rodent control measures be required, the Contractor shall procure the extermination services

as soon as possible. The cost of extermination services until the building is found to be rodent free will be paid for under Section 109.3.7.5 – Force Account.

The Contractor will re-inspect the building within 7 days after the extermination services are performed. All subsequent inspection costs and extermination services necessary to assure that the building is rodent free at time of removal will be at the expense of the Contractor.

Each building shall be removed promptly after certification that it is free of rodents.

Prior to any demolition of building(s) the Contractor will conduct an asbestos survey on the building(s) to determine if any asbestos exists. The survey will be conducted by a DEP certified Asbestos Inspector. No separate payment will be made for the survey and it shall be considered incidental. The survey results will be communicated with the Resident. If no asbestos is discovered, the demolition process may proceed. If asbestos is found, the Contractor will employ a DEP certified Asbestos Abatement Contractor for its' removal and disposal. The Department will bear all expenses incurred in the abatement of any asbestos containing material as detailed in Standard Specification 109.7.5 – Force Account.

If not completed by the MaineDOT Property Manager, the Contractor shall remove all utility service connections prior to demotion of any building. The Contractor shall coordinate disconnection of overhead utilities with the appropriate utility companies. Electrical service within portions of any building to be removed shall be disconnected or otherwise shut off by a licensed electrician. Sewer connections shall be cut off and sealed with a water and gas tight seal or pumped and removed in its entirety. Water connections or services shall be cut and completely capped or plugged in a manner to prevent any flow or seepage of water into the excavated area. The final condition of all service connections shall be to the satisfaction of the local water and sewer company's utility engineer before such connections are covered by any fill material.

The Contractor shall remove and dispose of all buildings and foundations indicated on plans or bid documents. Cavities remaining as a result of foundation or structure removal shall be filled to the level of the surrounding ground. All excavations will be compacted using vibratory equipment in one-foot layers to the surrounding existing grade levels. In this process, the contour and grades of the abutting land are to be followed. Erosion control including loaming, seeding and mulch shall be done, and will be considered to be incidental to the contract.

Upon notice of availability, ownership of the buildings and all the equipment, fixtures and materials therein shall transfer from the State to the Contractor who then shall proceed with the work required. The buildings shall not be used or occupied for any purpose and shall be removed as soon as possible after the date available. All equipment belonging to a utility is excepted from transfer from the State to the Contractor.

The project contains one fuel tank that is to be disposed of. Any fuel left in the fuel tank is a regulatory material and may be reused or disposed of in accordance with local State and Federal regulations. The tank is also to be disposed of in accordance with local, State and Federal regulations.

Start and Completion of Work: Demolition work under the contract may commence any time after December 1, 2019. The Contractor will notify the MaineDOT Property Manager at least three (3) days prior to the start of the work and agrees that once the demolition is commenced, the work will be

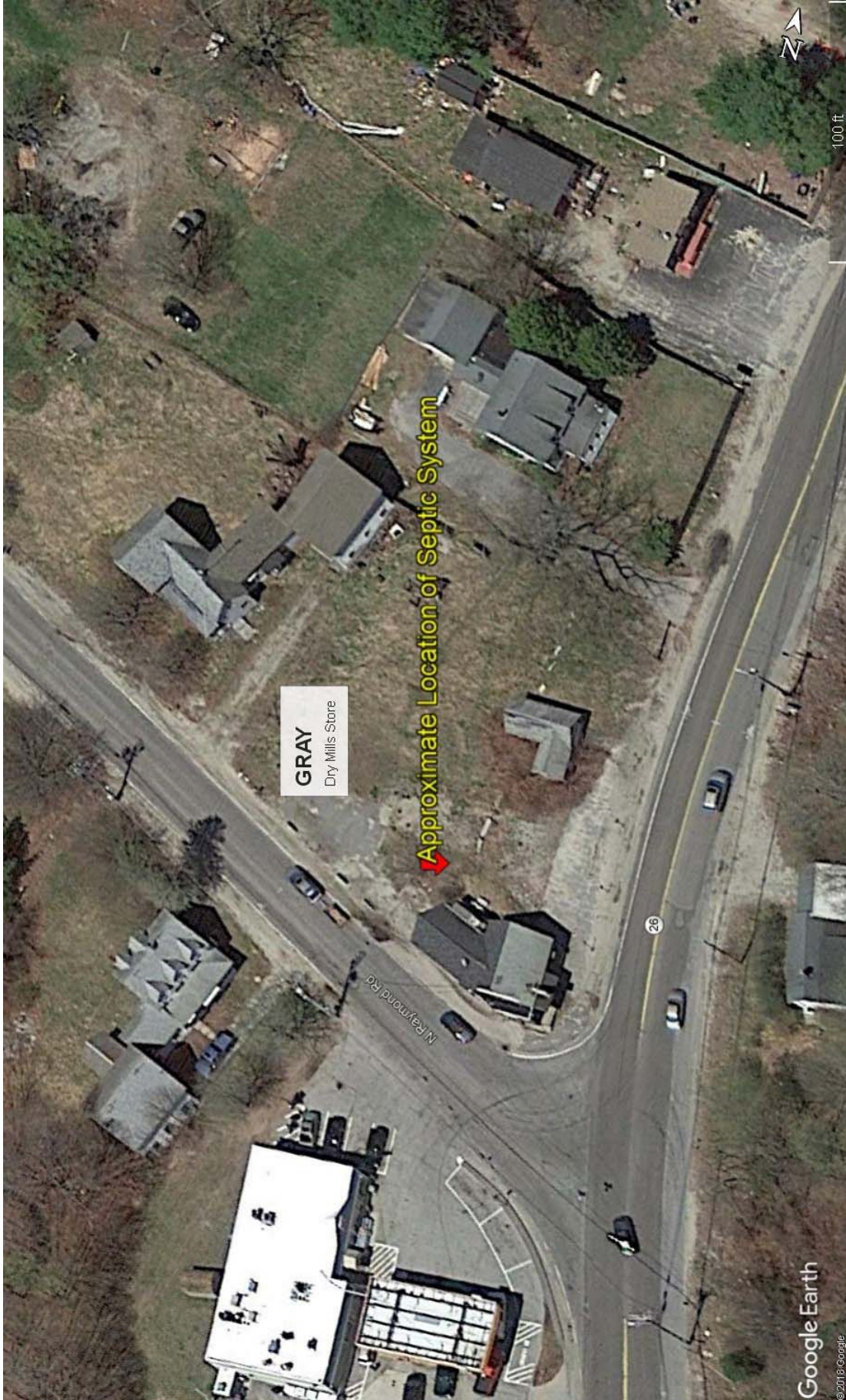
performed continuously from day-to-day until completion. The completion date will be that noted on the Contract Agreement, Offer & Award Form.

Method of Measurement: Removing buildings will each be measured by the lump sum payment.

Basis of Payment: All work will be paid for at the contract Lump Sum price, which shall be full compensation for all materials, labor and equipment necessary for the work described above and as shown in the Plans and/or as directed by the Resident.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
202.08	Removing Building – Unit #1	Lump Sum
202.08	Removing Building – Unit #2	Lump Sum



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. 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 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 1/4 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 planing 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 1/2 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.

Pay Item

Pay Unit

202.202 Removing Pavement Surface

S.Y.

SPECIAL PROVISION
SECTION 203
EXCAVATION AND EMBANKMENT
(Dredge Materials)

Management and Disposal: Dredge Material (See MaineDOT Standard Specifications § 101.2 Definitions) is regulated as a Special Waste.

In accordance with CMR 418, 500 cubic yards or less of Dredge Material Beneficially Used in the area(s) adjacent to and draining into the dredged water body is exempt from Beneficial Use Permits. Work associated with the Gray Intersection Improvement initiative will require the excavation of select Dredge Material from Mill Brook. It is anticipated that about 40-cubic yards of Dredge Material will be excavated. There is no onsite Beneficial Use for this Dredge Material. All Dredge Material shall be disposed of at an appropriately licensed facility.

The Contractor shall dispose of Dredge Material from the project that is not Beneficially Used at the site of generation at a facility licensed by the Maine Department of Environmental Protection (MDEP) for the management of Special Waste. The Contractor shall be responsible for making all necessary arrangements for dewatering and proper management of the Dredge Material, including any laboratory testing, in accordance with the facility's license. The Contractor shall provide documentation to the Resident that the Dredge Material was managed as specified. The submitted documentation shall consist of truck manifests, waybills, or such documentation as may be acceptable to the Resident and shall clearly document the management site location and the quantity of Dredge Material.

It is acknowledged that the excavation of Dredge for this work may include some boulders. The MDEP has determined that sound boulders (rock 12-inches or more in diameter), that are free of adhering sediment or other contaminants, shall be deemed to be Inert Fill material and shall not be included in the Dredge Material Quantities.

Method of Measurement: Dredge Material will be measured for payment under related contract items.

Basis of Payment: The accepted quantity of Dredge Material properly disposed of, as Special Waste, will be paid for at the contract unit price bid for Disposal of Special Waste.

Payment shall be full compensation for dewatering, testing, managing, transporting, disposal and all associated fees.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
203.2315 Disposal of Dredge Material	Ton

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.

The Contractor shall submit for Department approval a JMF to the Asphalt Pavement Engineer for each mixture to be supplied. The Department shall then have 15 calendar days in which to process a new design before approval. The JMF shall establish a single percentage of aggregate passing each sieve size within the limits shown in section 703.09. The mixture shall be designed and produced, including all production tolerances, to comply with the allowable control points for the particular type of mixture as outlined in 703.09. The JMF shall state the original source, gradation, and percentage to be used of each portion of the aggregate including RAP when utilized, and mineral filler if required. It shall also state the proposed PGAB content, the name and location of the supplier, the source of PGAB submitted for approval, the type of PGAB modification if applicable, and the location of the terminal if applicable.

In addition, the Contractor shall provide the following information with the proposed JMF:

- Properly completed JMF indicating all mix properties (Gmm, VMA, VFB, etc.)
- Stockpile Gradation Summary
- Design Aggregate Structure Consensus Property Summary
- Design Aggregate Structure Trial Blend Gradation Plots (0.45 power chart)
- Trial Blend Test Results for at least three different asphalt contents
- Design Aggregate Structure
- Test results for the selected aggregate blend at a minimum of three binder contents
- Recommended mixing and compaction temperatures from the PGAB supplier
- Safety Data Sheets (SDS) For PGAB
- Asphalt Content vs. Air Voids trial blend curve
- Test report for Contractor's Verification sample

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 JMF will be approved by the Department in accordance with the MaineDOT HMA Policies and Procedures for HMA Sampling and Testing Manual. 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 within 24 hours of receipt of the first Acceptance test result. Should all of the Acceptance samples of a Lot be obtained prior to the reporting of the first Acceptance result, the Department will not allow the aim changes to be applied to that Lot. Adjustments will be allowed of up to 2% on the percent passing the 2.36 mm sieve through the 0.075 mm and 3% on the percent passing the 4.75 mm or larger sieves. Adjustments will be allowed on the %PGAB of up to 0.2%. Adjustments will be allowed on G_{mm} of up to 0.010.

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.

TABLE 1: VOLUMETRIC DESIGN CRITERIA

Design ESAL's (Million s)	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.

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 After the JMF is established, the temperatures of the mixture shall conform to the following tolerances unless otherwise authorized by the Department:

In the truck at the mixing plant – allowable range 275 to 325°F
At the Paver – allowable range 275 to 325°F

The JMF and the mix subsequently produced shall meet the requirements of Tables 1 and Section 703.07.

401.05 Performance Graded Asphalt Binder The Contractor shall utilize either a PG58-28, PG64-28, 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 2: 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 M156-97.

- a. **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.

b. 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 at all times no matter the production rate for the HMA plant. Stockpiles shall be separated and built to minimize segregation.

c. Preparation of Aggregates 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.

d. Mixing The Contractor shall combine the dried aggregate in the mixer in the amount of each fraction of aggregate required to meet the JMF. The Contractor shall measure the amount of PGAB and introduce it into the mixer in the amount specified by the JMF. The Contractor shall produce the HMA at the temperature established by the JMF.

The Contractor shall dry the aggregate sufficiently so that the HMA will not flush, foam excessively, or displace excessively under the action of the rollers. The Contractor shall introduce the aggregate into the mixer at a temperature of not more than 25°F above the temperature at which the viscosity of the PGAB being used is 0.150 Pa·s.

The Contractor shall store and introduce into the mixer the Performance Graded Asphalt Binder at a uniformly maintained temperature at which the viscosity of the PGAB is between 0.150 Pa·s and 0.300 Pa·s. The aggregate shall be coated completely and uniformly with a thorough distribution of the PGAB. The Contractor shall determine the wet mixing time for each plant and for each type of aggregate used. The resultant material shall be a uniformly blended, homogeneous HMA mixture.

401.072 Automation of Batching Batch plants shall be automated for weighing, recycling, and monitoring the system. In the case of a malfunction of the printing system, the requirements of Section 401.074 c. of this specification will apply.

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.

All plants shall be equipped with an approved digital recording device. 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 401.073

401.073 Automatic Ticket Printer System on Automatic HMA Plant An approved automatic ticket printer system shall be used with all approved automatic HMA 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 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.

401.074 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 based upon the criteria below. 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 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.
- 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 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

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 3, unless otherwise noted by the Department in Section 403 - Hot Mix Asphalt Pavement.

TABLE 3: 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 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.

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.

- 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.
- The top course shall not be placed until the bottom course has cooled sufficiently to provide stability.
- 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 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.

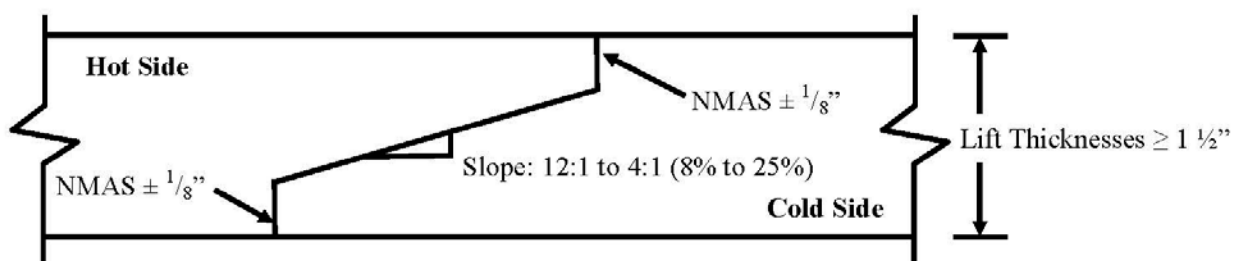


FIGURE 1: Notched Wedge Joint

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 401.073.

401.18 Quality Control Method A, B & C The Contractor shall operate in accordance with the approved Quality Control Plan (QCP) to assure a product meeting the contract requirements. The QCP shall meet the requirements of Section 106.6 - Acceptance and this Section. The Contractor shall not begin paving operations until the Department approves the QCP in writing.

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, Typical, 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.

Quality Control Plan 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. Solvent based agents developed to strip asphalts from aggregates will not be allowed as release agents.
- 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 (can show storage for use on project of up to 36 hours)
- 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.

Quality Control Testing The Contractor shall have a testing lab at the plant site, equipped with all testing equipment necessary to complete the tests in Table 4. 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 4: 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 (Surface)	1 per 125 ton	AASHTO T355 or AASHTO T343
%TMD (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*
Voids in Mineral Aggregate 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 5 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 5: CONTROL LIMITS

Property	UCL and LCL
Passing 4.75 mm and larger sieves	Target +/-4.0
Passing 2.36 mm sieve	Target +/-2.5
Passing 0.075 mm sieve	Target +/-1.0
PGAB Content*	Target +/-0.25
Voids in the Mineral Aggregate	LCL = LSL + 0.2
Air Voids	JMF Target +/-1.2
Theoretical Maximum Specific Gravity	JMF Target +/-0.020

*Based on AASHTO T 308

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 15 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 401.223 - 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 5: 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 5 control chart control limits.

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

- The quality level for density using all quality control tests for the current Lot is less than 60 PWL.
- 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.
- The Flat and Elongated Particles value exceeds 10% by ASTM D4791.
- There is any visible damage to the aggregate due to over-densification other than on variable depth shim courses.
- 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.

401.19 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. 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 subplot on a statistically random basis, test, and evaluate in accordance with the following Acceptance Criteria:

TABLE 6: ACCEPTANCE CRITERIA

Properties	Point of Sampling	Test Method
Gradation	Paver Hopper	AASHTO T30
PGAB Content	Paver Hopper	AASHTO T308
%TMD (Surface)	Mat behind all Rollers	AASHTO T269
%TMD (Base or Binder)	Mat behind all Rollers	AASHTO T269
Air Voids at N_d	Paver Hopper	AASHTO T 312
%VMA at N_d	Paver Hopper	AASHTO T 312
Fines to Effective Binder	Paver Hopper	AASHTO T 312
%VFB	Paver Hopper	AASHTO T 312

In the event the Department terminates a Lot prematurely but fails to obtain the required number of acceptance samples to calculate the volumetric property pay factor under the test method specified in the contract, the pay factor shall be calculated using the number of samples actually obtained from the contract. Should the number of acceptance samples taken total less than three, the resulting pay factor shall be 1.0 for mixture properties. A minimum of three cores will be used for a density pay factor using the contract's specified Acceptance method, if applicable, for quantities placed to date.

Should the Contractor request a termination of the Lot in progress prior to three acceptance samples being obtained, and the Department agrees to terminate the Lot, then the pay factor for mixture properties shall be 0.80. A minimum of three cores will be used to determine a density pay factor using the contract's specified Acceptance method, if applicable, for quantities placed to date.

Lot Size For purposes of evaluating all acceptance test properties, a lot shall consist of the total quantity represented by each item listed under the lot size heading.

Sublot size Refer to Sections 401.201, 401.202, and 401.203 for minimum size and number of sublots. The quantity represented by each sample will constitute a sublot.

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.

Acceptance Testing The Department will obtain samples of Hot Mix Asphalt Pavement in conformance with AASHTO T168 Sampling Bituminous Paving Mixtures, and the MaineDOT Policies and Procedures for HMA Sampling and Testing, which will then be transported by the Contractor to the designated MaineDOT Laboratory within 48 hours (except when otherwise noted in the project specific QCP and approved by the Department), as directed by MaineDOT in approved transport containers to be provided by the Department, unless otherwise 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.

The Department will take the sample randomly within each sublot. Target values shall be as specified in the JMF. The Department will use Table 6 for calculating pay factors for gradation, PGAB Content, Air Voids at N_{design} , VMA, Fines to Effective Binder and VFB. 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.

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 Department will randomly determine core locations. The Contractor shall cut 6 inch diameter cores at no additional cost to the Department by the end of the working day following the day the pavement is placed, and immediately give them to the Department. Cores for Acceptance testing shall be cut such that the nearest edge is never within 9 inches of any joint. The cores will be placed in a transport container provided by the Department and transported by the Contractor to the designated MaineDOT Lab as directed by the Department. Pre-testing of the cores will not be allowed. At the time of sampling, the Contractor and the Department shall mutually determine if a core is damaged. If it is determined that the core(s) is damaged, the Contractor shall cut new core(s) at the same offset and within 3 ft of the initial sample. At the time the core is cut, the Contractor and the Department will mutually determine if saw cutting of the core is needed, and will mark the core at the point where sawing is needed. The core will be saw cut by the Department in a MaineDOT Lab without disturbing the layer being tested to remove lower layers of Hot Mix Asphalt Pavement, gravel, or RAP. 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 3/4 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 3/4 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.

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

- a. Method A: The Pay Factor for VMA, Voids @ Nd, Percent PGAB, composite gradation, VFB, fines to effective binder or density using all Acceptance tests for the current lot is less than 0.85.
- b. Method B: The Pay Factor for VMA, Voids @ Nd, Percent PGAB, composite gradation, VFB, fines to effective binder or density using all Acceptance tests for the current lot is less than 0.90.
- c. Method C: The Pay Factor for Percent PGAB, percent passing the nominal maximum sieve, percent passing 2.36 mm sieve, percent passing 0.300 mm sieve, percent passing 0.075 mm sieve or density using all Acceptance tests for the current lot is less than 0.85. No ceasing of paving operations shall be required for percent passing the nominal maximum sieve, percent passing 2.36 mm sieve, percent passing 0.300 mm sieve, or percent passing 0.075 mm sieve if the mean test value is equal to the LSL or USL and $s = 0$.
- d. Each of the first 2 Acceptance tests for a Method A or B lot fall outside the upper or lower limits for VMA, Voids @ Nd, or Percent PGAB; or under Method C, each of the first 2 Acceptance tests for the lot fall outside the upper or lower limits for the nominal maximum, 2.36 mm, 0.300 mm or 0.075 mm sieves, or percent PGAB.

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.

401.201 Method A Lot Size will be the entire production per JMF for the project, or if so agreed at the Pre-paving Conference, equal lots of up to 4500 tons, with unanticipated over-runs of up to 1500 ton rolled into the last lot. Sublot sizes shall be 750 ton for mixture properties, 500 ton for base or binder densities and 250 ton for surface densities. The minimum number of sublots for mixture properties shall be four, and the minimum number of sublots for density shall be five.

TABLE 7: METHOD A ACCEPTANCE LIMITS

Property	USL and LSL
Percent Passing 4.75 mm and larger sieves	Target +/-7%
Percent Passing 2.36 mm to 1.18 mm sieves	Target +/-4%
Percent Passing 0.60 mm	Target +/-3%
Percent Passing 0.30 mm to 0.075 mm sieve	Target +/-2%
PGAB Content	Target +/-0.4%
Air Voids	4.0% +/-1.5%
Fines to Effective Binder	0.9 +/-0.3
Voids in the Mineral Aggregate	LSL Only from Table 1
Voids Filled with Binder	Table 1 values plus a 4% production tolerance for USL only
% TMD (In-place Density)	95.0% +/- 2.5%

401.202 Method B Lot Size will be the entire production per JMF for the project and shall be divided into three equal sublots for Mixture Properties and five equal sublots for density.

TABLE 8: METHOD B ACCEPTANCE LIMITS

Property	USL and LSL
Percent Passing 4.75 mm and larger sieves	Target +/-7%
Percent Passing 2.36 mm to 1.18 mm sieves	Target +/-5%
Percent Passing 0.60 mm	Target +/-4%
Percent Passing 0.30 mm to 0.075 mm sieve	Target +/-3%
PGAB Content	Target +/-0.5%
Air Voids	4.0% +/-2.0%
Fines to Effective Binder	0.9 +/-0.3
Voids in the Mineral Aggregate	LSL from Table 1
Voids Filled with Binder	Table1 plus a 4% production tolerance for USL.
% TMD (In-place Density)	95.0% +/- 2.5%

401.203 Method C Lot Size will be the entire production per JMF for the project, or if so agreed at the Pre-paving Conference, equal lots of up to 4500 tons, with unanticipated over-runs of up to 1500 ton rolled into the last lot. Sublot sizes shall be 750 ton for mixture properties, 500 ton for base or binder densities and 250 ton for surface densities. The minimum number of sublots for mixture properties shall be four, and the minimum number of sublots for density shall be five.

TABLE 9: METHOD C ACCEPTANCE LIMITS

Property	USL and LSL
Passing 4.75 mm and larger sieves	Target +/-7%
Passing 2.36 mm to 1.18 mm sieves	Target +/-5%
Passing 0.60 mm	Target +/-4%
Passing 0.30 mm to 0.075 mm sieve	Target +/-2%
PGAB Content	Target +/-0.4%
% TMD (In place density)	95.0% +/- 2.5%

401.204 Method D For hot mix asphalt items designated as Method D in Section 403 - Hot Mix Asphalt Pavement, 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 10: Method D Acceptance Limits, 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 (Table 11) shall apply to the HMA quantity represented by the test.

TABLE 10: METHOD D ACCEPTANCE LIMITS

Property	USL and LSL
Percent Passing 4.75 mm and larger sieves	Target +/-7%
Percent Passing 2.36 mm to 1.18 mm sieves	Target +/-5%
Percent Passing 0.60 mm	Target +/-4%
Percent Passing 0.30 mm to 0.075 mm sieve	Target +/-3%
PGAB Content	Target +/-0.5%
% TMD (In-place Density)	95.0% +/- 2.5%

TABLE 11: METHOD "D" PRICE ADJUSTMENTS

Property	Pay Adjustment
PGAB Content	-5%
Percent Passing 2.36 mm sieve	-2%
Percent Passing 0.30 mm sieve	-1%
Percent Passing 0.075 mm sieve	-2%
% TMD (In-place Density)	-10%

401.21 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.

401.22 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 below.

401.221 Pay Adjustment 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.

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%.

401.222 Pay Factor (PF) The Department will use the following criteria for pay adjustment 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.

Gradation For HMA evaluated under Acceptance Method A or B, the Department will determine a composite pay factor (CPF) using applicable price adjustment factors “f” from Table 13: Table of Gradation Composite “f” Factors, and Acceptance limits from Table 7: Method A Acceptance Limits, for Method A or Table 8: Method B Acceptance Limits, for Method B. The Department will not make price adjustments for gradation on Methods A and B except for 9.5mm NMAS mixtures as outlined in Table 12. Gradations for Methods A and B shall be monitored as shutdown criteria.

TABLE 13: TABLE OF GRADATION COMPOSITE "f" FACTORS (Methods A and B)

Constituent		"f" Factor			
		19 mm	12.5 mm	9.5 mm	4.75 mm
Gradation	25 mm	-	-	-	-
	19 mm	4	-	-	-
	12.5 mm		4	4	-
	9.50 mm				4
	2.36 mm	6	6	6	8
	1.18 mm				
	0.60 mm	2	2	2	2
	0.30 mm	2	2	2	2
	0.075 mm	6	6	6	8

For HMA evaluated under Acceptance Method C, the Department will determine a pay factor using acceptance limits from Table 9: Method C Acceptance Limits.

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

Pay Adjustment Methods A, B & C The Department will determine a pay adjustment using Table 14: Pay Adjustment Calculations in conjunction with Tables 7, 8, & 9 as follows:

TABLE 14: PAY ADJUSTMENT CALCULATIONS

Acceptance Method	Mix Properties / Gradation	Density
METHOD A	$PA = (\text{voids @ } N_d \text{ PF} - 1.0)(Q)(P) \times 0.20 + (\text{VMA @ } N_d \text{ PF} - 1.0)(Q)(P) \times 0.20 + (\text{PGAB PF} - 1.0)(Q)(P) \times 0.10$	$PA = (\text{density PF} - 1.0)(Q)(P) \times 0.50$
METHOD B	$PA = (\text{voids @ } N_d \text{ PF} - 1.0)(Q)(P) \times 0.20 + (\text{VMA @ } N_d \text{ PF} - 1.0)(Q)(P) \times 0.20 + (\text{PGAB PF} - 1.0)(Q)(P) \times 0.10$	
METHOD C	$PA = (\% \text{ Passing Nom. Max PF} - 1.0)(Q)(P) \times 0.05 + (\% \text{ passing 2.36 mm PF} - 1.0)(Q)(P) \times 0.05 + (\% \text{ passing 0.30 mm PF} - 1.0)(Q)(P) \times 0.05 + (\% \text{ passing 0.075 mm PF} - 1.0)(Q)(P) \times 0.10 + (\text{PGAB PF} - 1.0)(Q)(P) \times 0.25$	

Pay Adjustment Method D The Department will use density, Performance Graded Asphalt Binder content, and the screen sizes listed in Table 10 for the type of HMA represented in the JMF. If test results do not meet the Table 10 requirements, deducts as shown in Table 11 shall be applied to the quantity of mix represented by the test.

401.223 Process for Dispute Resolution (Methods A, B, & C only)

a. Dispute Resolution sampling 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.

b. Disputing Acceptance results The Contractor may dispute the Department's Acceptance results and request (Methods A, B, & C) that the dispute resolution split sample be tested by notifying the Department's Resident and the 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 15: Dispute Resolution Variance Limits, for the specific test result(s) or property(ies) were exceeded.

c. Disputable items For Methods A and B: The Contractor may dispute any or all of the following test results when the difference between the Department's value and the Contractor's value for that test equals or exceeds the corresponding allowable variation in Table 15: Dispute Resolution Variance Limits, PGAB content, G_{mb} , and G_{mm} . In addition, if the allowable variation for the G_{mb} or G_{mm} is not met or exceeded, the Contractor may dispute either or both of the following material properties provided the difference between results for them equals or exceeds the corresponding allowable variation in Table 15: Voids at N_{design} , and VMA. The Contractor may dispute the 0.075 mm sieve test result when a 9.5 mm NMAS mixture is used.

For Method C only: The results for PGAB content and the screen sizes used for pay adjustment may be disputed.

d. Outcome 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.

TABLE 15: DISPUTE RESOLUTION VARIANCE LIMITS

Property	Variance Limits
PGAB Content	+/-0.4%
G_{mb}	+/-0.030
G_{mm}	+/-0.020
Voids @ N_d	+/-0.8%
VMA	+/-0.8%
Passing 4.75 mm and larger sieves	+/- 4.0%
Passing 2.36 mm to 0.60 mm sieves	+/- 3.0%
Passing 0.30 mm to 0.15	+/- 2.0 %
0.075 mm sieve	+/- 0.8%

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 subplot 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:

<u>Pay Item</u>	<u>Pay Unit</u>
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:

	<u>Pay Item</u>	<u>Pay Unit</u>
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

Desc. Of Course	Grad Design.	Item Number	Total Thick	No. Of Layers	Comp. Notes
<u>Route 26 Widening Section</u>					
<u>North Raymond Road Full Reconstruction</u>					
<u>North Raymond Road Shoulder Reconstruction, Guardrail Widening</u>					
Wearing	12.5 mm	403.2081	1 ½"	1	4,8,30
Intermediate	12.5 mm	403.2131	2"	1	4,8,30
Base	12.5 mm	403.2131	2 ½"	1	4,8,30
<u>Spot Shims/Delaminated Areas (As Indicated or As Directed by Resident)</u>					
Shim	9.5 mm	403.211	variable	1/more	1,2,4,10,11,14
<u>Drives, Misc. (As Directed by Resident)</u>					
Wearing	9.5 mm	403.209	2"- 3"	1/more	1,2,3,11,14,18

COMPLEMENTARY NOTES

1. The required PGAB for this mixture will meet a **PG 64-28** grading.
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.
3. The design traffic level for mix placed shall be <0.3 million ESALS. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **65 gyrations**.
4. The design traffic level for mix placed shall be 0.3 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.
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.
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.
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.

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 PROVISIONS
SECTION 502
STRUCTURAL CONCRETE
(Raised Island)

Description. This work shall consist of furnishing and placing a Portland cement concrete pavement and incidental construction as shown on the plans and as directed. Except as otherwise specified in this Special Provision, all work shall be in conformity with the applicable provisions of Section 502, Structural Concrete; Section 503, Reinforcing Steel; and Section 515, Protective Coating for Concrete Surfaces.

MATERIALS

Concrete. Concrete shall be Class A.

Reinforcement. Reinforcement shall be 6" x 6" W4 x W4 Steel Welded Wire Fabric, Deformed, conforming to Section 503 and Section 709.02.

Water Stops. Water stops for joints shall meet the requirements of Section 701.07.

CONSTRUCTION REQUIREMENTS

Preparation of Foundation. The foundation bed shall be well graded and compacted, as directed by the Resident, to provide the thickness of concrete indicated on the plans.

Prior to the concrete placement, the foundation bed shall be thoroughly and uniformly saturated with water. The bed shall be free of puddles and excessive surface water.

Placement of Concrete. Concrete shall be placed in a continuous placement operation when possible so that construction joints will be kept to a minimum. Construction joints shall be constructed when there is a break in a placement. Construction joints shall be used to provide access to driveways and roads as directed by the Resident. Construction joints shall be brushed with a neat concrete paste immediately prior to making the adjacent placement. Control joints shall be constructed with a water stop placed transversely twenty feet on center.

The surface of the concrete shall receive a float finish in accordance with Subsection 502.14(A). Immediately following the float finish, the surface shall be textured at right angles to the roadway using an approved open-pile, stiff bristle broom or mat.

The curing period for the concrete shall be seven days and shall meet the requirements of Standard Specifications Section 502.15. The finished surface of the concrete shall receive a protective coating in accordance with Section 515.

Quality Assurance. Quality assurance of Structural Concrete, Roadway Median will be by Method B as defined in Section 502.0503 of the Standard Specifications.

Method of Measurement. Structural Concrete, Roadway Median, satisfactorily placed and accepted, will be measured for payment by the cubic yard, in accordance with the dimensions shown on the plans or authorized by the Resident.

Basis of Payment. The accepted quantity of Structural Concrete, Roadway Median will be paid for at the contract unit price per cubic yard, which payment will be full compensation for all labor, materials, equipment and incidentals necessary to complete the work, including the fabrication, delivery and placement of reinforcement; the furnishing and placement of water stops and joint sealant; and the furnishing and application of protective coating.

Excavation for the placement of Structural Concrete, Roadway Median will be paid under the appropriate contract item, Section 203 – Excavation and Embankments.

Payment will be made under:

Pay Item	Pay Unit
502.3412 Structural Concrete, Raised Island	Cubic Yard

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

CLASS OF CONCRETE	ITEM NUMBER	DESCRIPTION	P	METHOD
A	502.3412	Structural Concrete Raised Island	-	C
A	518.60	Repair of Vertical Surfaces < 7.9 In.	-	C
LP	626.32	24" Foundation	-	C
LP	626.332	Foundations	-	C
LP	626.35	Controller Cabinet Foundation	-	C

P value shown represents price per cubic yard (cy)

SPECIAL PROVISION
SECTION 603
PIPE CULVERTS AND STORM DRAINS

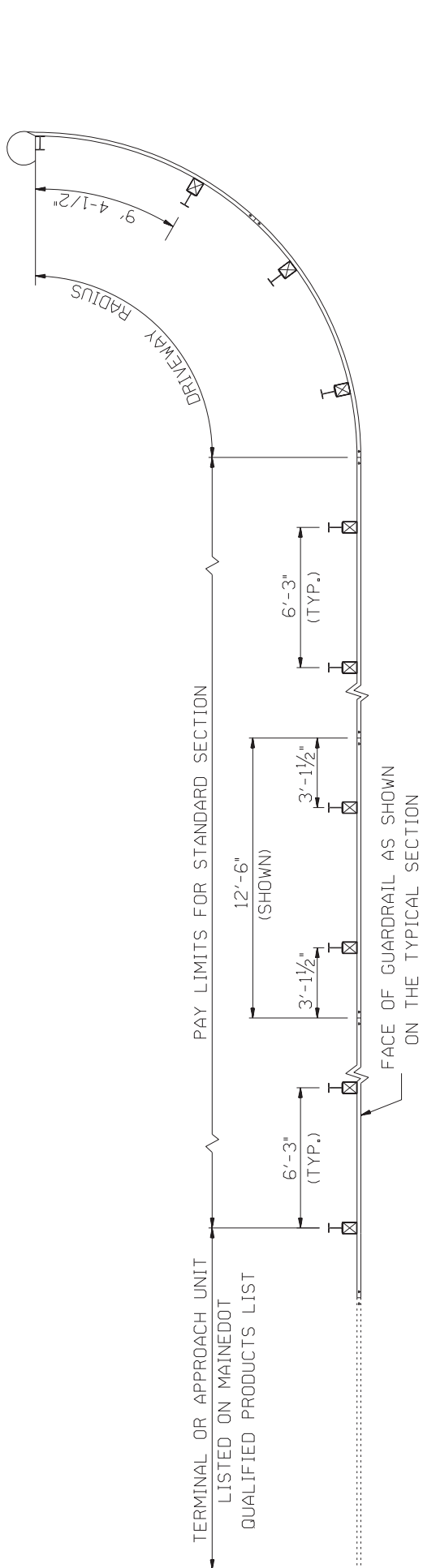
603.12 Basis of Payment: This section shall be amended with the addition of the following:

<u>Pay Item</u>		<u>Pay Unit</u>
603.155	12 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.165	15 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.175	18 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.1752	18 Inch Reinforced Concrete Pipe Class IV	Linear Foot
603.19	24 Inch Culvert Pipe Option I	Linear Foot
603.195	24 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.205	30 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.215	36 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.225	42 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.235	48 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.245	54 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.255	60 Inch Reinforced Concrete Pipe Class III	Linear Foot
603.431	36 Inch Reinforced Concrete Pipe Class V	Linear Foot

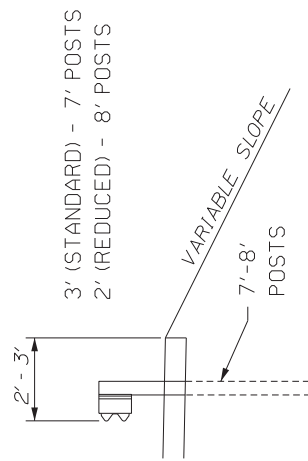
SPECIAL PROVISION
SECTION 606
 GUARDRAIL

606.09 Basis of Payment: This section shall be amended with the addition of the following:

<u>Pay Item</u>	<u>Pay Unit</u>
606.1301 31" W-Beam Guardrail - Mid-Way Splice (Steel Post, 8" Offset Blocks, Single Faced)	Linear Foot
606.1302 31" W-Beam Guardrail - Mid-Way Splice (Steel Post, 8" Offset Blocks, Double Faced)	Linear Foot
606.1303 31" W-Beam Guardrail - Mid-Way Splice (Steel Post, 8" Offset Blocks, 15' Radius and Less)	Linear Foot
606.1304 31" W-Beam Guardrail - Mid-Way Splice (Steel Post, 8" Offset Blocks, Over 15' Radius)	Linear Foot
606.1305 31" W-Beam Guardrail - Mid-Way Splice Flared Terminal (31" Height)	Each
606.1306 31" W-Beam Guardrail - Mid-Way Splice Tangent Terminal (31" Height)	Each
606.1307 Bridge Transition (Asymmetrical) – Type 1	Each
606.1308 Buried-in-Slope Guardrail End, Mid-Way Splice	Each

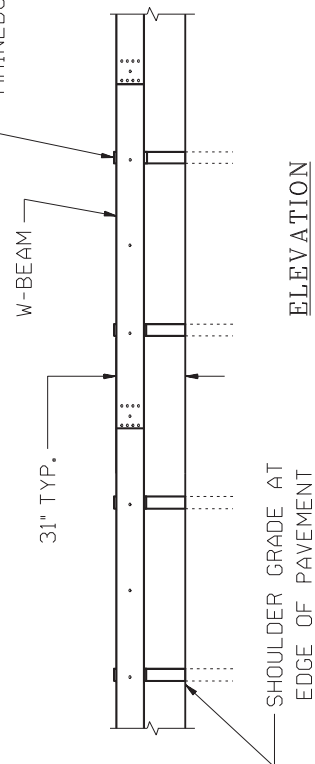


PLAN



CROSS SECTION

W 6x9.0 OR W 6x8.5 STEEL POST WITH 6" x 8" WOOD
OFFSET BLOCK OR OTHER 8" BLOCK LISTED ON
MAINEDOT QUALIFIED PRODUCTS LIST (TYP.)



31" W-BEAM GUARDRAIL - MID-WAY SPLICE

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
(YEAR)
when tested, was functioning as intended.

Electrician's Signature _____

Electrician's License # _____

SPECIAL PROVISION
SECTION 643
TRAFFIC SIGNALS

The provisions of Section 643 of the Standard Specifications shall apply with the following additions and modifications:

643.01 Description The project will result in the modernization of a traffic control signal within the Town of Benton. Equipment includes, but is not limited to, Advanced Traffic Control Cabinet (ATCC) with rack mount ATC controller, strain poles, pedestal poles, vehicular signal heads, retroreflective backplates, wiring, signal cable, overhead span wire mounted signs (subsidiary to Traffic Signals), video-based vehicle detection, advance vehicle detection system, and all appurtenances and incidentals required for complete functioning installations. In addition, the project will provide the means for remote communications to the traffic signal by cellular modem with cloud-based system functionality.

All traffic signal controller timing parameters shall be programmed to provide optimized free operations.

643.021 Revised Materials Materials shall meet the requirements in the following Special Provision to Section of Division 700 - Materials:

Controllers (Entire Section Revised for ATC)	718.07
Controller Cabinet (Entire Section Revised for ATCC)	718.08

643.0211 Additional Materials Materials shall also meet the requirements in the following Special Provision to Section of Division 700 - Materials:

Field Monitoring Unit	718.13

643.04 Poles Add the following:

The strain pole shall be extended by an additional five (5) feet above the required height for traffic signal connections to accommodate a tenon mounted light fixture at the top. The fixture shall be an Autobahn ATBO LED Cobrahead fixture by American Electric lighting with a 4000 K color and Type 3 distribution or an approved equal.

643.09 Service Connection Add the following:

A total of 4, 10' service ground rods shall be installed and properly connected together in the cabinet foundation.

The Contractor shall be responsible for grounding the system to 5 OHMS or less. The grounding shall be performed using a ground meter with reference grounds. In the event that a 5-ohm reading is not achieved, the Contractor shall install a chem-rod grounding electrode in close

proximity to the cabinet. The chem-rod shall be properly connected to the four rod, grounding system in the cabinet. The location for the chem-rod installation shall be approved by the Resident. All testing will be done in the presence of the Resident.

643.19 Basis of Payment Traffic signal modifications (Item 643.71) and will be paid for at the contract lump sum price for each intersection, which payment will be full compensation for furnishing and installing all materials, including, but not limited to ATCC, vehicular signal heads, retroreflective backplates, cabinet, generator transfer switch, aerial disconnects, wiring, signal cable, LED lamps, overhead span wire and post mounted signs (in accordance with Section 645 and 719 but paid as subsidiary to 643.71), Field Monitoring Unit with software and all appurtenances and incidentals required for complete functioning installations including the furnishing of all tools and labor necessary for completing the installations.

Video detection system (Item 643.83) will be paid for at the contract lump sum price combined for each intersection, which payment will be full compensation for furnishing and installing all materials, including, but not limited to video camera units (both stopline and advance), video processing unit (for vehicle detection), ancillary interface boards and cabling, and all appurtenances and incidentals required for a complete functioning installation with abilities for remote monitoring and adjustment.

Payment will be made under the following:

<u>Pay Item</u>	<u>Pay Unit</u>
643.71 TRAFFIC SIGNAL MODIFICATION : ROUTE 26 & NORTH RAYMOND ROAD	LS
643.83 VIDEO DETECTION SYSTEM: ROUTE 26 & NORTH RAYMOND ROAD	LS

SPECIAL PROVISION
SECTION 652
MAINTENANCE OF TRAFFIC

Approaches Approach signing shall include the following signs as 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
End Road Work

Work Area 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.

The Contractor shall conduct their operations in such a manner that the roadway will not be restricted to one lane for more than 800 m [2,500 ft] at each work area. To encourage quality paving in warm-weather conditions, the length can be extended to 4,000 ft depending on the traffic impacts. Where more than one work area restricts traffic to one lane operation, these work areas shall be separated by at least 1.6 km [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 mobile operations and “Road Work xx ft” to be used in stationary operations as directed by the Resident.

SPECIAL PROVISION
SECTION 718
TRAFFIC SIGNALS MATERIAL

The provisions of Section 718 of the Standard Specifications shall apply with the following additions and modifications:

718.07 Controllers Traffic signal controllers shall be modified as follows:

Delete all paragraphs in 718.07 and add the following text:

All controllers shall be rack-mounted, solid state, menu driven, keyboard units conforming to the ATC 5201 v06.25 Advanced Transportation Controller (ATC) Standard. The controller shall be supplied with all necessary interfaces needed to support Advanced Transportation Controller Cabinet (ATCC) / Serial Interface Unit (SIU) communications. Controllers shall be supplied with an internal real-time clock/calendar capable of daily, weekly, and yearly events time programming. The controller shall be designed and supplied to provide the number of phases and sequencing as shown on the plans without any auxiliary equipment.

Traffic signal controllers shall be supplied as follows:

- Contain ATC API operational software conforming to ATC 5401 Standard v02.
- Be configured to operate in an ATCC 5301 v02 cabinet platform.
- Be supplied with the appropriate version of the Linux operating system, Board Support Package (BSP) and internal processing levels necessary to support connected vehicle (CV) as well as local and system operations.
- Shall be fully compliant with NTCIP 1201 and 1202 standards.
- Include a minimum of 3 High Speed USB 2.0 ports.
- Include a minimum of 3 10/100BaseT, RJ45 Ethernet connector ports.
- Meet the functional requirements of the NEMA TS-2, 2016 Standard, including all amendments.
- Support Flashing Yellow Arrow (FYA) and Flashing Red Arrow (FRA) operation with the ability to provide a minimum of 6 flashing pairs.
- Contain the ability to alter the controller unit's internal database using a built-in front panel keyboard, using a computer connected to the controller unit with a USB cable or an Ethernet cable, and remotely using the central management system application.
- Be supplied and installed with the ability to collect, store, and report various measures of effectiveness (MOE's).
- Shall collect and process all 255 high resolution enumerations as defined in the report "Indiana Traffic Signal Hi Resolution Data Enumerations", dated November 2012. This data will be processed in the controller and available via download from the controller

USB Ethernet port or, if available, via system communications. As a minimum, the controller will be set up to provide the following performance reports:

- Approach delay
 - Preemption events
 - Transit Priority Events
 - Split Monitor
 - Approach Volumes
 - Purdue Coordination Diagrams
 - Arrivals on Red
 - Arrivals on Green
 - Phase Termination
 - Pedestrian Delay
- Be able to backup and restore Controller programming data to a USB memory device connected to the front of the controller. No additional software shall be required to perform this function.
 - Be able to upgrade the Controller firmware via USB memory device connected to the front of the controller. No additional software shall be required to perform this function.

The field electrical loading for flash operation shall be wired through the transfer relays such that the load on the 2-circuit flasher is as balanced as possible within the limitations of the signal phasing.

Electrical filtering/surge protection shall be supplied and installed in each cabinet in accordance with ATCC 5301 v02 requirements and the manufacturer's recommendations. At a minimum, surge suppression shall be provided for incoming electric utility power conductors, all signal control circuits, vehicle detection, and pedestrian detection terminations.

All equipment inputs, outputs, and terminals shall be identified by the phase designations shown on the plans.

The reliability of the equipment shall be demonstrated by test performance detailed in 718.08 that will confirm that the controller unit, fully wired cabinet, and auxiliary equipment meet the operational and functional requirements of the plans and specifications.

Each traffic controller unit, flasher and all other current interrupting devices shall be equipped with a suitable radio interference suppressor installed at the input power point. Interference suppressors shall be designed to minimize interference in both broadcast and aircraft frequencies. Suppressors shall be designed for 125 percent of the total connected load and shall meet standards of the UL and the EIA.

The type of controller, auxiliary equipment and other operational features shall be as noted on the plans.

All controllers shall be capable of providing flashing operation of the signal lights, as indicated on the plans. Transfer from flashing operation or to flashing operation shall conform to the MUTCD.

If noted on the plans, hardwire preempt circuits shall be provided for emergency vehicles and/or railroad crossings. The clearance and preempt indications shall be as noted on the plans. Preempt circuits shall function during stop and go and flashing operation unless otherwise noted. The duration of clearance and preempt intervals shall be adjustable over the range noted on the plans and shall be labeled according to function. The railroad preempt circuit shall be designed to operate as a fail-safe loop through a normally made contact on the railroad's control relay in the railroad's control cabinet. Railroad preemption shall have precedence over all preemption intervals for other purposes.

Actuated vehicle phases and actuated pedestrian phases shall be served in that interval of the cycle indicated on the plans. Time for an actuated interval shall be taken from the non-actuated phase(s) as noted on the plans.

Automatic transfer to or from flashing operation shall conform to the MUTCD. Manual advance of the intervals by use of hand cord control shall cause the controller to advance to the next programmed interval only upon pulse signal from the hand cord circuit, interval timing shall hold the interval for the minimum programmed amber and red clearance intervals.

The controller unit shall be enclosed in a sheet metal case with protective painted finish, designed to permit easy access to the interior and removal of printed circuit boards and modules without the use of special tools. All program controls, fuses, and indicator lights shall be mounted on the front panel and shall be clearly and permanently labeled.

When on manual operation, all phases shall be called regardless of vehicle detection and the controller shall be advanced upon pulse from the hand cord circuit, except yellow and red clearance intervals shall be timed for the duration programmed.

An exclusive pedestrian phase shall not extend or recycle until a vehicle phase has been serviced. When on manual operation, all phases shall be called regardless of vehicle detection and the controller shall be advanced upon pulse from the hand cord circuit except yellow and red clearance intervals shall be timed for the duration programmed. Automatic transfer from or to flashing operation shall conform to the MUTCD.

Pedestrian phases shall not be extended by actuations, during the walk or clearance interval. Actuations during the clearance intervals shall be placed in memory.

Each controller supplied shall be the same manufacturer, model and contain the same firmware level and version number.

718.08 Controller Cabinets Traffic signal controller cabinets shall be modified as follows:

Delete all paragraphs in 718.08 and add the following text:

The traffic signal control equipment shall be enclosed within a dust and moisture-proof aluminum housing with an auxiliary door in door feature. The door hinge pins shall be made of stainless steel. There are two cabinet configuration options that are specified for use; a ground mounted cabinet and a side of pole mounted cabinet.

All new controller cabinets, traffic signal or lighting, shall be configured to eliminate arc flash. All electrical equipment will be dead front, no open terminals, busbars, breakers, or exposed terminal strips. The cabinet shall be designed, constructed and installed with all necessary provisions to comply with the latest NFPA 70E requirements. All electrically live parts over 50 volts shall be covered with Lexan or a suitable physical barrier to eliminate the possibility of an arc flash.

The ground mounted cabinet shall be a NEMA "P" size cabinet (44"W x 26"D x 67"H). The cabinet shall be supplied with two side by side, 19" rack cages which shall extend from the bottom to top of the cabinet. The cabinet shall be supplied with four doors; two on the front and two on the back. The doors shall open independently with an independent center post latching for each of the four doors. The cabinet front will provide for user interface to the in-cabinet devices including the front panel of the controller, the cabinet status displays and detection system control interface. The cabinet rear would support cable termination and would not typically be accessed except for installation and the troubleshooting of wiring problems. The left-side rack of the cabinet, relative to facing the cabinet from the front, shall house the control devices such as the controller, Cabinet Monitor Unit (CMU) and Auxiliary Display Unit (ADU), switch packs and power distribution panel. As such, this rack shall be referred to as the "Control" side of the cabinet. The right-side rack of the cabinet, relative to facing the cabinet from the front, shall house the spare card cage assembly and battery back-up devices and communications elements. As such, this rack shall be referred to as the "Power" side of the cabinet. The ground mounted cabinet shall be supplied with 32 output channels and 48 input channels.

The side of pole mounted cabinet shall be a Model 336S cabinet (24" W x 20" D x 46" H). The cabinet shall be supplied with a 19" rack cage which shall extend from the bottom to top of the cabinet. The cabinet front will provide for user interface to the in-cabinet devices including the front panel of the controller, the cabinet status displays and detection system control interface. The cabinet rear would support cable termination and would not typically be accessed except for installation and the troubleshooting of wiring problems. The side of pole mounted cabinet shall be supplied with 16 output channels and 24 input channels.

Both the ground mount and side of pole mount cabinets shall be configured to provide the following output/input channel assignments:

Channel	Input	Output
1-8	Vehicle Phase Call 1-8	Vehicle Phase 1-8
9-12	Pedestrian Phase Call 2,4,6,8	Pedestrian Phase 2,4,6,8
13-16	-	Overlap A, B, C, D
17+	Special Functions	-

The ground mount cabinet shall be supplied with a spare equipment card cage assembly. This card cage assembly will not be wired to any cabinet device, but rather used to store spare rack mounted cabinet devices such as switch packs, SIU's, CMU's and phases selectors. This spare rack assembly shall be located at the top of the power rack.

The cabinet shall be supplied with a GPS system to provide an accurate time reference for the cabinet. The antenna shall be mounted at the top of the cabinet in the back-left corner of the enclosure. The antenna shall be mounted such that it provides a waterproof seal; eliminating any possibility for water penetration into the cabinet. The GPS system cable shall be connected and integrated into the controller.

The cabinet shall be supplied with a police door panel located in the middle area of the front door for both cabinet types. The switches shall be mounted in the police panel and labelled as to function. Four switches shall be supplied as follows:

1. Power On/Off
2. Signal On/Off
3. Signal/Flash
4. Manual/Auto with cord

The manual control cord shall be a coiled type, sealed weather proof covered hand switch extending to six feet when fully stretched. The cord shall be fastened to the cabinet via a compression type connector to provide strain relief for the cord's electrical connections. The police door panel shall be of sufficient size so as to store the manual control cord when panel door is closed.

The cabinet shall be supplied with a technician's panel mounted on the back of the police panel. This panel shall be supplied with the following switches:

1. Controller On/Off
2. Flash/Auto (Allows the controller to cycle while flashing)
3. Signals On/Off (Allows the controller to cycle with signal displays being dark)
4. Stop Time Normal/On (Provides the ability to manually activate a controller stop time input)

The cabinet shall be supplied with white LED light panels which shall automatically illuminate via a door open switch whenever one of the four main cabinet doors are opened for the ground mount cabinet or two main doors for the side of pole cabinet. The ground mounted cabinet shall contain four LED light panels per side totaling eight panels for the cabinet; one

panel each at the top and bottom portion of the front side and back side on the Control side and Power/Auxiliary side of the cabinet. Each light panel shall produce a minimum of 250 lumens for a total minimum lumen output of 2000 lumens with all eight panels illuminated. The minimum output per side would be 1000 lumens. The LED panels shall be protected by a clear shatterproof shield. The side of pole mounted cabinet shall contain four light panels; one at the top of the rack assembly and one at the bottom rack assembly on each side of the cabinet. A second door open status switch per door shall activate a controller input to log a report event that one of the doors was opened. All door open status switches shall be connected to the same controller input. For the ground mount cabinet, there shall be two switches on each of the four main doors. For the side of pole mount cabinet, there shall be two switches on each of the two main doors.

All cabinets shall be provided with a thermostatically controlled ventilating fan and throwaway glass fiber air filters. The electric fan shall have ball or roller bearings and shall have a capacity of 100 ft³ per minute. The fans shall be rated for continuous duty with a minimum service life of 3 years. The fan blades shall be supplied with a safety screen to prevent accident contact with the blades. The ventilating system shall be designed to prevent the entrance of rain, snow, dust, and insects. The fan and vents shall be arranged in such a manner that the air intake is at the cabinet bottom and the exhaust is at the cabinet top. The air intake shall be rain tight and covered with a removable filter. There shall be vents at the bottom of both front doors for a ground mount cabinet and a vent at the bottom of the single front door for the side of pole mount cabinets. The removable air filter shall be firmly held in place such that cracks and openings are eliminated to ensure that all air is filtered. The ground mounted cabinet shall contain two fans while the side of pole mounted cabinet shall contain one fan. The thermostat shall be mounted on the top interior of the cabinet and user adjustable to allow for temperature settings from a minimum of 70°F to 140°F and capable of activating the fans within plus or minus five degrees of the set temperature. The intake vent shall be rain tight and located on the bottom half of the cabinet, covered with a removable air filter. There shall be two intake vents provided with the ground mount cabinet and one intake vent supplied with the side of pole mount cabinet.

The cabinet shall contain a pull-out drawer, 19" wide with sufficient strength to hold a laptop computer. The top of the drawer shall be covered with a non-conductive, non-skid material and hinged such that a storage space is available to store cabinet documentation or small parts. The pull-out shelf shall be located in the rack space directly under the controller unit. The back of the control side front door shall contain a resealable, heavy-duty opaque plastic envelope with two grommets that provide mounting to two integrated hooks installed on the back side of the front cabinet door. The heavy-duty plastic envelope will be used to store cabinet wiring diagrams and operations manuals that cannot be accommodated in the pull-out draw storage tray.

The side of pole cabinet shall accommodate all control equipment including temperature control equipment. It shall be designed to be attached to the type of pole indicated in the contract plans. If the controller cabinet is to be ground mounted, details of the installation will be shown on the plans. Piano type hinges on cabinet doors shall be fabricated of stainless steel with a

stainless-steel hinge pin. The cabinet shall be supplied with reinforcing plates where the cabinet is supported by the pole hangers.

The ground mounted cabinet shall be supplied with a 6" high riser base that elevates the cabinet above the cabinet foundation. The riser base shall be supplied with a natural aluminum finish.

All manual control switches, push button control, flashing switch, signal switch and any other specified switches shall be located to be accessible within the outside door, without exposing the controller mechanism.

The cabinet shall be supplied with detector test switch panel. This panel shall be rack mounted and located above the controller. There shall be a total of 12 switches to allow for the manual placement of detector calls into the controller. Each switch shall be clearly labelled as to input channel and function. Each switch position shall correspond to the same controller input; switch one is for controller input channel one, switch two is for controller input channel 2, etc. Switches 1-8 shall correspond to phase 1-8 vehicle calls. Switches 9-12 shall correspond to pedestrian calls 2, 4,6 and 8. The switch labels shall define the corresponding vehicle or pedestrian phase called and switch position function. Detector switches shall be three position and function as follows:

- Up Position = Provides a constant call
- Center Position = Normal operation (Phase receives call from detectors)
- Down Position = Provides a momentary call

The cabinet shall be supplied with a laminated door sticker. This sticker shall be permanently affixed to the inside front control side of the cabinet door for the ground mount cabinet and the inside front side of the side of pole mount cabinets. At a minimum, the sticker shall contain the following information:

- Vehicle detection information including detector channel assignment, phase assigned, approach and cabinet termination points.
- If applicable, network communications information for all in-cabinet devices. This includes IP addresses, subnet mask and MAC address.
- Per approach preemption information including channel, approach/direction and termination points.
- Field termination chart showing per approach/per phase numbering of all signal circuits.
- Signal phasing and signal plan with intersection geometry and signal head designations.

The locks for the switch compartment door of the cabinet shall unlock with a skeleton style (#1) key. The locks for the main doors of the cabinet shall unlock with a Corbin #2 key. Two sets of two keys (main door/switch door) shall be furnished with each cabinet.

The cabinet shall be supplied with a permanent label mounted on the upper portion of the inside front main door which contains the name of the cabinet manufacturer, controller manufacturer, model/part number and year/month of assembly.

All traffic signal controller cabinets shall be supplied with a GFCI duplex outlet, as well as a multi-outlet strip.

The cabinet shall be supplied with a generator panel. The generator panel shall consist of a manual transfer switch and a twist-lock connector for generator hookup. The transfer switch knob and twist-lock connector shall be located inside a generator access panel with a separate lockable door mounted on the lower left, exterior of the control side wall of the ground mount cabinet and on the lower left side of the side of pole mounted cabinet. The door shall be equipped tamper resistant hinge. The generator panel assembly shall be housed in a heavy-duty, vandal resistant, weatherproof, dustproof enclosure designed for exterior applications. The generator access panel door shall have a moveable plate to cover an opening for the generator cable. The connection to an external generator shall be a waterproof, secure connection. The connection shall allow authorized personnel; to access, connect and secure an external electrical source to the cabinet for power restoration. The generator panel door shall contain a weather proof seal and supplied with a lock accessed with a skeleton style (#1) key.

The cabinet main doors shall be provided with a stop to limit door opening to both 90° and 180° ±10°. The door stop bar shall be a captive type mechanism that serves to keep the bar in contact with the cabinet at both stop bar ends and provided with a catch that can be operated when the door reaches these 2 positions and will hold the door open securely until released. The cabinet shall be supplied with a three-point draw roller latching system consisting of the following latching points:

- Center of the cabinet (lock)
- Top of the cabinet – controlled by door handle
- Bottom of the cabinet – controlled by door handle

The latching points on the top and bottom of the cabinet door shall remain in the locked position until the door lock is disengaged. The locking mechanism shall be equipped with nylon rollers to secure the top and bottom of the door.

The cabinet shall be supplied with a ¾" diameter shank, stainless steel latching handle for each door. The latching handle shall have a provision for padlocking the door in a closed position.

Controller cabinets designated on the plans to be ground mounted shall have a pliable seal composed of caulking compound or mastic placed between the cabinet base and the concrete foundation to prevent dust and dirt from entering the cabinet.

A Cabinet Monitor Unit (CMU) and Auxiliary Display Unit (ADU) shall be supplied and installed in each cabinet. The CMU and ADU shall conform to requirements defined in the Advanced Transportation Controller Cabinet (ATCC) 5301 v02 standard. The CMU/ADU units supplied and installed as part of this project shall support 32 channels. All configuration

programming shall be resident in a non-volatile Datakey device. Each CMU shall be supplied with a Datakey programmer and associated software. The Datakey programming software shall include a set-up wizard which shall assist the user with the initial set up of the device. The Contractor shall program the Datakey with data entries appropriate for each intersection. All programming resident on the Datakey shall be included in the hardcopy.

The Contractor shall reconfigure the default user name and passwords on all communications / control equipment within the ATC Controller and Cabinet. This includes but is not limited to the ATC traffic controller, ATC ancillary equipment, video detection equipment, Ethernet switches, and routers. The new user name and passwords shall be created in coordination with the MaineDOT IT staff and or as directed by the engineer; no manufacture default level passwords shall be allowed. The Contractor shall utilize network communications encryption settings on all forms of wired Ethernet data paths. No "in the clear" communications shall be allowed. At a minimum all wired Ethernet connections shall meet 802.1AE standards. The Contractor shall supply and configure a Cyber Intrusion and Prevention Device (CIPD) in each ATC cabinet. The CIPD shall prevent any unauthorized access / connections to the traffic control system. Upon detection of unauthorized attempts, the CIPD shall notify the agency via SMS message and or email and log the event. The CIPD shall be installed prior to any remote access device. The Contractor shall coordinate with the agencies Information Technology and Operational Technology (IT/OT) staff and or the engineer for finale configuration of the CIPD. No direct access to the traffic system shall be allowed without the installation of a CIPD and or Router/Firewall.

A cabinet power supply shall be supplied with each cabinet. The cabinet power supply shall comply with ATCC 5301 v02 (EDI Model 2216-2412-HV or equivalent).

A full complement of switch packs shall be supplied with each cabinet. Switch packs shall comply with ATCC 5301 v02.

A full complement of flashers shall be supplied with each cabinet. Flashers shall comply with ATCC 5301 v02.

A full complement of SIUs shall be supplied with each cabinet. The Serial Interface Units (SIU) shall comply with ATCC 5301 v02.

A full complement of flash transfer relays shall be supplied with each cabinet. Flash transfer relays shall comply with ATCC 5301 v02.

In addition to the full complement of switch packs, flashers, SIU's and flash transfers relays, two additional SIU's shall be supplied. All spare equipment required to be supplied with the ground mounted cabinet shall be store in the spare equipment rack. Spare equipment required to be supplied with the side of pole cabinet shall be delivered to MaineDOT.

The field electrical loading for flash operation shall be wired through the transfer relays such that the load on the 2-circuit flasher is as balanced as possible within the limitations of the signal phasing.

Electrical filtering/surge protection shall be supplied and installed in each cabinet in accordance with ATCC 5301 v02 requirements and the manufacturer's recommendations. At a minimum, surge suppression shall be provided for incoming electric utility power conductors, all signal control circuits, vehicle detection, pedestrian detection, communications and preemption system terminations.

Three copies of the database programming for all in cabinet devices shall be provided with each cabinet. The database programming sheets shall reflect as-built programming resident in each unit at the time of acceptance.

The cabinet monitor unit shall be connected to the field terminals of the signal light circuit to provide protection against conflicting green, yellow or walk indications being simultaneously energized as a result of controller failure, relay or solid-state switch failure, short circuited field wiring or other failures.

When a conflict is detected, the cabinet monitor unit shall cause the signal system to commence flashing operation; energize the stop-timing circuit of the controller while controller power shall remain on; lock-in flashing operation until manual actuation of the momentary contact reset push button resident on the cabinet monitor unit.

The cabinet shall be equipped with a thermostatically controller fan; two fans shall be supplied and installed for the ground mount cabinet and one fan shall be supplied and installed for the side of pole mounted cabinet. The fans shall be rated for continuous duty with a minimum service life of 3 years. The fan blades shall be supplied with a safety screen to prevent accident contact with the blades.

The cabinet shall be supplied with a GFI outlet to be installed on the upper left, exterior of the control side wall of the ground mount cabinet and the upper left side of the side of pole cabinet. The electrical outlet will be GRCI protected, house in a locked access enclosure. The GFI outlet shall be supplied via its own 15-amp circuit breaker. The GFI outlet assembly shall be housed in a heavy-duty vandal resistant, weatherproof, dustproof enclosure designed for exterior applications. The GFI enclosure door shall contain a weather proof seal and supplied with a lock accessed with a skeleton style (#1) key.

The main cabinet circuit breaker shall be rated at 30 amps. Circuit breakers shall be approved and listed by the UL. The operating mechanism shall be enclosed and shall be trip-free from operating handle under load and shall be trip-indicating. All circuit breakers shall be quick-make, quick-break on either automatic or manual operation. Contacts shall be silver alloy enclosed in an arc quenching chamber. Overload tripping of breakers shall not be influenced by an ambient temperature range of from 0 to +158°F.

The testing process is required to ensure that the controller and cabinet assembly perform properly and meet all requirements described and required as part of this project have been met. This includes testing of all hardware and all software supplied and installed as part of this

project. All tests shall be conducted in accordance with the approved test procedures developed by the Contractor. The Contractor shall submit test procedures and forms/checklists for review and approval to the Engineer.

All components of the controller and cabinet shall be bench tested for a minimum of 72 continuous hours by the Contractor at the Contractor's facility prior to delivery to the project. Testing shall be performed by an IMSA, level 3 (Field or Bench) Certified Signal Technician using a test board and in conformance with the design loads, phasing, timing and auxiliary equipment such as pre-emption. Upon completion of satisfactory bench testing, a written approval will be supplied to the Contractor by the Engineer. This approval does not relieve the Contractor from ensuring proper operation of the equipment. The approval shall accompany the cabinet and controller when delivered to the project.

At a minimum, the test plan developed by the Contractor shall contain the following sampling of test items:

- (a) Installation of all the equipment into the cabinet as required per the plans and specifications.
- (b) Setting of the phase timings of the controller in accordance with plans.
- (c) Checking all of the wiring connections for physical tightness.
- (d) Observing the sequences, timings and operations of the controller to verify conformance to the plans and specifications.
- (e) Test the police panel switches installed in the panel.
- (f) Test Pre-emption and/or Priority operation - Optical Detector - with the receivers wired in the cabinet and using an emitter, test each pre-emption or priority run as per the plans. Hard Wired - Attach a temporary push button as per the plans and test each pre-emption or priority run as per the plans.
- (g) Check exhaust fan controls by applying heat from a 100-watt lamp on an extension cord to the thermostat.
- (h) Check heat lamp controls by cooling the thermostat.
- (i) Check cabinet monitor unit by testing for any conflicting Greens or Yellows by the use of a jumper wire attached to a displayed Green or Yellow and to the other non-parent Greens or Yellows to ascertain that conflicting colors are not present. Test all possible combinations of conflicting displays.

Upon completion of the project, a print out of the databases contained in the controller, CMU, Preemption, Video Detection or any other equipment shall be provided to the Engineer. The databases shall be provided either via a hard copy printout or on a “thumb drive.”

Tests shall be conducted by the Contractor, witnessed by the Engineer, at the Contractor’s facility. The test facility shall be located in the State of Maine and be clean, heated/air conditioned and have provisions for the simultaneous testing of at least three (3) controller and cabinet assemblies. The controller and cabinet assembly shall be wired and programmed to provide the signal phasing, timing and operations shown on the design plans for that particular location. A test light board and a manual detector call panel shall be connected to each cabinet assembly to verify display outputs and vehicle/pedestrian input calls.

This test plan, when approved and executed, must demonstrate that the controller and cabinet assembly meet all of the requirements contained in the project Plans and Specifications.

The Contractor shall propose testing plans and submit the test plan(s) and procedures as detailed herein to the Resident and Design Engineers for approval prior to testing. Each of the test plans shall contain the following elements:

- Proposed date, time, and location of the testing
- Names of the Contractor personnel who will be conducting the testing
- Descriptive overview of the proposed test procedure
- List of test equipment required to perform the testing
- Test cases and test logging forms which detail every step of the test procedure:

Test logging forms shall be presented in tabular format, with separate columns for each of the following:

- Test case description detailing the test step to be performed.
- Expected result
- Actual result
- Pass/fail
- Comments

The Contractor shall supply separate test logging forms at the time of testing for each test plan, and for each device location. The test logging forms shall show the device location, date, and the start and end times of the test.

At the end of each test logging form, there shall be signature and date locations for each of the following:

- Contractor personnel conducting the test
- MaineDOT representative witness
- Engineer witness

Signatures on the test logging form will signify only that the test was performed and witnessed, not that it passed or failed.

The detailed Test Plans shall be submitted to the Engineer no later than thirty (30) days prior to the beginning of each test phase.

The Contractor shall have approved test plans prior to submitting a request to schedule the start of any test activities. The Contractor shall notify the Engineer no less than fourteen (14) days prior to the beginning of any equipment or systems testing.

Testing shall provide verification and documentation that all requirements included in the Contract Documents are met. The Test Plans shall be developed by the Contractor to provide a mechanism that ensures that all contract requirements have been tested fully and verified.

If any deviations or changes to the approved Test Plans arise, it shall be resubmitted by the Contractor for review and approval by the Engineer at least fourteen (14) calendar days prior to any planned test activity stage. No tests shall be conducted until the Engineer have approved the test plan.

A summary of all tests shall be produced at the completion of each testing phase of the project to ensure that all requirements defined by the system are satisfied.

MaineDOT reserves the right to examine and test or retest any or all materials furnished by the Contractor for the project to determine if they meet the requirements specified within the Contract Documents.

If MaineDOT decides that any material used in the construction of this project is defective or otherwise unsuitable, and the workmanship does not conform to the requirements of this Contract, the Contractor shall replace such defective parts and material at no cost to the Project.

The times and dates of the tests shall be approved by the Engineer. The Contractor shall conduct all tests in the presence of the Engineer. Testing shall take place only on weekdays, which are official working days, unless the Engineer allows the test to be conducted and/or continued on weekends and non-working days. The Contractor shall make a request in writing at least fourteen (14) days prior to the proposed testing, and schedule tests only if permission is granted by MaineDOT in writing.

The Contractor shall be responsible for the conduct and documentation of the results of these tests that will be countersigned by the Engineers at the end of each test. The signature of the Engineer implies only proof of presence. Test results shall be packaged and submitted to the Engineer within one week of test completion. No test phase shall begin until all prior test phases have been completed, and test results have been approved by the Engineer.

The Contractor shall utilize vendor supplied or any test specific software for testing, as needed, at no additional cost.

718.13 Field Monitoring Unit (FMU) This item of work shall conform to this specification. This item shall consist of furnishing and installing a Field Monitoring Unit (FMU) and software, as well as all needed accessories required for a full and complete installation, including but not limited to power adapters, Ethernet cables, and interface cables, as described herein.

MATERIALS: The materials for this work shall conform to the following requirements:

1. The work under this item specifies the requirements for the FMU. The FMU shall operate independent of the brand/type of intersection controller deployed in the ATC traffic cabinet.
2. The FMU shall conform to the following requirements:
 - 2.1 The FMU shall function correctly between -34 degrees C and +74 degrees C.
 - 2.2 The maximum size of the FMU shall be 19" x 7,455" by 1.719" (1U) and shall be suitable for placing in an ATC traffic cabinet.
 - 2.3 The FMU shall be provided with appropriately rated connectors that allows the FMU to be exchanged by unplugging connectors, without tools.
 - 2.4 The FMU shall monitor and log all ATC Controller and ATC cabinet faults and or alarms.
 - 2.5 The FMU shall be wired directly to the ATC cabinet for all connections power and data.
 - 2.6 The FMU shall have an internal cellular modem running at 4G LTE.
 - 2.6.1 The Cellular modem shall be designed to be replaced / upgraded to 5G service when available.
 - 2.7 The FMU shall have two or more remotely switchable 120 Volt AC outlets.
 - 2.8 The FMU shall incorporate an integrated GPS and cell modem.
 - 2.9 The configuration of the FMU shall be accomplished by accessing the internal web server with a browser. It shall be possible to configure the FMU without any special software.
 - 2.10 The FMU shall be powered via a standard 120V input power.
 - 2.11 The FMU shall allow for the routing of the controller configuration packets to and from the controller (either by Ethernet or serial communications) for any type of controller utilized by the MaineDOT. In this way it shall be possible to configure the controller and utilize the controller specific software to interrogate the controller, and the FMU shall provide the communications pipe which allows this to be accomplished.
 - 2.12 The FMU shall allow the MaineDOT to live stream the video detection cameras via the FMU internal cellular modem. There shall be no cellular over charges to the MaineDOT for this feature.

- 2.13 The FMU shall, within the size limitations above, include a battery and battery charging/monitoring circuit, to allow the FMU to function correctly even when all power to the intersection has failed. The battery shall continue to power the FMU for a minimum of 5 hours after all power has failed to the intersection.
- 2.14 The FMU shall incorporate an integrated GPS which will allow the FMU to geo-locate itself on the FMU management software map, without configuration.
- 2.15 The FMU shall operate without requiring a static IP address. The only configuration required at the FMU is to enter the URL of where the FMU management software is hosted.
- 2.16 In the event that the cell service is interrupted or is not available, the FMU shall store any events that occur in internal memory and forward these events automatically to the FMU management software when the cell service is restored. In this way, a complete record of events at the device can be maintained even if cell service is interrupted for a period. The system will store 5000 events.
- 2.17 The FMU shall utilize HTTPS protocols, and XML data structures, for communication with the FMU management software. In this way the data will be open for future expansion and competition. The use of secret proprietary protocols is not permitted.
- 2.18 The FMU shall be a 1U 19" rack mount device, with all connections on the rear, and LED indicators, power switches and selector switches on the front.
- 2.19 The FMU shall include Ethernet communications via four Ethernet Ports with RJ45 connectors.
- 2.20 The FMU shall be powder coated aluminum enclosures.
- 2.21 The FMU shall include weather proof antennas.
- 2.22 The FMU shall include the ability to remotely cycle power to the outlets on the back of the FMU. In this way it shall be possible to cycle power to ancillary connected equipment such as network switches, cameras and similar equipment.
- 2.23 The user interface shall display the status of the outlets and provide confirmation via an associated input whether the sockets are energized or not.

3. Map Display FMU Management Software

- 3.1 The FMU shall include a scrollable, zoomable map display, with the intersections and other monitored devices shown as representative icons on the map. The map shall include the ability to see the intersections using Google Streetview.
- 3.2 The alarm status of the intersection shall be clearly indicated on the icon on the map, so that the user can see at a glance which intersections are in alarm.

- 3.3 The map display shall also include a list of intersections, with the number and priority of alarms indicated on the list. Intersections in high priority alarm shall be moved to the top of the list, followed by medium priority, low priority and then finally by intersections not in alarm.
- 3.4 The icons shall change to be able to clearly indicate if an intersection is offline.
- 3.5 Clicking on the icon on the map shall expose a box with the current parameters of the intersection shown.
- 3.6 The default map display position and zoom shall be configurable by user, so that the user's view will default to show the intersections that the user is responsible for managing.
- 3.7 The map view shall have the ability to show Google traffic overlays on the map.

4. Intersection Detail Display FMU Management Software

- 4.1 It shall be possible to drill down, either from the map icon or from the list, to a device level detail for the intersection, which as a minimum shall display the following parameters:
 - 4.1.1 The alarm status, with priority indicated, and a text description of the alarm (if an alarm is present for this device).
 - 4.1.2 The time since the last communication with the device
 - 4.1.3 The following parameters (real time now values, minimum for the day values, maximum for the day values, and average for the day values)
 - 4.1.3.1 The AC mains voltage (value)
 - 4.1.3.2 The battery back-up voltage (value)
 - 4.1.3.3 The cabinet temperature (value)
 - 4.1.3.4 The cabinet humidity (value)
 - 4.1.3.5 The presence of AC power (OK or Fail)
 - 4.1.3.6 The flashing status of the intersection (OK or Flashing)
 - 4.1.3.7 Stop Time status (OK or Stop Time Active)
 - 4.1.3.8 The cabinet door status (Open or Closed)
 - 4.1.3.9 The intersection fan status (Fan On or Fan off)
 - 4.1.4 It shall be possible to view graphs of each of the value parameters in graphical form, over the recent two-week period. This includes real time graphs of:
 - 4.1.4.1 The AC mains voltage
 - 4.1.4.2 The battery back-up voltage

4.1.4.3 The cabinet temperature

4.1.4.4 The cabinet humidity

5. Diagnostics and Log Display FMU Management Software

5.1 From the device level detail within the FMU management software, it shall be possible to drill down to get the raw data; the error logs; and the communications logs to allow a technician to fault-find problems.

5.2 It shall be possible to filter the logs by Device; by Device Type and/or by Group as well as between dates.

5.3 It shall be possible to print these selected logs to a local printer or a PDF file.

5.4 It shall be possible to export these logs to Excel on the local computer for further analysis.

6. Alarms FMU Management Software

6.1 The FMU management software shall have a comprehensive alarm generation capability

6.2 It shall be possible to configure alarms to be generated on any parameter becoming out of tolerance, including analog values, digital values and enumerated values.

6.3 Alarms shall be configurable to be of Low, High or Critical Priority.

6.4 The alarm priority shall be displayed throughout the FMU management software, on all displays, using color codes such as red-critical; yellow – high; and amber-low to indicate the priority of the alarm.

6.5 The current active alarms shall be accessible for view via an expandable window, to see which alarms are active and when the alarm occurred. The highest priority alarms shall rise to the top of the list.

7. Alerts FMU Management Software

7.1 The FMU management software shall have comprehensive alerting capability, to enable the response personnel to be notified when an abnormal situation has occurred.

7.2 It shall be possible to configure alerts to one or more personnel for each alarm. This will cause, as selected, an SMS and/or an email to be sent to the person when an alarm occurs.

7.3 The alert shall be configurable to optionally send via email and/or via SMS a message when an alarm clears.

7.4 The intention is that the FMU management software provides the alerts to the user in near real time. The SMS and email shall be issued within 30 seconds of the occurrence of event which results in an alert being issued.

8. Hosting and Connectivity and Service FMU / FMU Management Software

8.1 The contractor shall supply the FMU with the FMU manufacturers 10-year options for Connectivity and Service, as part of the purchase price. The Connectivity and Service agreement shall include at a minimum:

- 8.1.1 Cellular Connectivity
- 8.1.2 Upgrade the cellular modem if the technology is not supported by the cellular networks.
- 8.1.3 Telephone and email support
- 8.1.4 No cellular overage charges
- 8.1.5 Extended warranty on the hardware for the period of the Connectivity and Service Agreement
- 8.1.6 Over-the-air software updates
- 8.1.7 Over-the-air security updates
- 8.1.8 Future Connected Vehicles Service

Watermain Replacement

North Raymond Road/Route 26

Gray, Maine

Technical Specifications

Gray Water District

SECTION 31 23 16
EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavating for installation of watermain.

1.02 RELATED REQUIREMENTS

- A. Section 31 23 23 - Fill: Fill materials, backfilling, and compacting.
- B. Section 31 23 16.13 - Trenching: Excavating for utility trenches to utility main connections.

1.03 UNIT PRICES

- A. Excavation is incidental to the project and no further payment will be made.

1.04 PROJECT CONDITIONS

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.
- B. Comply with the requirements contained within this specification section and the contract drawings. In the event of conflicting requirements, the more stringent standard shall apply.

3.02 EXCAVATING

- A. Underpin adjacent structures that could be damaged by excavating work.
- B. Excavate to accommodate new watermain.
- C. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- D. Excavate materials encountered when establishing required subgrade elevations in accordance with (MDOT) Specification Section (203.04 and 203.05)
- E. Conform to elevations, contours, dimensions, line and grade shown on the Drawings.
- F. When excavation through roots is necessary, perform work by hand and cut roots with a sharp axe.
- G. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored. All excavations shall be consistent with OSHA regulations.
- H. Do not interfere with 45 degree bearing splay of foundations.
- I. Do not excavate wet subsoil.
- J. Remove all existing fill soils from beneath foundations.
- K. Cut utility trenches wide enough to allow inspection of installed utilities.
- L. Hand trim excavations. Remove loose matter.
- M. Remove lumped subsoil, boulders, solid mortared stone masonry, concrete masonry and rock.
- N. Correct areas that are over-excavated and load-bearing surfaces that are disturbed at no cost to Owner; see Section 31 23 23.
- O. Grade top perimeter of excavation to prevent surface water from draining into excavation. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by Engineer.
- P. Remove excavated material that is unsuitable for re-use from site.
- Q. Surplus Material:

1. Make arrangements to provide suitable disposal areas off-site.
2. Deposit and grade material to the satisfaction of the owner of the property on which the material is deposited.
3. Obtain any necessary permits for disposal.
4. Provide suitable watertight vehicles to haul soft or wet materials over streets or pavements to prevent deposits on same.
5. Keep crosswalks, streets, and pavements clean and free of debris.
6. Clean up materials dropped from vehicles as often as directed by District.

3.03 FIELD QUALITY CONTROL

- A. Provide for visual inspection of load-bearing excavated surfaces by Engineer before placement of foundations.

3.04 PROTECTION

- A. Divert surface flow from rains or water discharges from the excavation.
- B. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.
- C. Protect open excavations from rainfall, runoff, freezing groundwater, or excessive drying so as to maintain foundation subgrade in satisfactory, undisturbed condition.
- D. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.
- E. Keep excavations free of standing water and completely free of water during concrete placement.

END OF SECTION 31 23 16

SECTION 31 23 16.13

TRENCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavating trenches and backfill for utilities.
- B. Compacted bedding and compacted backfilling over utilities to subgrade elevations.
- C. Compacted base and compacted backfilling for other structures to subgrade elevations.
- D. Compaction requirements.
- E. Dust control.

1.02 RELATED REQUIREMENTS

- A. Boring Logs and Boring Location Plan contained within the MaineDOT plan set: bore hole locations and findings of subsurface materials.
- B. Section 31 23 1631 23 16 - Excavation:
- C. Section 31 23 2331 23 23 - Fill:

1.03 UNIT PRICES

- A. Trenching is incidental to the project and no further payment will be made.

1.04 REFERENCE STANDARDS

- A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; 2010.
- B. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2014.
- C. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2012.
- D. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2007.
- E. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN m/m³)); 2012.
- F. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2008.
- G. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2011.
- H. ASTM D2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth); 2005.
- I. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.
- J. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2010.

1.05 SUBMITTALS

- A. Samples: 75 pound sample of each type of fill; submit in air-tight containers in air-tight containers to testing laboratory.
- B. Materials Sources: Submit name and location of imported materials source.
- C. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.
- D. Compaction Density Test Reports.

1.06 PROJECT CONDITIONS

- A. Provide sufficient quantities of fill to meet project schedule and requirements. When necessary, store materials on site in advance of need.
- B. When fill materials need to be stored on site, locate stockpiles where designated.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.
- C. Protect excavations by shoring, bracing, sheet piling, underpinning or other methods required to prevent cave-in or loose soil from falling into excavation.
- D. Protect above or below grade utilities which are to remain. Repair any damage caused by construction of this project at no cost to District.
- E. Underpin adjacent structures which may be damaged by excavation work, including service utilities and pipe chases.
- F. Protect excavations and soil adjacent to and beneath foundations from frost.
- G. Grade excavation top perimeter to prevent surface water runoff into excavations.
- H. Maintenance of existing flows:
 - 1. Keep existing sewers and drains in operation.
 - 2. If existing sewers and drains are disturbed, provide for maintenance of such flows until work is completed.
 - 3. Do not allow raw sewage to flow on ground surface or stand in excavation.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. Type 'B' Underdrain Sand: MDOT 703.22 Granular material meeting the requirements of MDOT 703.22 Type 'B' underdrain backfill, with the following limits:
 - 1. 1 inch sieve: 95 to 100 percent passing by weight
 - 2. 1/2 inch sieve: 75 to 100 percent passing by weight
 - 3. No. 4 sieve: 50 to 100 percent passing by weight
 - 4. No. 20 sieve: 15 to 80 percent passing by weight
 - 5. No. 50 sieve: 0 to 15 percent passing by weight
 - 6. No. 200 sieve: 0 to 5 percent passing by weight
 - 7. Type B backfill shall not contain organic matter and shall not contain particles of rock which will not pass the 1-1/2 inch square mesh sieve.
- B. Type 'C' Underdrain stone: MDOT 703.22; Crushed Stone meeting the requirements of MDOT 703.22 Underdrain Backfill Type 'C' meeting the following requirements:
 - 1. 1 inch sieve: 100 percent passing by weight
 - 2. 3/4 inch sieve: 90 to 100 percent passing by weight
 - 3. 3/8 inch sieve: 0 to 75 percent passing by weight
 - 4. No. 4 sieve: 0 to 25 percent passing by weight
 - 5. No. 10 sieve: 0 to 5 percent passing by weight
- C. Sand Bedding and Backfill; free of silt, clay, loam, friable or soluble materials, and organic matter. Graded in accordance with the following limits:
 - 1. 3/8 inch sieve: 100 percent passing by weight
 - 2. No. 4 sieve: 95 to 100 percent passing by weight
 - 3. No. 200 sieve: 0 to 5 percent passing by weight.

2.02 ACCESSORIES

- A. Water for sprinkling: Fresh and free from oil, acid and injurious alkali or vegetable matter.
- B. Calcium chloride: ASTM D98 commercial grade except as waived by the Owner.

2.03 SOURCE QUALITY CONTROL

- A. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.
- B. If tests indicate materials do not meet specified requirements, change material and retest. Materials not meeting specified requirements, if used prior to acceptance, shall be removed and replaced at no cost to District.
- C. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the work are as indicated.
- B. Identify required lines, levels, contours, and datum locations.
- C. Examine the areas and conditions under which excavating and filling is to be performed and notify District in writing of conditions detrimental to proper and timely completion of work.
- D. Correct unsatisfactory conditions in a manner acceptable to District prior to proceeding with work.
- E. Maintain in operating condition existing utilities, active utilities and drainage systems encountered in utility installation.
- F. Locate, identify, and protect utilities that remain and protect from damage.
- G. Notify utility company to remove and relocate utilities.
- H. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- I. Protect plants, lawns, rock outcroppings, and other features to remain.

3.02 INSPECTION

- A. Verify stockpiled fill to be used is approved.
- B. Verify areas to be backfilled are free of organics, debris, snow, ice or water, and surfaces are not frozen.

3.03 GENERAL REQUIREMENTS

- A. See Section 31 23 16 for additional requirements.
- B. Provide trenching and backfilling for water main, water service, and structures. Water and sewerage lines separation shall be minimum 10 feet horizontally and 18 inches vertically. Lay all piping in open trench unless directional drilling methods are used. Maintain access to fire hydrants by fire-fighting equipment.
- C. Sheet and brace trenches and remove water as necessary to fully protect workmen and adjacent facilities, in keeping with local regulations or, in the absence thereof, with the provisions of the "Manual of Accident Prevention in Construction," of the Associated General Contractors of America, Inc. Under no circumstances lay pipe or install appurtenances in water. Keep the trench free from water until pipe joint material has hardened. Sheeting left in place shall be cut off not less than 2 feet below finished grade. Sheeting shall not be removed until the trench is substantially backfilled.
- D. Excavation under this contract shall be unclassified.
- E. Grade the bottom of the trenches evenly to ensure uniform bearing for full length of all pipes. Excavate all rock, cemented gravel, old masonry, or other hard material to at least 6 inches below the pipe at all points. Refill such space and all other cuts below grade with sand bedding or fine gravel firmly compacted.
- F. Should soil conditions necessitate special supports for piping and/or appurtenances, including the removal of unsuitable material and refilling with sand bedding or fine gravel, such work shall be performed as necessary.

- G. Backfill trenches only after piping has been inspected, tested and the locations of pipe and appurtenances have been recorded. Backfill by hand around pipe and for a depth of 1 foot above the pipe. Use earth without rock fragments or large stones and tamp as specified in layers not exceeding 6 inches in thickness, taking care not to disturb the pipe or damage the pipe coating. Compact the remainder of the backfill as specified with a rammer of suitable weight, or with an approved mechanical tamper, provided that under pavements, walks and other surfacing, the backfill shall be tamped as specified. Exclude all cinders, rubbish and scrap metal from trenches in which metal pipes are laid. Special care shall be used to properly tamp backfill under lower half of pipe.

3.04 PREPARATION

- A. Identify known underground utilities. Stake and flag locations.
- B. Identify and flag surface and aerial utilities.
- C. Notify utility companies of work to be done.
- D. When necessary, compact subgrade surfaces to density requirements for embankment, aggregate base, and aggregate subbase materials.
- E. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Type 'B' underdrain sand backfill and compact to density equal to requirements for subsequent backfill material.
- F. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

3.05 TRENCHING

- A. Notify Engineer of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- B. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored. All excavations shall be consistent with OSHA requirements.
- C. Do not interfere with 45 degree bearing splay of foundations.
- D. Excavate subsoil required for piping and appurtenances.
- E. Cut trenches wide enough to allow inspection of installed utilities.
- F. Relic topsoil, if encountered in utility trenches shall be removed from beneath pipes and pipe bedding.
- G. Hand trim excavations. Remove loose matter.
- H. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.
- I. Remove lumped subsoil, boulders, and rock.
- J. Remove excavated material that is unsuitable for re-use from site.
- K. Stockpile excavated material to be re-used in area designated onsite.
- L. Correct unauthorized excavation with Sand Bedding, (Type B Underdrain Sand or Type C Underdrain Stone) or as directed by District.
- M. Fill over-excavated areas under pipe bearing surfaces with Sand Bedding, (Type B Underdrain Sand) or as directed by District.
- N. Do not store excavated material adjacent to excavations where they could surcharge sideslopes.
- O. Remove excess excavated material from site.
- P. Provide temporary means and methods, as required, to remove all water from trenching until directed by the Engineer. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.
- Q. Surplus Material:
 - 1. Make arrangements to provide suitable disposal areas off-site.

2. Deposit and grade material to the satisfaction of the owner of the property on which the material is deposited.
3. Obtain any necessary permits for disposal.
4. Provide suitable watertight vehicles to haul soft or wet materials over streets or pavements to prevent deposits on same.
5. Keep crosswalks, streets, and pavements clean and free of debris.
6. Clean up materials dropped from vehicles as often as directed by District.

3.06 PREPARATION FOR UTILITY PLACEMENT

- A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with sand bedding.
- B. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- C. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

3.07 REPAIRS TO EXISTING PIPES, CONDUIT AND WATER LINES

- A. Remove damaged or broken portions of pipe or conduit and replace with a pipe or conduit of the same size and material, unless otherwise directed by District, designed to serve same function as existing pipe or conduit.
- B. Make connections for repair with flexible couplings to satisfaction of District.
- C. Maintain inventory of suitable repair materials on site.
- D. Make repairs immediately following discovery of damage.
- E. Do not backfill until repairs have been completed to satisfaction of District.
- F. Repairs to water mains and services will be by the water utility. Coordination and payment for repairs shall be the responsibility of the Contractor.

3.08 BACKFILLING

- A. Backfill to contours and elevations indicated using unfrozen materials.
- B. Place and compact bedding material to grade of underside of pipe in trench bottom as soon as excavation reaches grade.
- C. Compact bedding material to provide firm laying base.
- D. Underslab utilities shall be installed on sand bedding material and backfilled with sand backfill.
- E. After pipe is laid to grade, place bedding material uniformly on each side of pipe up to spring line while carefully compacting bedding material under haunches of pipe.
- F. Support pipe and conduit during placement and compaction of bedding fill.
- G. Place and compact base material to grade of underside of appurtenant structures in bottom of excavation as soon as excavation reaches grade.
- H. Compact base material for appurtenant structures to provide a firm laying base.
- I. Place and compact backfill materials in continuous layers not exceeding 12 inches in area of paving, slabs-on-grade, and similar construction. Lift thickness not to exceed 16 inches in lawn or field areas.
- J. Employ a placement method that does not disturb or damage other work.
- K. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.
- L. Maintain optimum moisture content of fill materials to attain required compaction density.
- M. Correct areas that are over-excavated.
 1. Thrust bearing surfaces: Fill with concrete.
 2. Other areas: Use common borrow in lawn areas or granular borrow in paved/building areas, flush to required elevation, compacted to minimum 95 percent of maximum dry density.
- N. Leave stockpile areas completely free of excess fill materials.

- O. Upon completion of backfilling in paved areas, sweep undisturbed pavement.
- P. Upon request of District implement the following dust control measures during the interim period between backfilling and capping of the trench:
 - 1. Apply water and calcium chloride as directed by District.
 - 2. Spread calcium chloride uniformly over designated areas.
 - 3. Apply water with equipment having a tank with pressure pump and nozzle equipped spray bar acceptable to District.
- Q. Compaction Density Unless Otherwise Specified or Indicated:
 - 1. Under paving, slabs-on-grade, and similar construction: 95 percent of maximum dry density.
 - 2. At other locations: 90 percent of maximum dry density.
- R. Reshape and re-compact fills subjected to vehicular traffic.

3.09 TOLERANCES

- A. Top Surface of General Backfilling: Plus or minus 3/8 inch from required elevations.

3.10 FIELD QUALITY CONTROL

- A. Compaction density testing will be performed on compacted fill in accordance with ASTM D1556, ASTM D2167, ASTM D2922, or ASTM D3017.
- B. Results will be evaluated in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 698 ("standard Proctor"), ASTM D1557 ("modified Proctor"), ASTM D 1557 ("modified Proctor"), AASHTO T 180, AASHTO T 180, or ASTM D698 ("standard Proctor").
- C. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to District.
- D. Frequency of Tests: 1 test for each 200 feet of trench for the first and every other lift of compacted trench backfill not including pipe bedding.

3.11 CLEAN-UP

- A. Leave unused materials in a neat, compact stockpile.
- B. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
- C. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION 31 23 16.13

SECTION 31 23 19
DEWATERING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Furnish, operate and maintain dewatering equipment for control, collection, and disposal of ground and surface water entering trenches and excavations.

1.02 RELATED SECTIONS

- A. Section 31 23 23 - Fill
- B. Section 31 23 16.13 - Trenching.
- C. Section 31 10 00 - Site Clearing

1.03 UNIT PRICES

- A. Dewatering is incidental to the project and no further payment will be made.

1.04 DESIGN REQUIREMENTS

- A. Design dewatering facilities including drains, piping and pumping.

1.05 SUBMITTALS

- A. Prior to start of excavation and trenching, submit dewatering design and methods to Owner for review.

PART 2 PRODUCTS

2.01 EQUIPMENT

- A. Provide pumps, drains, piping and other facilities necessary to keep excavations and trenches free of water including spare units available for immediate use in the event of equipment failure.

PART 3 EXECUTION

3.01 PROTECTION

- A. Protect watercourses, sewer systems and adjacent properties from siltation by use of sediment ponds or other measures acceptable to the District.
- B. Keep excavations clear of groundwater, surface water, seepage, sewage and stormwater.

3.02 INSTALLATION

- A. Install, construct and maintain equipment and facilities required for work of this section.
- B. Dispose of water removed from Work in a suitable manner which will not interfere with other work, cause erosion, damage pavements, other surfaces or property and is acceptable to the District.
- C. Remove dewatering equipment and facilities when no longer required.
- D. Backfill excavations in accordance with 31 23 16.13 and 31 23 23.
- E. Repair damage resulting from dewatering operations.

END OF SECTION 31 23 19

SECTION 31 23 23

FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Filling, backfilling, and compacting for watermain.
- B. Place, grade, and compact subbase and base gravels to receive pavement.
- C. Compaction requirements.
- D. Dust control.

1.02 RELATED REQUIREMENTS

- A. Section 31 23 16 - Excavation: Removal and handling of soil to be re-used.
- B. Section 31 23 16.13 - Trenching: Excavating for utility trenches.

1.03 UNIT PRICES

- A. Within the MaineDOT limit of work, as designated on the planset, for the Route 26/North Raymond Road Project, the water main Contractor shall be responsible for restoring excavated areas to subgrade within areas to be paved, and to 4" below finished grade in areas to be vegetated.
- B. For water main work beyond the MaineDOT limit of work, the water main contractor is responsible for restoration of excavated area to finished grade. Finished restoration shall be 4" loam and seed in vegetated areas. Seeding shall conform to the requirements in the MaineDOT plan set. Restoration in paved areas shall consist of a pavement section conforming to the MaineDOT details within the plan set. Restoration in non-paved roadway shoulder areas shall consist of subbase gravel to finished grade.
- C. Fill to subgrade is incidental to the project and no further payment shall be made.
- D. Restoration of vegetated areas is incidental to the project and no further payment will be made.
- E. Pavement Base/Subbase shall conform to MaineDOT Section 304 and these specifications. In the event of conflicting requirements, the more stringent standard shall apply. The basis of payment shall be as presented in MaineDOT Specification Section 304.
 - 1. Pay Item: 304.1, Subbase Gravel, Pay Unit: Cubic Yard
- F. Hot Mix Asphalt Pavement and its placement shall conform to the details contained in the MaineDOT plan set, Division 400 of the MaineDOT Standard Specifications, and any Special Provisions contained in the MaineDOT Specifications for this project.
 - 1. Pay Item 403.208, 12.5 mm HMA, Pay Unit: Ton

1.04 REFERENCE STANDARDS

- A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; 2010.
- B. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2014.
- C. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)); 2012.
- D. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2007.
- E. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN m/m³)); 2012.
- F. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2008.
- G. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2011.

- H. ASTM D2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth); 2005.
- I. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.
- J. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils; 2010.

1.05 SUBMITTALS

- A. Submittals shall be provided by the contractor at least 2 weeks in advance of imported fill use.
- B. Soil Samples: 75 pounds sample of each type of fill; submit in air-tight containers to testing laboratory.
- C. Materials Sources: Submit name of imported materials source.
Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used. The results from the following tests shall be submitted:
 - 1. Moisture and density relationship: ASTM D 1557 or D 698.
 - 2. Mechanical Analysis AASHTO T-88.
 - 3. Mechanical Analysis AASHTO T-88.

1.06 PROJECT CONDITIONS

- A. Provide sufficient quantities of fill to meet project schedule and requirements. When necessary, store materials on site in advance of need.
- B. When fill materials need to be stored on site, locate stockpiles where indicated.
 - 1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
 - 2. Prevent contamination.
 - 3. Protect stockpiles from erosion and deterioration of materials.

PART 2 PRODUCTS

2.01 FILL MATERIALS

- A. Subsoil: Reused meeting the requirements of Common Borrow.
- B. Common Borrow: MDOT 703.18; Earth suitable for embankment construction, free from frozen material, perishable rubbish, peat, organics and other unsuitable material, with sufficient moisture content to provide the required compaction and stable embankment, moisture content shall not exceed 4 percent above optimum. Determine optimum moisture content in accordance with ASTM D698 (cohesive soils) or D1557 (granular soils).
- C. Granular Borrow: MDOT 703.19; Mixture of sand, gravel, and silt or reclaimed asphalt, concrete, brick, crushed rock that is crushed and blended with sand, free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation of that portion passing a 3 inch sieve shall meet the following requirements:
 - 1. No. 40 sieve: 0 to 70 percent passing by weight.
 - 2. No. 200 sieve: 0 to 20 percent passing by weight.
 - 3. Granular borrow shall contain no particles or fragments with a maximum dimension in excess of one-half of the compacted thickness of the layer being placed. Granular Borrow shall not contain particles of rock which will not pass the 6 inch square mesh sieve.
- D. Aggregate Subbase: MDOT 703.06 Type 'D' gravel, of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation of that part that passes a 3 inch sieve shall meet the following requirements:
 - 1. 1/4 inch sieve: 25 to 70 percent passing by weight
 - 2. No. 40 sieve: 0 to 30 percent passing by weight
 - 3. No. 200 sieve: 0 to 7 percent passing by weight
 - 4. Type D aggregate shall not contain particles of rock which will not pass the 6" square mesh sieve.

- E. Select Fill: MDOT 703.06 Type 'C' gravel modified to 4" maximum aggregate. Screened or crushed gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation of that part that passes a 4" sieve shall meet the following requirements:
 - 1. 4 inch sieve: 100 percent passing by weight
 - 2. 3 inch sieve: 90 to 100 percent passing by weight
 - 3. 1/4 inch sieve: 25 to 90 percent passing by weight
 - 4. No. 40 sieve: 0 to 30 percent passing by weight
 - 5. No. 200 sieve: 0 to 5 percent passing by weight
- F. Crushed Stone: MDOT 703.22 Underdrain Backfill Type 'C' meeting the following requirements:
 - 1. 1 inch sieve: 100 percent passing by weight
 - 2. 3/4 inch sieve: 90 to 100 percent passing by weight
 - 3. 3/8 inch sieve: 0 to 75 percent passing by weight
 - 4. No. 4 sieve: 0 to 25 percent passing by weight
 - 5. No. 10 sieve: 0 to 5 percent passing by weight
- G. Topsoil: Either stripped from site or imported, friable loam: free of subsoil, large clods, lumps, roots, grass, excessive amounts of weeds, stone and foreign matter 2" or greater and smaller stones in excessive quantities as determined by the Owner: acidity range (pH) of 5.5 to 7.5: containing a minimum of 4 percent and a maximum of 25 percent organic matter.

2.02 ACCESSORIES

- A. Geotextile Fabric: Non-biodegradable, woven, Mirafi 600x..
- B. Water for sprinkling: Fresh and free from oil, acid, and injurious alkali or vegetable matter.
- C. Calcium chloride: ASTM D98 commercial grade except as waived by Owner.

2.03 SOURCE QUALITY CONTROL

- A. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.
- B. If tests indicate materials do not meet specified requirements, change material and retest at no cost to District.
- C. Provide materials of each type from same source throughout the Work.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench marks and intended elevations for the Work are as indicated.
- B. Identify required lines, levels, contours, and datum locations.
- C. Examine the areas and conditions under which excavating and filling is to be performed and notify owner in writing of conditions detrimental to proper and timely completion of work.
- D. Correct unsatisfactory conditions in a manner acceptable to District prior to proceeding with work.
- E. Verify subdrainage, dampproofing, or waterproofing installation has been inspected.
- F. Verify areas to be filled are not compromised with surface or ground water.
- G. Comply with the requirements contained within this specification section and the contract drawings. In the event of conflicting requirements, the more stringent standard shall apply.

3.02 PREPARATION

- A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with select fill above the groundwater table or crushed stone below the groundwater table.
- B. Identify known underground utilities. Stake and flag locations. Locate and protect utilities to remain.
- C. Identify and flag surface and aerial utilities.

- D. Notify utility companies of work to be done.
- E. Compact subgrade to density equal to or greater than requirements for subsequent fill material.
- F. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 CONSTRUCTION OF AGGREGATE BASE AND SUBBASE COURSE

- A. Place and compact aggregate base and subbase course materials in continuous layers not exceeding 12 inches loose depth upon compacted material, unless noted otherwise.
- B. Employ a placement method so not to disturb or damage structures and utilities.
- C. Spread well mixed materials having no pockets of either fine or coarse material.
- D. Do not segregate large or fine particles.
- E. Compact by mechanical means to obtain 95 percent of maximum dry density as determined in accordance with ASTM D-1557. Base course material shall be compacted with a minimum of two passes with self propelled vibratory compaction equipment.
- F. Maintain surface, compaction and stability until pavement course has been placed.
- G. Conform to elevations, contours, dimensions, line and grade shown on the Drawings.

3.04 DUST CONTROL

- A. Upon request of District, implement the following dust control measures:
 - 1. Apply water and calcium chloride as directed by District.
 - 2. Spread calcium chloride uniformly over designated area.
 - 3. Apply water with equipment having a tank with pressure pump and nozzle equipped spray bar acceptable to District.

3.05 TOLERANCES

- A. Top surface of base and subbase course: Plus or minus 3/8 inch.

3.06 FIELD QUALITY CONTROL

- A. Compaction density testing will be performed on compacted fill in accordance with ASTM D1556, ASTM D2167, ASTM D2922, or ASTM D3017.
- B. Results will be evaluated in relation to compaction curve determined by testing uncompacted material in accordance with ASTM D 698 ("standard Proctor"), ASTM D 1557 ("modified Proctor"), or AASHTO T 180.
- C. Compaction density unless otherwise specified or indicated:
 - 1. Under paving and similar construction: 95 percent of maximum dry density.
 - 2. At other locations: 90 percent of maximum dry density.
- D. If tests indicate work does not meet specified requirements, remove work, replace and retest at no cost to District.
- E. Frequency of Tests:
 - 1. 1 test for each 200 feet of trench for the first and every other lift of compacted trench backfill not including pipe bedding.
- F. All costs associated with compaction density testing/retesting will be borne by the Contractor.

3.07 CLEANING

- A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.
- B. Leave borrow areas in a clean and neat condition. Grade to prevent standing surface water.

END OF SECTION 31 23 23

SECTION 33 05 23
DIRECTIONAL DRILLING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Polyethylene pipe installation as shown on plans.

1.02 RELATED SECTIONS

- A. Section 31 23 19- Dewatering.
- B. Section 31 23 16 -Excavation.
- C. Section 31 23 23 - Fill
- D. Section 31 23 16.13 - Trenching.
- E. Section 33 11 16 - Water Distribution.
- F. Boring Logs and Boring Location Plan contained within the MaineDOT plan set.

1.03 DEFINITIONS

- A. Carrier Pipe - Utility pipe installed by directional drilling. Carrier pipe is used to convey utility service.

1.04 UNIT PRICES

- A. 12" Polyethylene Pipe (Trenchless Technology): By the linear foot. Includes purchase and transportation of materials, traffic control, clearing and grubbing, excavation, hand trimming excavation, sending and receiving pits, dewatering, butt welding, installation of materials, connection to ductile iron main including any necessary fittings, bedding as necessary, disposal of drilling spoils, drilling fluid, drilling fluid disposal, backfill and compaction, surface restoration, and all other labor, equipment, and tools necessary to complete the work.
 - 1. Pay Item: 822.3611, 12" DIPS SDR 11 Water Main, Pay Unit: Linear Foot

1.05 SUBMITTALS

- A. Submit shop drawings including proposed method of preparing bored hole for installation of carrier pipe, size, capacity and arrangement of equipment, and method of dewatering.
- B. Submit a detailed schedule of his method of operation including a description of the method and equipment to be used.
- C. Satisfactory evidence of compliance with Permitter's insurance requirements prior to starting work.
- D. Manufacturers certification of compliance for products specified.
- E. Drilling Fluid disposal plan including a description of the method, equipment, and location of disposal.

1.06 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing the work of this section with minimum five (5) years of experience. Installer shall provide documentation of experience, which at a minimum shall include:
 - 1. Evidence of successful installation of two similar lengths and size crossings within the last five years.
 - 2. Letter of recommendation from client/permit authority for crossings outlined above.
 - 3. The similar crossings shall exceed the length and diameter of the proposed crossings.

1.07 PRE-INSTALLATION MEETING

- A. Convene one week before starting work of this section.

1.08 PERMITS

- A. Work specified under this section also shall conform to the requirements of the applicable permitting agency.

- B. In the case of a conflict between permit requirements and these specifications, the permit shall govern.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Polyethylene Pipe: AWWA C906:
 - 1. Materials used for manufacturing of polyethylene pipe shall be PE 3408 High Density Polyethylene (HDPE) meeting the ASTM D3350 cell classification of 345434C.
 - 2. The material shall have a minimum Hydrostatic Design Basis (HDB) of 1600 psi at 73 degrees F when tested in accordance with PPI TR-3 and shall be listed in the name of the pipe and fitting manufacturer in PPI TR-4.
 - 3. The material used in the production of potable water pipe shall be approved by the National Sanitation Foundation (NSF).
 - 4. The Manufacturer shall certify that the materials used to manufacture the pipe meet the requirements of this section.
 - 5. Polyethylene pipe shall be manufactured in accordance with AWWA C906 for sizes 4" through 54".
 - 6. Polyethylene pipe shall be ductile iron pipe size and conform to 160 psi pressure rating, DR 11.

PART 3 EXECUTION

3.01 PREPARATION

- A. GENERAL
 - 1. Do not begin construction until all required labor, materials, and equipment are onsite.
 - 2. Notification to Permittees: Provide at least 7 working days in advance of working within their right of ways.
 - 3. Limits for crossing: As shown or specified; length may be increased or decreased when final approval is obtained.
 - 4. Control of water during undercrossing construction shall meet the requirements of Section 31 23 19, DEWATERING.
 - 5. Maintain flow within any existing ditch or swale affected by the construction.
 - 6. Employ means and methods of crossing construction that are appropriate to the known and indicated ground conditions. These means and methods shall control ground movement and groundwater movement, allowing the Work to be performed within the requirements of these Specifications. The Contractor shall modify the means and methods of undercrossing construction, at no additional expense to the District, if they are not effective in the control of ground or groundwater.
 - 7. Be responsible for the safety of its workers and the public during all times excavation is occurring and until the crossing is complete. This includes any temporary fencing around excavated shafts or pits for safety.
 - 8. Be responsible for the protection of all utilities that cross or are adjacent to the construction operation. Relocate utilities around excavations as required.
 - 9. Excavation for crossing shall be performed in accordance with the most current requirements of applicable local or state construction safety orders and federal requirements.
- B. DEPTH OF INSTALLATION
 - 1. Polyethylene carrier pipe shall have a minimum depth as shown on plans.

3.02 EXCAVATION

- A. Excavation is unclassified, and includes all materials encountered regardless of their type and extent. The Contractor shall make their own estimates of the kind and extent of the various materials which will be encountered in the excavation as well as the presence or absence of water.
- B. The Contractor shall be responsible for the removal of all obstructions encountered during undercrossing excavation.

- C. Perform undercrossing excavation in a manner that will minimize the movement of the ground in front of and surrounding the excavation, and minimize subsidence of the surface, structures, and utilities above and in the vicinity of the excavation. Support the ground in a manner to prevent loss of ground and keep the perimeters and faces of the boring stable. Support the face of the excavation by positive means and as necessary during all shutdown periods.
- D. Consistent with good construction practice, it is recommended that excavation of the sending and receiving pits be made with earthwork equipment fitted with smooth edge buckets. The subgrades should be cut even and be slightly pitched to encourage drainage away from heavy equipment.
- E. Maintain an adequate supply of support material at the Work site at all times.

3.03 INITIAL SUPPORT SYSTEMS (DIRECTIONAL DRILLING PITS)

- A. Initial support systems are the supports installed prior to or immediately following excavation to control ground movement into the excavation, and to maintain stability of the excavation. Initial support systems shall satisfy the requirements of Section 31 23 16 Excavation. Initial support systems shall be compatible with directional drilling and ground control requirements specified herein. The Drawings may show, or the Engineer may approve, a single ground support system to fulfill the requirements of both initial support and final casing.
- B. The Contractor shall install initial shaft or pit support systems consisting of steel ribs and timber lagging, steel liner plates, precast concrete segments, or any other system(s) which will provide the necessary ground support and ensure stability of the excavation.
- C. The design of the initial support system(s) is the sole responsibility of the Contractor when not specifically indicated. The support system(s) shall be designed to ensure that no ground or other loading will be placed on the new Work prior to completion and until design strength has been reached. The Contractor shall be solely responsible for any loss due to premature loading of the new Work.
- D. The design of the initial support system(s) shall be prepared by a professional engineer licensed in the State of Maine. The design shall take into account, as a minimum, long-term earth and hydrostatic loads; construction loads such as jacking forces and surcharge; stresses induced during manufacturing, handling, and erection; space necessary to install final casing and permanent structures; and all other construction operations. The obtaining of any additional information necessary for the design shall be the responsibility of the Contractor or Contractor's Engineer.

3.04 POLYETHYLENE PIPE INSTALLATION

- A. Polyethylene carrier pipe shall be installed using the following method:
 - 1. Directional Drilling:
 - a. Directional drilling shall consist of drilling a pilot bore(s), reaming and back reaming using a bentonite slurry to maintain integrity and prevent settlement. Overcut by the drilling head, reamer or back reamer shall not exceed the outside diameter of the carrier pipe by more than two (2) inches.
 - b. The pilot hole shall be drilled along the path shown on the plan and profile drawing to the following tolerances:
 - 1) Elevation - Plus 0 feet, minus 2 feet
 - 2) Horizontal Alignment - Plus or minus 2 feet
 - c. Pre-reaming operations shall be conducted at the discretion of the Contractor and as required to maintain hole integrity.
 - d. The maximum allowable tensile load imposed on the pipeline pull section shall not exceed the product of the cross sectional area of the pipe's wall times 90 percent of its specified minimum yield strength.
 - e. A swivel shall be used to connect the pipeline pull section to the reaming assembly to minimize torsional stress imposed on the section.
 - f. Drilling Fluid:

- 1) Dispose of the drilling fluid offsite. Excess drilling slurry shall be minimized by recirculating slurry returns to the maximum extent possible. Disposal shall be in accordance with all relative environmental regulations, permits and requirements. Disposal of the slurry shall begin within 24 hours of the excess slurry being stored on site.
- 2) Drilling fluid returns at locations other than the entry and exit points shall be minimized and contained.
- 3) The water source for mixing of drilling slurry is the Contractor's responsibility.
- g. Pipeline construction operations with high decibel noise levels shall be restricted to hours as defined in local town ordinances.
- B. Jetting will not be permitted under any circumstances.
- C. If obstructions are encountered which prohibit completion of the installation, the drill shall be offset ten (10) feet and a second attempt shall be made. A third attempt shall be made if the second attempt has failed, by offsetting ten (10) feet and drilling at the new location. The installation of the carrier shall be deemed failed if, after three attempts, the installation has failed to be completed due to an obstruction. If the attempted installation has been deemed failed by the Engineer, 50% of the Bid Price for 12" Polyethylene Pipe (Trenchless Technology) will be paid for that Item. This payment shall be considered full payment for the item and shall be the termination of the contract for that Item and no further payment shall be made.
- D. Joints between plain ends of polyethylene pipe shall be made by butt fusion. The pipe manufacturer's fusion procedures shall be followed at all times as well as the recommendations of the fusion machine manufacturer. Data logging shall be used on all butt fusions made. The wall thickness of the adjoining pipes shall have the same DR at the point of fusion.
- E. Mechanical fittings (which are designed for, or tested and found acceptable for use with polyethylene pipe) are utilized for transitions between pipe materials, repairs, joining pipe sections, or at other locations, the recommendations of the mechanical fitting manufacturer must be followed.
- F. On each day butt fusions are to be made, the first fusion of the day shall be a trial fusion. The trial fusion shall be allowed to cool completely, then fusion test straps shall be cut out. The test strap shall be 12" or 30 times the wall thickness in length (minimum) and 1" or 1.5 times the wall thickness in width (minimum). Bend the tests strap until the ends of the strap touch. If the fusion fails at the joint, a new trial fusion shall be made, cooled completely and tested. Butt fusion of pipe to be installed shall not commence until a trial fusion has passed the bent strap test.
- G. Trace wire shall be brought to the surface in a valve box at both ends of the polyethylene pipe. The contractor shall pull two trace wires with the polyethylene pipe in any directional drill portion of the project, and shall bury one trace wire in any cut and cover portion of the polyethylene pipe installation. Valve box installation shall be considered incidental to poly pipe and no separate payment shall be made.
- H. Socket and saddle fusions shall be tested by a bent strap test as described by the pipe manufacturer. The pipe manufacturer shall provide visual guidelines for inspecting the butt, saddle and socket fusion joints.
- I. Pressure testing shall be conducted in accordance with the manufacturer's recommended procedure. Pressure testing shall use water as the test media. Pneumatic (air) testing is prohibited.

3.05 BACKFILL OF INITIAL SUPPORT SYSTEMS (SENDING & RECEIVING PITS)

- A. Backfill all pits when no longer required.
- B. Backfill shall be as specified in Section - 31 23 23 - Fill
- C. Backfill pits with common borrow backfill in lifts not exceeding twelve (12) inches loose depth, compaction to at least ninety (90) percent relative compaction and within two (2) percent of the optimum moisture content to a depth of two (2) feet below finished grade. Increase compaction within two (2) feet of finished ground surface to at least ninety-five (95) percent relative

compaction and within two (2) percent of the optimum moisture content using aggregate subbase course gravel.

- D. Remove pit support completely. Sheeting/bracing shall be removed completely and the void shall be continuously filled with clean sand as the sheeting is pulled.
- E. Surface restoration shall be 4" loam and seed in vegetated areas, and the typical pavement section as depicted in the plan set for paved areas.

3.06 TOLERANCES

- A. For directional drilling method, tolerances for completed carrier pipe, in place shall be according to the following:
 - 1. Elevation: Plus 0 feet, minus 2 feet.
 - 2. Horizontal Alignment: Plus or minus 2 feet.

3.07 FIELD QUALITY CONTROL

- A. Field Tests:
 - 1. Pipe: Conduct hydrostatic testing in accordance with Section 33 11 16 - Water Distribution.
 - 2. Trench Excavation and Backfill: Conduct tests in accordance with Section 31 23 16 - Excavation, 31 23 23 Fill and 31 23 16.13 - Trenching.
- B. Settlement: Any settlement noted in backfill, or structures within the limits of undercrossing and occurring within the warranty period will be considered to be caused by improper backfill and compaction or grouting methods, and shall be corrected by the Contractor at no cost to the District. Structures damaged by settlement shall be restored to their original condition by the Contractor at no cost to the District.

3.08 EMERGENCY MEASURES

- A. Whenever there is a condition which is likely to endanger the stability of the excavation or adjacent structures, the Contractor shall operate with a full crew of 24 hours a day including weekends and holidays without intermission until those conditions no longer jeopardize the stability of the Work.

3.09 DETECTION OF MOVEMENT

- A. The Contractor shall be responsible for monitoring ground movements associated with the Work and making suitable changes in construction methods to control ground movements and prevent damage to the Work and adjacent structures.

3.10 DISPOSAL OF EXCAVATED MATERIAL

- A. The Contractor shall dispose of excess excavated material at his own expense. Disposal of all excavated material shall conform to the applicable local, state, and federal ordinances.

3.11 SURFACE RESTORATION

- A. Restore all disturbed areas as required. Return disturbed surfaces to as close as practical to original contours, grades and surface cover, unless otherwise noted in the plans and specifications.

END OF SECTION 33 05 23

SECTION 33 11 13
PUBLIC WATER UTILITY DISTRIBUTION PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Pipe and fittings for water lines including domestic water lines.
- B. Water main valves, shut-offs and fire hydrants.
- C. Contractor is cautioned that existing water mains in Route 26 and North Raymond Road are asbestos-cement pipe. It is the intent of this contract to minimize removal of this pipe. Any existing facilities required to be removed as shown on the plans or in the specifications or is necessary to facilitate the work of the Contractor shall be completed and disposed of in conformance to local, state and federal requirements. Any removal and disposal shall be incidental to the water main work and no separate payment shall be made.
- D. The Contractor shall maintain emergency repair materials on-site during the duration of the contract to allow repairs to occur on a timely basis to limit disruptions to customers. The emergency repair materials shall be on-site prior to the start of any water main work.
- E. Dispose of all demolition and construction debris offsite in accordance with local requirements and Maine Department of Environmental Protection (MDEP) regulations.

1.02 RELATED SECTIONS

- A. Section 31 23 16 - Excavation.
- B. Section 31 23 16.13 - Trenching.
- C. Section 31 23 23 Fill

1.03 UNIT PRICES

- A. The following items shall be incidental to the water main construction project: clearing, test pits
- B. Pipe by the linear (foot). Includes purchase of materials and all necessary accessories for a complete installation, transport of material to site, traffic control, clearing and grubbing, saw cuts, excavation, hand trimming excavation, dewatering, bedding, concrete thrust restraints, backfill and compaction, connection to building service and to municipal utility water source, flushing, coordinating with the District and providing support personnel for pressure testing and disinfection and all other labor, equipment, and tools necessary to complete the work.
 - 1. Pay Item: 822.36 12" DI Water Main, Pay Unit: Linear Foot
 - 2. Pay Item: 822.3410 8" DI Water Main, Pay Unit: Linear Foot
- C. Fittings (Including bends, tees, valves, caps, plugs, reducers, and sleeves): By (each). Includes purchase of materials and all necessary accessories for a complete installation, transport of materials to site, traffic control, clearing and grubbing, saw cuts, excavation, hand trimming excavation, dewatering, bedding, concrete thrust restraints, joint restraints, foster adaptors, backfill and compaction, connection to building service piping, and to municipal utility water source, coordinating with the District and providing support personnel for pressure testing and disinfection and all other labor, equipment, and tools necessary to complete the work.
 - 1. Pay Item: 823.31, 12" Gate Valve, Pay Unit: Each
 - 2. Pay Item: 823.3132, 12"x12"x8" Tee, Pay Unit: Each
 - 3. Pay Item: 823.312, 12" Bend, Pay Unit: Each
 - 4. Pay Item: 823.3134, 12"x12"x12" Tee, Pay Unit: Each
 - 5. Pay Item: 823.316, 12" Cap, Pay Unit: Each
 - 6. Pay Item: 823.317, 12"x12"x6" Swivel Tee, Pay Unit: Each
 - 7. Pay Item: 823.3144, 12"x10" Reducer, Pay Unit: Each
 - 8. Pay Item: 823.354, 10" Insertion Valve, Pay Unit: Each
 - 9. Pay Item: 822.355, 10" MJ Solid Sleeve DI to CI Adapter, Pay Unit: Each
 - 10. Pay Item: 823.325, 8" Gate Valve, Pay Unit: Each
 - 11. Pay Item: 823.3252, 8" Tapping Sleeve and Valve, Pay Unit: Each

12. Pay Item: 823.3254, 8" Insertion Valve, Pay Unit: Each
 13. Pay Item: 823.3255, 8"x6" Swivel Tee, Pay Unit: Each
 14. Pay Item: 823.3256, 8" Bend, Pay Unit: Each
 15. Pay Item: 823.3257, 8" Cap, Pay Unit: Each
 16. Pay Item: 823.3258, 8" AC to DI Adapter, Pay Unit: Each
 17. Pay Item: 823.341, 2" Blow Off and Valve box, Pay Unit: Each
- D. Hydrants (Including valves, and hydrant assembly): By (each). Includes purchase of materials and all necessary accessories for a complete installation, transport of materials to site, traffic control, clearing and grubbing, saw cuts, excavation, hand trimming excavation, dewatering, bedding, concrete thrust restraints, joint restraints, foster adaptors, backfill and compaction, connection to building service piping, and to municipal utility water source, coordinating with the District and providing support personnel for pressure testing and disinfection and all other labor, equipment, and tools necessary to complete the work.
1. Pay Item: 824.30 Hydrant Assembly, Pay Unit: Each
- E. Services (Including corporation, service saddle as necessary, piping, and curb stop): By (each). Includes purchase of materials and all necessary accessories for a complete installation, transport of materials to site, traffic control, clearing and grubbing, saw cuts, excavation, hand trimming excavation, dewatering, installation of materials supplied by the Gray Water District, bedding, concrete thrust restraints, backfill and compaction, connection to building service piping, and to municipal utility water source, coordinating with the District and providing support personnel for pressure testing and disinfection and all other labor, equipment, and tools necessary to complete the work.
1. Pay Item: 825.434 1" Service, Pay Unit: Linear Foot
- F. Material and work associated with providing temporary water services shall be considered incidental to the contract and no separate payment shall be made.
- G. Thrust blocks and mechanical joint restraining devices shall be considered incidental to the respective fitting, and no separate payment shall be made.
- H. Removal and disposal of existing piping, fittings, bends, valves and accessories as noted on the plans, required in the specifications or to facilitate the work of the Contractor shall be considered incidental to the water main project and no separate payment shall be made.
- I. Contractor is cautioned that existing water mains in Route 202 and Route 26 are asbestos-cement pipe. It is the intent of this contract to minimize removal of this pipe. Any existing facilities required to be removed as shown on the plans or in the specifications or is necessary to facilitate the work of the Contractor shall be completed and disposed of in conformance to local, state and federal requirements. Any removal and disposal shall be incidental to the water main work and no separate payment shall be made.
- J. Dispose of all demolition and construction debris offsite in accordance with local requirements and Maine Department of Environmental Protection (MDEP) regulations. Disposal shall be considered incidental to the water main project and no separate payment shall be made.
- K. Delivery of salvaged fittings, bends, and valves as noted on the plans to the Gray Water District facility on Route 26 shall be considered incidental to the water main project and no separate payment shall be made.
- L. Adjustment of any existing valve boxes, shutoffs or other appurtenances to grade, including all materials necessary to complete the work shall be considered incidental to the water main project and no separate payment shall be made.
- M. Installation of chlorine taps, sample taps and blowoffs at the locations shown on the plans and at other locations as determined necessary by the Gray Water District to allow for construction sequencing and activation of water mains shall be considered incidental to the water main project and no separate payment shall be made.
- N. Installation of trace wire shall be considered incidental to the water main and no separate payment shall be made.

- O. Construction of gravel pads for hydrants and valve clusters, including any necessary culvert, shall be considered incidental to the hydrant or valve and no separate payment shall be made.
- P. All other work of this section shall be considered incidental to the various pay items, and no further payment shall be made.

1.04 REFERENCES

- A. ASTM D 3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter; 2015.
- B. AWS A5.8 - Specification for Filler Metals for Brazing and Braze Welding; American Welding Society; 1992 (Reaffirmed 2003).
- C. AWWA C104/A21.4 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water; American Water Works Association; 2016 (ANSI/AWWA C104/A21.4).
- D. AWWA C105/A21.5 - Polyethylene Encasement for Ductile-Iron Pipe Systems; American Water Works Association; 2010 (ANSI/AWWA C105/A21.5).
- E. AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings; American Water Works Association; 2012 (ANSI/AWWA C111/A21.11).
- F. AWWA C151/A21.51 - Ductile-Iron Pipe, Centrifugally Cast, for Water; American Water Works Association; 2009 (ANSI/AWWA C151/A21.51).
- G. AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service; American Water Works Association; 2009 (ANSI/AWWA C509).
- H. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances; American Water Works Association; 2010 (ANSI/AWWA C600).
- I. UL 246 - Hydrants for Fire-Protection Service; Underwriters Laboratories Inc.; Current Edition.
- J. AWWA M17 - Installation, Field Testing and Maintenance of Fire Hydrants

1.05 SUBMITTALS

- A. Product Data: Provide data on pipe materials, pipe fittings, valves and accessories.
- B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- C. Project Record Documents: Record actual locations of piping mains, valves, connections, thrust restraints, corporations, shut-offs and invert elevations. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities. The Contractor shall record the subsoil conditions every 20 feet along the pipe line at pipe depth as well as at any changes in subsoil conditions. Contractor shall submit record documents to District upon completion of project.
- D. After approval of the product data submittal, and prior to starting any work on the project, the Contractor shall provide the following spare parts for the specified valves and hydrants.
 - 1. One spare valve for each size used on the project (does not include insertion valves)
 - 2. One complete hydrant
 - 3. Any and all special tools required to repair the hydrant
 - 4. A traffic repair kit for the hydrant
 - 5. A manufacturer's repair kit for gaskets and o-rings that would allow for complete replacement of all rubber, Buna N and composition rubber for one hydrant.

1.06 QUALITY ASSURANCE

- A. Perform Work in accordance with Gray Water District requirements.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Unload materials so as to avoid shock or damage. Handle and store all pipe in such a manner as to avoid deterioration or other injury thereto. Place no pipe within pipe of larger size. Store pipe and fittings on sills above storm drainage level and delivery for laying after trenches are excavated. Valves and hydrants shall be drained and stored to protect them from damage.

1.08 SUBSTITUTIONS

- A. Equivalent materials and equipment
 - 1. Whenever a material or article is specified or described by using the name of a proprietary product or the name of a particular manufacturer(s) or vendor(s) the specified item mentioned shall be understood as establishing the type, function, dimension, appearance, and quality desired and is to be the basis upon which bids are to be prepared. Other manufacturer's products not named will be considered as substitutions provided required information is submitted in the manner set forth herein and provided substitutions will not require substantial revisions of the Contract Documents
- B. Submittal of List of Proposed Substitutions
 - 1. Bidders shall submit their list of proposed substitutions and the proposed monetary changes associated therewith to the Gray Water District within 24 hours of submitting their bid to the Maine Department of Transportation.
- C. Submittal Requirements of Proposed Substitutions
 - 1. Within 72 hours of submitting their bid to the Maine Department of Transportation the following data shall be submitted to the Gray Water District in order for the substitution to be considered:
 - a. Complete data substantiating compliance of proposed substitution with the Contract Documents. Substitution shall not change design intent.
 - 2. For products:
 - a. Product identification, including manufacturer's name and address
 - b. Manufacturer's literature, including, but not necessarily limited to:
 - 1) Product description, performance and test data
 - 2) Reference standards
 - c. Samples where appropriate and as deemed necessary by the Gray Water District.
 - d. Records of installation of the product at three different locations within the last five years for public or private utilities within 60 miles of the Gray Water District along with contact names and phone numbers for the respective utility.
 - 3. For construction methods:
 - a. Detailed description of proposed method
 - b. Drawings illustrating methods
 - c. Name and address of similar projects on which method was used at three different locations within the last five years for public or private utilities within 60 miles of the Gray Water District along with contact names and phone numbers for the respective utility.
 - 4. Itemized comparison of proposed substitution with product or method specified. Different types of products and methods will be considered provided final performance is at least equal to that specified.
 - 5. Data relating to impact on construction schedule occasioned by the proposed substitution.
 - 6. Accurate cost data on proposed substitutions in comparison with product or method specified, including costs of all redesigns required.
 - 7. In making a request for substitution, bidder represents:
 - a. They have personally investigated proposed product or method, and determined that it is equal or superior in all respects to that specified. They will provide the same guarantee for substitution as for product or method specified.
 - b. They will coordinate installation of accepted substitutions into work, making such design and construction changes as may be required for work to be complete in all respects.
 - 8. If the Contractor proposes an alternate valve or hydrant than that specified, the Contractor will be required to provide the following:
 - a. One spare valve for each size used on the project (does not include insertion valves)
 - b. One complete hydrant
 - c. Any and all special tools required to repair the substitute hydrant
 - d. A traffic repair kit for the hydrant

- e. A manufacturers repair kit for gaskets and o-rings that would allow for complete replacement of all rubber, Buna N and composition rubber for one hydrant
- D. Substitutions following award of Contract
 - 1. Requests for substitutions submitted after award of the Contract will not be considered unless evidence is submitted to the Gray Water District that the following circumstances exist:
 - a. The specified product is unavailable for reasons beyond the control of the Contractor. Such reasons consist of strikes, bankruptcy, discontinuance of manufacture or acts of God.
 - b. Unavailability of specified product.
 - c. The Contractor placed, or attempted to place, orders for the specified product within ten days after award of the Contract.
 - d. Requests for substitution is made in writing to the Gray Water District within ten days of the date on which the Contractor ascertains that they cannot obtain the item specified.
 - e. Complete data as set forth hereinbefore to permit complete analysis of the proposed substitution are submitted with the request.
- E. Rejection of proposed substitution
 - 1. Substitutions will not be considered at any time if:
 - a. They are indicated or implied on shop drawings or project data submittals without formal request submitted in accordance with this section.
 - b. Acceptance will require substantial revision of the Contract Documents.
 - c. Acceptance will create problems in stocking of repair parts and in future maintenance by the Gray Water District.
- F. The Gray Water District's decision regarding evaluation of substitutions shall be considered final and binding. Requests for time extensions and additional costs based on submission of, acceptance of, or rejection of substitutions will not be allowed. All approved substitutions will be incorporated into the Contract by Change Order.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Items manufactured of steel or iron shall conform to the "Buy America" provisions contained in the MaineDOT specifications for this project.
- B. Ductile Iron Pipe: AWWA C151:
 - 1. Pipe shall meet requirements of AWWA Standard C-151 (latest revision) and be double cement lined and seal coated to meet AWWA Standard C-104 (latest revision).
 - 2. Joints shall meet requirements of AWWA C-111 (latest revision).
 - 3. Interior seal coated, bituminous paint oil, cut emulsion not acceptable, thickness, minimum of 2 mils dry film thickness.
 - 4. Class 52 wall thickness, 4 inch diameter through 12 inch diameter inclusive.
 - 5. Class 52 wall thickness, 16 inch diameter and 15% gauged pipe for valve and fitting cut-in.
 - 6. Provide 18 or 20 foot pipe lengths to reduce the number of required joints.
 - 7. State nominal laying length and mark shorter lengths near bell. Shorter lengths shall not exceed 1% of product shipped.
 - 8. Mechanical joint pipe to be furnished with gland, gaskets, and Cor-ten bolts and nuts.
 - 9. Push on joint pipe shall be Tyton Joint or equivalent, and be supplied with gasket and gasket lubricants. (approx. 5 lb. containers).
 - 10. Acceptable Manufacturer: Griffin Pipe Products Co., U.S. Pipe or Clow
- C. Ductile Iron Fittings:
 - 1. Material shall be ASTM A536 latest, grade 70-50-05, in accordance with AWWA C153 (latest revision) for fittings 3" through 24".
 - 2. Fittings shall be cement lined AWWA C104 (latest revision).
 - 3. Interior seal coated AWWA C104 with minimum of 4 mils dry film thickness.

4. Exterior bituminous coated, 4 mils minimum dry film thickness.
 5. Sleeves shall not be cement lined, but shall be bituminous coated inside and outside, 4 mils minimum dry film thickness.
 6. Mechanical joint with accessories furnished: DI glands, gaskets, Cor-Ten T-bolts and nuts.
 7. Class 350 pressure rating in accordance with AWWA C110 - 3" - 24" sizes.
 8. The "compact design" fittings must provide adequate space for the MJ joint and accessories to be installed without special tools (i.e. Lowell wrench can be used).
 9. Acceptable Manufacturer: Griffin Pipe Products Co., U.S. Pipe, Clow, Sigma or Tyler
- D. Copper Tubing: ASTM B 88, Type K, annealed (1" Services):
1. Fittings: ASME B16.18, cast copper, or ASME B16.22, wrought copper.
 2. Joints: Compression connection or AWSA5.8, BCuP silver braze.
 3. Acceptable Manufacturer: AY MacDonald
- E. HDPE Tubing: Copper Tubing Size (CTS) polyethylene shall have a working pressure rating of 200 p.s.i. and shall conform to AWWA C901, ASTM D3350 and ASTM D2737 (1.5", 2" and 2.5" Services)
- F. Polyethylene Pipe: AWWA C906:
1. Materials used for manufacturing of polyethylene pipe shall be PE 3408 High Density Polyethylene (HDPE) meeting the ASTM D3350 cell classification of 345434C.
 2. The material shall have a minimum Hydrostatic Design Basis (HDB) of 1600 psi at 73 degrees F when tested in accordance with PPI TR-3 and shall be listed in the name of the pipe and fitting manufacturer in PPI TR-4.
 3. The material used in the production of potable water pipe shall be approved by the National Sanitation Foundation (NSF).
 4. The Manufacturer shall certify that the materials used to manufacture the pipe meet the requirements of this section.
 5. Polyethylene pipe shall be manufactured in accordance with AWWA C906 for sizes 4" through 54".
 6. Polyethylene pipe shall be conform to 160 psi pressure rating, DR 11.
- G. Trace Wire: 42 strand stainless steel trace wire
- H. Valve Boxes
1. Bottom section shall be slide-type with bell-type base.
 2. Top section shall be slide-type. It shall have a top flange, but shall not have a "bead" or bottom flange.
 3. The cover shall be a heavy, non-tilting 2" drop-type cover to fit the 7 1/4" opening of the top section. Cover shall weigh in excess of 11-1/2 pound.
 4. The intermediate (mid) section shall be slide-type with a minimum 3" belled bottom. Base Section No. 645 may be used as an alternate.
 5. Material shall be cast iron or ductile free from defects.
 6. Interior and exterior of all components shall be bituminous coated with a minimum of 4 mils dry film thickness.
 7. Acceptable Manufacturer: United States Manufacture
- I. Curb Stops
1. Valve shall be brass ball that is teflon (or equal) coated.
 2. The ball shall be supported by seats, which are water tight in either direction.
 3. The valve shall have full-port opening.
 4. The valve shall open with a 1/4 turn (90 degrees) with a check or stop.
 5. The valve shall not have a drain.
 6. The valve stem shall have 2 "O" rings and a bronze ring lock, which holds that stem solidly in the valve body.
 7. The valve body shall be of heavy-duty design.
 8. Acceptable Manufacturer: AY MacDonald
- J. Corporation Stops:

1. For 3/4" to 1" shall be an CC by Compression and a ball valve design with a brass ball that is teflon coated.
 2. For 1-1/2" to 2" shall be ball valve design with a brass ball that is teflon coated.
 3. All sizes to have an ON-OFF identification mark on the operating nut.
 4. The valve shall be supported by 2 seats for water-tight shutoff in either direction.
 5. The valve shall have full port opening.
 6. The body of the corporation shall be of heavy-duty design.
 7. Acceptable Manufacturer: AY MacDonald
- K. Service Rod Box and Rod
1. Service box shall be 1.0" Schedule 40 steel pipe with top having 1.0" NPT pipe threads for screw on cover or coupling.
 2. Service box shall be Erie style with 5' to 6' slide type riser.
 3. Service box cover shall be plug style (heavy-duty) cover that screws on service box above.
 4. Service box cover shall be tapped with a 1" rope thread with a solid brass plug with pentagon operating head.
 5. Service box foot piece shall be heavy-duty (Ford style or equal) cast iron design.
 6. The large heavy-duty foot piece shall have an arch that will fit over 2" inch ball valve curb stops.
 7. Service rod shall be 36" in length and have a self-aligning design.
 8. Service rod shall be of circular dimension and constructed of 1/2" dia. Min. #304 stainless steel.
 9. Service rod shall have a yoke design that is an integral part of the rod.
 10. The curb-stop attachment pin shall be a brass cotter pin.
 11. The rod "wrench flat" shall have a minimum thickness of 1/4" tapered to 1/16" and a width of 5/8" or 1/2".
 12. Acceptable Manufacturer: United States Manufacture
- L. Service Saddles:
1. The service saddle shall have the "larger sized" body, which shall have a minimum diameter of 6" and multiple "O" ring type sealing.
 2. The saddle body shall be constructed of epoxy coated ductile iron.
 3. The sealing gasket(s) shall be either Bruna-N rubber or SBR rubber (ASTM D2000).
 4. The shall be two holding bands, U-bolt type, made of 304 stainless steel.
 5. Acceptable Manufacturer: Romac
- M. Cut-In Sleeve
1. Sleeve shall be mechanical joint to plain end type.
 2. Sleeve shall fit over either AB or CD pattern type.
 3. Coatings:
 - a. Interior - seal coated - AWWA C104-74, Min. 4 mils D.F.T.
 - b. Exterior: - Bituminous Coated, Min. 4 mils D.F.T.
 4. Mechanical joint accessories shall be furnished: Glands, with duck-tipped for AB, plain gaskets for CD, and Cor-ten tee bolts and nuts.
 5. Cut-in sleeves shall have at least one stop screw in sizes up through 10" and at least 2 stop screws in 12" size.
 6. The stop screw "o" ring shall be recessed into the body of the sleeve between stop screw and body.
- N. Stainless Steel Repair Clamps:
1. Sleeve shall be full circle design, either one piece or two piece, for pipe sizes 2" through 12".
 2. Body: Shall be 18-8 stainless steel shell.
 3. Gasket:
 - a. Shall be full length and diameter of the body size.

- b. Gasket shall form a multiple O-ring or grid, sealing barrier for the entire length and circumference.
 - c. Shall be virgin SBR rubber (ASTM D2000 AA 415).
 - 4. Lugs, sidebar, and lifting bar shall be heavy gauge 18-8 stainless steel with TIG/MIG welding and chemical passivation of all welds.
 - 5. Bolts and nuts shall be Teflon coated 18-8 heavy gauge stainless steel.
 - 6. Armor: The armor, or bridging plate between the side bars shall be heavy gauge 18-8 stainless steel bonded to the gasket to bridge the lug area..
 - 7. Acceptable Manufacturer: Romac
- O. Ductile Iron Couplings (Sleeves) for 4" thru 12":
 - 1. Body (Center Ring) - 5" - 7" minimum length ductile iron, meeting or exceeding ASTM A 536-71, minimum paint coating exterior finish or 4 mils dry film thickness.
 - 2. Glands (End Rings) - Ductile iron, meeting or exceeding ASTM A 536-71, to fit AB - CD cast and/or ductile iron pipe.
 - 3. Gaskets - Virgin SBR rubber, compounded for water service, exceeding ASTM D 2000.
 - 4. Bolts - Cor-Ten or equal trackhead bolts and heavy hex nuts, 6 - 5/8" x 8" coupling. Option; 316 stainless steel bolts and nuts.
 - 5. Acceptable Manufacturer: Romac
- P. Cast Iron or Ductile Iron Split Repair Sleeve :
 - 1. Sleeve shall be mechanical joint to plain end type.
 - 2. The side rubber gaskets shall be rectangular to cross-section and fit into grooved channels in the casting. These gaskets shall extend the entire length of the sleeve and shall not require cutting or trimming to match MJ and gaskets
 - 3. Sleeve shall be either AB or CD pattern to permit use of plain rubber and duck-tipped gaskets for various O.D. piping sizes.
 - 4. All side bolts shall be 316 stainless steel or silicone bronze.
 - 5. Interior and exterior to be bituminous coated with a minimum of 4 mils D.F.T
 - 6. The sleeve shall be provided with a 2" F.I.P.T. test port with brass plug .
 - 7. Acceptable Manufacturer: Sigma or Tyler
- Q. Cast Iron or Ductile Iron Tapping Sleeves
 - 1. Tapping sleeve shall be mechanical joint with recessed outlet flange for tapping valve.
 - 2. Tapping sleeve shall conform to AWWA C-207, Class D, with rated maximum working pressure of 200 psi.
 - 3. Side rubber gaskets shall be rectangular in cross-section and fit into grooved channels in the casting. These gasketsshall extend the entire length of the sleeve and shall not require cutting or trimming to match MJ ends.
 - 4. Sleeve shall be either AB or CD pattern to permit use of plain rubber and duck-tipped gaskets for various O.D. piping sizes.
 - 5. All flange outlet bolts shall be 316 stainless steel or silicone bronze.
 - 6. Interior and exterior to be bituminous coated with a minimum of 4 mils D.F.T.
 - 7. Mechanical joint accessories shall be furnished: Glands, gaskets and Cor-ten tee olts and nuts.
- R. Stainless Steel Tapping Sleeves (12" and Smaller):
 - 1. Flange - Ductile iron, meets or exceeds ASTM A536, Grade 65-45-12. All flanges in accordance with ANSI Class 125 and 150 drillings and recessed to accept tapping valve
 - 2. Stainless Steel - Meets or exceeds ASTM A 240 Type 304 UNS designated S30400.
 - 3. Outlet - Heavy guage 304L Stainless Steel. Fused to shelll by GMAW weld on the outside and GTAW weld on the inside.
 - 4. Shell - Heavy gauge Stainless Steel top half 304L back half 304
 - 5. Sidebars - Heavy gauge 304 Stainless Steel, GTAW welded to form permanent fushion with shell
 - 6. Lugs - 304 Stainless Steel, fused to sidebars by GMAW welding

7. Bolts - 304 Stainless Steel, 4 inch sleeves shall be 1/2" UNC threads, 6 - 12 inch sleeves shall be 5/8" UNC rolled thread. Bolts are GMAW welded to sidebar
 8. Nuts - Heavy Hex, 304 Stainless Steel, 4 inch nominal size sleeves shall be 1/2" UNC threads, 6 inch nominal size and larger sleeves shall be 5/8" UNC thread. Nuts coated to prevent galling.
 9. Washers - 5/8" 304 Stainless Steel washers. 8 inch size on size sleeve and larger receive Stainless Steel washers. 1/2" or 5/8" Plastic Washer to prevent galling between nut or stainless steel washer and lifter bar.
 10. Armors - Heavy gauge 304 Stainless Steel.
 11. Lifter Bars - 304 Stainless Steel, lip curved to hold position while tightening. Heavy gauge shall serve as bearing surface for nuts.
 12. Gaskets - Virgin SBR rubber compounded for water and sewer service in accordance with ASTM D 2000 MAAA 610. Specially designed grid pattern and tapered ends to assure seal around full circumference of pipe. Reinforced ring at outlet provides hydrodynamic seal.
 13. Welds - GMAW and GTAW weld processes. 308L Stainless Steel filler wire used as appropriate. Flange weld is GMAW type. All welds fully passivated for enhanced corrosion protection.
 14. Test Plug - 3/4" NPT Type 304 SS, Anti-Seize Coated
 15. Working Pressure - Rated for 250 psi for 4" - 8". Rated for 200 psi for 12".
 16. Test Pressure - Rated for 312 psi for 4" - 8". Rated for 300 psi for 12".
 17. Acceptable Model - Romac SST Series
- S. Fabricated Steel Tapping Sleeves (16" and Larger):
1. Body and Flange - A - 36.
 2. Coating - Fusion-bonded epoxy coating with minimum D.F.T. of 8 mils, inside and outside.
 3. Bolts, Nuts - 304 Stainless.
 4. Gaskets - SBR.
 5. Flange - AWWA Class D plate flange with ANSI 150# drilling, proper recessing for Tapping Valves.
 6. Sleeves shall be provided with 3/4" F.I.P.T. test port and plug.
 7. Acceptable Manufacturer: Romac
- T. Fire Hydrant
1. Shall meet the requirements of AWWA Standard C-502, latest revision.
 2. Shall open right.
 3. Shall be provided with a Ductile Iron Hydrant Tee.
 4. Operating nut shall:
 - a. Be D.I. or bronze;
 - b. Be pentagon in shape with dimensions: Top 1-13/16" tapering to 1-7/8" on bottom.
 5. A travel nut shall be provided in the top of the hydrant.
 6. Nozzles shall be:
 - a. 2 each - 2-1/2" National Standard Thread.
 - b. 1 each - 4-1/2" National Standard Thread.
 - c. Threaded in with positive "O" ring sealing mechanism.
 7. Port covers shall be supplied without chains and shall have the same size pentagon operator as specified above.
 8. Traffic model hydrant with breakaway feature shall have:
 - a. Segmented cast iron flanges and not frangible (breakable) bolts.
 - b. Break type rod coupling set equal to, or below, the line of the top flange of the lower barrel.
 - c. An approved rubber gasket provided between the barrels.
 9. Barrel length(s) shall be:
 - a. 6 ft. cover, 6-1/2 ft. bury; or
 - b. 5-1/2 ft. cover, 6 ft. bury.
 10. Hydrant extensions shall be such that:

- a. The location of the hydrant valve and seat shall remain in, or at, the shoe;
 - b. The hydrant shall be extended from the bottom.
- 11. Hydrant shoe or base shall have the following:
 - a. 6" MJ inlet;
 - b. 5-1/4" valve opening with non-draining bronze seat that is internally and externally plugged;
 - c. Valve seat and sub-seat arrangement shall be bronze to bronze;
 - d. Blocking area on bottom of shoe and on back of shoe shall be as noted on the detail.
- 12. Hydrant stem shall have:
 - a. A minimum diameter of 1.0 in.;
 - b. An approved rust inhibitor from the top valve plate to 12" above.
- 13. Sealing shall be accomplished with rubber "O" rings and approved rubber gaskets throughout.
- 14. Bolts:
 - a. All buried mechanical joint bolts and nuts (T-head, etc.) shall be Cor-Ten or equal;
 - b. All buried flange joints shall be 316 stainless steel or silicone bronze.
- 15. Protective coatings shall consist of the following:
 - a. All paintings and coatings shall be a minimum of 6 mils D.F.T., unless noted;
 - b. The internal area of the hydrant base, which is normally exposed to water and which includes the internal body of hydrant shoes, including lower valve plate, shall be epoxy coated;
 - c. All internal and external cast iron or ductile iron components shall be coated with an approved bituminous coating.
 - d. All hydrant barrels shall be poly-wrapped from the foot to the finished grade to lessen the effects of frost caused movement.
 - e. Coatings for upper barrel - exterior:
 - 1) Surface preparation blast clean SSPC-SP-6;
 - 2) Primer Glidden #5207 - White, 2-3 mils, dry;
 - 3) Second coat, Glidden #4560 - yellow, 2-3 mils dry;
 - 4) Finish coat Glidden #4560 - yellow, 2-3 mils, dry or sufficient paint to hide the second coat;
 - 5) Total dry film thickness - 6 mils minimum.
 - f. Coatings for bonnet, operating nut, port cap:
 - 1) Surface preparation blast clean SSPC-SP-6;
 - 2) Primer Glidden #5207 - White, 2-3 mils, dry;
 - 3) Second coat, Glidden #4392 - aluminum, 2-3 mils dry;
 - 4) Finish coat Glidden #4392 - aluminum, 2-3 mils, dry or sufficient paint to hide the second coat;
 - 5) Total dry film thickness - 6 mils minimum.
- 16. Approved Models:
 - a. American Flow Control B-62-B
- U. Insertion Valve
 - 1. General: The sleeve shall be fabricated to provide a 360° seal around the pipe under working pressure up to 150 psi. (Test pressure: 225 psi.) It shall be designed to accommodate the equipment and fixtures necessary to drill and ream the pipe and install the QuikValve insertion valve without any interruption in water service.
 - 2. Materials: The sleeve shall be made of ASTM A-36 steel, epoxy coated to 10-12 mils
 - 3. Neck: The neck shall be manufactured to precision tolerances that assure proper alignment, support, and sealing of the QuikValve insert.
 - 4. Bolts and Nuts: Type 304 Stainless steel bolts with SDC nuts.
 - 5. Gaskets: All gaskets shall be made of Styrene Butadiene Rubber (SBR) compounded for potable water service in accordance with ASTM D2000 3 BA715. The gaskets shall provide a positive 360° seal on the pipe and assure a tight, durable, and resilient seal at the pipe sleeve - valve insert junction.

6. Coating: The sleeve shall be lined and coated with fusion bonded epoxy. Epoxy shall meet the requirements of AWWA-C213.
 7. Armors: Heavy gauge type 304 stainless steel armor plates shall be used to bridge the gap between the sleeve halves.
 8. Lugs: Lugs on the sleeve shall be configured to properly align the sleeve halves during installation, provide a bolting surface, and assure a 360° seal. The lugs shall be designed to prevent excessive stress on the pipe, and minimize distortion of soft (PVC) pipe.
 9. Insert: The insert shall consist of a ductile iron casting coated with SBR rubber compounded for water service with a durometer of 55 Shore A. The insert seals on the inside diameter of the QuikValve sleeve neck and the lower half of the water main.
 10. Valve Stem: The stem and nut assembly shall be in accordance with AWWA C-500-80, section 3.12.
 11. Flange: A flange, made of ASTM- A-36 steel shall be used to hold the valve assembly together and act to seal against the valve sleeve flange.
 12. Gasket: The valve flange gasket shall be made of SBR rubber, compounded for water service in accordance with ASTM D2000 3 BA715, with a durometer of 70 Shore A. The gasket shall act as the sealing interface between the valve flange and sleeve flange.
 13. Bolts and Nuts: Type 304 stainless steel bolts, nuts and washers.
 14. Acceptable Manufacturer - Romac/Transmate
- V. Resilient Seat Gate Valve
1. Valve shall meet the latest revision of the AWWA C-509 standard.
 2. Shall open left.
 3. Valve shall have a smooth unobstructed waterway which shall be a minimum diameter of the valve.
 4. Valve ends to be specified and shall be furnished with Cor-Ten (or equal) bolts and nuts.
 5. Valve shall be rated for zero leak rate at 200 psi differential working pressure and have a 400 psi hydrostatic test for structural integrity.
 6. Valve sealing shall have 2 "O" rings situated such that the "O" rings above the thrust collar can be replaced with the valve under pressure and in the open position.
 7. Valve stem shall be:
 - a. Open left with a stem nut made of grade D,E manganese bronze;
 - b. Non-rising;
 - c. Designed with a thrust collar integrally cast to the stem;
 - d. Designed with two (2) thrust washers, placed one above and one below the stem thrust collar;
 - e. Such that the thrust washers are made of a synthetic polymer.
 8. Valve body, including the stuffing box and bonnet shall be constructed of ductile iron, meeting the latest revision of AWWA C-153.
 9. Valve disc or wedge shall be:
 - a. Constructed of ductile iron (less guiding mechanism);
 - b. Fully encapsulated and permanently bonded with a resilient elastomer
 - c. Constructed such as to allow the flushing of any interior exposed surface during operations.
 10. Coatings:
 - a. The internal and external valve body, including the stuffing box, bonnet, and interior of the wedge shall be epoxy coated with 8 mils D.F.T.;
 - b. Interior shall meet the latest version of AWWA C-550;
 - c. Shall be holiday free, interior and exterior, per testing method described in AWWA C-550, Sec. 5.1.
 11. Operating nut, shall be two (2) inch square ductile iron:
 - a. With a countersunk hold down nut (made of 316 stainless steel or silicone bronze). This applies to stems that are tapered;
 - b. Or, with a stainless steel pin inserted thru the stem. This applies to stems of full diameter.

12. The seal plate and bonnet bolts shall be 316 or 304 stainless steel.
 13. Approved Models (Less than 16"):
 - a. American Flow Control Series 2500
 14. Approved Models (16" or larger):
 - a. American Flow Control Series 2500, with 90 degree bevel gearing, with valve installed horizontally.
- W. Mechanical Joint Restraints 16" Pipe And Larger:
1. Restraint shall be provided for all standardized mechanical joints. Restraint shall be incorporated in the design of the follower gland and shall impart multiple wedging action against the pipe, increasing its resistance as pressure increases
 2. Assembled joint shall maintain its flexibility after burial and maintain its integrity by a controlled and limited expansion of each joint during the wedging action.
 3. Restraining glands shall be manufactured of high strength ductile iron conforming to the requirements of ASTM A536, Grade 65-54-12.
 4. Wedging mechanisms shall be manufactured of ductile iron, heat treated to 370 BHN minimum.
 5. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee head bolts conforming to the requirements of ANSI/AWWA A21.11/C111 and ANSI/AWWA A21.53/C153 of latest revision.
 6. Twist-off nuts shall be incorporated in the design of the wedge activation screws to insure proper torque.
 7. Restraining device shall have a water working pressure rating of 350 psi minimum (sizes 4" - 16") with a safety factor of at least 2:1 against separation when tested in a dead end situation.
 8. Acceptable manufacturers:
 - a. Uni-flange Series 1400.
 - b. RomaGrip
- X. Mechanical Joint Restraints 6", 8" and 12"
1. GripRing™ Pipe Restraint for Ductile Iron Pipe
 2. Acceptable Manufacturer: Romac
- Y. Foster Adaptor™
1. Foster Adaptors shall be allowed to connect mechanical joint fittings and valves.

2.02 BEDDING AND COVER MATERIALS

- A. Bedding: As specified in Section 31 23 16.13.
- B. Cover: As specified in Section 31 23 16.13

2.03 THRUST BLOCKS

- A. Blocks shall be concrete of a mix not leaner than 1:2 -1/2:5 cement:sand:stone, and shall have a compressive strength of not less than 3,000 psi at 28 days. Concrete for thrust blocks shall be placed against undisturbed earth.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that municipal utility water main size, location, and inverts are as indicated.

3.02 PREPARATION

- A. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, remove burrs.
- B. Remove scale and dirt on inside and outside before assembly.

3.03 TRENCHING

- A. See section 02315 and 02317 for additional requirements.
- B. Backfill around sides and to top of pipe with cover fill, tamp in place and compact, then complete backfilling.

3.04 INSTALLATION - DI PIPE

- A. Pipe-Laying - General:
 - 1. The interior of all pipe shall be clean and joint surfaces wiped clean and dry before the pipe is lowered into trench. Lower each pipe, fitting and valve into the trench carefully and lay true to line and without objectionable breaks in grade. The depth of cover below finished grade shall be not less than 5'-0" and the standard cover shall be 6'-0".
 - 2. Provide uniform bearing for all pipe in trenches. Do not allow trench water or dirt to enter the pipe after laying. Insert a watertight plug in the open end of the piping while laying of pipe is not in progress.
- B. All pipe shall be laid with standard provisions for expansion and contraction and in accordance with manufacturer's recommendations. All pipe with slip type joints shall be restrained at elbows and tees by thrust blocks and rods and clamps.
- C. Install suitable fittings at all changes in direction, dead ends and branch connections, provided that double strap saddles, in lieu of tees, may be used for service taps.
- D. Before setting each valve, make sure that the interior is clean, and test opening and closing. Set valves with stems plumb and at the exact location shown. Valve and service boxes shall be plumb, with tops at finished grade.
- E. Install ductile iron piping and fittings to AWWA C600.
- F. Route pipe in straight line, as shown on the plans, and deflect the water main a maximum of 3 degrees at each joint.
- G. Special plastic sleeves or envelopes shall be slipped over the pipe and sealed together with plastic adhesive tape. Care shall be exercised such that these sleeves shall be intact and sealed together when backfill is placed, and during the backfill operation, likewise, care shall be taken not to puncture the material.
- H. Install trace wire 6 inches (150 mm) above top of pipe; coordinate with Section 31 23 16.13.

3.05 INSTALLATION - POLYETHYLENE PIPE AND FITTINGS

- A. Joints between plain ends of polyethylene pipe shall be made by butt fusion. The pipe manufacturer's fusion procedures shall be followed at all times as well as the recommendations of the fusion machine manufacturer. Data logging shall be used on all butt fusions made. The wall thickness of the adjoining pipes shall have the same DR at the point of fusion.
- B. Mechanical fittings (which are designed for, or tested and found acceptable for use with polyethylene pipe) are utilized for transitions between pipe materials, repairs, joining pipe sections, or at other locations, the recommendations of the mechanical fitting manufacturer must be followed.
- C. On each day butt fusions are to be made, the first fusion of the day shall be a trial fusion. The trial fusion shall be allowed to cool completely, then fusion test straps shall be cut out. The test strap shall be 12" or 30 times the wall thickness in length (minimum) and 1" or 1.5 times the wall thickness in width (minimum). Bend the tests strap until the ends of the strap touch. If the fusion fails at the joint, a new trial fusion shall be made, cooled completely and tested. Butt fusion of pipe to be installed shall not commence until a trial fusion has passed the bent strap test.
- D. Trace wire shall be brought to the surface in a valve box at both ends of the polyethylene pipe. The contractor shall pull two trace wires with the polyethylene pipe in any directional drill or sleeved portion of the project, and shall bury one trace wire in any cut and cover portion of the polyethylene pipe installation. Valve box installation shall be considered incidental to poly pipe and no separate payment shall be made.
- E. Socket and saddle fusions shall be tested by a bent strap test as described by the pipe manufacturer. The pipe manufacturer shall provide visual guidelines for inspecting the butt, saddle and socket fusion joints.

- F. Pressure testing shall be conducted in accordance with the manufacturer's recommended procedure. Pressure testing shall use water as the test media. Pneumatic (air) testing is prohibited.

3.06 INSTALLATION - VALVES AND HYDRANTS

- A. Set valves on solid bearing.
- B. Center and plumb valve box over valve. Set box cover flush with finished grade in paved and grassed areas and 4" below grade in gravel shoulders.
- C. Set hydrants plumb; locate pumper nozzle perpendicular to and facing parking lot or roadway.
- D. Set hydrants to grade, with breakaway flange at distance above grade as recommended by manufacturer. The bury line is 3.5" below the center of the breakable traffic flange for the B-62-B.
- E. The use of Foster Adaptors shall be an adequate substitute for a nipple.
- F. 16" gate valves shall be installed in a horizontal configuration with 90 degree bevel gearing
- G. A gravel pad suitable for access with a pickup truck shall be provided at all hydrants for future maintenance. The gravel pad shall consist of a minimum of 18" of aggregate subbase gravel.
- H. Hydrant installation shall be in accordance with AWWA M17 and AWWA C600.

3.07 POLYETHYLENE ENCASEMENT

- A. Tube type polyethylene encasement shall be installed on all ductile iron pipe and fittings in accordance with AWWA Standard C105 - latest revision, Method A.
- B. Polyethylene encasement shall be either linear low-density polyethylene (LLDPE) film with a minimum thickness of 8-mil, or high density cross-laminated polyethylene (HDCLPE) film with a minimum thickness of 4-mil.
- C. Circumferential wraps of tape or plastic tie straps shall be placed at 2-ft. intervals along the barrel of the pipe.
- D. The polyethylene encasement shall prevent contact between the pipe and the surrounding backfill and bedding material but is not intended to be a completely airtight or watertight enclosure. All lumps of clay, mud, cinders, and so forth, on the pipe surface shall be removed prior to installation of the polyethylene encasement. During installation, care shall be exercised to prevent soil or embankment material from becoming trapped between the pipe and the polyethylene.
- E. The polyethylene film shall be fitted to the contour of the pipe to effect a snug, but not tight, encasement with minimum space between the polyethylene and the pipe. Sufficient slack shall be provided in contouring to prevent stretching the polyethylene where it bridges irregular surfaces, such as bell-spigot interfaces, bolted joints, or fittings, and to prevent damage to the polyethylene due to backfilling operations. Overlaps and ends shall be secured with adhesive tape, string, plastic tie straps, or any other material capable of holding the polyethylene encasement in place until backfilling operations are complete.
- F. Three layers of polyethylene adhesive tape shall be wrapped around any polywrapped pipe where a tapping machine will be placed. All copper services connected to a pipe wrapped in polyethylene encasement shall be wrapped within three feet of the pipe.

3.08 SERVICE CONNECTIONS

- A. Provide water service to utility company requirements.
- B. Corporations shall be installed at the same time as water main prior to the filling and testing of the main.
- C. 1" Services shall be copper tubing and 1.5" And 2" Services shall be HDPE Tubing.
- D. Services tapped into polyethylene pipe shall include a service saddle.

3.09 FIELD QUALITY CONTROL

- A. The contractor shall be responsible for flushing the main in accordance with the requirements of the Gray Water District.
- B. Pressure testing of the main will be completed by Everett J. Prescott, Inc. The contractor shall be responsible for coordinating with Everett J. Prescott, Inc. and provide support personnel as necessary to complete the testing. The cost of the pressure testing will be paid for by the Contractor. The contractor shall be responsible for repairing or replacing any deficient work at no additional cost to the District. Retest upon completion of repairs/replacement to attain passing test at no additional cost to the Gray Water District. The main will be tested at the following pressures:
 - 1. All Areas: 150 psi
- C. Chlorination of the main will be completed by Everett J. Prescott, Inc. The contractor shall be responsible for coordinating with Everett J. Prescott, Inc. and provide support personnel as necessary to complete the chlorinating. The cost of the chlorination testing will be paid for by the Contractor. In the event that the initial chlorination does not result in an installation that is acceptable to the Gray Water District, any additional chlorination of the main if necessary shall be paid for by the contractor at no additional cost to the Gray Water District.
- D. De-Chlorination shall be completed by the Contractor.
- E. If tests indicate Work does not meet specified requirements, remove work, replace and retest at no cost to Gray Water District.

END OF SECTION 33 11 13

STANDARD DETAIL UPDATES

Standard Details and Standard Detail updates are available at:
<http://maine.gov/mdot/contractors/publications/standarddetail/>

<u>Detail #</u>	<u>Description</u>	<u>Revision Date</u>
501(02)	Pipe Pile Splice	3/05/2015
501(03)	H – Pile Splice	3/05/2015
502(04)	Concrete Curb	2/01/2019
504(07)	Diaphragm & Cross Frame Notes	10/13/2015
504(10)	Drip Bar Details	9/06/2017
505(01)	Shear Connectors	10/24/2016
507(13)	Steel Bridge Railing	6/03/2015
507(14)	Steel Bridge Railing	6/03/2015
507(31)	Barrier – Mounted Steel Bridge	8/06/2015
526(02)	Temporary Concrete Barrier	2/01/2015
526(02)	Temporary Concrete Barrier	2/01/2018
606(19)	Guardrail Type 3 – Single Rail Bridge Mounted	6/10/2019
606(21A)	Bridge Transition – Type “IA”	5/29/2019
609(08)	Precast Concrete Transition Curb	6/10/2019
609(9)	Concrete Slip Form Curb	5/06/2018
626(07)	Conduit Trench for Traffic Signals, Highway Signing and Lighting	5/17/2018
645(06)	H-Beam Posts Highway Signing	1/09/2018
652(06)	Construction Signs	10/24/2016
652(12)	Construction Traffic Control	10/24/2016
802(05)	Roadway Culvert End Slope Treatment	1/03/2017
801(11) – 801(26)	ADA Standard Details	6/03/2019

SUPPLEMENTAL SPECIFICATIONS
(Corrections, Additions, & Revisions to Standard Specifications - November 2014)

SECTION 101
CONTRACT INTERPRETATION

101.1 Abbreviations Revise the definition of AWP to “**American Wood Protection Association**”.

101.2 Definitions

Page 1-5 – Remove the definition of Bridge in its entirety and replace with:

“Bridge A structure that is erected over a depression or an obstruction, such as water, a highway or a railway, and has an opening measured along the centerline of the Roadway of more than 20 feet between: The faces of abutments; spring line of arches; extreme ends of openings of box culverts, pipes or pipe arches; or the extreme ends of openings for multiple box culverts, pipes or pipe arches.”

Page 1-12 – Remove the definition of Large Culvert in its entirety and replace with:

“Large Culvert Any structure not defined as a Culvert or Bridge that provides a drainage or non-drainage opening under the Roadway or Approaches to the Roadway, with an opening that is 5 feet but less than 10 feet.”

Remove the definition of Minor Span in its entirety and replace with:

“Minor Span Same definition as Bridge, except having an opening of between 10 feet and 20 feet, inclusive.”

SECTION 103
AWARD AND CONTRACTING

Amend this Section by adding the following:

“103.1a Tie Bids - In the case where two responsive bids from responsible bidders are equal monetarily, the Department shall determine the apparent low bidder by flipping a coin. The coin shall have sides clearly marked as heads and tails. The contractor whose first letter in their official company name that comes first in the alphabet shall be heads.

If there are three bids, each bidder will flip the coin and the bidder with the odd toss will be the winner. (i.e. if the results are two heads and a tails, the bidder who had tails is the winner). For a three way tie, bidders may flip their own coin or have the Contracts Engineer flip for them.

The coin flip will occur at the next bid opening by the Contracts and Specifications Engineer or a designee. The tied bidders may attend the coin flip in person or watch on the internet as they choose.”

In 103.3.2 Notice of Determination Revise this section by removing sections A – M and replacing with the following A - K:

(A) Default(s) or termination(s) on past or current Contracts.

**(B) Failure on past or current Contracts to pay or settle all bills for labor, Materials or services;
to comply with directives of the Department, to fulfill warranty obligations, or to provide Closeout Documentation.**

(C) "Below Standard" performance as determined from the Department's Contractor's Performance Rating process.

(D) Insufficient bonding capability or Inability of the Contractor to obtain or retain performance or Payment Bonds meeting MDOT requirements, or a pattern of unsupported Claims.

(E) Failure to accept an Award of a Contract made by the Department.

(F) Failure to provide information requested by the Department in a timely manner.

(G) Debarment, suspension or a denial of prequalification or 'award of contract' by any federal, State, or local governmental procurement agency or the Contractor's Agreement to refrain from Bidding as part of the settlement with any such agencies or any of the reasons contained in Section 102.02 of the "Rules Regarding Debarment of Contractors", Maine Department of Transportation Register 17-229, Chapter 102 (October 2, 1985).

(H) Failure to demonstrate ability to do work to the satisfaction and at the sole discretion of the Department.

(I) Number of personnel working directly for the Contractor with applicable knowledge and experience is significantly below industry standards.

(J) Safety Record, Environmental Record, Civil Rights or Equal Opportunity Record significantly below industry standards.

(K) Serious misconduct that the Department reasonably determines will substantially and adversely affect the cost, quality or timeliness of Work, or the safety of Workers or the public, any deceptive, evasive or fraudulent statements or omissions contained in the Application, made or omitted at any interview or hearing, or otherwise made to or omitted from the Department; or any other substantial deficiencies in experience or conduct that are clearly below industry standards and that clearly demonstrate in the sole discretion of the Department, that the Contractor is "Not Qualified".

SECTION 104

GENERAL RIGHTS AND RESPONSIBILITIES

This Section shall be amended by adding the following two sub-sections:

104.3.8.1 Electronic Payroll Submission On federally funded projects the prime contractor, all subcontractors, and lower-tier subcontractors will submit their certified payrolls electronically utilizing the Elations system. There is no charge to the contracting community for the use of this service. The submission of paper payrolls will not be allowed or accepted. Additional information can be found at <http://www.maine.gov/mdot/contractors/> under the “Bidder Info” go to “Electronic Payroll System.”

104.3.8.2 Payment Tracking On federally funded projects the prime contractor and all subcontractors and lower-tier subcontractors will track and confirm the delivery and receipt of all payments through the Elation System

104.4.10 Coordination of Road Closure / Bridge Closure / Bridge Width Restrictions
Revise the last sentence by adding a period after ‘Resident’; remove the “and” after Resident; and adding “**not covered by Pay Items**” between ‘costs’ and ‘will’. So that the last paragraph reads “**All Newspaper notices, radio announcements and any notifications will be subject to the approval of the Resident. All costs not covered by Pay Items will be considered incidental to the Contract.**”.

104.5.5 Prompt Payment of Subcontractors Add the following paragraph to this subsection:

C. Payment Tracking Federal Projects On federally funded projects, the prime contractor, subcontractors and lower-tier subcontractors will track and confirm the delivery and receipt of all payments through the Elation System. They will be responsible for entering all payments to all sub and lower tier contractors. MaineDOT will run a query monthly to ensure that contractors are complying and generate an e-mail to contractors who have not responded to confirm receipt of MaineDOT payment or contractor payment to lower tier subcontractors.

SECTION 105

GENERAL SCOPE OF WORK

105.2.5 Compliance with Health and Safety Laws Remove the second paragraph of this subsection in its entirety and replace with:

“For related provisions, see Sections 105.2.3 – Project Specific Emergency Planning, 105.3 – Traffic Control and Management and 105.4 – Maintenance of work.”

105.4.5 Special Detours Remove this subsection in its entirety and replace with:

“105.4.5 Maintenance of Existing Structures When a new Bridge or Minor Span is being installed on a new alignment and the existing structure is to remain in service, the Department will maintain the existing structure and the portions of the roadway required for maintaining traffic until such time that the new structure is opened to traffic and the existing structure is taken out of service. A similar situation exists when a new Bridge or Minor Span is being installed on the same alignment as the existing structure, requiring a temporary detour to be installed by the Contractor per Section 510, Special Detours, prior to removal of the existing structure. In this case, the Department will maintain the existing structure and the portions of the existing roadway required for maintaining traffic until such time that either the temporary detour is opened to traffic or the Contractor begins any work on the existing structure, including, but not limited to, repairs, modifications, moving, demolition or removal. In either case, once the new structure or temporary detour is opened to traffic, or the Contractor begins any work on the existing structure, the Contractor shall be solely responsible for all maintenance of the existing structure and the portions of the existing approaches that lie outside the new roadway or the temporary detour, respectively. This specification is not intended to supersede Standard Specification Section 104.3.11, Responsibility for Property of Others.”

105.6.2.4 Department Verification Add the following to the end of the first sentence:
“or other approved method, such as reference staking, to allow the Department to independently verify the accuracy of the work, as approved by the Department.”

SECTION 106 **QUALITY**

106.3.4 Storage Revise this Section by adding the following sentence after the first sentence:
“Materials shall not be stored under or in close proximity to Highway Structures unless the Contractor receives written permission from the Resident.”

106.4.1 General - In the first sentence, remove “When required by Special Provision,” and replace with “When required elsewhere in the Contract,”

Revise Subsection C by replacing the last sentence with the following:

Approval of both standard and project specific QCPs shall be as outlined in paragraph B above, with the exception that the initial 14 day review period for standard plans will begin on March 1, and that the supplemental project specific QCP for the project shall be submitted a minimum of 14 days prior to any related work being performed with an initial review period of 7 days.

Revise Subsection 106.4.6 by removing it in its entirety and replace it with:

“106.4.6 QCP Non-Compliance The Contractor shall comply with the approved QCP and shall take all other steps necessary to assure a high quality project.

Failure by the Contractor to comply with the approved Quality Control Plan will result in a letter describing the violation, a mandatory work suspension, and a reduction in payment as shown in Table 106.4A below. The Contractor shall submit a letter to the Department that details the corrective action made to address the violation in their Quality Control Plan. Work may resume when the Department it is satisfied the corrective action will result in adherence to the Quality Control Plan.

Table 106.4 A - Quality Control Pay Reduction

Quality Control Plan Value*		Pay Reduction		
From More Than	To and Including	1st	2nd	3rd & Subsequent
\$0	\$500,000	\$1,000	\$2,000	\$4,000
\$500,000	\$1,000,000	\$2,000	\$4,000	\$8,000
\$1,000,000	\$3,000,000	\$5,000	\$10,000	\$20,000
\$3,000,000	and more	\$10,000	\$20,000	\$40,000

* The Quality Control Plan Value is the total bid value of all items covered by a Quality Control Plan, as detailed in the applicable specification or Special Provision.

During all periods of the Contractor’s failure to follow the approved QCP, no positive pay incentives will be calculated or paid if the Department accepts the material.

Pay reductions for failure to comply with the approved QCP are additive, and the Department will deduct any pay reductions due from amounts otherwise due the Contractor. These pay reductions are intended to encourage the Contractor to comply with its approved QCP, and are not related to the quality of the material provided.”

Amend this Section by adding the following Subsection:

“106.7.3 Early Termination of Lots In the event a lot in progress is terminated prematurely before the Department is able to take the number of acceptance samples required by the test method specified in the contract, the following will apply as applicable unless otherwise detailed in the specifications for the item:

- A. If three or more samples have been taken, then payfactors will be generated using the available samples results for the lot.
- B. If the termination was requested by the Contractor and approved by the Department prior to three samples being taken, then each property’s payfactor will be set to 0.80.
- C. If the termination was initiated by the Department prior to three samples being taken, then each property’s payfactor will be set to 1.00 for each property.”

SECTION 107 **TIME**

107.7.2 SCHEDULE OF LIQUIDATED DAMAGES

Revise this section by removing the numbers in the chart and replace with the following:

Original Contract Amount		Per Diem Amount of Liquidated Damages	
From More Than	To and Including	Calendar Day	
\$ 0	to \$ 100,000.00		\$250.00
\$ 100,000.00	to \$ 250,000.00		\$500.00
\$ 250,000.00	to \$ 500,000.00		\$650.00
\$ 500,000.00	to \$1,000,000.00		\$800.00
\$1,000,000.00	to \$2,000,000.00		\$1,000.00
\$2,000,000.00	to \$4,000,000.00		\$1,200.00
\$4,000,000.00	and More		\$2,100.00

SECTION 108 **PAYMENT**

108.3 Retainage - Remove the paragraph beginning with “ The Contractor may withdraw...” in its entirety.

108.4.1 Price Adjustment for Hot Mix Asphalt:

Remove this section in its entirety and replace with the following

For all contracts with hot mix asphalt in excess of 500 tons total, a price adjustment for performance graded binder will be made for the following pay items:

Item 403.102	Hot Mix Asphalt – Special Areas
Item 403.206	Hot Mix Asphalt - 25 mm
Item 403.207	Hot Mix Asphalt - 19 mm
Item 403.2071	Hot Mix Asphalt - 19 mm (Polymer Modified)
Item 403.2072	Hot Mix Asphalt - 19 mm (Asphalt Rich Base)
Item 403.208	Hot Mix Asphalt - 12.5 mm
Item 403.2081	Hot Mix Asphalt - 12.5 mm (Polymer Modified)
Item 403.209	Hot Mix Asphalt - 9.5 mm (sidewalks, drives, & incidentals)
Item 403.210	Hot Mix Asphalt - 9.5 mm
Item 403.2101	Hot Mix Asphalt - 9.5 mm (Polymer Modified)
Item 403.2102	Hot Mix Asphalt - 9.5 mm (Asphalt Rich Base)

Item 403.2104	Hot Mix Asphalt - 9.5 mm (Thin Lift Surface Treatment)
Item 403.21041	Hot Mix Asphalt - 9.5 mm (Polymer Modified Thin Lift Surface Treatment)
Item 403.211	Hot Mix Asphalt – Shim
Item 403.2111	Hot Mix Asphalt – Shim (Polymer Modified)
Item 403.212	Hot Mix Asphalt - 4.75 mm (Shim)
Item 403.213	Hot Mix Asphalt - 12.5 mm (base and intermediate course)
Item 403.2131	Hot Mix Asphalt - 12.5 mm (base and intermediate course Polymer Modified)
Item 403.2132	Hot Mix Asphalt - 12.5 mm (Asphalt Rich Base and intermediate course)
Item 403.214	Hot Mix Asphalt - 4.75 mm (Surface)
Item 403.235	Hot Mix Asphalt (High Performance Rubberized HMA)
Item 403.301	Hot Mix Asphalt (Asphalt Rubber Gap-Graded)
Item 404.70	Colored Hot Mix Asphalt – 9.5mm (Surface)
Item 404.72	Colored Hot Mix Asphalt – 9.5mm (Islands, sidewalks, & incidentals)
Item 461.13	Light Capital Pavement
Item 461.210	9.5 mm HMA - Paver Placed Surface
Item 462.30	Ultra-Thin Bonded Wearing Course
Item 462.301	Polymer Modified Ultra-Thin Bonded Wearing Course

Price adjustments will be based on the variance in costs for the performance graded binder component of hot mix asphalt. They will be determined as follows:

The quantity of hot mix asphalt for each pay item will be multiplied by the performance graded binder percentages given in the table below times the difference in price between the base price and the period price of asphalt cement. Adjustments will be made upward or downward, as prices increase or decrease.

Item 403.102–6.2%
Item 403.206–4.8%
Item 403.207–5.2%
Item 403.2071–5.2%
Item 403.2072–5.8%
Item 403.208–5.6%
Item 403.2081–5.6%
Item 403.209–6.2%
Item 403.210–6.2%
Item 403.2101–6.2%
Item 403.2102–6.8%
Item 403.2104–6.2%
Item 403.21041–6.2%
Item 403.211–6.2%
Item 403.2111–6.2%
Item 403.212–6.8%
Item 403.213–5.6%
Item 403.2131–5.6%

Item 403.2132–6.2%
Item 403.214–6.8%
Item 403.235–5.5%
Item 403.301–6.2%
Item 404.70–6.2%
Item 404.72–6.2%
Item 461.13–6.7%
Item 461.210 – 6.4%
Item 462.30–0.0021 tons/SY
Item 462.301–0.0021 tons/SY

Hot Mix Asphalt: The quantity of hot mix asphalt will be determined from the quantity shown on the progress estimate for each pay period.

Base Price: The base price of performance graded binder to be used is the price per standard ton current with the bid opening date. This price is determined by using the average New England Selling Price (Excluding the Connecticut market area), as listed in the Asphalt Weekly Monitor.

Period Price: The period price of performance graded binder will be determined by the Department by using the average New England Selling Price (Excluding the Connecticut market area), listed in the Asphalt Weekly Monitor current with the paving date. The maximum Period Price for paving after the adjusted Contract Completion Date will be the Period Price on the adjusted Contract Completion Date.

SECTION 109 **CHANGES**

109.5.1 Definitions - Types of Delays

Delete Paragraph 'A' in its entirety and replace with:

"A. Excusable Delay Except as expressly provided otherwise by this Contract, an "Excusable Delay" is a Delay to the Critical Path that is directly and solely caused by (1) a weather related Event of such an unusually severe nature that a Federal Emergency Disaster is declared. The Contractor will only be entitled to an adjustment of time if the Project falls within the geographic boundaries prescribed under the disaster declaration. or (2) a flooding event at the effected location of the Project that results in a Q25 headwater elevation, or greater, but less than a Q50 headwater elevation. Theoretical headwater elevations will be determined by the Department; actual headwater elevations will be determined by the Contractor and verified by the Department or (3) An Uncontrollable Event."

SECTION 110 **INDEMNIFICATION, BONDING AND INSURANCE**

110.3.9 Administrative & General Provisions

B. Defense of Claims Amend this section by adding the following sentence to the end:
“The Contractor’s insurer shall name the Department of Transportation as a released party (Releasee”) on any release or settlement agreement for settled claims.”

APPENDIX A TO DIVISION 100

Remove Section D in its entirety as this is now covered in Section 105.10 **EQUAL OPPORTUNITY AND CIVIL RIGHTS.**

SECTION 203 **EXCAVATION AND EMBANKMENT**

203.02 Materials

At the bottom of page 2-12, add as the first item in the list:

Crushed Stone, ¾ inch 703.13

203.042 Rock Excavation and Blasting

On page 2-16, add the word “No” to the third sentence in Section 5 Submittals, Subsection V, 1 so that it reads:

“No blasting products will be allowed on the job site if the date codes are missing.”

203.09 Preparation of Embankment Area Revise the first sentence of the second paragraph so that it reads:

“When fill material is placed against existing slopes or previously placed fill, the interface shall be continuously benched by excavating steps of sufficient width to permit operations of placing and compacting the additional material.”

SECTION 304 **AGGREGATE BASE AND SUBBASE COURSE**

Remove Section **304.02 Aggregate** entirely and replace with the following:

“304.02 Aggregate Aggregates shall conform to the requirements specified in the following subsections of Division 700 - Materials:

Aggregate Base	Type A & B	703.06 a

Aggregate Base	Type C	703.06 b
Aggregate Subbase	Type D & E	703.06 c

Aggregate for base or subbase courses shall be material meeting the aggregate type requirements specified in the following table:

Material	Aggregate Type (Subsection 703.06)
Base Course, Crushed	¹ A, B or C
Subbase Course, Gravel	² D
¹ Will be designated on the plans ² Subbase Course, Gravel-Type E may be used below the top 9" of the subbase layer at the Contractor's option	

For the various types of base and subbase, all shall conform to the gradation requirements of the contract at the time it is deposited on the roadbed. The Department will obtain samples from the roadbed for Acceptance prior to compaction. Oversized stones shall be removed from the aggregate before depositing on the roadway. Oversized stones for the various types are as follows:

Type A will not pass a 2 inch square mesh sieve

Type B and Type C will not pass a 4 inch square mesh sieve

Type D and E will not pass a 6 inch square mesh sieve."

The top 3" of Aggregate Base Course-Type C shall consist of Recycled Asphalt Pavement (RAP) or Untreated Aggregate Surface Course-Type B.

304.04 Shaping, Compacting, and Stabilizing Revise the first paragraph in this section by removing "according to AASHTO T 224" and "(An Adjustment Chart/Spreadsheet for this correction is available upon request)" so that it reads:

"Compaction of each layer of base and subbase shall continue until a density of not less than 95% of the maximum density has been achieved for the full width and depth of the layer. The maximum density shall be determined in accordance with AASHTO T180, Method C or D, correcting for oversize particles except mixtures may have 40 percent or less retained on the ¾ inch sieve. Field density tests will be performed by the Department in accordance with AASHTO T 310."

304.04 Shaping, Compacting, and Stabilizing Replace the tenth paragraph in this section in its entirety with:

"If the Contractor wishes to route public traffic over the completed Aggregate Base-Type A and B or Aggregate Subbase Course for a period of time greater than 48 hours, the Aggregate Base and Aggregate Subbase Course shall be constructed with a minimum 2"

surcharge above the design grade. Surcharge shall be constructed with material meeting the requirements of Section 703.06(b), Subbase Aggregate-Type D. Whenever the surcharge is used, it shall be placed on all the Aggregate Base and Aggregate Subbase Course subjected to public traffic. When the surcharge is removed, it may be placed in driveways, sidewalks, approach roads, or the outer portions of the shoulders. Removal of the surcharge shall be followed immediately in succession by the fine grading of the aggregate base or subbase and construction of the HMA base layer. As per subsection 203.041 Salvage of Existing Hot Mix Asphalt Pavement, Recycled Asphalt Pavement (RAP) may be used as the top 3" of aggregate. If RAP is utilized as the top 3", a surcharge is not required."

304.04 Shaping, Compacting, and Stabilizing Replace the eleventh paragraph in this section in its entirety with:

"The furnishing, placing, maintaining, and removal of the surcharge will not be paid for directly, but will be considered incidental to the Aggregate Base or Aggregate Subbase course pay item."

Section 304.07 Basis of Payment add the following:

"RAP or Untreated Aggregate Surface Course-Type B used to cap Aggregate Base Course-Type C will be paid for as Item 304.16-Aggregate Base Course -Type C."

SECTION 307 **FULL DEPTH RECYCLED PAVEMENT**

Remove this Section in its entirety and replace with:

SECTION 307 **FULL DEPTH RECYCLING** **(UNTREATED OR TREATED WITH EMULSIFIED ASPHALT STABILIZER)**

307.01 Description This work shall consist of pulverizing a portion of the existing roadway structure into a homogenous mass, adding an emulsified asphalt stabilizer (if required) to the depth of the pulverized material specified in the contract, placing and compacting this material to the lines, grades, and dimensions shown on the plans or established by the Resident.

MATERIALS

307.02 Pulverized Material Pulverized material shall consist of the existing asphalt pavement layers and one inch or more as specified of the underlying gravel, pulverized and blended into a homogenous mass. Pulverized material will be processed to 100% passing a 2 inch square mesh sieve.

307.021 New Aggregate and Additional Recycled Material New aggregate, if required by the contract, shall meet the requirements of Subsection 703.10 - Aggregate for Untreated Surface Course and Leveling Course, Type A. Aggregate Subbase Course Gravel Type D processed to 100 percent passing a 2 inch square mesh sieve and meeting the requirements of 703.06 – Aggregate for Base and Subbase may be used in areas requiring depths greater than 2 inches. New aggregate, will be measured and paid for under the appropriate item.

Recycled material, if required, shall consist of salvaged asphalt material from the project or from off-site stockpiles that has been processed before use to 100 percent passing a 2 inch square mesh sieve. Recycled material shall be conditionally accepted at the source by the Resident. It shall be free of winter sand, granular fill, construction debris, or other materials not generally considered asphalt pavement.

Recycled material generated and salvaged from the project shall be used within the roadway limits to the extent it is available as described in 307.09. No additional payment will be made for material salvaged from the project.

Recycled material supplied from off-site stockpiles shall be paid for as described in the contract, or by contract modification.

307.022 Emulsified Asphalt Stabilizer. If required, the emulsified asphalt stabilizer shall be grade MS-2, MS-4, SS-1, or CSS-1 meeting the requirements of Subsection 702.04 Emulsified Asphalt.

307.023 Water Water shall be clean and free from deleterious concentrations of acids, alkalis, salts or other organic or chemical substances.

307.024 Portland Cement If required, Portland Cement shall be Type I or II meeting the requirements of AASHTO M85.

307.025 Hydrated Lime If required, Hydrated Lime shall meet the requirements of AASHTO M216.

EQUIPMENT

307.03 Pulverizer The pulverizer shall be a self-propelled machine, specifically manufactured for full-depth recycling work and capable of reducing the required existing materials to a size that will pass a 2 inch square mesh sieve. The machine shall be equipped with standard automatic depth controls and must maintain a consistent cutting depth and width. The machine also shall be equipped with a gauge to show depth of material being processed.

307.04 Liquid Mixer Unit or Distributor. If treatment of the recycled layer with emulsified asphalt is required by the contract, a liquid mixing unit or distributor shall be used to introduce the emulsified asphalt stabilizer into the pulverized material. The mixing unit shall contain a liquid distribution and mixing system which has been specifically manufactured for full-depth recycling work, capable of mixing the pulverized material with an evenly metered

distribution of emulsified asphalt into a homogeneous mixture, to the depth and width required.

The mixing unit shall be designed, equipped, maintained, and operated so that emulsified asphalt stabilizer at constant temperature may be applied uniformly on variable widths of pulverized material up to 6 feet at readily determined and controlled rates from 0.01 to 1.06 gal/yd² with uniform pressure and with an allowable variation from any specified rate not to exceed 0.01 gal/ yd². Mixing units shall include a tachometer, pressure gages, and accurate volume measuring devices or a calibrated tank and a thermometer for measuring temperatures of tank contents.

307.041 Cement or Lime Spreader If required by the contract, spreading of the Portland Cement or Hydrated Lime shall be done with a spreader truck designed to spread dry particulate (such as Portland Cement or Lime) or other approved means to insure a uniform distribution across the roadway and minimize fugitive dust. Pneumatic application, including through a slotted pipe, will not be permitted. Other systems that have been developed include fog systems, vacuum systems, etc. Slurry applications may also be accepted. The Department reserves the right to accept or reject the method of spreading cement. The Contractor shall provide a method for verifying that the correct amount of cement is being applied.

307.05 Placement Equipment Placement of the Full Depth recycled material to the required slope and grade shall be done with an approved highway grader or by another method approved by the Resident.

307.06 Rollers The full depth recycled material shall be rolled with a vibratory pad foot roller, a vibratory steel drum soil compactor and a pneumatic tire roller. The pad foot roller drum shall have a minimum of 112 tamping feet 3 inches in height, a minimum contact area per foot of 17 inch², and a minimum width of 84 inches. The vibratory steel drum roller shall have a minimum 84 inch width single drum. The pneumatic tire roller shall meet the requirements of Section 401.10 and the minimum allowable tire pressure shall be 85 psi.

MIX DESIGN

If treatment of the recycled layer with emulsified asphalt is required by the contract, the Department will supply a mix design for the emulsified asphalt stabilized material based on test results from pavement and soil analysis taken to the design depth. The Department will provide the following information prior to construction:

1. Percent of emulsified asphalt to be used.
2. Quantity of lime or cement to be added.
3. Optimum moisture content for proper compaction.
4. Additional aggregate (if required).

After a test strip has been completed or as the work progresses, it may be necessary for the Resident to make necessary adjustments to the mix design. Changes to compensation will be in accordance with the Mix Design Special Provision.

CONSTRUCTION REQUIREMENTS

307.06 Pulverizing The entire depth of existing pavement shall be pulverized together with 1 inch or more of the underlying gravel into a homogenous mass. All pulverizing shall be done with equipment that will provide a homogenous mass of pulverized material, processed in-place, which will pass a 2 inch square mesh sieve.

307.07 Weather Limitations Full depth recycled work shall be performed when;

- A. Recycling operations will be allowed between May 15th and September 15th inclusive in Zone 1 - Areas north of US Route 2 from Gilead to Bangor and north of Route 9 from Bangor to Calais. Recycling will be allowed between May 1st and September 30th inclusive in Zone 2 - Areas south of Zone 1 including the US Route 2 and Route 9 boundaries.
- B. The atmospheric temperature, as determined by an approved thermometer placed in the shade at the recycling location, is 50°F and rising.
- C. When there is no standing water on the surface.
- D. During generally dry conditions, or when weather conditions are such that proper pulverizing, mixing, grading, finishing and curing can be obtained using proper procedures, and when compaction can be accomplished as determined by the Resident.
- E. When the surface is not frozen and when overnight temperatures are expected to be above 32°F.
- F. Wind conditions are such that the spreading of lime or cement on the roadway ahead of the recycling machine will not adversely affect the operation.

307.08 Surface Tolerance The complete surface of the Full Depth Recycled course shall be shaped and maintained to a tolerance, above or below the required cross sectional shape, of $\frac{3}{8}$ inch.

307.09 Full Depth Recycling Procedure New aggregate or recycled material meeting the requirements of Section 307.021 - New Aggregate and Additional Recycled Material, shall be added as necessary to restore cross-slope and/or grade before pulverizing. Locations will be shown on the plans or described in the construction notes. The Resident may add other locations while construction of the project is in progress. The Contractor will use recycled material to the extent it is available, in lieu of new aggregate. The material shall then be pulverized, processed, and blended into a homogeneous mass passing a 2 inch square mesh sieve. Material found not pulverized down to a 2 inch size will be required to be reprocessed by the recycler with successive passes until approved by the Resident.

Should the Contractor be required to add new aggregate or recycled material to restore cross-slope and/or grade after the initial pulverizing process, those areas will require re-processing to blend into a homogenous mass passing a 2 in square mesh sieve.

Sufficient water shall be added during the recycling process to maintain optimum moisture for compaction.

The resultant material from the initial pulverizing processes shall be graded and compacted to the cross-slope and profile shown on the plans or as directed by the Resident. The Contractor will also be responsible for re-establishing the existing profile grade. The completed surface of the full depth recycled course shall be shaped and maintained to a tolerance, above or below the required cross sectional shape, of $\frac{3}{8}$ inch. Areas not meeting this tolerance will be repaired as described in Section 307.091. The initial pulverizing process density requirements will be the same as Section 307.101 unless otherwise directed by the Resident.

Additives, if required, shall be introduced following completion of the initial pulverizing and blending process. Emulsified asphalt stabilizer shall be incorporated into the top of the processed material as specified in section 307.04 to the depth specified in the contract by use of the liquid mixer unit or a distributor, at the rate specified in the mix design. The emulsified asphalt shall then be uniformly blended into a homogeneous mass until an apparent uniform distribution has occurred. The rate of application may be adjusted as necessary by the Resident. Cement or lime shall be introduced as described in section 307.041. The resultant material shall be graded and compacted to the cross-slope and profile shown on the plans or as directed by the Resident. The Contractor will also be responsible for re-establishing the existing profile grade.

After final compaction, the roadway surface shall be treated with a light application of water, and rolled with pneumatic-tired rollers to create a close-knit texture. The finished layer shall be free from:

- A. Surface laminations.
- B. Segregation of fine and coarse aggregate.
- C. Corrugations, centerline differential, potholes, or any other defects that may adversely affect the performance of the layer, or any layers to be placed upon it.

The Contractor shall protect and maintain the recycled layer until a lift of pavement is applied. Any damage or defects in the layer shall be repaired immediately. An even and uniform surface shall be maintained. The recycled surface shall be swept prior to hot mix asphalt overlay placement.

307.091 Repairs Repairs and maintenance of the recycled layers, resulting from damage caused by traffic, weather or environmental conditions, or resulting from damage caused by the Contractor's operations or equipment, shall be completed at no additional cost to the Department.

For recycled layers stabilized with emulsified asphalt, low areas will be repaired using a hot mix asphalt shim. Areas up to 1 inch high can be repaired by milling or shimming with hot mix asphalt. Areas greater than 1 inch high will be repaired using a hot mix asphalt shim. All repair work will be done with the Resident's approval at the Contractor's expense.

TESTING REQUIREMENTS

307.10 Quality Control The Contractor shall operate in accordance with the approved Quality Control Plan (QCP) to assure a product meeting the contract requirements. The QCP shall

meet the requirements of Section 106.4 - Quality Control and this Section. The Contractor shall not begin recycling operations until the Department approves the QCP in writing. Prior to performing any recycling process, the Department and the Contractor shall hold a Pre-recycle conference to discuss the recycling schedule, type and amount of equipment to be used, sequence of operations, and traffic control. A copy of the QC random numbers to be used on the project shall be provided to the Resident. All field supervisors including the responsible onsite recycling process supervisor shall attend this meeting.

The QCP shall address any items that affect the quality of the Recycling Process including, but not limited to, the following:

- A. Sources for all materials, including New Aggregate and Additional Recycled Material.
- B. Make and type of rollers including weight, weight per inch of steel wheels, and average contact pressure for pneumatic tired rollers.
- C. Testing Plan.
- D. Recycling operations including recycling speed, methods to ensure that segregation is minimized, grading and compacting operations.
- E. Methods for protecting the finished product from damage and procedures for any necessary corrective action.
- F. Method of grade checks.
- G. Examples of Quality Control forms.
- H. Name, responsibilities, and qualifications of the Responsible onsite Recycling Supervisor experienced and knowledgeable with the process.
- I. A note that all testing will be done in accordance with AASHTO and MDOT/ACM procedures.

The Project Superintendent shall be named in the QCP, and the responsibilities for successful implementation of the QCP shall be outlined.

The Contractor shall sample, test, and evaluate the full depth reclamation process in accordance with the following minimum frequencies:

MINIMUM QUALITY CONTROL FREQUENCIES

Test or Action	Frequency	Test Method
Density	1 per 1000 feet / lane	AASHTO T 310
Air Temperature	4 per day at even intervals	
Surface Temperature	At the beginning and end of each days operation	
Yield of all materials (Daily yield, yield since last test, and total project yield.)	1 per 1000 ft/lane	

The Department may view any QC test and request a QC test at any time. The Contractor shall submit all QC test reports and summaries in writing, signed by the appropriate technician, to the Department's onsite representative by 1:00 P.M. on the next working day, except when otherwise

noted in the QCP due to local restrictions. The Contractor shall make all test results, including randomly sampled densities, available to the Department onsite.

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

- A. The Contractor fails to follow the approved QCP.
- B. The Contractor fails to achieve 98 percent density after corrective action has been taken.
- C. The finished product is visually defective, as determined by the Resident.
- D. The computed yield differs from the mix design by 10 percent or more.

Recycling operations shall not resume until the Department approves the corrective action to be taken.

307.101 Test Strip The contractor shall assemble all items of equipment for the recycling operation on the first day of the recycling work. The Contractor shall construct a test strip for the project at a location approved by the Resident. The Responsible onsite Recycling Supervisor will work with Department personnel to determine the suitability of the mixed material, moisture control within the mixed material, and compaction and surface finish. The test strip section is required to:

- A. Demonstrate that the equipment and processes can produce recycled layers to meet the requirements specified in these special provisions.
- B. Determine the effect on the gradation of the recycled material by varying the forward speed of the recycling machine and the rotation rate of the milling drum.

- C. Determine the optimum moisture necessary to achieve proper compaction of the recycled layer.
- D. Determine the sequence and manner of rolling necessary to obtain the compaction requirements and establish a target density. The Contractor and the Department will both conduct testing with their respective gauges at this time.

The test strip shall be at least 300 feet in length of a full lane-width (or a half-road width). Full recycling production will not start until a passing test strip has been accomplished. If a test strip fails to meet the requirements of this specification, the Contractor will be required to repair or replace the test strip to the satisfaction of the Resident. Any repairs, replacement, or duplication of the test strip will be at the Contractor's expense.

After the test strip has been pulverized, and the roadway brought to proper shape, the Contractor shall add water until it is determined that optimum moisture has been obtained. The test strip shall then be rolled using the specified compaction equipment as directed until the density readings show an increase in dry density of less than 1 pcf for the final four roller passes of each roller. The Contractor and Department will each determine a target density using their respective gauges by performing several additional density tests and averaging them. The average of these tests will be used as the target density of the recycled material for QC and Acceptance purposes.

Following completion of the test strip, compaction of the material shall continue until a density of not less than 98 percent of the test strip target density has been achieved for the full width and depth of the layer. During the construction and compaction of the Full Depth Recycled base, should three consecutive Acceptance test results for density fail to meet a minimum of 95 percent of the target density, or exceed 102 percent of target density, a new test strip shall be constructed.

ACCEPTANCE TEST FREQUENCY

Property	Frequency	Test Method
In-place Density	1 per 2000 ft / lane	AASHTO T 310

307.102 Curing. No new pavement shall be placed on the full depth recycled pavement until curing has reduced the moisture content to 1 percent or less by total weight of the mixture, or a curing period of 4 days has elapsed, whichever comes first.

307.11 Method of Measurement Full Depth Recycled Pavement (Untreated or Treated with Emulsified Asphalt Stabilizer) will be measured by the square yard.

307.12 Basis of Payment The accepted quantity of Full Depth Recycled Asphalt Pavement (Untreated or Treated with Emulsified Asphalt Stabilizer) will be paid for at the contract unit price per square yard, complete in-place which price will be full compensation for furnishing all equipment, materials and labor for pulverizing, blending, placing, grading, compacting, and for all incidentals necessary to complete the work.

The addition of materials to restore profile grade and/or cross-slope in areas shown on the plans or described in the construction notes will be paid separately under designated pay items within the contract. No additional payment will be made for materials salvaged from the project.

Payments will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
307.331 Full Depth Recycled Pavement (Untreated)	Square Yard
307.332 Full Depth Recycled Pavement (with Emulsified Asphalt Stabilizer) 5 in. depth	Square Yard
307.333 Full Depth Recycled Pavement (with Emulsified Asphalt Stabilizer) 6 in. depth	Square Yard

SECTION 411

UNTREATED AGGREGATE SURFACE COURSE

411.02 – Aggregate Add the following to the end of the first sentence: “- Type A”

SECTION 501

FOUNDATION PILES

501.047 Splicing Piles Remove subsection 501.047 d 3, which states “Written welding procedures do not need to be submitted”, in its entirety.

501.05 – Method of Measurement

- b. **Piles Furnished** – After the second sentence, add the sentence “**Measurement will not include any pile tips**”.
- c. **Piles in Place** – Add the sentence to the end of the second paragraph, “**Measurement will include the pile tips**”.
- d. **Pile Tips** – Add the words “**on the Pile**” to the end of the sentence.

SECTION 502 **STRUCTURAL CONCRETE**

502.05 Composition and Proportioning

Replace Table 1 with

TABLE 1

Concrete CLASS	Minimum Compressive Strength (PSI)	Permeability as indicated by Surface Resistivity (KOhm-cm)	Entrained Air (%)		Notes
			LSL	USL	
S	3,000	N/A	N/A	N/A	4,5
A	4,000	14	6.0	9.0	1,4,5
P	-----	-----	5.5	7.5	1,2,3,4
LP	5,000	17	6.0	9.0	1,4,5
Fill	3,000	N/A	6.0	9.0	4,5

In the list of information submitted by the contractor for a mix design:

Item J Replace “Target Coulomb Value.” with “Target KOhm-cm Value.”

Note #1 - Remove, “...**Standard Specification Section 711.05, Protective Coating for Concrete Surfaces, and per the manufacturer’s recommendations, at no additional cost to the Department.**” and replace with, “...**Standard Specification Section 515, Protective Coating for Concrete Surfaces, at no additional cost to the Department.**”

502.1703 Acceptance Methods A and B

In the paragraph that starts with “The Department will take Acceptance...” Remove the word chloride from chloride permeability in the last sentence.

Replace the paragraph starting with “Rapid Chloride Permeability specimens...” With the following:

“Surface Resistivity specimens will be tested by the Department in accordance with AASHTO TP-95 at an age $\geq$ 56 days. Four 4 inch x 8 inch cylinders will be cast per subplot placed. The average of three concrete specimens per subplot will constitute a test result and this average will be used to determine the permeability for pay adjustment computations.”

502.1706 Acceptance Method C

Remove in its entirety and Replace with:

502.1706 Acceptance Method C The Department will determine the acceptability of the concrete through Acceptance testing. Acceptance tests will include compressive strength, air content and permeability. Method C concrete not meeting the requirements listed in Table 1 shall be removed and replaced at no cost to the Department. At the Department's sole discretion, material not meeting requirements may be left in place and paid for at a reduced price as described in Section 502.195.

502.1707 Resolution of Disputed Acceptance Test Results

Section B

Remove "Rapid Chloride" from the section heading.

In paragraph 4 replace T-277 with TP-95

502.192 Pay Adjustment for Chloride Permeability

Remove "Chloride" from the heading and from the first sentence.

Replace the sentence that starts with "values greater than..." and replace with "values less than 10 KOhms-cm for Class A concrete or 11 KOhms-cm for Class LP concrete shall be subject to rejection and replacement, at no additional cost to the Department."

502.194 Pay Adjustments for Compressive Strength, Chloride Permeability and Air Content, Methods A and B

Remove the word "Chloride" from the section heading and from the equation for CPF.

502.195 Pay Adjustment Method C

In Table 6: Method C Pay Reductions (page 5-53)

Under "Entrained Air" for "Class Fill", in the first line, change from "< 4.0 (Removal)" to "< **4.5 (Removal)**"

In Table 6: Method C PAY REDUCTIONS, revise the Chloride Permeability section by removing it in its entirety and replacing it with:

Surface Resistivity {Permeability in Kohm-cms and Pay Reduction per CY}			
15-16 (\$50)	13 (\$25)	N/A	N/A
13-14 (\$75)	12(\$50)	N/A	N/A
12 (\$100)	11 (\$75)	N/A	N/A
11 (\$125)	10 (\$100)	N/A	N/A
< 11 (Removal)	< 10 (Removal)	N/A	N/A

SECTION 503 **REINFORCING STEEL**

503.06 Placing and Fastening Revise this Subsection by removing, in its entirety, the paragraph which begins, “Stainless steel reinforcement shall not be tied to any other type of reinforcement.....”

SECTION 504 **STRUCTURAL STEEL**

504.06 Inspection Revise this section by removing the last sentence in the first paragraph which reads “Make the results of all measurements and testing available to the QAI.” And replace with **“Provide a copy of all measurements and testing to the QAI.”**

504.08 Rejections Amend this section by adding the following sentences to the end of the 1st paragraph: **“Structural Defects: Repair structural defects only with the approval of the Fabrication Engineer. Submit a nonconformance report (NCR) to the Fabrication Engineer with a proposed repair procedure. Do not perform structural repairs without an NCR that has been reviewed by the Fabrication Engineer. Give the QAI adequate notice prior to beginning structural repairs.”**

504.13 Unpainted Steel Revise this section by removing the third sentence which reads “Clean steel that is abrasive-blast cleaned prior to fabrication in accordance with SSPC-SP 1 Solvent Cleaning after fabrication is complete.” And replace it with: **“Clean steel that is abrasive cleaned prior to fabrication in accordance with SSPC-SP 6 shall be cleaned in accordance with SSPC-SP 1 Solvent Cleaning after fabrication is complete.”**

504.26 Welding Remove the second paragraph beginning with “The range of heat....” in its entirety.

504.29 Welding ASTM A 709 HPS 70W Steel. Remove the third paragraph beginning with “Make Weld runoff tabs...” in its entirety.

504.55 Field Welding Revise the first paragraph by replacing the word “Resident” with **“Fabrication Engineer”**.

504.60 Holes for Base Plates Revise this section by removing the second sentence and replacing it with **“The roughness shall not exceed condition of AWS C4.1-77, Sample 4.”**

504.64 Non Destructive Testing-Ancillary Bridge Products and Support Structures Revise the first sentence under number 1 by adding **“fillet or partial penetration welds on”** between the words “of” and “each” so the first sentence reads “Examine ten percent of fillet or partial penetration welds on each production lot using Magnetic Particle (MT) inspection”.

SECTION 506

SHOP APPLIED PROTECTIVE COATING - STEEL

Revise this section by removing the subsection THERMAL SPRAY COATING entirely and replace with: THERMAL SPRAY COATING

506.30 Description This work shall consist of surface preparation and application of Thermal Spray Coatings (TSC) in accordance with the Plans and this Specification. Application of TSC to steel substrate shall be done in accordance with requirements, recommendations and appendices of the current Joint Standard *NACE NO. 12/AWS C2.23M/SSPC-CS 23.00, Specification for the Application of Thermal Spray Coatings (Metallizing) of Aluminum, Zinc, and Their Alloys and Composites for the Corrosion Protection of Steel* (The Standard) and this Specification.

The applicator shall have a minimum of five years of experience and shall provide copies of application procedures, operator qualifications, QC Manuals and repair procedures.

506.31 Submittals Submit an application procedure and QC Plan for review by the Department prior to beginning work. Submit a certified analysis of the feedstock to the Department. Submit sample copies of QC records for review. Submit copies of applicator qualifications, job history, etc. Provide the name and qualifications of the QCI.

506.32 Surface Preparation Prior to abrasive blast cleaning, round all corners exposed in the assembled product to approximately a 3/32 inch radius. A series of tangents to the approximate radius will be considered acceptable. Remove hardened condition on thermal cut surfaces. Abrasive blast clean all surfaces to be coated in accordance with The Standard and *SSPC-SP 5, White Metal Blast Cleaning* (SP 5). Use SSPC-VIS. 1 as a visual standard to determine acceptable cleanliness. Inspect the substrate immediately before spray application.

The anchor profile shall be per The Standard (minimum 2.5 mils). Measure and record the anchor profile in accordance with *ASTM D4417 Method B or C (Replica Tape)* or both on each plane to be sprayed or at 120 ° intervals on pipe or tube. Measure at the frequency in The Standard. Angular blast media shall conform with The Standard. If the anchor profile fails to meet the minimum required profile, re-blast the substrate until the required anchor profile is achieved.

If compressed air is used for abrasive blast cleaning, perform a blotter test in accordance with *ASTM D4285* at the beginning of each shift. Empty moisture traps at the beginning of each shift and at any time thereafter when moisture appears to be present on the substrate. Notify the QAI prior to performing the test in order that the QAI can witness the blotter test.

506.33 TSC Requirements The coating thickness shall be a minimum of 14 mils. The DFT on faying surfaces shall not exceed the thickness tested for Class B slip coefficient rating. The TSC shall have a minimum tensile bond per The Standard. Test the tensile bond in accordance with *ASTM D4541*. The frequency of testing shall be per The Standard. The test

location will be as directed by the QAI. The specified tensile force shall be applied to the TSC and removed. If the test does not reveal a failure of the TSC, the tensile bond shall be considered acceptable. Repair or recoat unacceptable work. Tensile testing may be performed on witness panels coated by each technician on each shift TSC is applied; notify the QAI so witness panel coating may be observed.

Perform a bend test as described The Standard, at the beginning of each shift. If the bend test fails, take corrective action and perform another test. After performing the bend test successfully a number of times, the Fabrication Engineer may reduce the frequency of testing. Document the results of the tensile bond test and bend test and provide the results to the Department. Satisfactory bend test results with 7-12 mils thickness will be acceptable.

The TSC shall have a uniform appearance, free from blistering, cracks, loose particles, or exposed steel substrate when examined with 10-X magnification.

506.34 TSC Application Record the batch and lot numbers of the consumables. Measure the environmental conditions in the immediate vicinity of the piece(s) being coated during the coating operation and during the entire cure period for intermediate and top coat. Provide two data loggers capable of measuring ambient humidity and temperature. The data loggers shall come with software that can download the data onto a computer. Print out the data and provide a copy to the QAI for review prior to applying the subsequent coat of paint. Place the data loggers in the immediate vicinity of the coating operation during the entire application and curing cycle. The data will be used to determine that the cure/recoat time requirements for each coat have been met. Failure to comply will result in the coating being cured for the maximum time necessary to assure adequate cure as determined by the Fabrication Engineer.

506.35 Seal Coat and Top Coat Application (Paint) Apply a wash primer and/or seal coat of 2 to 3 mils thickness. The seal coat shall be compatible with an epoxy intermediate coat and a polyurethane top coat from the NEPCOAT QPL. Provide certification of compatibility between the seal coat and intermediate coat from the intermediate coat/top coat manufacturer. Top flanges of beams requiring shear connectors shall receive a seal coat only.

506.36 Materials Provide materials in accordance with 506.11.

506.37 Mixing and Application Mix and apply in accordance with 506.14.

506.38 Dry Film Thickness Measure and record the DFT in accordance with 506.15.

506.39 Touch-up and Repairs Repair damage to TSC by re-blasting the damaged area and re-applying TSC in accordance with this Specification. Perform touch-up and repairs to paint in accordance with 506.16.

SECTION 507 **RAILINGS**

507.07 Aluminum Bridge Railing Amend the paragraph beginning with “Welding shall be done in conformance...” by adding after “Aluminum D1.2” the words “(AWS D1.2)” . Add the following as a new paragraph after this paragraph:

“All welds shall be inspected and conform with AWS D1.2, Clause 5, Inspection. 100% of welds shall be visually examined (VT). In addition to VT, 10% of all partial joint penetration (PJP) and fillet welds shall be dye penetrant tested (PT); locations to be PT examined will be designated by the QAI. 25% of complete joint penetration (CJP) welds shall be either, ultrasonic tested (UT) or PT based on the thinner material in the welded joint; joints with thinner material thicknesses less than 0.25 inch shall be PT examined and joints with thinner material thickness equal or greater than 0.25 inch shall be UT examined. Locations to be UT examined will be designated by the QAI. Extent of testing shall conform with AWS D1.2, Clause 5.”

SECTION 510 **SPECIAL DETOURS**

510.032 Geometric and Approach Design a. Horizontal alignment
The third paragraph of this section is revised to read as follows:

“The roadway width shall be increased on curved portions of the Special Detour to account for the off tracking characteristics of WB-62 vehicle in accordance with the AASHTO publication A Policy On Geometric Design of Highways and Streets (the Green Book), chapter 3 table entitled Design Widths of Pavements for Turning Roadways.”

SECTION 527 **ENERGY ABSORBING UNIT**

527.02 Materials This section is revised to read as follows.

527.02 Materials Work Zone Crash Cushions must comply with NCHRP Report 350. Work Zone Crash Cushions shall be selected from MaineDOT’s Qualified Products List of Crash Cushions / Impact Attenuators, or an approved equal.

SECTION 534 **PRECAST STRUCTURAL CONCRETE**

534.14 Process Control Test Cylinders
Revise this subsection to read:

“534.14 Acceptance and Quality Control Testing of Concrete Refer to Section 712.061.”

534.20 Installation of Precast Units revise this section by removing the first two paragraphs and replacing them with:

534.20 Installation of Precast Units When footings are required, install the precast units on concrete footings that have reached a compressive strength of at least 3,000 psi. Construct the completed footing surface to the lines and grades shown on the Plans. When checked with a 10 foot straightedge, the surface shall not vary more than one-quarter inch in 10 feet. The footing keyway shall be filled with a Department-approved non-shrink flowable cementitious grout with a design compressive strength of at least 5,000 psi.

Three sided frame and box culvert joints shall be sealed with a Department-approved flexible joint sealant in accordance ASTM C990. Joints shall be closed tight. Culvert units shall be equipped with joint closure mechanisms to draw units together and close joints to the required opening.

SECTION 535

PRECAST, PRESTRESSED CONCRETE SUPERSTRUCTURE

Section 535.08 – Quality Assurance

Revise the second paragraph to read:

“The QAI will perform acceptance sampling and testing and will witness or review documentation, workmanship and testing to assure the Work is being performed in accordance with the Contract Documents.”

Section 535.15 - Process Control Test Cylinders

Revise the first paragraph to read:

“535.15 Acceptance and Quality Control Testing of Concrete Acceptance of structural precast/prestressed units, for each day’s production, will be determined by the Department, based on compliance with this specification and satisfactory concrete testing results. At least once per week, the QAI will make 2 concrete cylinders (6 cylinders when the Contract includes permeability requirements) for use by the Department; cylinders shall be standard cured in accordance with AASHTO T23 (ASTM C31). The QAI will perform entrained air content and slump flow testing, determine water-cement ratio and determine temperature of the sampled concrete at the time of cylinder casting. All testing equipment required by the QAI to perform this testing shall be provided in accordance with Standard Specification Section 502.041, Testing Equipment. In addition, the Contractor shall provide a slump cone meeting the requirements of AASHTO T 119. Providing and maintaining testing and curing equipment shall be considered incidental to the work and no additional payment will be made.”

Insert the following as the second paragraph of Section 535.15:

“Quality Control concrete test cylinders shall be made for each day’s cast and each form bed used. Cylinders tested to determine strand release strength and design strength shall be field cured in accordance with AASHTO T23 (ASTM C31). 28 day cylinders shall be standard cured. Record unit identification, entrained air content, water-cement ratio, slump flow and temperature of the sampled concrete at the time of cylinder casting.”

SECTION 603

PIPE CULVERTS AND STORM DRAINS

603.02 Materials Amend this section by adding the following two paragraphs to the end:

“Reinforced Concrete Pipe (RCP) with inside diameters of 10 ft. (120in) or greater shall be designed, fabricated and accepted in accordance with Section 534- Precast Structural Concrete.

All Pipes or Culverts with inside diameters of 10 ft. (120in) or greater shall be designed using the current version of the AASHTO LRFD Bridge Design Specifications with Maine Modified HL-93 for Strength 1.”

SECTION 604

MANHOLES, INLETS CATCH BASINS

604.04 Adjusting Catch Basins and Manholes,

Add the following paragraph to the end of 604.04 b:

The Department will allow the use of metal ring inserts set into the manhole top frame or composite risers placed beneath the manhole frame to adjust manhole slope and grade for paving projects. The use of metal ring inserts shall be in accordance with 604.04 d. Ring Insert Requirements. The use of composite risers shall be in accordance with 604.04 e. Composite Riser Requirements.

Add the following paragraph after the first paragraph of 604.04 c:

The Department will allow the use of metal ring inserts set into the manhole top frame or composite risers placed beneath the manhole frame to adjust manhole slope and grade for paving projects. The use of metal ring inserts shall be in accordance with 604.04 d. Ring Insert Requirements. The use of composite risers shall be in accordance with 604.04 e. Composite Riser Requirements.

Add the following sections to 604.04:

d. Ring Insert Requirements Ring inserts to adjust manhole top frame slope and grade will be allowed in accordance with the following requirements:

1) Materials

- i. All ring inserts must be made of iron. *Multiple ring inserts will not be allowed.* The single ring insert may be any height up to a maximum of 2 inches tall.**

- ii. Ring inserts shall not be welded to the manhole frame to prevent brittle failure of the cast iron frame.
 - iii. Ring inserts shall be fastened to the manhole frame using liquid steel-filled epoxy such as Loctite Fixmaster Steel Liquid or equivalent. The epoxy shall be installed in accordance with the manufacturer's recommendations.
- 2) Where Ring Inserts May/May Not Be Used
- i. MaineDOT will allow the use of a single manhole ring insert to raise manholes on state and state-aid highways.
 - ii. *Manhole ring inserts may not be used along state and state-aid highway sections where the speed limit is 40 miles per hour or more.* The standard brick and mortar or flat composite risers beneath the manhole frame must be used at these locations.

3) Construction Requirements For The Use of Iron Manhole Ring Inserts

- i. Wherever iron ring inserts are used to raise manhole top elevations, the rings shall be fastened to the existing manhole frame using liquid steel-filled epoxy. The liquid steel-filled epoxy shall be placed evenly around the entire manhole frame before placing the ring insert. *Unbonded ring inserts will not be allowed.* If the manufacturer's recommended construction practices result in loose or unacceptable manhole cover restraint, standard brick and mortar or flat composite risers beneath the manhole frame must be used at these locations.

e. Composite Riser Requirements Flat or beveled, doughnut-shaped, composite risers placed beneath the manhole frame to adjust slope and grade are allowed. The composite riser shall be fastened to both the top of the concrete cone and bottom of the manhole frame with the manufacturer's recommended epoxy. Composite risers may be used at all locations on state and state-aid highways under any legal speed limit without restriction.

SECTION 606

GUARDRAIL

606.09 Basis of Payment Amend the first sentence of the eighth paragraph of this subsection by removing the word "meter" and replace it with "linear foot".

SECTION 608 **SIDEWALKS**

608.021 Sidewalk Materials Revise this section by removing the second paragraph which begins with “Portland cement concrete shall...” in its entirety and replace with **“Portland cement concrete shall be Class A and meet the requirements of Section 502, Structural Concrete.”**

SECTION 609 **CURB**

609.03 Vertical Stone Curb, Terminal Section and Transition Sections and Portland Cement Concrete Curb, Terminal Sections and Transition Sections

Amend this section by adding the following paragraph to the end of it:

“The Contractor may elect to substitute concrete to backfill Stone Curbing or Stone Edging at their option. If the concrete backfill option is elected, the following is added to Standard Specification 609 – Curb”

609.02 Materials Amend this section by adding the following to it:

Portland cement and Portland Pozzolan Cement	701.01
Water	701.02
Fine Aggregate for Concrete	703.01
Coarse Aggregate for Concrete	703.02

The Contractor shall submit a concrete mix design for the Portland Cement Concrete to the Resident, with a minimum designed compressive strength of 3000 psi Class Fill concrete.

609.10 Basis of Payment Revise by changing the fifth paragraph which begins with “There will be no separate payment...” this section by removing the word “cement” and replacing it with **“concrete fill, mortar”**.

SECTION 619 **MULCH**

619.07 Basis of Payment Amend this section by adding the words **“; Bark Mulch and Erosion Control Mix will be paid for by the Cubic Yard;”** into the first sentence so that it reads:

“The accepted areas mulched will be paid for at the contract price per unit; Bark Mulch and Erosion Control Mix will be paid for by the Cubic Yard; which shall be full compensation for furnishing and spreading the hay or straw and mulch binder, cellulose fiber mulch, bark mulch or erosion control mix.

Revise the second sentence by removing **“ for pay item 619.1201”** So that it reads:

“When Mulch is measured in Bales, each bale will be paid for at 60% of the contract price per Unit”.

Revise this section by removing all pay items and replace them with the following:

619.12 Mulch	Unit
619.13 Bark Mulch	Cubic Yard
619.14 Erosion Control Mix	Cubic Yard

SECTION 621 **LANDSCAPING**

621.0002 Materials - General

In the list of items change “Organic Humus” to “**Humus**”.

621.0019 Plant Pits and Beds

c Class A Planting

In the third paragraph beginning with “ The plant pit...” change “½ inch” to “**1 inch**”

SECTION 626 **FOUNDATIONS, CONDUIT AND JUNCTION BOXES FOR HIGHWAY** **SIGNING, LIGHTING AND SIGNALS**

626.02 General Amend the Material list by adding the following to the list:

Gravel Borrow	703.20

Revise the Material List by removing:

Prewired Conduit	715.04
Metallic Junction and Fuse Box	715.05

626.021 Miscellaneous Material Amend this section by adding the following to the end of it:

“All concrete for concrete encasement of conduit shall be Fill Class concrete in accordance with the applicable requirements of Section 502 – Structural Concrete.”

Amend the third paragraph that begins with “If grouting is necessary...” by adding “**included on the Qualified Product List and**” after the word “material”.

626.03 General Amend this section by adding the following section to the end of it

“626.0301 Electrical Supply Lines and Service Connections **The following requirements shall apply to Electric Supply Lines and Service Connections feeding traffic signalization equipment control boxes and lighting breaker boxes.**

Whenever possible, the meter and breaker panel feeding traffic signal control boxes or lighting control boxes shall be constructed within 30 feet of the service drop pole.

All underground service connections that are constructed in trenches and carrying Secondary Utility Power to a MaineDOT meter and breaker panel, or, directly to MaineDOT traffic signalization control cabinets or lighting breaker boxes shall be in Rigid Metal Conduit or concrete encased PVC conduit.

Where trenchless technologies are employed to install the service connection conduit, Schedule 120 PVC conduit shall be used for the trenchless bore section of conduit. In addition, concrete encasement shall be used for any PVC conduit placed in trench sections and carrying Secondary Utility Power more than 10 feet before or after the limits of the trenchless bore conduit.

The construction practices described above shall be used for service connections up to a maximum of 600 feet. There may be rare exceptional cases where the service connection must exceed 600 feet. In these cases, the power companies may require primary power be run over 600 feet for the purpose of power consumption and dependable service. These cases will be evaluated on a case-by-case basis for alternate power feed methods and/or the need for steel or concrete encased conduit.”

626.031 Conduit Revise this section by removing the second paragraph which begins with “Trenches for conduits...” and replace it with the following:

“Trenches for conduits shall be excavated to a width that will permit proper installation of the conduit and to a minimum depth of 3 feet below finish grade as measured from the top of the conduit. If deeper depths are required, the conduit shall be installed at the depth shown on the plans or as directed. Conduit shall not interfere with poles, guardrail posts, sign foundations or other objects.”

Amend the third paragraph which begins with “All junction or pull boxes...” by adding **“concrete, in accordance with the applicable requirements of Section 502 – Structural Concrete,”** after Class LP.

Revise the fifth paragraph which begins with “After the trench has been...” by adding the following to the end of it:

“Where concrete encasement is required around the conduit, backfilling with approved material may begin adjacent to and above the encased conduit no sooner than 24 hours after concrete placement.”

Remove the following:

“All underground conduit shall be placed to at least the depth shown on the plans and shall not interfere with poles, guardrail posts, sign foundations or other objects.”

Revise the paragraph beginning with “All conduit ends shall...” by removing “Prewired Conduit shall be sealed during construction to prevent entry of moisture, dirt, or rocks.”

626.033 Polyvinylchloride Conduit Installation Amend the first paragraph of this section which begins with “Polyvinylchloride conduit and High Density...” by adding the following to the end of it:

“In addition, PVC conduit used for Electrical Supply Lines and Services constructed as underground service connections in trenches and carrying Secondary Utility Power to a MaineDOT meter and breaker panel, or, directly to MaineDOT traffic signalization control cabinets or lighting breaker boxes shall be concrete encased. When trenchless technologies are used to install PVC conduit, concrete encasement shall not be required.

Concrete encasement shall consist of a minimum of 4 inches of concrete above, below and on both sides of the conduit that shall have a minimum compressive strength of 3000 psi and a maximum aggregate size of 1-inch (Fill Class concrete). The concrete encasement may be backfilled no sooner than 24 hours after placement. “

“NON-METALLIC UNDER PAVEMENT CONDUIT INSTALLATION

Where noted on the drawings, non-metallic under pavement conduit of schedule 80 or greater rating shall be provided to facilitate conduit crossing of the existing highway and ramps without disruption to the existing highway and ramp pavement surface. The non-metallic under pavement conduit shall be hydraulically jacked or directional bored below the highway and ramp at a depth of not less than (36 inches). Under pavement conduit shall extend for a distance of (10 feet) beyond the highway or ramp edge at each side.”

Amend the sixth paragraph which begins with “Where PVC conduit runs are...” by changing “3 inch minimum bedding” to **“6 inch minimum bedding”**.

626.034 Concrete Foundations

Revise this section by removing the third paragraph which begins with “In the absence of Design Requirements...” in its entirety and replace with the following:

“In the absence of design requirements being provided on the plans, the Contractor shall prepare and submit the foundation design(s) to the Department for review. The Contractor may propose an alternate shallow spread footing or drilled shaft configuration/design than that set forth on the drawings. Design shall be in accordance with AASHTO LRFD Specifications for Structural Supports for Highway Sign, Luminaires and Traffic Signals, current edition; AASHTO LRFD Bridge Design Specifications, current edition; and FHWA-NHI-10-016 Drilled Shafts, Construction Procedures and Design Methods, current edition. Where conflicting requirements occur, the more stringent requirements shall govern. In addition to other design requirements, foundation design shall account for Torsion for which a

minimum Factor of Safety equal to 1.2 shall be achieved. In evaluating axial capacity and torsional resistance in cohesionless soils, load transfer coefficient or side resistance coefficient (beta, β) will be used in accordance with Subsection 13.3.5.1 of FHWA-NHI-10-016, with beta determined in accordance with Equations 13-13 and 13-11 for silty sands to sandy silts (with varying amounts of gravel). The design criteria for the resistance of drilled shaft and spread footing foundations against overturning, sliding and bearing capacity failure shall meet the requirements of Section 4 of AASHTO LRFD Bridge Design Specifications, current edition. The structural design of foundations shall meet the requirements of AASHTO LRFD Bridge Design Specifications, current edition. The Contractor shall submit to the Department for review, three (3) copies of detailed plans and calculations of the proposed design. Design shall be prepared and sealed by a Professional Engineer licensed in the State of Maine. Construction of foundation(s) shall not commence until the Department has reviewed the foundation design.”

On Page 6-85, add the following paragraph before the paragraph beginning with “Drilled shafts shall not be...”.

“ No foundation design will be required for 18- and 24-inch diameter foundations for structures less than 30-feet tall and with no projecting arms. A foundation design prepared by a Professional Engineer licensed in accordance with the laws of the State of Maine will be required for all other foundations. Precast foundations will be permitted for 18 and 24-inch diameter foundations for structures less than 30-feet tall and with no projecting arms. Where precast foundations are permitted flowable concrete fill shall be used as backfill in the annular space, and placed from the bottom up. Construction of precast foundations shall conform to the Standard Details and all requirements of Section 712.061 except that the concrete shall have a minimum permeability of 17 kOhm-cm and the use of calcium nitrite will not be required. “

On Page 6-86, Revise the paragraph beginning with “Concrete for drilled shafts...” so that a portion of it reads as follows:

“...The Contractor shall provide temporary dewatering of excavations for foundations such that concrete is placed in the dry. Concrete for drilled shafts shall be placed in accordance with Section 502.10 as temporary casing is withdrawn to prevent debris from contaminating the foundation and to ensure concrete is cast against the surrounding soil. Concrete for drilled shafts and spread footings shall be Class LP in accordance with Section 502 - Structural Concrete. Precast foundations will not be permitted except as specified above in this Section. Backfill for spread footing foundations shall be Gravel Borrow meeting the requirements of Section 703.20 - Gravel Borrow.....”

626.05 Basis of Payment Amend this section by removing the following paragraphs:
The one which starts with “Payment will be made for the total number of linear feet of prewired conduit...”

The one which starts with “Prewired conduit within the foundations...”

Amend this subsection by adding the following paragraph and Pay Items:

“Payment will be made for the total number of linear feet of under pavement conduit actually furnished, installed and accepted at the contract price per linear foot. This price shall include the cost of: furnishing and installing the conduit; excavating; furnishing special backfilling materials, pull wire, fittings, grounding and bonding; test cleaning interiors of conduits and all materials, labor, equipment and incidentals necessary to complete the work.”

Pay Item	PayUnit
626.221 Non-metallic Conduit, Concrete Encased	Linear Foot
626.251 Non-Metallic Under pavement Conduit (Schedule 80 or greater rating)	Linear Foot

Remove the following Pay Items:

626.23 Prewired Conduit Secondary Wiring	Linear Foot
626.24 Prewired Conduit Primary Wiring	Linear Foot

SECTION 627

PAVEMENT MARKINGS

Revise this section by removing it in its entirety and replacing with the following:

627.01 Description This work shall consist of furnishing and placing reflectorized pavement lines and markings, removing pavement lines and markings, and furnishing and applying reflectorized paint to curbing in reasonably close conformity with the plans and as designated.

627.02 Materials Materials shall conform to the requirements specified in the following Sections of Division 700 - Materials.

Pavement Marking Paint	708.03
Reflectorized Plastic Pavement Marking	712.05

Temporary Bi-directional Yellow Delineators shall be Temporary Object Markers (T.O.M.) as manufactured by the Davidson Plastic Company, 18726 East Valley Highway, Kent, WA 98031 or an approved equal.

627.04 General All pavement lines and markings shall be applied in accordance with the latest edition of Manual on Uniform Traffic Control Devices.

Longitudinal lines placed on tangent roadway segments shall be straight and true. Longitudinal lines placed on curves shall be continuous smoothly curved lines consistent with the roadway alignment. All pavement markings placed shall meet the tolerance limits shown on the plans.

Unless otherwise shown on the plans, non-interstate lines shall be 4 inches wide and broken lines shall consist of alternate 10 foot painted line segments and 30 foot gaps. On controlled access divided highways and on the interstate system lines shall be 6 inches wide and broken lines shall consist of alternate 15 foot painted line segments and 25 foot gaps. Width tolerance shall be $\pm \frac{1}{4}$ inch.

Temporary pavement marking lines, defined in Special Provision Section 652, Maintenance of Traffic, Temporary Centerline, will be applied as many times as necessary to properly delineate traffic lanes for the safe passage of traffic. Bi-directional delineators may be used in place of temporary lines, except where specified otherwise in Special Provision 652 Maintenance of Traffic, Temporary Centerline. Delineators will be applied at 40 foot intervals.

In overnight lane closure areas that are not to be overlaid, temporary plastic lines or raised pavement markers shall be used through the length of the taper.

Newly painted lines, markings and curb shall be protected from traffic by the use of cones, stationary vehicles or other approved methods until the paint is dry.

627.05 Preparation of Surface Immediately before applying the pavement marking paint to the pavement or curb, the surface shall be dry and entirely free from dirt, grease, oil, or other foreign matter.

Surface preparation for application of plastic markings shall conform to the manufacturer's recommendations.

627.06 Application Prior to applying paint for final pavement lines, the Contractor shall perform a test for paint thickness by furnishing and placing a piece of smooth, clean metal with an area of at least 144 in² in the path of the striping truck. The striping truck shall be passed over the piece of metal, painting the surface as it passes, without applying beads. The result of this test will be used to determine the pressure setting and speed of the truck when applying paint to obtain the specified thickness. Additional paint thickness testing may be required on the final paint markings. The wet thickness of paint without beads on final pavement lines shall be a minimum of 16 mils.

On other final pavement markings and on curb, where the paint is applied by hand painting or spraying, application shall be in two uniform covering coats, each at least 10 mils thick. Before the second coat of paint has dried, the glass beads shall be applied by a pressure system that will force the glass beads onto the undried paint as uniformly as possible.

Glass beads shall be applied to the final and temporary pavement lines, marking and curb at a sufficient rate and in sufficient quantity to assure complete and uniform coverage of hand painted surfaces and achieve proper reflectivity.

Permanent and temporary white lines and markings shall have a minimum final reflectivity value of 250 millicandelas per square meter per lux (mcd/m²/lux) and permanent and temporary yellow lines and markings shall have a minimum final reflectivity value of 150

millicandelas per square meter per lux (mcd/m²/lux), as measured by the Department. Measurements taken to determine reflectivity shall be done within 4 weeks after final placement.

If the final reflectivity values are less than the described minimums, the Contractor shall repaint those areas not meeting required reflectivity at no cost to the Department. If the final reflectivity values are less than the described minimums after the second attempt, the Contractor will submit in writing a plan of action to meet the reflectivity minimums prior to continuing any work. Once the plan has been reviewed and approved by the Department, the Contractor shall re apply at no cost to the Department.

Temporary painted lines and markings shall be applied as specified for permanent painted lines, except that the thickness shall be a minimum of 16 mils.

Temporary pliant polymer marking material shall be used for temporary markings on the final pavement and on pavements not to be resurfaced when such pavement markings do not conform to the final pavement markings pattern.

The plastic final pavement lines and markings shall be applied in accordance with the manufacturer's recommendations by the inlay method of application.

627.07 Establishment Period Inlaid plastic pavement lines and marking material furnished and installed under this contract for final pavement markings shall still be subject to a six-month period of establishment.

The period of establishment shall commence as soon as the plastic pavement lines and markings are complete and in place and shall continue for six months. At the end of the establishment period, a minimum of 95% of the plastic pavement lines and markings shall still be in place to be acceptable.

If less than 95% of the plastic pavement lines and markings are in place after six months, the Contractor shall replace all unsatisfactory plastic pavement lines and markings on the project without additional payment. Plastic pavement lines and markings designated for replacement shall be installed according to these specifications, unless otherwise directed. Plastic pavement lines and markings replaced at the end of the six month establishment period will not be subject to a further establishment period.

627.08 Removing Lines and Markings When it is necessary to remove pavement lines and markings, it shall be done by high pressure water, grinding or other approved acceptable means. The method chosen must be capable of completely eradicating the existing line or marking without excessive damage to the pavement. Burning and the use of solvents to remove temporary markings from final pavement or from existing pavement not to be resurfaced will not be permitted.

627.09 Method of Measurement The quantity of pavement marking lines identified in the contract as a plan quantity pay item, the measurement of payment will be the number of

feet shown in the Schedule of Items. This quantity will be considered final and no adjustments will be made except when changes resulting in increases or decreases are made by the Resident.

The accepted quantity of temporary or permanent pavement marking lines when identified in the contract as a linear foot item shall be measured and paid for at the contract unit price per linear foot for the total amount applied and accepted.

Double yellow centerline, broken or solid, will be considered one line for measurement purposes. The measurement of broken lines will include the gaps when painted and will not include the gaps when plastic. Double Yellow Centerline, broken or solid shall not be paid through intersections or side roads and will be paid for the actual length of painted line.

Broken white lines will include the gaps when painted and will not include the gaps when plastic inlaid pavement lines are applied. Yellow or white solid edge lines and will not be paid through intersections or side roads and will be measured by the actual length of painted line.

Temporary pavement marking lines shall not be paid through intersections or side roads and will be measured per linear foot of actual length of painted and accepted.

Reflectorized curb will be measured or computed by the square foot of curb surface actually painted and reflectorized.

The accepted quantity of removing existing pavement markings will be measured by the square foot.

Temporary Bi-directional Yellow Delineators will be measured by each unit, complete in place, maintained, and accepted.

627.10 Basis of Payment The accepted quantity of pavement marking lines identified in the contract as a plan quantity pay item will be paid for at the contract unit price for plan quantity. No adjustment will be made to the quantity for payment, except as described 627.09 Method of Measurement

The quantity of permanent or temporary pavement marking lines identified in the contract paid by the linear foot will be measured for payment as described under section 627.09 Method of Measurement.

All other permanent pavement markings will be paid for at the contract unit price per square foot in accordance with 627.09 Method of Measurement.

If allowed by Special Provision, the Contractor may utilize Temporary Bi-Directional Yellow and White (as required) Delineators. When utilized, payment will be made as temporary pavement marking lines, measured and paid at the contract unit price per linear foot. Such payment will include as many applications as required and removal.

Payment for final plastic pavement lines and markings will be made in two parts. The first payment of 75% will be made when plastic pavement lines and markings are placed. The payment of the remaining 25% will be made at the end of the establishment period for all plastic line and pavement markings accepted.

The accepted quantity of any pavement marking lines will be paid for at the contract unit price and will include as many applications as required and removal when required.

The accepted quantity of Temporary Bi-directional Yellow Delineators will be paid for at the contract unit price.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
627.18 12 inch Solid White Pavement Marking Line	Linear Foot
627.711 White or Yellow Pavement Marking Line - Plan Quantity	Linear Foot
627.733 4" White or Yellow Painted Pavement Marking Line	Linear Foot
627.744 6" White or Yellow Painted Pavement Marking Line	Linear Foot
627.75 White or Yellow Pavement & Curb Marking	Square Foot
627.77 Removing Existing Pavement Marking	Square Foot
627.78 Temporary 4" Painted Pavement Marking Line, White or Yellow	Linear Foot
627.781 Temporary 6" Painted Pavement Marking Line, White or Yellow	Linear Foot
627.407 Reflectorized Plastic, White or Yellow Pavement Marking	Square Foot
627.4071 Reflectorized Plastic, White or Yellow Pavement Marking Line - Plan Quantity	Linear Foot
627.811 Temporary Bi-directional Yellow Delineators	Each

SECTION 634

HIGHWAY LIGHTING

Revise this section by removing this section in its entirety and replace with the following:

634.01 Description This work shall consist of furnishing and installing a highway lighting system or modifying or removing an existing highway lighting system, including the design of Light Standards, in accordance with these specifications and in reasonably close conformity with the plans.

634.02 General All material furnished by the Contractor shall be new unless otherwise specified. Substitutes for specified material may be accepted, upon approval of the Fabrication Engineer. Substitutes shall provide equal or better service. Where an existing system is to be modified, the existing material shall be removed, upgraded, or disposed of as shown on the plans or as directed.

All electrical equipment shall conform to NEMA, UL, or EIA standards, wherever applicable. In addition, all materials and workmanship shall conform to the requirements of the NEC, the local electrical Utility Company, and all local ordinances, which may apply.

634.021 Materials Materials shall meet the requirements specified in the following Section of Division 700 - Materials:

Steel Conduit	715.02
Non-metallic Conduit	715.03
Prewired Conduit	715.04
Metallic Junction and Fuse Box	715.05
Secondary Wiring	715.07
Luminaires, Lamps and Ballast	715.08
Luminaires, Lamp and Ballast for High Mast Lighting	715.09
Photo Electric Control	715.10
Service Equipment	715.11
Lowering System for High Mast Lighting	715.12
Aluminum Supports	720.01
Aluminum Mast Arm and Bracket Arm	720.02
Steel Supports	720.03
Steel Mast Arm and Bracket Arm	720.04
High Mast Light Standard	720.05
Steel H-beam Poles	720.06
Anchor Bolts	720.07
Wood Ornamental Light Standard	720.09
Wood Utility Pole	720.10
Mast Arm for Wood Utility Pole	720.11
Breakaway Devices	721.01

Transformer enclosures shall conform to NESC requirements. They shall be approximately 46 inches high, 42 inches wide and 42 inches deep. Dimensions should be verified with the electrical Utility Company before ordering. Clearances shall be provided as required by the NESC. The enclosure shall be painted inside and outside with one coat of red iron-oxide primer and a finish coat of gray baked enamel. Doors shall be furnished with padlock lugs.

The electric portable power unit shall be a heavy-duty reversing electric motor for the voltage and frequency shown on the plans and shall have a remote control.

The following are the minimum requirements for the high mast lighting lowering system:

Ball bearing motor
Grounded frame
Torque limiter
Power unit mounting frame

**Coupling to winch drive shaft
Remote control unit with cable
Cable with twist lock receptacle and plug for operator of power unit**

All bolts for mounting lighting fixtures under bridge structures shall conform to the requirements of ASTM A307. These bolts and other fastening hardware shall be hot-dipped galvanized in accordance with ASTM A153.

Screened sand for bedding and covering direct buried cables shall meet the requirements of Section 703.14, except that there shall be 0-10% passing the No. 200 sieve.

634.022 Equipment List and Drawings Unless otherwise permitted in writing, the Contractor shall submit for review a list of equipment and materials which is proposed to be furnished. The list shall include the name of manufacturer, size, and identifying number of each item and other necessary data, including detailed scale drawings, wiring diagrams of special equipment and any proposed minor deviations from the plans. If requested, the Contractor shall submit sample articles of the material proposed for use. All of the above data except sample articles, shall be submitted in duplicate. Following checking, correction, and approval, not less than two complete sets of approved drawings shall be submitted. The Department will not be liable for material purchased, labor performed, or work delayed before such review. Where electrical equipment is to be constructed as shown on the plans, the submission of detailed drawings and diagrams will not be required.

Upon completion of the work, the Contractor shall submit three complete sets of corrected plans showing all construction changes.

634.023 Miscellaneous Material Insulating tape shall be of the self-bonding type. Jacket tape shall be of the water-resisting type. Friction tape shall be rubber-impregnated, woven cotton fabric.

634.024 Light Standards The terms "conventional standard" or "conventional light standard" shall mean the assembled metal base flange, transformer base or breakaway device, metal columnar shaft, metal overhanging bracket arm and incidental hardware.

The term "high mast pole" shall mean the assembled base plate flange, metal columnar shaft, luminaire tenon, mounting and lowering device and incidental hardware. For purposes of this specification, a structure shall be considered a high mast pole if the pole height, from base plate to the center of the luminaire, exceeds 55 feet.

The design, materials and fabrication of Light Standards shall meet the requirements of the current edition of AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" and interims thereto, as noted below except as otherwise indicated within these specifications or on the plans.

Light Standards with a luminaire mounting height in excess of 55 feet (high mast pole) shall be designed using the following criteria:

- Basic wind speeds based on a 1700-year mean recurrence interval
- K_z as specified in Table C3.8.4-1 (Height and Exposure Factors)
- K_d as specified in Table 3.8.5-1 (Directionality Factors)
- G as 1.14, minimum (Gust Factor)
- C_d as specified in Table 3.8.7-1 (Wind Drag Coefficients)
- Fatigue Importance Category I with V_{mean} having a range of $9 \text{ mph} < V_{\text{mean}} \leq 11 \text{ mph}$.

Light Standards with a luminaire mounting height of 55 feet or less shall be designed using the following criteria:

- Basic wind speeds based on a 700-year mean recurrence interval
- K_z as specified in Table C3.8.4-1 (Height and Exposure Factors)
- K_d as specified in Table 3.8.5-1 (Directionality Factors)
- G as 1.14, minimum (Gust Factor)
- C_d as specified in Table 3.8.7-1 (Wind Drag Coefficients)
- Fatigue analysis is not required

For structural design purposes the luminaire mounting height for roadside installation is defined as the distance from the center of luminaire to the base plate bottom. For Light Standards mounted on structures and approaches to structures, the luminaire mounting height shall be defined and measured as the distance of the center of the luminaire to one of the following:

- a. For bridges over bodies of water Above the prevailing water level or, in the case of tidal waters, above mean high tide.
- b. For overpass structures Above the lower roadway level.
- c. For approach ramps Above the average adjacent ground level, if said ground level is more than 10 feet below the base of the light standard.

The design weight of luminaires shall be 60 pounds with an effective projected area of 2.5 ft², except that pole top-mounted luminaires shall have an effective projected area of 5.0 ft².

Light Standards mounted on a bridge structure or Light Standards fabricated with aluminum shall be equipped with an approved damping or energy-absorbing device.

Deflections of Light Standards and bracket arms shall be limited as follows:

- a. Conventional Light Standards shall be able to support a 500 pound transverse load, applied at 18 inches below the pole top with a maximum deflection of 5% of the nominal pole length. A computer simulation or detailed computation using Service I load combination (as specified in the AASHTO LRFD Specification for Structural Supports for Highway Signs, Luminaires, and Traffic Signals) establishing a maximum of 7% deflection of the nominal pole length may be used as an alternate method.**
- b. Bracket arms shall be able to support a horizontal load, perpendicular to the axial vector of the arm, of 50 pounds and a concurrent vertical load of 100 pounds, both loads applied at the luminaire tenon, without developing a measurable permanent set.**
- c. High mast Light Standards shall have a maximum deflection of 7% of the nominal pole length under full design load when equipped with four luminaires.**

Conformance to the above deflection criteria for Light Standards, bracket arms and high mast Light Standards shall be substantiated by detailed computations or computer simulation, accompanied by written methodology, or actual tests on materials produced for delivery under a Maine Department of Transportation contract.

The base plates of Light Standards shall have workable leveling nuts beneath and above them with flat washers against both nuts, when erected. The distance between the bottom of the base plate and top of the foundation shall not exceed twice the diameter of the anchor bolts. Grout, or other material, shall not be placed between the base plate and foundations.

Approval for deviations from the plans and/or specifications shall be requested in writing and shall be approved by the Fabrication Engineer before being incorporated in the manufacturer's drawings. Requests for substitution for all specified material shall be submitted in writing with full documentation (specifications, mill certifications, etc.) enabling the Department to evaluate the proposal.

A Certificate of Compliance shall be provided for all applicable materials noted in Section 634.021 – Materials, in accordance with the requirements of the General Statement of Division 700 Materials. Shop certification in accordance with Section 504.04 is required.

634.025 Conventional Light Standards After execution of the contract for conventional Light Standard(s), and before any shop work is commenced, the Contractor shall submit for approval the manufacturer's drawings of all standards and accessories proposed to be furnished and erected under this contract. The drawings shall be of sufficient detail to indicate material and/or dimensional conformance with these specifications and the plans. Each drawing shall contain a reference to the design criteria and certification that the design criteria have been met for the Light Standards, including bracket arms and associated hardware, fittings and breakaway devices, as submitted. A Professional Engineer licensed in accordance with the State of Maine regulations shall sign the certification under their official seal. The drawings shall use the same units as found in the project plans.

It is the intent of these specifications that the Contractor shall be fully responsible for the adequacy of the sizes, wall thickness, materials and connections of the Light Standards, including bracket arms and associated hardware, fittings and breakaway devices. Approval of the drawings will signify only approval of the material(s), mounting heights(s) and bracket arm length(s).

634.026 High Mast Light Standard For all high mast Light Standards, as defined in this Section, the Contractor shall submit for approval, in addition to the manufacturer's drawings, 3 sets of the design computations, including fatigue considerations consistent with AASHTO requirements. Approval of the drawings and computations will signify approval of all structurally significant details of the Light Standard and if any, the luminaire mounting and lowering device. All drawings and computations shall be signed by a Professional Engineer licensed in accordance with the State of Maine regulations. Approval will be based on the applicable provisions of Section 105.7.

The shaft shall be provided with an equipment access opening approximately 2 ft² and centered approximately 2 feet above the base. The access opening shall be reinforced to maintain the full design strength of the shaft and shall be provided with a hinged, removable, access door equipped with a vandal proof means of being locked in place. A positive means of internal grounding shall be provided inside of the access door.

All shaft sections shall be one plate thickness, except that a doubler plate may be used around the equipment access opening. The walls of polygonal shafts shall have an inside corner radius to wall thickness ratio not less than 2.

The Contractor may propose a galvanized and painted pole, in lieu of using weathering type steel. The steel shall be a base metal listed in the current edition of the AWS Structural Welding Code, D1.1. Paint color will be designated by the Fabrication Engineer. Galvanizing and surface preparation shall be in accordance with Section 504 and paint shall be a two-coat system designed for use on galvanized surfaces approved by the Engineer. The Contractor shall supply sufficient additional coating material and instructions for touchup work.

634.027 Breakaway Supports Breakaway supports, approved by the Engineer, shall be supplied for use at all locations designated as breakaway. Breakaway Support Certification of both breakaway and structural adequacy shall be provided by the Manufacturer. Design calculations or test data of production samples to support certification shall be provided. Breakaway support components shall provide the same or greater structural strength than the support post or pole utilizing the breakaway device. Breakaway couplings shall not be used in conjunction with transformer bases. Breakaway devices must include a reaction plate connecting all anchor bolts under the breakaway device. Poles containing conductors must contain a fusible breakaway device disconnecting all ungrounded conductors simultaneously

Breakaway devices are subject to the applicable provisions of Section 721 - Breakaway Devices.

634.03 General The location of the roadway lighting systems and other incidental work will be shown on the plans. They are diagrammatic only, but shall be followed as closely as actual conditions at the site and the work of other Contractors will permit. As the work progresses, the drawings may be revised or supplemented by the Resident, and the Contractor shall perform the work required by such revisions or supplements without additional compensation, except as provided in Section 109.

Work shall be scheduled to assure that each highway lighting system shall be completed and ready for operation upon completion of the corresponding section of the roadway or as specified in Special Provision 107.

Before proceeding with any work under this Contract, the Contractor shall conduct continuity and insulating tests to establish the integrity of cable runs already in place. The Contractor shall report all cable faults to the Resident. In cases faults are located while contract work is in progress and the Contractor does not report them, the Contractor will be responsible for correcting those faults without extra compensation.

634.031 Foundations Foundations for Highway Lighting shall meet the requirements of Section 626 – Foundations, Conduit, and Junction Boxes for Highway Lighting, Traffic Signals, and Highway Lighting.

634.04 Cable Installation The Contractor shall pull all wires through conduits without overstressing or stretching any wire or scoring, cutting, twisting or damaging the protective covering or insulation. When pulling cable into conduits, if the strain on the cables is likely to prove excessive, the Contractor shall use soapstone powder or listed cable pulling lubricant as a lubricant. Where two or more cables are to occupy the same conduit, they shall be drawn in together and kept parallel to each other by the use of a pulling head. No aluminum wire shall be installed underground for primary and secondary wiring.

Both ends of each length of cable shall be sealed to prevent the entrance of moisture during shipment or during outdoor storage. Defective and damaged cable will be rejected and shall be replaced at no cost to the State.

Secondary wiring shall be installed as shown on the plans. Secondary wiring shall not be spliced underground. Splicing shall only occur in above ground hand holes and transformer bases. The wire for secondary circuits, which is pulled through ducts, shall be fed slack from the feed end. Secondary wiring being pulled through a junction box shall be provided with enough slack for the center of the cable to be positioned a minimum of one (1) foot outside the top of the junction box

Cables in junction boxes shall be provided with enough slack for the center of the cable to be positioned a minimum of one (1) foot outside the top of the junction box and shall be arranged as directed. After cables have been installed, the end of each section of cable in Light Standards and panel boxes shall be carefully sealed with DAC Heavy Duty KWIK Foam Polyurethane Sealant, Minimum Expanding or an approved equal. Sealant shall penetrate a

minimum of four (4) inches into the conduit. All wiring shall be finished to provide a neat and orderly appearance. Ends of cable not connected to any device shall be insulated and sealed.

There will be no underground splicing of power conductors.

The trench for direct-buried cable shall be excavated to the width and depth shown on the plans or as directed.

Placement of the sand bedding shall be coordinated with the installation of the cables. After the cables and screened sand have been placed, the remainder of the trench shall be promptly backfilled with selected excavated material. Surplus material shall be disposed of as directed and the surface of the trench shall be loamed and seeded in accordance with Sections 615 and 618.

When connecting sockets, outlets and other similar equipment, the most accessible bare parts of each piece of equipment shall be connected to the grounded neutral. In order to ensure this has been done, each piece of equipment shall be tested after installation, under the supervision of the Resident, with a test lamp or other instrument, one leg of which has been connected to a definite ground, or by other approved means of testing.

All cables in junction boxes and Light Standards shall be tested for circuit connections, which shall be in conformity with those indicated on the plans. After verification of circuit connections, all cables in junction boxes, light standards and service panels shall be provided with individual metal tags, die-stamped with a phase designated A or B, as applicable. The tags shall be securely attached to the cables.

Splices to form continuous circuits shall be made by the Contractor and will only be permitted in accessible above ground locations. All other splices shall be made with approved crimp-type connectors.

Conductors shall not be pulled into conduit until pull boxes are set to grade, crushed rock sumps installed, grout placed around the conduit, concrete bottom of pull boxes placed and the metallic conduit bonded.

Where roadways are to remain open to traffic and existing lighting systems are to be modified, the existing lighting system shall remain in operation and the final connection to the modified circuit shall be made so that the modified circuit will be in operation by nightfall of the same day.

634.05 Erecting Light Standard To provide continuously aligned lamp post installations, Light Standards shall be located in accordance with the details governing the spacings and setbacks shown on the plans, unless otherwise directed.

The bracket arms shall be set normal to the edge of the roadway, unless otherwise directed. The bracket shall be assembled and attached to the shaft before the light standard is erected. If it is anticipated that there will be a period in excess of 24 hours between the erection of the

Light Standards and the installation of the luminaires, the Contractor shall install a weight, weighing between 50 to 75 pounds, at the outboard end of each bracket arm. This weight shall be designed and fastened in such a way that it will not pose a hazard to persons or vehicles passing beneath it.

Light Standards shall be erected in a vertical position, with a maximum deviation from the vertical of ¼ inch in 5 feet, using either the leveling nuts provided with the anchor bolts or the breakaway couplings. Once the Light Standard is in its final position, the top nuts shall be tightened as follows:

a. Anchor Bolts with Breakaway Couplings The manufacturer's recommendation shall be used.

b. Anchor Bolts without Breakaway Couplings the nut shall be tightened to snug tight condition by utilizing the full effort of a worker using a standard spud wrench or comparable tool. After all nuts have been brought to a snug tight condition, each nut shall be tightened an additional 1/3 turn using an impact wrench, torque wrench or large crescent wrench.

A minimum of 2 bolt threads shall project beyond the outside face of the nut.

Nuts for bolts other than anchor bolts shall be tightened as outlined under b. above, for anchor bolts.

The bottom of all transformer bases shall be coated with a bitumen-mastic, epoxy paint.

When foundations and anchor bolts for Light Standards have been installed by others, the Contractor shall verify the anchor bolt dimensions at each location so that bases will be furnished with the proper bolt holes.

Wires in the shaft shall be supported with a Kellum-type, braided, strain-relief grip attached to a "J" hook mounted inside the shaft near the top.

Wood Ornamental Light Standards shall be installed as shown on the plans.

634.051 Removing Light Standards Before removing Light Standards, the luminaires shall be removed from the Light Standards and disposed of as noted on the plans.

Care shall be exercised in removing and transporting the Light Standards. The Contractor will be required to replace, at their expense, all equipment damaged or destroyed by their operations.

634.052 Portable Power Unit for Lowering Luminaires The number of portable electric power units with remote control required for operation of the high mast luminaire lowering system, will be 1 for every 10 high mast poles, or as shown on the plans.

634.06 Luminaires Luminaires shall not be installed until the lamp socket position has been inspected and approved for conformance with the manufacturer's recommended position for the specified distribution. All luminaires shall be adjusted to produce the maximum illumination on the roadway surface and shall be full IES cutoff.

The connections between the luminaires and connector kits shall be made with single conductor, number 12 wires AWG copper stranded THHN, minimum size. A 14 inch long Teflon sleeve shall be placed over each end of each conductor in the luminaire.

Installation of a connector kit, fused or non-fused, shall be in accordance with the manufacturer's instructions to provide watertight connections.

634.061 Under-Bridge Lighting Under-bridge lighting shall be installed in accordance with the plans and specifications, or as directed.

Circuits shall be fused in fuse boxes with 5-ampere cartridge-type, midjet fuses, $\frac{3}{8}$ inch diameter and 1½ inches long, unless otherwise indicated on the plans. Wiring connections in the under-bridge lighting units shall be made with 300°F wire.

All under bridge lighting, luminaires shall be installed and adjusted for maximum illumination of the roadway surface. The beam angle shall be adjusted as indicated on the plans.

In vehicular undercrossings, underpass lights shall be placed in operation as soon as practicable after falsework has been removed from the structure. Lighting for pedestrian structures shall be placed in operation before opening the structure to pedestrian traffic.

634.08 Service The Contractor shall install metal conduit riser with entrance cap, entrance switch, multiple control relay, and other equipment as shown on the plans.

The lighting system will be supplied with electrical power by the local power company. The type of service will be single phase, three wire, 240/480 volt or the voltage indicated on the plans, 60 hertz, alternating current. The meter trim will include a bypass handle to allow the power company to change the meter without disconnecting the power. An external, standalone breaker capable of shutting off the lighting control cabinet or signals will be provided to disconnect power to the control cabinet. No power shall be routed in or out of the control cabinet before this breaker. The power company will make all connections of the roadway lighting system cables at the power company's service pole. The Contractor shall notify the power company at least two weeks in advance of the time they intend to start construction at each of the sites and shall make all necessary arrangements with the power company for the required installation.

Roadway lighting cabinets shall be installed on stub poles with doors accessible from the roadway. All connections to equipment and terminals shall be neat and orderly conforming to the requirements specified.

Details for the fabrication and installation of service poles with cabinets and other equipment are shown on the plans.

Transformer enclosures used to protect overhead type transformers mounted on concrete pads shall be installed as shown on the plans. Transformers will be furnished by the power company.

All meter mounting devices shall be installed so that the meters will be upright (plumb). They shall be installed with the top of the meter not less than 48 inches nor more than 60 inches from the floor to the final grade. Exceptions to this height requirement will be made where special permission has been given to install group or modular metering, overall metering enclosures, or pole-mounted meters. Level grade shall be maintained for a minimum of 3 feet in front of the meter enclosure to provide a safe working space. In order to meet this requirement on uneven terrain, as an option, the Contractor may install a pressure-treated wood platform.

For any non-residential (industrial or commercial) self-contained meter socket the by-pass requirements are single phase, 100 or 150 amp, single handle lever operated.

The Contractor shall meet all requirements and regulations of Utility Companies when installing equipment on their poles and for the service connection. It is the responsibility of the Contractor to contact the appropriate Utility to determine their specific requirements.

634.081 Bonding and Grounding All metal conduit ends, Light Standards, luminaires, control cabinets, and exposed noncurrent carrying metal parts of fixed equipment shall be connected to the grounding conductor. All grounding and bonding shall conform to the current provisions of the NEC.

634.09 Testing Before acceptance of the work the Contractor shall cause the following tests to be made on all lighting circuits, by a licensed electrician. The tests do not need to be performed in the presence of the Resident, but the test results shall be recorded on the Highway Lighting Quality Control Check List and submitted to the Resident by the Contractor for acceptance. The form shall be signed by the licensed electrician certifying that the highway lighting meet the requirements of section 634.09.

a. Continuity Each circuit shall be tested for continuity.

b. Ground Each circuit shall be tested for grounds.

c. Resistance The resistance to ground on non-ground conductors shall be at least five megaohm at 60°F measured with a 1,000 volt megger. The ground resistance shall not be more than 25 ohms.

d. Voltage Voltage readings shall be made at each service pole, in the load contractor, with load and without load, and at each fixture with load.

e. Current Current readings shall be made on the load side of each load contractor phase and neutral. Readings shall be made at night with lighting systems in normal operation.

f. Test Data Electrical test data obtained from the above tests shall be furnished in writing.

g. Operational Test The Contractor shall conduct an operational test for the completed installation under normal operating conditions. This operational test shall have a duration of not less than two full days. The Resident shall be the sole authority to judge the adequacy of the length of the testing period in order to assure the satisfactory operation of the entire system or any of its sections. The work will not be accepted until the operational test has been successfully completed.

h. Functional Test With all equipment connected to the wiring system, a functional test shall be performed by the Contractor, in the presence of the Resident, to demonstrate that the system and all parts thereof function as specified. All defective materials or faulty installations shall be corrected by repairs or replacements by the Contractor to the satisfaction of the Resident at no additional cost.

Lighting circuits shall be subjected to such other tests as may be required and it shall be the responsibility of the Contractor to ascertain what tests are required and to perform these tests in the presence of the Resident. All tests shall be performed at the expense of the Contractor. Cost for power to conduct tests shall be paid by the Contractor.

634.091 Acceptance All systems shall be complete and in operation to the satisfaction of the Resident at the time of acceptance of the work.

The Contractor shall be responsible for the proper performance in service, in whole or in part, of the various lighting systems and all other electrical installations furnished and installed under this Contract and shall correct, at their own expense, all deficiencies in the operation which may arise prior to acceptance of the work. The Contractor shall be responsible for the cost of power until the work is accepted.

634.092 Method of Measurement Highway lighting system will be measured by the lump sum.

Light Standards will be measured by the single unit, complete in place and accepted.

The quantity of luminaires for high mast lighting will be measured by each single unit.

634.093 Basis of Payment The accepted quantity of Light Standards will be paid for at the contract unit price each for the number of units of the respective types. Payment shall be full compensation for the Light Standard and breakaway transformer base or breakaway device, bracket arm and all incidentals necessary to complete the work, including design of the Light Standards. Conduits, junction boxes, and foundations will be paid for under Section 626.

Payment for furnishing and installing luminaires for high mast lighting will be made for the accepted quantity at the contract unit price each, which shall include luminaire, ballast, lamp, and incidentals necessary to complete the work, including design of the high mast lighting.

The accepted highway lighting system will be paid for at the contract lump sum price for the complete lighting system shown on the plans, except that luminaires for high mast lighting and Light Standards will be paid for at the contract unit price each.

Lump sum payment for highway lighting system shall be full compensation for furnishing, installing and erecting: ballast, lamps, wiring in underground conduit, pole wiring, and all other wiring (except prewired conduit), transformer enclosures, luminaires (except luminaires for high mast lighting), break-away devices when applicable, all identification tags, and all materials, labor, equipment, tools, miscellaneous hardware and incidentals necessary to complete the work. Payment shall also include removing and resetting light standards, installing breakaway devices on existing poles, disposing of unused light standards, as noted on the plans, and for furnishing portable electric power units.

No separate payment will be made for bonding, grounding and ground rods; these costs shall be included in the contract price for conduit, light standards, service panels, or other items requiring bonding and grounding.

Trenching for direct buried cable will be incidental to highway lighting system and shall include excavating, furnishing and placing screened sand and backfilling.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
634.160 Highway Lighting	Lump Sum
634.164 Luminaires for High Mast Lighting	Each
634.2041 Luminaires	Each
634.206 Light Standard for Post Top Luminaire	Each
634.207 High Mast Light Standard	Each
634.209 Wood Ornamental Light Standard	Each
634.210 Conventional Light Standard	Each

SECTION 639

ENGINEERING FACILITIES

Revise this section by removing this section in its entirety and replace with the following:

639.01 Description This work shall consist of providing, erecting, lighting, equipping and maintaining buildings to be solely used by the Resident and other assigned Department representatives as a field office. Upon completion of the work, the buildings and equipment shall remain the property of the Contractor.

639.02 Materials Materials for buildings shall be of good quality customarily used in standard frame house or office trailer construction.

639.03 General The building of the type called for shall be provided before the start of work, and shall remain until work is completed and accepted, unless earlier removal is authorized. The location shall be approved by the Resident and should be adjacent or virtually adjacent to the Project.

A fire extinguisher shall be provided in each building or office trailer for electrical and chemical fires and effective on all solvents used in the building.

Walls, roof, floor, windows, and doors shall be tightly constructed to the required area.

Furnishings shall be supplied as called for. Doors shall be equipped with locks and all keys shall be in the possession of the Resident. Windows shall be equipped with latches so they may be locked on the inside. Window screens and screen doors shall be supplied when necessary. Adequate desk and desk space shall be provided. If a portable table is supplied, it should be adjustable to accommodate the various heights of employees. A 5-way adjustable office chair shall be provided in the quantities listed.

639.04 Field Offices Field Offices are designated Type A, Type B, or Type C. Buildings, including trailers, may be provided if they substantially equal or exceed the following requirements. Air conditioning, appropriate to the building size, shall be provided in all field offices.

The walls, roof, and floor of the building shall be completely insulated with a minimum insulation value of R-15. Office trailers shall be either new or in very good used condition. The interior walls shall be covered with suitable wall paneling. The entire office trailer shall be for the exclusive use of the Resident. The office trailer shall be winterized and completely enclosed at the bottom, if the trailer will be used in cold weather.

Other types of buildings and facilities may be furnished of equal or better quality.

A public work area will be provided in the field office that shall be designed and constructed so that individuals with disabilities can approach, enter, and exit this area.

At least one accessible route to the field office shall be provided from accessible parking. The accessible route shall comply with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and this specification.

The minimum clear width of an accessible route shall be 36 inches except at doors. The least possible slope shall be used for an accessible route. An accessible route with a running slope

greater than 1:20 shall be considered a ramp. Maximum ramp slope is 1:12. The maximum rise for any run of a ramp shall be 30 inches and the minimum clear width shall be 36 inches. Nowhere shall the cross slope of an accessible route exceed 1:50. Changes in level up to ¼ inch may be vertical and without edge treatment. Changes in level between ¼ inch and ½ inch shall be beveled with a slope no greater than 1:2. Ramp floor surfaces shall be stable, firm, and slip-resistant.

Ground floor surfaces along accessible routes and in accessible rooms and spaces including floors, walks, ramps, stairs, and curb ramps, shall be stable, firm, and slip-resistant.

The main door to the public work area shall have a minimum clear opening of 32 inches with the door opened 90 degrees, measured between the face of door and the opposite stop. Minimum maneuvering clearances at doors shall be provided. The floor or ground area within the required clearances shall be level and clear.

The handle and other operating devices on accessible doors shall have a shape that is easy to grasp with one hand and does not require tight grasping. Lever-operated mechanisms push type mechanisms, and U-shaped handles are acceptable designs. Hardware required for accessible door passage shall be mounted no higher than 48 inches above finished floor.

A minimum of 3 parking spaces will be supplied for Class B & C Field Offices and 6 for Class A. One wheelchair accessible parking space shall be located on the shortest accessible route of travel from adjacent parking to an accessible entrance.

Level landings shall be provided at bottom and top of each run. The landing shall be at least as wide as the ramp run leading to it with a minimum length of 60 inches.

If a ramp run has a rise greater than 6 inches or a horizontal projection greater than 72 inches, then it shall have handrails on both sides. Handrails shall have the following features:

- 1) Handrails shall be provided along both sides of ramp segments. The inside handrail on switchback ramps shall always be continuous.
- 2) If handrails are not continuous, they shall extend at least 12 inches beyond the top and bottom of the ramp segment and shall be parallel with the floor or ground surface.
- 4) The clear space between the handrail and the wall shall be 1½ inch.
- 5) Gripping surfaces shall be continuous.
- 6) Top of handrail gripping surfaces shall be mounted between 34 and 38 inches above ramp surfaces.
- 6) Ends of handrails shall be either rounded or returned smoothly to floor, wall, or post.
- 7) Handrails shall not rotate within their fittings.

8) The diameter or width of the gripping surfaces of a handrail shall be 1¼ to 1½ inch, or the shape shall provide an equivalent gripping surface.

Firm and sturdy steps shall also be provided with 7 inch maximum riser and 11 inch minimum depth, and at least one handrail extending from the top of the steps to a minimum 12 inches beyond the bottom of the steps.

The Contractor will make reasonable effort(s) to provide wheelchair accessible toilet facilities when "portable" facilities are provided.

The Contractor shall provide wheelchair accessible toilet facilities when flush type facilities, that is, those with running water, are provided; and the Contractor shall provide wheelchair accessible portable facilities, if used, when the contract duration exceeds two continuous construction seasons.

In addition to the facilities previously specified in this subsection, each field office shall meet the following minimum requirements:

<u>Description</u>	<u>Quantity</u>		
	<u>Type A</u>	<u>Type B</u>	<u>Type C</u>
Floor Area (Outside Dimension) - ft ²	312	220	125
Inside Wall Height – feet	7	7	7
Window Area - ft ²	55	35	35
Drafting Table Surface Area - ft ²	15	15	15
Drafting Stools - each	2	1	1
Office Desks - each	2	1	1
Ergonomic Swivel Chairs -ea (5-way adjustable)	3	2	2
Folding Chairs - each	3	2	2
Lighting Units - each	4	2	2
Electric Wall Outlets - each	6	4	3
Power Strip Surge Protectors - each	3	2	1
Wall Closets - each	1	1	1
Plan Rack for minimum of 6 sets of plans	1	1	0
Toilet Facility	1	1	1
Wastebaskets - each	2	2	1

All windows shall be provided with shades or blinds.

The toilet facility shall be for the exclusive use of State personnel. If requested, the Contractor will supply a lock to ensure exclusive use.

The Resident will have the option to reject any furniture or supplies provided to the field office based on general condition.

One hundred ten volt, 60 cycle, continuous electric service shall be supplied for lighting and 15 amp duplex wall outlets. Lighting shall consist of florescent light units with rapid start bulbs

or LED shop style lights located over the work areas for a minimum of 50 foot candles overall. At least one external light source will be provided.

Drafting surfaces shall be 40 inches above the floor and have shelves beneath. Shelves for plans and rolls shall also be furnished overhead. Drafting stools shall be approximately 28 inches high.

Desks shall be single or double pedestal standard office type, and shall be in addition to “built-in” type desks in the office trailer.

Field offices shall be furnished with one four-drawer letter size metal filing cabinet.

Wall closets shall be 21 inches wide, 15 inches deep, and at least 4 feet high.

Each office shall be furnished with a broom, dustpan, sweeping compound, trash bags, and with cleaning material for cleaning glass. If the field office is carpeted, then a vacuum cleaner will be provided. The contractor will be responsible for disposing of trash from the field office.

The Contractor shall provide a fully functional wireless desktop copier/scanner/printer, capable of copying field books, for the Resident’s use during the project. All maintenance and supplies, except paper, shall be the responsibility of the Contractor.

The Contractor shall provide bottled water and a microwave for the duration of the project. All maintenance and supplies shall be the responsibility of the Contractor. Alternate source of water, such as a water cooler, may be provided as approved by resident.

The Contractor shall provide a 4 cubic-foot refrigerator in the field office for the duration of the project.

Each office shall be furnished with a 10-person general-purpose first aid kit. The first aid kit shall be periodically inspected and refilled as necessary.

639.08 Heat Heat appropriate to the building size shall be supplied by the Contractor to maintain an acceptable room temperature during occupancy.

639.091 Broadband Connection The contractor will supply one computer broadband connection, modem lease and router. The router shall have wireless access and be 802.11n or newer capable. The type of connection supplied will be contingent upon the availability of services (i.e. DSL or Cable Broadband). It shall be the contractor’s option to provide dynamic or static IP addresses through the service. The selected service will have a minimum download connection of 5.0 Mbps and 1.0 Mbps upload. The contractor shall be responsible for the installation charges and all reinstallation charges following suspended periods. Monthly service and maintenance charges shall be billed by the Internet Service Provider (ISP) directly to the contractor.

639.10 Method of Measurement Field office will be measured by the unit or lump sum for each building provided, equipped and maintained satisfactorily.

639.11 Basis of Payment The accepted quantity of field office will be paid for at the contract unit price each or lump sum which payment shall be full compensation for furnishing until contract completion, erecting, equipping, maintaining, furnishing electricity, heating, installing and maintaining toilet facilities and if necessary removing the buildings or office trailers.

Payment for these items will be made in 3 parts; the first payment of $\frac{1}{2}$ to be made after the Contractor has supplied the building or office trailer and it has been approved. The remaining payments shall be made at intervals as follows:

A second payment of $\frac{1}{4}$ shall be made when one-half of the anticipated work has been completed.

The final payment of the remaining $\frac{1}{4}$ shall be made upon completion of the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
639.18 Field Office, Type A	Each
639.19 Field Office, Type B	Each
639.20 Field Office, Type C	Each

SECTION 643 **TRAFFIC SIGNALS**

643.01 Description Revise this Section by removing in its entirety and replacing it with:

643.01 Description This work shall consist of furnishing and installing all equipment necessary for the erection and operation of a traffic signal, including traffic signal structures, flashing beacon, temporary traffic signal or modification of a traffic signal, all in reasonably close conformity with the plans.

643.02 General All equipment shall be new unless otherwise specified. Requests for substitution of any specified material shall be submitted in writing with all documentation (specifications, mill certifications, etc.) in order to enable the Department to evaluate the proposal. Substitutes for specified material may be accepted upon approval by the Fabrication Engineer. Functionally, any substitute shall give equal or better service than the specified material. Existing signal equipment to be used shall be cleaned, repainted, and reconditioned as noted on the plans. All equipment, installation of equipment and other incidental work shall conform to the latest applicable provisions of: NEC, MUTCD, NESC,

NEMA, and the ITE Standards for traffic control equipment. All work shall be done to the satisfaction of the Resident. The meaning of specific terms shall be as defined in MUTCD, NESC, and the ITE Standards for traffic control equipment.

643.021 Materials Material shall meet the requirements specified in the following Sections of Division 700 - Materials:

Steel Conduit	715.02
Non-metallic Conduit	715.03
Prewired Conduit	715.04
Metallic Junction and Fuse Box	715.05
Secondary Wiring	715.07
Vehicular Signal Indications	718.01
Pedestrian Signal Indications	718.02
Signal Mounting	718.03
Vehicular Loop Detectors	718.04
Microwave Detectors	718.05
Pedestrian Detectors	718.06
Controllers	718.07
Controller Cabinet	718.08
Flasher	718.09
Program Selection	718.10
Contacts and Relays	718.11
Conductors	718.12
Aluminum Supports	720.01
Aluminum Mast Arm and Bracket Arm	720.02
Steel Supports	720.03
Steel Mast Arm and Bracket Arm	720.04
Anchor Bolts	720.07
Wood Utility Pole	720.10

643.022 Paint Aluminum paint shall conform to AASHTO M69, Type II. Green or yellow enamel paint, as indicated on the plans, shall meet or exceed the latest Federal Specification TT-E-489. The color shall match Federal Color Standard Number 14062.

643.023 Traffic Signal Structures The design, materials and fabrication of Traffic Signal Structures shall meet the requirements of the current edition of AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" and interims thereto, as noted below except as otherwise indicated within these specifications or on the plans.

All poles and mast arms shall be designed using the following criteria:

- Basic wind speeds based on a 700-year mean recurrence interval
- K_z as specified in Table C3.8.4-1 (Height and Exposure Factors)
- K_d as specified in Table 3.8.5-1 (Directionality Factors)

- G as 1.14, minimum (Gust Factor)
- C_d as specified in Table 3.8.7-1 (Wind Drag Coefficients)
- Deflection requirements as specified in Section 10.4

Traffic signal support structures shall be classified as Fatigue Category III if they are located on roads with a speed limit of 35 mph or less, Fatigue Category II if they are located on roads with a speed limit of greater than 35 mph, and Fatigue Category I if noted on the Contract Plans. Fatigue Importance Factors shall be as specified in Table 11.6-1 (Fatigue Importance Factors).

All Traffic Signal Structures with mast or bracket arms shall be equipped with an approved damping or energy-absorbing device.

After execution of the contract and before any shop work is commenced, the Contractor shall submit for approval the manufacturer's drawings, including design computations and fatigue computations, of all Traffic Signal Structures proposed to be furnished and erected under this Contract. The drawings shall be of sufficient detail to indicate material and dimensional conformance with these specifications and the plans. Each drawing shall contain a reference to the design criteria and a certification that the design criteria have been met for the Traffic Signal Structures, including poles, mast arms and associated hardware and fittings, as submitted. The certification shall be signed by a Professional Engineer licensed in accordance with State of Maine regulations under their official seal.

It is the intent of these specifications that the Contractor shall be fully responsible for the adequacy of the sizes, wall thicknesses, materials and connections of the Traffic Signal Structures, including poles, mast arms and associated hardware and fittings. Approval of the drawings by the Fabrication Engineer will signify only approval of the materials, mounting height(s) and mast arm length(s). Approval of deviations from the plans and/or specifications shall be requested in writing and approved by the Fabrication Engineer before being incorporated in the manufacturer's drawings.

The Contractor shall furnish and install all electrical fittings, pipe, switches, fuses, and such other material necessary to install the equipment properly and securely. All equipment shall conform to the applicable code and be of first-class workmanship. All electrical fittings shall be complete with weatherproof gaskets.

A Certificate of Compliance shall be provided for all applicable materials noted in Section 634.021 – Materials, in accordance with the requirements of the General Statement of Division 700 Materials. Shop certification in accordance with Section 504.04 is required.

643.024 Miscellaneous Materials Span wire shall be minimum $\frac{5}{16}$ inch diameter, minimum, 7 strand, extra-high strength, galvanized steel wire. Anchors shall be power installed and sized according to strain and soil conditions. All hardware, such as strand vise feed-thru dead ends, preforming guy grip dead ends and angle thimble-eye bolts, shall be standard pole line hardware.

Guying of poles shall meet the requirements of Grade "B" Construction as defined in the NESC. Guys shall be installed in line with the direction of pull. Anchors shall be power installed so that the centerline of the anchor rod will be within 10° of the line of the guy wire. The holding capacity of the anchor shall be 1.25 times the calculated load on the guy wire. Guy wires shall be utility grade and the maximum working stress shall not exceed half of the maximum ultimate tensile strength of utility grade guy strand. Where bedrock is encountered, rock anchors shall be used.

Pipe standoffs for sidewalk anchors shall be galvanized steel pipe sized according to the offset distance from anchor to pole and shall be fitted with standard guying hardware.

Messenger wire shall be ¼ inch diameter, 7 strand, extra-high strength, galvanized steel wire, unless otherwise specified.

LED lamps shall have a regulated power supply designed to electrically protect the diodes. The lamp shall be watertight and sealed to eliminate contaminants. The lamps shall be capable of operating at ambient air temperatures of -40°F to 140°F.

Lamp life shall be a minimum of 100,000 hours of continuous operation. They shall be manufactured using the Allen Gap Technology. Power consumption for 12 inch indications including power supply shall not exceed 20w.

643.03 General Installation details will be shown on the plans and/or specifications. The location shown for all equipment and vehicle detectors is approximate; final locations will be determined in the field.

During installation, all heads installed but not operating shall be covered or otherwise concealed from view.

The requirements of certain Sections of this specification may be waived for temporary traffic signals and traffic signal modifications, if so noted on the plans.

643.04 Poles Wood poles shall be placed in the ground to a depth of 20% of their overall length, with a maximum deviation from the vertical of ¼ inch in 5 feet.

After each wood pole has been set in the ground and plumbed, the space around the pole shall be backfilled with selected earth or sand, free of rocks and other deleterious material, placed in layers approximately 4 inches thick. Each layer shall be moistened and thoroughly compacted.

Traffic Signal Structures shall be erected in a vertical position, with a maximum deviation from the vertical of ¼ inch in 5 feet using the leveling nuts provided with the anchor bolts. Once the poles have been plumbed, the top nuts shall be tightened by bringing the nut to a snug tight condition using the full effort of a worker using a spud wrench or compatible tool. After all nuts have been brought to a snug, tight condition, each nut shall be tightened an

additional one-third turn, using an impact wrench, torque wrench or large crescent wrench. A minimum of two full threads shall project beyond the outside face of the nut. Nuts and bolts, other than anchor bolts, shall also be tightened by the above procedure.

When foundations and anchor bolts have been installed by others, the Contractor shall verify the anchor bolt dimensions at each location so that bases will be furnished with properly located and sized bolt holes.

Wires in poles shall be supported with a Kellum-type, braided, strain-relief grip attached to a "J" hook mounted inside the pole near the top.

643.041 Foundations Foundations for Traffic Signal Structures shall meet the requirements of Section 626 – Foundations, Conduit, and Junction Boxes for Highway Lighting, Traffic Signals, and Highway Lighting.

643.05 Loop Detector and Loop Detector Wire Installation The detector unit shall be located in the controller. No more than four loops shall be connected to a single detector amplifier.

Detectors shall be installed according to the manufacturer's recommendation, subject to approval. Each detector shall be supplied complete with comprehensive installation instructions. The pavement slot for wire shall be 2 to 3 inches below the finished surface and not closer than 18 inches from the edge of pavement or the curb. The right-angle corners of the pavement slot shall be chamfered to eliminate sharp bends in the loop wires.

Loop detector wire shall be number 14 or number 12 AWG copper conductors drawn through vinyl plastic tubing approximately ¼ inch in diameter. All pulse loop "approach" wiring shall be insulated red and shall be permanently marked "A", "B", "C", or "D", according to the "approach" guidelines in the controller cabinet. All pulse loop "presence" wiring shall be insulated black and shall be permanently marked according to the "presence" guidelines in the controller cabinet. All loop lead-ins shall be of the same conductor with no splicing. The lead-in from the amplifier to the beginning of the loop shall be shielded pairs, as shown on the plans.

All debris and moisture shall be removed from the loop pavement slot before installation of loop wires. The pavement slot shall be filled to the road surface with an approved sealing compound to form a waterproof bond with the pavement after installing the wire loop.

Detector conductors shall not be housed in the same jacket as the signal conductors.

643.06 Microwave Detector Installation The microwave detector shall be installed in accordance with the manufacturer's recommendations. A four-conductor wire shall be installed from the microwave unit to the controller. All angles and adjustment of patterns shall be the responsibility of the Contractor. The detectors shall operate in either pulse or presence mode.

643.07 Span Wire, Messenger Wire, and Guy Wire All span wire, messenger wire, and guy wire installations shall be in conformance with the requirements of the Utility Companies, when installed on Utility Facilities.

All span wire hanging traffic signals permanent or temporary will have a bottom tether wire to prevent the signal from excessive swinging

All span wires, messenger wires, guy wires, terminal boxes, controller cabinets, or any other metallic surface that might be contacted by people, shall be bonded to ground.

All sidewalk guy wires and slant guy wires installed in a sidewalk area shall be equipped with full-round or half-round guy guards.

643.08 Conduit All conductors under roadways from the controller to the mast arm poles shall be 3 inch schedule 80 PVC.

643.09 Service Connection The Contractor shall furnish and install the necessary electrical service as directed by the Utility Company. The Contractor shall make all arrangements for the service connection and be responsible for all charges incurred thereby.

Under no condition shall any equipment, except that shown on the plans, be installed on any Utility Facilities.

Traffic signal services shall have an automatic transfer switch such as a GENERLINK model MA23/24 – S installed, this will be required on traffic signals only not beacons or dynamic signs.

Whenever a service connection is to be made, the Contractor shall contact the Utility Company involved and inform them of the location, pole number, and time proposed for the service connection.

The traffic cabinet shall be marked with:

An appropriate arc flash plaque or decal with the following information

Flash hazard boundary

Cal/cm² hazard at 18 inches

PPE level

Shock hazard when cover is off

Limited approach boundary

Restricted approach boundary

The prohibited approach boundary

This shall be located on the outside of the equipment and shall be visible, weatherproof, and fade resistant, and not easily removed.

The Contractor shall be responsible for all outstanding bills for preliminary work done by the Utility Company during the installation of the traffic signal system, to facilitate the service connection.

A service ground rod shall be installed if the service meter trim is not grounded.

The Contractor shall be responsible for grounding the system to 5 OHMS or less. The grounding shall be performed using a ground meter with reference grounds. All testing will be done in the presence of the Resident.

All meter mounting devices shall be installed so that the meters will be upright (plumb). They shall be installed with the top of the meter not less than 48 inches nor more than 60 inches from the floor to the final grade. Exceptions to this height requirement will be made where special permission has been given to install group or modular metering, overall metering enclosures, or pole-mounted meters. Level grade shall be maintained for a minimum of 3 feet in front of the meter enclosure to provide a safe working space. In order to meet this requirement on uneven terrain, as an option, the Contractor may install a pressure-treated wood platform.

For any non-residential (industrial or commercial) self-contained meter socket the by-pass requirements are single phase, 100 or 150 amp, single handle lever operated.

The Contractor shall meet all requirements and regulations of Utility Companies when installing equipment on their poles and for the service connection. It is the responsibility of the Contractor to contact the appropriate Utility to determine their specific requirements.

643.10 Wiring The Contractor shall furnish and install sufficient cable and wire to operate the system properly as shown on the plans and as directed.

The following color code shall be used where possible:

Red Wire	Red, artery
Orange Wire	Yellow, artery
Green Wire	Red, side street
Orange with Tracer	Yellow, side street
Green with Tracer	Green, side street
White and white with tracer	Common for all signals and bond
Blue	All steady burning arrows
Blue with Tracer	Intermittent arrows
Remaining	Detectors and pedestrian signals

The white wire and white wire with tracer shall be used for all common connections and it shall be continuously connected to ground at the controller.

There shall be no wire splices. Connections shall be made on a terminal board inside a watertight galvanized steel or aluminum junction box or in an aerial terminal enclosure with protective cover rated for 600 volts.

Spade type copper terminal ends shall be used to attach all conductors to terminals. All exposed metal parts, including service conduit and the controller cabinet shall be bonded and grounded.

Not more than 3 conductors shall be brought to any one terminal. Terminals shall be mounted to face the cabinet door.

The number and size of conductors required in each cable will be indicated on the plans.

643.11 Vertical Clearance Unless otherwise specified on the plans and/or specifications, vertical clearances for vehicular and pedestrian heads shall be in conformity with the MUTCD. All clearances shall be uniform among each type of head or mounting scheme. Clearance for span wire mounted flashing beacon heads shall be a minimum of 17 feet and a maximum of 18 feet.

643.12 Painting Unless otherwise indicated, all exterior parts of the following equipment shall be delivered to the project finished with green or yellow enamel:

Vehicular Signal Heads
Pedestrian Signal Heads
Pedestrian Push Button Detectors

The outside of the steel controller cabinet shall be painted with aluminum paint.

The Contractor shall apply one coat of green enamel to all existing equipment designated on the plans to be painted. The Contractor shall touch up all scratches on exposed surfaces of new equipment with matching enamel after the equipment has been installed.

All exposed signal parts to be painted shall be cleaned and shall be dry when the paint is applied. No painting shall be done in damp weather nor when the air temperature is below 40°F, unless otherwise permitted.

The Contractor shall identify recently painted equipment with "Wet Paint" signs, and shall be responsible for all claims for damages resulting from contact with wet paint surfaces.

643.13 Power Factor In the event that the equipment is of such design that the power factor is reduced below the requirement of the Utility Company, the Contractor shall furnish and install, without further charge, all equipment necessary to restore the power factor to a satisfactory percentage. Such equipment shall be accessible and shall not be mounted on the Utility Facilities.

643.14 Field Tests Before acceptance of the work, the Contractor shall conduct the following tests on all traffic signal equipment and circuits, by a licensed electrician. The tests do not need to be performed in the presence of the Resident, but the test results shall be recorded on the Traffic Signal Quality Control Check List and submitted to the Resident by the Contractor for acceptance. The form shall be signed by the licensed electrician certifying that the signal equipment and circuits meet the requirements of section 634.14.

a. Continuity Each circuit shall be tested for continuity.

b. Ground Each circuit shall be tested for grounds.

c. Megger Megger tests at 500 volts DC shall be made on each circuit between the circuit and a ground. The insulation resistance shall not be less than 10 megaohms on all circuits, except for inductive loop detector circuits, which shall have an insulation resistance value of not less than 100 megaohms.

d. Loop Inductance A loop test meter shall be used to determine that the inductance of the installed loop and lead-in are within the tuning range recommended by the loop detector manufacturer.

e. Functional A functional test shall be made in which it is demonstrated that each part of the system functions as specified.

The functional test for each new or modified traffic signal and flashing beacon shall consist of not less than 10 days of continuous satisfactory operation. If unsatisfactory performance of the system develops, the condition shall be corrected and the test shall be repeated until the 10 days of continuous satisfactory operation is obtained.

The initial operation shall be made between 9:00 A.M. and 2:00 P.M. unless specified otherwise. Before initial operation, all equipment shown on the plans shall be installed and operable.

Initial operation of new or modified traffic signal systems shall be made only after all traffic signal circuits have been thoroughly tested as specified above.

During the test period all costs except electrical energy shall be the Contractor's responsibility.

Functional tests shall start on any working day except Monday, Friday, Saturday, Sunday or the day preceding a legal holiday.

Shutdown caused by a power interruption shall not constitute discontinuity of the functional test, however, the test shall continue after power is restored.

643.15 Timing The controller shall be timed as noted on the plans. The Contractor shall notify the Resident, at least 1 week in advance, of their intention to initially operate the signals.

At the time of initial operation of the new signals, the Contractor shall provide police protection from the local police department at the Contractor's expense until the Contractor demonstrates to the Resident that the signal operates in conformance with this specification.

643.16 Final Cleaning Up After all work has been completed, the Contractor shall remove all barriers, "Wet Paint" signs, equipment and all debris which has accumulated during the work.

Unless otherwise specified in the plans, the Contractor shall remove and deliver all unused signal equipment and wiring to the State of Maine, Department of Transportation, as directed by the Resident. The Contractor shall notify the State Traffic Engineer (207-624-3620) as to time and date of such delivery. (Deliveries will be accepted Monday through Friday between the hours of 7:00 A.M. and 4:00 P.M. only.) Notification shall precede delivery by a minimum of 24 hours.

643.17 Documents The Contractor shall furnish two operation and maintenance manuals for all controller units, auxiliary equipment, vehicle detector sensor units, control units, and amplifiers. Documents shall be delivered with the controller at the time of testing. Each manual must include, but need not be limited to the following:

- a. An explanation of the theory of operation, including a functional description and a detailed circuit description.
- b. A schematic diagram of each unit. A cabinet wiring diagram including all field wiring and pin locations and designations for all plug type connectors. If any circuit changes are made in the field, the changes shall be noted on the schematic diagrams.
- c. A trouble shooting and preventive maintenance procedure including both field and bench trouble shooting analysis.
- d. A parts list including a pictorial diagram showing the location and identification of each component on the chassis or circuit board.
- e. A drawing of the controller cabinet interior showing the location of all shelves, terminal blocks, relays, timers, loop amplifiers.

In addition, manufacturer's warranties and guarantees for materials shall be delivered to the Resident before acceptance of the project.

643.18 Method of Measurement Traffic signals, traffic signal modifications, interconnect wire, video detection system, traffic signal control system, and flashing beacons will each be measured for payment by the lump sum in place. Temporary traffic signals will be measured for payment by the lump sum, satisfactorily installed, operated, and removed.

Pedestal poles, strain poles, combination poles, and mast arm poles with mast arms will be measured by each unit.

Each loop detector installed, connected to appropriate phases in the controller cabinet, complete and operational will be measured by the unit.

Excavation in solid ledge rock for replacement of wood poles will be measured by the cubic yard. The depth of measurement will be to the bottom of the pole, and the diameter of measurement will be the pole diameter plus 30 inches.

643.19 Basis of Payment Traffic signal modifications, traffic signals, interconnect wire and flashing beacons will be paid for at the contract lump sum price, which payment will be full compensation for furnishing and installing all materials, both new and reused, including, but not limited to wood poles, span wire, tether wires, backplates, visors, guys, controllers, vehicular heads, pedestrian heads, flashing beacons, wiring, cable, pole risers, LED lamps, and all appurtenances and incidentals, including design of the Traffic Signal Structures, required for a complete functioning installation and for furnishing all tools and labor necessary for completing the installation. Conduits, junction boxes, and foundations will be paid for under Section 626.

Pedestal poles, strain poles, combination poles and mast arm poles with mast arms will be paid for at the contract unit price each which payment shall be full compensation for furnishing and installing all materials, tools and labor necessary to erect the poles.

Payment for temporary traffic signals shall include compensation for the removal of the system upon completion of the work. All materials used for temporary traffic signals will remain the property of the Contractor. Operating the controller by hand will be paid for under Section 629.

Payment will be made for each Loop Detector at contract price, which will be full compensation for materials, labor, and equipment for each loop installed and fully operational.

Traffic signal control system will be paid for at the contract lump sum price, which payment will be full compensation for furnishing and installing all materials, including, but not limited to local intersection traffic signal controller, controller cabinets, on-street master controller, supervisory PC software, and all appurtenances and incidentals required for a complete functioning installation.

Video detection system will be paid for at the contract lump sum price, which payment will be full compensation for furnishing and installing all materials, including, but not limited to video processing unit, video cameras, supervisory PC software, and all appurtenances and incidentals required for a complete functioning installation.

Payment for excavation of solid bedrock for the placement of wood poles will be made under Item 206.07.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
643.60 Flashing Beacon at:	Lump Sum
643.71 Traffic Signal Modification:	Lump Sum
643.72 Temporary Traffic Signal:	Lump Sum
643.80 Traffic Signals at: __	Lump Sum
643.81 Traffic Signal Control System	Lump Sum
643.83 Video Detection System	Lump Sum
643.86 Traffic Signal Loop Detector	Each
643.90 Interconnect Wire Between:	Lump Sum
643.91 Mast Arm Pole	Each
643.92 Pedestal Pole	Each
643.93 Strain Pole	Each
643.94 Dual Purpose Pole	Each

SECTION 645 **HIGHWAY SIGNING**

Revise this section by removing this section in its entirety and replace with the following:

645.01 Description This work shall consist of designing, furnishing and installing new signs, sign supports, delineators, Polyvinylchloride (PVC) Pipe and breakaway devices and removing, relocating and/or modifying existing signs and sign supports, in accordance with these specifications and in reasonably close conformity with the Contract Plans.

645.02 General All equipment shall be new unless otherwise specified. Requests for substitution of any specified material shall be submitted in writing with all documentation (specifications, mill certifications, etc.) in order to enable the Department to evaluate the proposal. Substitutes for specified material may be accepted, upon approval of the Fabrication Engineer. Substitutes shall give equal or better service than the specified material. Where an existing system is to be modified, the existing material shall be removed, upgraded, or disposed of as directed by the contract documents.

645.021 Materials Materials shall meet the requirements specified in the following Sections of Division 700 - Materials:

Polyvinylchloride (PVC) Pipe	706.08
Reflective Sheeting	719.01
Demountable High Intensity Reflectorized Letters, Numerals, Symbols and Borders	719.02
Aluminum Extrusions	719.03

Aluminum Sheets	719.04
Plywood	719.05
Demountable Reflectorized Delineators	719.06
Assembly Hardware	719.07
Aluminum Supports	720.01
Steel Supports	720.03
Steel H-beam Poles	720.06
Anchor Bolts	720.07
U-Channel Posts	720.08
Wood Sign Posts	720.12

Paint for the edge and back of plywood and field coat paint for wood sign posts shall be an exterior grade dark green enamel conforming to Federal Specifications TT-P-71b.

Materials shall meet the gradation requirements only of the following:

Aggregate for Untreated Surface Course and	
Leveling Course	703.10
Underdrain Backfill Material	703.22

645.022 Sign Layout Drawings The Contractor shall submit 3 sets of sign-face, layout-detail, and scale drawings. Fabrication of the signs shall not begin until the Contractor has received approval of these drawings. The drawings shall contain complete detailed information and dimensions. One set of drawings will be returned to the Contractor, who will submit corrected drawings, if required. The drawings shall be detailed using the same units used on the Contract Plans.

645.023 Sign Support Structures The design, materials and fabrication of Sign Support Structures shall meet the requirements of the current edition of AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" and interims thereto, as noted below except as otherwise indicated within these specifications or on the Contract Plans.

Beam-mounted roadside sign supports and associated signs and hardware shall be designed using the following criteria:

- Basic wind speeds based on a 300-year mean recurrence interval
- K_z as specified in Table C3.8.4-1 (Height and Exposure Factors)
- K_d as specified in Table 3.8.5-1 (Directionality Factors)
- G as 1.14, minimum (Gust Factor)
- C_d as specified in Table 3.8.7-1 (Wind Drag Coefficients)

Bridge-mounted, bridge-type, cantilever, and butterfly-type sign supports and associated signs and hardware and all sign support structures supporting variable message signs shall be designed using the following criteria:

- Basic wind speeds based on a 1700-year mean recurrence interval

- K_z as specified in Table C3.8.4-1 (Height and Exposure Factors)
- K_d as specified in Table 3.8.5-1 (Directionality Factors)
- G as 1.14, minimum (Gust Factor)
- C_d as specified in Table 3.8.7-1 (Wind Drag Coefficients)
- Deflection requirements as specified in Section 10.4

Cantilever and butterfly-type sign supports and all structures supporting variable message signs shall be classified as Fatigue Category I. Bridge-type sign supports shall be classified as Fatigue Category II. Fatigue Importance Factors shall be as specified in Table 11.6-1 (Fatigue Importance Factors).

For bridge-mounted sign supports (including approaches to bridge structures), the mounting height shall be measured as the distance of the mounted sign(s) center of gravity to one of the following:

For bridges over bodies of water: above the prevailing water level or, in the case of tidal waters, above mean high tide.

For overpass structures: above the lower roadway level.

For approach ramps: above the average adjacent ground level, if said ground level is more than 10 feet below the base of the structure.

All cantilever and butterfly type sign support structures shall be equipped with an approved damping or energy-absorbing device.

For aluminum construction, welding shall conform to the current edition of AWS Structural Welding Code, Aluminum, D1.2 for aluminum construction.

After execution of the contract and before any shop work has commenced, the Contractor shall submit for approval the drawings, and design and fatigue computations if prescribed below, for all Sign Support Structures proposed to be furnished and erected under this contract. The drawings shall be of sufficient detail to indicate material and/or dimensional conformance with these specifications and the Contract Plans and, in the case of bridge, cantilever and butterfly type sign supports, shall be sufficiently detailed to show all significant structural details.

Approval for deviations from the Contract Plans and/or Specifications shall be requested in writing and shall be approved by the Fabrication Engineer before being incorporated in the manufacturer's drawings. Requests for substitution of all specified material shall be submitted in writing, with full documentation (specifications, mill certification, etc.) enabling the Department to evaluate the proposal.

Sign Support Structures and anchor bolts shall meet the requirements specified in Section 720 as well as the current edition of AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals" and interims thereto.

A Certificate of Compliance shall be provided for all applicable materials noted in Section 645.021 – Materials, in accordance with the requirements of the General Statement of Division 700 - Materials.

a. Beam-Mounted Roadside Signs The beams for beam-mounted roadside signs shall be of the size, material and shape designated in the Contract Documents. The Contractor shall be fully responsible for the adequacy and design of any structural details not shown on the Contract Plans, and each drawing shall contain a reference to the design criteria. A Professional Engineer licensed in accordance with the State of Maine regulations shall sign the certification under their official seal that said design criteria have been met by all parts of the structure designed and/or detailed by the Contractor. Approval of the drawings will signify only approval of the size, material and length of the beam.

b. Bridge-Mounted Sign Supports Bridge-mounted sign supports shall be constructed to the configuration and sizes and of the material shown on the Contract Documents. Approval will be based on the applicable provisions of Section 105.7 - Working Drawings. Fastening sign panels directly to steel or aluminum members shall be as described in Section 719.07, as well as other applicable Sections, Plans and Specifications.

c. Bridge-Type, Cantilever, and Butterfly-Type Sign Supports The Contractor shall be responsible for the design of the Sign Support Structures for bridge-type, cantilever and butterfly-type sign supports in accordance with this specification.

Signs shall be placed on the Sign Support Structure such that the bottom edges are aligned (unless written consent from the Fabrication Engineer is obtained), while accommodating the minimum height requirement - see Section 645.06. The Contractor shall use the Contract Plans in order to determine the approximate horizontal placement of signs. Installation shall be in accordance with Section 645.06 - Installation of Type I Signs. The structure and foundation shall be designed to accommodate an additional theoretical sign load on each structure. This additional theoretical sign load for each sign shown in the contract documents shall be computed by: For single signs increasing the sign widths an additional 25% without changing the horizontal midpoint of the sign; for multiple signs the sign widths shall be increased 25% toward the outside sign edges. The height of all signs shall be increased 25% without changing the bottom edge elevation of the signs.

Bridge-type Sign Support Structures shall be designed using either a tri-chord or four-chord truss structure as the overhead member. Each of the two upright members supporting the bridge-type overhead truss member shall consist of a minimum of two vertical legs. A four chord truss configuration shall be required if the Contract Documents specify placing signs on both sides of the overhead structure (two way traffic beneath structure). Cantilever and butterfly-type structures shall be designed using either a tri-chord or four-chord overhead truss member. The upright member of a cantilever or butterfly-type support structure shall have a maximum horizontal

deflection in accordance with Section 10.4.2.1 of the current edition of the AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals”, and interims thereto.

The base plates of uprights for all types of Sign Support Structures shall have heavy hex leveling nut with 2 hardened flat washers. The distance between the bottom of the base plates to the top of the foundations shall not exceed twice the diameter of the anchor bolts. Grout, or other materials, shall not be placed between base plates and the top of foundations.

In addition to the required detail drawings, the Contractor shall submit 3 copies of the design and fatigue computations meeting the all applicable requirements of this specification or the Contract Plans for each Sign Support Structure. Erection lifting points shall be clearly depicted on the shop drawing. The computations shall be sufficiently detailed to allow the Engineer to review the computations. Computer printouts will not be accepted unless they meet the above criteria. All plans and design calculations for sign support structures and foundations shall be sealed by a Professional Engineer licensed in accordance with the State of Maine regulations. Approval will be based on the applicable provisions of Section 105.7 - Working Drawings.

Overhead sign panel mounting devices shall be designed accommodating the requirements of appropriate sign panel tilting included in this specification. The design of this assembly shall include fastening sign panels directly to steel or aluminum members as further described in Section 719.07, as well as other applicable Sections, Plans and Specifications.

d. Breakaway Supports for Sign Supports Breakaway supports for sign supports will be required only for those locations indicated on the Contract Plans. Breakaway supports, approved by the Resident, using load-concentrating couplings shall be supplied for use at all locations designated as breakaway. Breakaway Support Certification of both breakaway and structural adequacy shall be provided by the Manufacturer. Design calculations or test data of production samples to support certification shall be provided. Breakaway support components shall provide the same or greater structural strength as the support post or pole utilizing the breakaway device. On multi-pole sign supports designated as breakaway, each pole shall be equipped with breakaway hinges immediately below the lower edge of the sign. Hinges relying on the friction between the hinge and the pole face for transmitting the design moment will not be accepted for use. Breakaway devices are subject to the applicable provisions of Section 721.

645.024 Bridge, Cantilever and Butterfly Support Structure Foundations Foundations for Highway Signing structures shall meet the requirements of Section 626 – Foundations, Conduit, and Junction Boxes for Highway Lighting, Traffic Signals, and Highway Lighting.

645.03 Classification of Signs Sign sizes, color and legend designs shall conform to these specifications, the Contract Plans, and MUTCD requirements. The signs are classified according to the intended use as follows:

- a. Sign Type I guide signs shall consist of high intensity prismatic, reflectorized sheeting or reflectorized, demountable letters, numerals, symbols and border mounted on a high intensity prismatic, reflective sheeting background adhered to a sign panel constructed of extruded aluminum planks.
- b. Sign Type I regulatory, warning, and route marker assembly signs shall consist of high intensity prismatic, reflective sheeting letters, numerals, symbols, and border on a high intensity prismatic, reflective sheeting background adhered to a sign panel constructed of sheet aluminum.
- c. Sign Type II guide signs shall consist of high intensity prismatic, reflective sheeting letters, numerals, symbols and border on a high intensity prismatic, reflective sheeting background attached to a sign panel constructed of plywood.
- d. Sign Type II regulatory, warning and route marker assembly signs shall consist of high intensity prismatic reflective sheeting letters, numerals, symbols and border on a high intensity prismatic reflective sheeting background adhered to a sign panel constructed of sheet aluminum or plywood.

645.04 Fabrication of Type I Guide Signs

a. Panels The panels for this type sign shall be shop-fabricated from aluminum planks to the sizes designated on the approved shop drawings. Cut edges shall be true, smooth, and free from burrs or ragged breaks. Flame cutting will not be permitted. Bolt holes may be drilled to finished size or punched to finished size, provided the diameter of the punched hole is at least twice the thickness of the metal being punched.

Fabrication of extruded aluminum sign planks, including punching or drilling holes and cutting to length, shall be completed before the metal degreasing and the application of the reflective sheeting. The bolts required for fastening the extruded aluminum planks together shall conform to the designs used in standard commercial processes for the type of extruded aluminum panels to be used as approved.

All route shields shall be on an overlay aluminum sheet of 0.080 inch minimum thickness and shall be in full color with reflective background; they shall not have demountable numerals and borders.

b. Reflective Sheeting The high intensity prismatic reflective sheeting shall be applied to the extruded aluminum plank in accordance with the current recommendations of the sheeting Manufacturer.

The reflective sheeting shall cover the complete panel and shall not be trimmed to conform to the border. The reflective sheeting shall overlap into the side recess of the individual planks. There shall be no paint applied to the sign panels. The surface of all completed sign panels shall be flat and free of defects. Extruded aluminum molding shall be placed on the edges of the extruded panels, as shown on the Contract Plans.

c. Text The design of upper and lower case letters, numerals and symbols, and the arrangement and spacing of texts shall be as provided on the Contract Plans and in conformance with the MUTCD and Standard Highway Signs.

Text for Guide Signs shall be composed of demountable letters, numerals, symbols, and borders and shall be high-intensity prismatic, reflective sheeting. The demountable text shall be applied to the panels by use of aluminum pop rivets, in accordance with standard commercial processes, as approved. All demountable letters, numerals, symbols, and borders shall be the same manufacturer's make for the entire project. Cutout high-intensity, reflective sheeting text shall be applied to the sign panel with a pre-coated, adhesive backing.

645.041 Fabrication of Type I Regulatory, Warning and Route Marker Assembly Signs and Type II Sheet Aluminum Regulatory, Warning and Route Marker Assembly Signs

a. Panels Sheet aluminum sign panels shall be shop-fabricated to the size shown on the Contract Plans. The corners shall be rounded to the indicated radius where shown.

Bolt holes may be drilled or punched to finished size provided the diameter of the punched hole is at least twice the thickness of the metal being punched. Cut edges shall be true, smooth, and free from burrs or ragged breaks. Flame cutting will not be permitted. Punching or drilling of holes and cutting to size shall be completed before metal degreasing and the application of reflective sheeting.

b. Reflective Sheeting The high intensity prismatic reflective sheeting shall be applied to the sheet aluminum sign panels in accordance with the current recommendations of the sheeting Manufacturer. The reflective sheeting colors shall conform to the MUTCD Standard Highway Sign colors for each type of sign. Surface of all panels shall be flat and free from defects.

c. Text The text for regulatory, warning, confirmation and route marker assembly signs shall be composed of: High intensity prismatic, reflective sheeting letters, numerals, symbols and borders; or the silver letters may be formed by applying transparent ink to the reflective sheeting background where the silk screen process is used; or other methods to form the text may be used, when approved in advance.

645.042 Fabrication of Type II Guide Signs and Type II Plywood, Regulatory, Warning and Route Marker Assembly Signs

a. Panels Fabrication of all sign panels from high-density, overlaid plywood shall be performed in a uniform manner. All fabrication, including cutting, drilling, and edge routing, shall be completed prior to painting and application of reflective sheeting to the high-density, overlaid plywood. Panels shall be cut to size and shall be plywood. Panels shall be cut to size and shall be free of warping, open checks, open splits, open joints, open cracks, loose knots and other defects resulting from fabrication. Corners shall be left square. The surface of all sign panels shall be flat.

The edge and back of the plywood shall be painted with an exterior grade dark green paint.

b. Blanks Sign blanks shall be cut to shape using a saw blade that does not tear plywood grain. Holes shall be clean-cut and uniform. All cracks, open checks, open splits and other defects occurring on the edge surfaces shall be filled with a synthetic wood filler and sanded smooth prior to sealing and painting. The sign blank edges shall be sealed using an approved sealer/primer. The edges shall then be painted with an exterior grade, dark green paint.

The surface shall not be painted before application of reflective sheeting. Before applying reflective sheeting, dirt or wax shall be removed by one of the following methods:

1. The surface shall be buffed lightly with solvent-soaked steel wool, fine or medium, using organic solvents, such as lacquer thinner, xylol, heptane, benzene or naphtha, and wiped dry with clean cloths.
2. The panel shall be sanded lightly with fine-grade paper, cleaned with solvent, and wiped dry using clean cloths.

c. Reflective Sheeting The High intensity prismatic reflective sheeting shall be applied directly to the cleaned high-density surface in accordance with the recommendations of the reflective sheeting manufacturer.

d. Text The text for regulatory, warning, confirmation and route marker assembly signs shall be composed of cutout, High intensity prismatic reflective sheeting letters, numerals, symbols and borders or the silver letters may be formed by applying transparent ink to the reflective sheeting background where the silk screen process is used. Other methods to form the text may be used when approved in advance.

The design of the letters, numerals, and symbols, the spacing of the text and the size and spacing of the border shall conform to the MUTCD and Standard Highway Signs.

645.06 Installation of Type I Signs The sign locations shown on the Contract Plans are approximate; exact locations will be determined in the field by the Resident. Signs stockpiled before erection shall be stored in a vertical position and completely covered to avoid staining, weathering, and dirt accumulation.

a. Sign Supports Poles for single and multiple support beam-mounted roadside signs shall be erected plumb, using the leveling nuts supplied with the anchor bolts. When signs are supported by more than one pole, all poles shall be carefully aligned to avoid warping of the sign panel.

Bridge-mounted sign supports shall be fabricated and assembled in accordance with the details as shown on the Contract Plans and with Section 504. Additionally, if required to be painted, bridge-mounted sign supports shall be painted in accordance with Section 506.

Bridge-type, butterfly and cantilever-type sign supports and their foundations shall be constructed, assembled and erected, in accordance with the manufacturer's details, as approved. All horizontal supports spanning the roadway shall be level and shall have permanent camber as described in Section 10.5 of the current edition of AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals", and interims thereto. If, at any time after their erection, bridge-type, butterfly or cantilever-type sign supports are to remain for a period in excess of 72 hours without the sign(s) for which they were designed being in place, suitable vibration damping devices, approved by the Resident, shall be installed until such time as the sign(s) can be erected.

Where aluminum surfaces are in contact with concrete or dissimilar metals, the contacting surface shall be thoroughly coated with an approved aluminum impregnated caulking compound, or the surfaces shall be separated by another approved material. Before signs are attached, aluminum sign supports shall be cleaned of all dirt and discoloration using methods recommended by the manufacturer.

b. Sign Panels Extruded aluminum planks for sign panels shall be bolted together, as indicated on the Contract Plans. Extruded aluminum molding shall be placed on the edges of the extruded panels. Sign panels shall be attached to the posts to provide the vertical and horizontal clearances from the roadway as indicated on the Contract Plans. Sign panels on overhead structures shall provide a minimum vertical clearance of 18 feet to the highest point of the roadway surface under the sign(s). Sign panels on bridge-mounted sign supports shall be installed with the bottom edge of the sign approximately 4 inches above the bottom of the bridge beam.

Sign panels mounted over the roadway shall tilt in the direction of the approaching traffic in such a manner that the angle between the sign face and the roadway grade, at the sign location shall be $85^{\circ} \pm 3^{\circ}$.

Ground-mounted signs located 4 to 30 feet from the edge of shoulder shall form an angle of 93° between the approach roadway and the sign.

Signs located more than 30 feet from the edge of the shoulder shall form an angle between the approach roadway and the sign face equal to $87^{\circ} - 1^{\circ}$ for each additional 10 feet beyond 30 feet.

Unless otherwise shown on the Contract Plans, or designated by the Resident, a minimum lateral clearance of 4 feet shall be provided between the edge of the shoulder and the edge of any sign panel.

The elevation of the bottom edge of guide sign panels shall be 7 feet above the elevation of the edge of the traveled way, at the sign location, or in case of a curb section, 7 feet above the elevation of the outer edge of the roadway, unless authorized otherwise.

Signs located 30 feet or more from the edge of traveled way shall be 5 feet above the elevation of the edge of shoulder.

In the event that a second sign is to be placed under the main sign, the elevation of the bottom edge of the principal sign shall be a minimum of 8 feet above the outer edge of the traveled way, or a minimum of 8 feet above the edge of the traveled way, in curbed sections; the bottom edge of the second sign must be at least 5 feet above the edge of the traveled way.

The elevation of the bottom edge of the regulatory, warning and route marker sign panels shall be 6 feet above the elevation of the edge of the pavement, or edge of roadway in curbed sections, at the sign location. The elevation of the bottom edge of these sign panels above the elevation of the edge of the pavement on all crossing or connecting roadways shall be 5 feet in rural areas or 7 feet in urban areas. Field conditions may require some variation in elevations, as directed.

Each sign shall have at least two fasteners connecting it to the sign poles, except signs of 1 foot or less in height may have one fastener.

645.061 Installation of Type II Signs The exact sign locations will be determined in the field. Signs stockpiled before erection shall be stored in a vertical position and completely covered to avoid staining, weathering, and dirt accumulation.

When a steel pole is to be used, before any shop work is commenced, the Contractor shall submit 3 sets of the manufacturer's drawings of all standards and accessories proposed to be furnished and erected under this contract. The drawings shall be of sufficient detail to indicate material and/or dimensional conformance with these specifications and the contract drawings. Each drawing shall contain a reference to the design criteria and certification that the design criteria have been met for current edition of the AASHTO "LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals", and interims thereto, for bracket arms and associated hardware, fittings and breakaway devices, as submitted. A Professional Engineer licensed in accordance with the State of Maine regulations shall sign the certification under their official seal. The drawings shall use the same units as found in the Contract Plans. It is the intent of these specifications that the Contractor shall be

fully responsible for the adequacy of the sizes, wall thickness, materials and connections of the standards, bracket arms and associated hardware, fittings and breakaway devices. Approval of the drawings will signify only approval of the material(s), mounting heights(s) and bracket arm length(s).

a. Sign Supports Support posts for Type II signs shall be U-channel posts weighing 2½ pounds per foot for signs of less than 6.24 ft² in area, 4 inch by 4 inch wood posts or two U-channel posts weighing 2½ lb/ft for signs of area 6.24 ft² to 9 ft², 4 inch by 6 inch wood posts for signs of area 9 ft² to 16 ft², and 6 inch by 6 inch wood posts for signs of area over 16 ft². All signs 60 inches wide or wider shall be mounted on two wood posts. Wood posts shall be set to a depth of 4 feet. U-channel posts shall be set to a minimum depth of 30 inches. Leading signs less than 9 ft² on the apex of islands will be installed on U-channel posts. Solar powered sign mounted beacon arrays shall be mounted on galvanized steel poles. Any signs installed on/in an island, shall be installed in a PVC sleeve of the appropriate size for the type of post being installed, as shown in the standard details.

When it is necessary to set sign posts in bedrock, holes shall be excavated to the required depth and size at the locations indicated on the Contact Plans. The excavated material will be satisfactorily disposed of, as directed, and the posts set to the required depth.

When installing pressure-treated sign posts, the cut end of the posts shall not be buried in the ground.

Backfilling around the posts shall be with excavated material unless the excavated material is considered unsatisfactory, in which case the backfill shall be granular material conforming to the requirements of Section 703.19 - Granular Borrow. Backfill shall be thoroughly tamped in layers not exceeding 8 inches in depth.

When directed, the area around the posts shall be loamed and seeded in accordance with the applicable provisions of Section 615 and Section 618.

The Contractor shall be responsible for and shall repair all damage to underground drainage structures, utilities, or lighting conduits encountered during placing the posts.

b. Mounting Type II signs shall be mounted using assembly hardware specified in Section 719.07.

PVC pipe shall be installed in all locations where sign posts are to be placed in paved islands and shall have an inside diameter of 12 inches. For sleeves that are to be utilized for U-channel posts, the PVC pipe shall have a minimum length of 3 feet. For sleeves that are to be utilized for wood posts, the PVC pipe shall have a minimum length of 5 feet.

Installation of the PVC pipe shall occur prior to paving of the island. The pipe shall be placed at a depth so that the top of the pipe shall have no more than a 1 inch reveal from finished surface pavement. Once placed, the pipe shall be backfilled around the outside

diameter in layers that are thoroughly compacted and that do not exceed a depth of 8 inches.

Once installed and backfilled, the pipe shall be completely filled to the top of the pipe with material that meets the gradation requirements of Aggregate for Untreated Surface Course and Leveling Course Type A or Type B or Underdrain Backfill Material.

645.062 Installation of Delineators Posts for delineators shall be erected so that posts and assemblies will be plumb. All posts, which are bent or otherwise damaged, shall be removed and properly replaced. Posts shall be driven 4 feet from the outside edge of shoulder, 4 feet from the face of curb and 4 feet from the normal edge of shoulder in guardrail sections. A suitable driving cap shall be used and after driving, the top of the post shall have substantially the same cross sectional dimensions as the body of the post.

When bedrock is encountered in erecting posts, the depth to be drilled into the rock shall be determined by the Resident.

After the posts are driven, delineators shall be mounted 4 feet above the elevation of the edge of the traveled way. In the event that a delineator is required to be installed on a bridge structure, it shall be installed by use of a bracket as shown on the Contract Plans.

Sign support posts to be installed in the sleeve shall be plumbed and set in the material which shall be compacted or tamped around the post. The posts shall be placed so that there is a 2 foot maximum distance from the bottom of the retro-reflective strip on the sign post to the paved travelway or shoulder surface. For wooden posts only, 4 feet of the post shall be placed in the sleeve. Other sign support post installation requirements shall be followed as per Section 645 of the Standard Specifications.

645.063 Installation of Breakaway Devices Breakaway devices shall be installed at locations indicated on the Contract Plans by an approved method. Each sign and pole shall be carefully demounted for reinstallation at the same or at a new location. Manufacturer's installation information shall be provided on the project.

If required, poles shall be cut in such a manner that no rough edges will remain. No flame cutting will be permitted. Cut edges on steel poles shall be painted in accordance with Section 645.07.

Existing foundations shall be modified for attachment of the breakaway device as shown on the Contract Plans or approved.

Breakaway devices shall be attached to new foundations in accordance with the recommendations of the breakaway device manufacturer and as approved.

645.064 Installation of Sign Mounted Beacon Array Beacons installation shall conform to current MUTCD standards.

Battery and solar assembly shall be of sufficient size to power sign for 7 days without solar charging. Batteries shall be gel cell or absorbed glass mat (AGM) batteries. Solar panel shall be installed facing true south and 60 degrees from vertical.

Connections to service shall be in accordance with section 643.09.

The cabinet should be positioned on the side of the pole farthest from traffic. Only aluminum and steel cabinets will be accepted. All exposed wiring shall be in accordance with section 715.11.

All wiring shall be in accordance with section 718.01-c.

Beacon Array shall meet testing requirements outlined in sections 643.14 a, b, and e.

645.07 Demounting and Reinstalling Existing Signs and Poles Signs and poles designated to be demounted and not designated to be reinstalled, except those designated to be demounted by others, shall be delivered to the Resident.

Existing sign panels, poles, foundations, and sign hardware, damaged because of the Contractor's operations shall be replaced or repaired by the Contractor to the satisfaction of the Resident.

New or relocated regulatory, warning, confirmation or route marker assembly signs shall be installed the same working day as the corresponding existing signs are demounted. All new or relocated guide signs shall be installed within two working days of the time the corresponding existing sign is demounted. Before the Contractor demounts any regulatory or warning sign, they shall erect a similar easel mounted sign at a designated location. The Contractor shall maintain this temporary sign in place until the permanent sign is installed.

Existing signs and poles shall be reinstalled in accordance with the applicable requirements for installing new signs and poles.

Relocated steel posts and clamps shall be field painted two coats after the posts have been erected. The first coat shall be a zinc-dust primer paint meeting Federal Specification TT-P-641B Type II. The second coat shall be bright aluminum paint, aluminum-dust Type II, Class 3 brightness, meeting Federal Specification TT-A-468 with a minimum of 2 lb/gal, with vehicle meeting or exceeding Federal Specification TT-V-109. Scratches shall be touched up after the erection of the sign panels. The touchup shall be with both primer and finish coat. Sign pole surfaces to be painted shall be cleaned and dry when the paint is applied. No painting shall be done in damp weather nor when the air temperature is below 40°F.

645.08 Method of Measurement Demount Signs, Demount Poles, Reinstall Signs, and Reinstall Poles will be measured by each unit.

Bridge-type, cantilever and butterfly-type Sign Support Structures, including the foundations and sign panels, complete in place, as called for on the Contract Plans, will be measured by each unit.

Bridge-Mounted Guide Signs, including supports, will be measured by each unit in place.

Breakaway devices (1 per pole) shall be measured by the unit complete in place and accepted.

The area of roadside guide signs, regulatory, warning, confirmation and route marker assembly signs of the respective types, will be measured by the area in square feet, computed to nearest hundredth of a square foot, as determined by the overall height multiplied by the overall width.

Aluminum poles for roadside guide signs, Type I will be measured by the number of units of each diameter, complete in place. Steel H-beam poles will be measured for payment by the pound, determined from the nominal weight per foot for each size and the lengths as indicated on the Contract Plans.

Demountable reflectorized delineators will be measured by the number of units of each type in place.

All beacons installed on an individual post/pole shall constitute a single installation. Each installation will be measured for payment by the lump sum in place

645.09 Basis of Payment The accepted demounted signs and demounted poles will be paid for at the contract unit price each for the respective item specified. Such price will be full compensation for delivering signs and poles not to be reinstalled to a site designated by the Resident, and all other incidentals necessary to complete the work.

The accepted reinstalled signs or reinstalled poles will be paid for at the contract unit price each. Such price will be full compensation for furnishing new hardware, when required, and all incidentals necessary to complete the installations. All signs or poles designated to be reinstalled that are damaged by the Contractor shall be replaced by the Contractor with new signs or poles conforming to the applicable Specifications at no additional cost to the State.

The accepted bridge-type, cantilever and butterfly-type Sign Support Structures will be paid for at the contract lump sum price for the respective items. Such price will be full compensation for the signs, support structures, foundations, and incidentals necessary to complete the work, including design of the sign supports.

The accepted guide signs-overpass mounted, will be paid for at the contract lump sum price for the respective items, which price will be full compensation for the signs, supports and incidentals necessary to complete the work, including design of the sign supports.

The accepted roadside guide signs and regulatory, warning, confirmation, and route marker assembly signs will be paid for at the contract unit price per square foot. Such payment will be full compensation for furnishing and installing signs, assembly hardware, and all incidentals necessary to complete the work, including design of the sign supports.

The accepted aluminum poles will be paid for at the contract unit price each for the specified diameter, complete in place.

The accepted demountable reflectorized delineators will be paid for at the contract unit price each for the type specified, which payment will be full compensation for delineator and post or bridge rail mounting, complete in place.

Payment for breakaway devices shall be full compensation for furnishing and installing the device, all required pole cutting, for adapting the pole to the breakaway device, for adapting the concrete base to the breakaway device and all other incidentals necessary to complete the work. Separate payment will be made at the respective contract unit prices for demounting and reinstalling the signs and the poles at multi-pole installations. At single-pole installations, separate payment will be made at the respective contract unit prices for demounting and reinstalling the poles only.

The accepted quantity of steel H-beam poles will be paid for at the contract unit price per pound, complete in place as shown on the Contract Plans or as designated.

Furnishing and installing posts for Type II signs, including earth excavation and backfilling, furnishing and placing assembly hardware, backfilling material, loam, seed and other incidentals, will not be paid for directly but will be considered incidental to the cost of the signs they support.

Sign Mounted Beacon Arrays will be paid for at the contract lump sum price, which payment will be full compensation for furnishing all materials including, but not limited to the LED-arrays, flasher, timer, controller cabinets, wiring, pedestrian push buttons, solar panels, batteries, radio devices, radar units, and all appurtenances and incidentals required for a complete and functioning installation and for furnishing all tools and labor necessary for completing the installation. Array must meet all testing and connection requirements of this section

All work, PVC Pipe, Aggregate for Untreated Surface Course and Leveling Course, Underdrain Backfill Material and other materials furnished to install, backfill around, and fill the sleeve in the island and place the sign post in the sleeve shall be incidental to the Section 645 Items.

Payment for excavation of solid bedrock for the placement of wood poles will be made under Item 206.07.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
645.103	Demount Guide Sign	Each
645.106	Demount Regulatory, Warning, Confirmation and Route Marker Assembly Sign	Each
645.108	Demount Pole	Each
645.113	Reinstall Guide Sign	Each
645.116	Reinstall Regulatory, Warning, Confirmation and Route Marker Assembly Sign	Each
645.118	Reinstall Pole	Each
645.12	Overhead Guide Sign: (STA X + XXX)	Lump Sum
645.13	Bridge Overpass-Mounted Guide Sign: (STA X + XXX) (Left/Right XX)	Lump Sum
645.14	Special Work No.: _____	Lump Sum
645.15	Cantilever Guide Sign: (STA X + XXX)	Lump Sum
645.161	Breakaway Device Single Pole	Each
645.162	Breakaway Device Multi Pole	Each
645.251	Roadside Guide Signs, Type I	Square Foot
645.261	Bridge Guide Sign, Type I	Square Foot
645.271	Regulatory, Warning, Confirmation and Route Assembly Sign, Type I	Square Foot
645.281	5 Inch Aluminum Pole	Each
645.282	6 Inch Aluminum Pole	Each
645.283	7 Inch Aluminum Pole	Each
645.284	8 Inch Aluminum Pole	Each
645.285	10 Inch Aluminum Pole	Each
645.286	12 Inch Aluminum Pole	Each
645.289	Steel H-Beam Poles	Pounds
645.291	Roadside Guide Signs Type II	Square Foot
645.292	Regulatory, Warning, Confirmation and Route Marker Assembly Signs Type II	Square Foot
645.301	Demountable Reflectorized Delineator, Single	Each
645.302	Demountable Reflectorized Delineator, Double	Each
645.305	Sign Mounted Beacon Array	Lump Sum

SECTION 652

MAINTENANCE OF TRAFFIC

652.2.4 Other Devices Revise this Section by removing the following paragraph:
“ STOP/SLOW paddles shall be the primary and preferred hand held signaling device. Flags shall be limited to Emergencies. The paddle shall have an octagonal shape and be at least 18 inches wide with letters at least 6 inches high and should be fabricated from semi-rigid material”

And replace with these paragraphs:

“Flaggers shall use a STOP / SLOW hand held paddle as the primary and preferred hand signaling device. Flags shall only be limited to emergencies.

STOP / SLOW paddles shall have high intensity prismatic retro reflective sheeting, have an octagonal shape on a rigid handle and shall be at least 18 inches wide with letters at least 6 inches high and shall be constructed from light semi-rigid material. The STOP (R1-1) face shall have white letters and a white border on a red background. The SLOW (W20-8) face shall have black letters and a black border on an orange background.

STOP / SLOW paddles shall also incorporate either white or red flashing lights on the STOP face and white or yellow flashing lights on the SLOW face of the paddle and always be in use. Paddles must conform to any of the following patterns:

A. Two white or red lights (colors shall be all white or all red), one centered vertically above and one centered vertically below the STOP legend; and/or two white or yellow lights (colors shall be all white or all yellow), one centered vertically above and one centered vertically below the SLOW legend;

B. Two white or red lights (colors shall be all white or all red), one centered horizontally on each side of the STOP legend; and/or two white or yellow lights (colors shall be all white or all yellow), one centered horizontally on each side of the SLOW legend;

C. One white or red light centered below the STOP legend; and/or one white or yellow light centered below the SLOW legend;

D. A series of eight or more small all white or all red lights no larger than 1/4 inch in diameter along the outer edge of the paddle, arranged in an octagonal pattern at the eight corners of the border of the STOP face; and/or a series of eight or more small all white or all yellow lights no larger than 1/4 inch in diameter along the outer edge of the paddle, arranged in a diamond pattern along the border of the SLOW face; or

E. A series of white lights forming the shapes of the letters in the legend.

Flashing light patterns shall be compliant with Section 6E.03 Hand Signaling Devices in the most current version of the Manual on Uniform Traffic Control Devices.

All flashing light patterns on the STOP / SLOW paddle shall be visible from a minimum distance of 1000 feet.”

652.3.3 Submittal of Traffic Control Plan On page **6-148**, note **f**, in the last sentence revise the “105.2.2” to “105.2.3” so that the last sentence reads, **“For a related provision, see Section 105.2.3 – Project Specific Emergency Planning.”**

652.3.4 General Revise the eighth paragraph by removing “Earth Berm” and replace it with **“Concrete Barrier”**.

Amend this section by adding the following paragraph before the paragraph beginning with “Special Detours and temporary structures...”:

“A temporary ramp shall be constructed with HMA at the ends of the roadway section paved or milled each day. The use of millings or RAP will not be allowed, but cold patch may be temporarily utilized until HMA plants are open for the season. The maximum ramp change in

elevation shall not exceed 4" vertical. For Interstate Highways or roadways with speed limits equaling or exceeding 50 mph; temporary ramps shall be constructed at a length of eight feet per inch of transition depth. For roadways with speed limits less than 50 mph and greater than 25 mph, temporary ramps shall be constructed at a length of four feet per inch of transition depth. For roadways with speed limits 25 mph or less, temporary ramps shall be constructed at a length of two feet per inch of transition depth. Materials, placement, maintenance, and removal shall be incidental to contract items."

652.4 Flaggers Revise this section by removing the first paragraph, and replace it with the following"

"The Contractor shall furnish flaggers as required by the TCP or as otherwise specified by the Resident. All flaggers must have successfully completed a flagger test approved by the Department and administered by a Department-approved Flagger-Certifier. All flaggers must carry an official certification card with them at all times while flagging.

For daytime conditions, flaggers shall wear a top (vest, shirt or jacket) that is orange, yellow, yellow-green, or fluorescent versions of these colors meeting ANSI 107-2004, Class 2 or Class 3, along with a hardhat with 360 ° retro-reflectivity.

For nighttime conditions, flaggers shall wear all Class 3 apparel, meeting ANSI 107-2004, including a Class 3 top (vest, shirt or jacket) and a Class E bottom (pants or coveralls), shall be worn along with a hardhat with 360 ° retro-reflectivity and shall be visible at a minimum distance of 1000 ft. Flagger stations must be illuminated in nighttime conditions to assure visibility and will be specifically addressed in detail in the Contractor's TCP".

652.41 TRAFFIC OFFICERS

Revise this subsection so that the subsection number and title is

"652.4.1 TRAFFIC OFFICERS "

652.6.1 Daylight Work Times Revise this section by removing the word "table" in the first sentence and replacing it with "times procured". Also remove the link <http://www.sunrisesunset.com/usa/Maine.asp> and replace with <https://www.sunrisesunset.com/usa/Maine/>.

SECTION 654 VACANT

Change this Section to:

SECTION 654 INTELLIGENT TRANSPORTATION SYSTEMS RESERVED

SECTION 656 TEMPORARY SOIL EROSION AND WATER POLLUTION CONTROL

656.3.4 Water Pollution Control Requirements Revise this section by adding the following to the end:

“g. Water withdrawals for dust control or moisture control for compaction is prohibited from waterbodies in Maine that have identified invasive plant infestations. For current information and a map of waterbodies where withdrawal is prohibited, visit the DEP website; <https://www.maine.gov/dep/water/invasives/>. Under the heading, “Control” there is a link to infested waterbodies. “

656.5.2 If No Pay Item Add the following to the end of the first paragraph:

“Failure by the Contractor to follow Standard Specification or Special Provision - Section 656 will result in a violation letter and a reduction in payment as shown in the schedule list in 656.5.1. The Department’s Resident or any other representative of The Department reserves the right to suspend the work at any time and request a meeting to discuss violations and remedies. The Department shall not be held responsible for any delay in the work due to any suspension under this item.”

SECTION 660

ON-THE-JOB TRAINING

660.06 Method of Measurement

Remove the first sentence in its entirety and replace with “ **The OJT item will be measured by the number of OJT hours by a trainee who has successfully completed an approved training program.**”

660.07 Basis of payment to the Contractor

Remove the last word in the first sentence so that the first sentence reads “ The OJT shall be paid for once successfully completed at the contract unit price per **hour**.”

Payment will be made under

Change the Pay Item from “660.22” to “**660.21**” and change the Pay Unit from “Each” to “**Hour**”.

SECTION 672

PRECAST CONCRETE BLOCK GRAVITY WALL

672.031 Concrete Units Revise this section by making the following changes:

In the second paragraph remove “A” and underline “**Materials**”.

In the third paragraph remove “B” and underline “**Quality Control and Quality Assurance**”.

Revise this section by removing the paragraph “C Construction...” and replacing it with:

“Construction. Construction requirements are modified as follows:

Add the following paragraph at the end of the Construction section:

Face texture of the units shall be a formed finish on all exposed surfaces. Pigment shall be added during the casting process of the concrete unit to achieve a consistent shade of gray or other color as determined by the Resident.

Curing. Curing requirements are modified as follows:

Replace the first sentence in the paragraph which begins “Forms shall remain ...” with the following:

The forms shall remain in place until the concrete has gained sufficient strength such that removal of the forms and subsequent handling will not damage the units.”

In the paragraph beginning with “D” remove “D” and underline “**Concrete Testing**”.

In the paragraph beginning with “E” remove the “E” and underline “**Tolerances**”. Also in this paragraph add “**Replace Tolerance contents in 712.061 with the following:**” after Tolerances.

672.035 Backfill Material– Revise this section by adding the following after the second paragraph:
Backfill materials shall meet the criteria in the following table.

<u>Base Polymer</u>	<u>Property</u>	<u>Criteria</u>	<u>Test Method</u>
Polyester (PET)	pH	3 < pH < 9	AASHTO T-289
Polyolefin (PP & HDPE)	pH	pH > 3	AASHTO T-289

672.04 Design Requirements – Revise this section by replacing items 2 and 3 in the second paragraph with the following:

- 2. FHWA-NHI-10-024 and FHWA-NHI-10-025, Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, Volumes I and II, current edition.**
- 3. FHWA-NHI-09-087 Corrosion/Degradation of Soil Reinforcements for Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, current edition.**

SECTION 673 **WETCAST SMALL LANDSCAPE BLOCK WALL**

673.031 Concrete Units Revise this section by making the following changes:

In the second paragraph remove “A” and underline “**Materials**”.

In the third paragraph remove “B” and underline “**Quality Control and Quality Assurance**”.

Revise this section by removing the paragraph “C Construction...” and replacing it with:

“Construction Add the following paragraph at the end of the Construction section:

Face texture of the units shall be a formed finish on all exposed surfaces.
Pigment shall be added during the casting process of the concrete unit to achieve a consistent shade of gray or other color as determined by the Resident.

Curing. Curing requirements are modified as follows:

Replace the first sentence in the paragraph which begins “Forms shall remain ...” with the following:

The forms shall remain in place until the concrete has gained sufficient strength such that removal of the forms and subsequent handling will not damage the units.”

In the paragraph beginning with “D” remove “D” and underline “**Concrete Testing**”.

In the paragraph beginning with “E” remove the “E” and underline “**Tolerances**”. Also in this paragraph add “**Replace Tolerance contents in 712.061 with the following:**” after Tolerances.

673.035 Backfill Material – Revise this section by adding the following after the second paragraph:

Backfill materials shall meet the criteria in the following table.

<u>Base Polymer</u>	<u>Property</u>	<u>Criteria</u>	<u>Test Method</u>
Polyester (PET)	pH	3 < pH < 9	AASHTO T-289
Polyolefin (PP & HDPE)	pH	pH > 3	AASHTO T-289

673.04 Design Requirements – Revise this section by replacing items 2 and 3 in the second paragraph with the following:

2. FHWA-NHI-10-024 and FHWA-NHI-10-025, Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, Volumes I and II, current edition.
3. FHWA-NHI-09-087 Corrosion/Degradation of Soil Reinforcements for Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, current edition

SECTION 674

PREFABRICATED CONCRETE MODULAR GRAVITY WALL

674.02 Materials Amend this section by replacing the last sentence in the first paragraph which begins with “Materials shall...” with the following: “**Modify requirements in 712.061 as follows:**”.

Amend this section by adding the following after “Concrete Units:” and before the paragraph beginning with “Tolerances”.

Concrete shall be Class P. The concrete shall contain a minimum of 5.5 gallons per cubic yard of calcium nitrite solution.

The minimum permeability of the concrete as indicated by Surface Resistivity shall be 17 KOhm-cm.

Defects Defects which may cause rejection of precast units include, but are not limited to, the following:

Any discontinuity (crack, rock pocket, etc.) of the concrete which could allow moisture to reach the reinforcing steel.

Rock pockets or honeycomb over 6 square inches in area or over 1 inch deep.

Edge or corner breakage exceeding 12 inches in length or 1 inch in depth.

Any other defect that clearly and substantially impacts the quality, durability, or maintainability of the structure, as determined by the Fabrication Engineer.

Repair honeycombing, ragged or irregular edges and other non-structural or cosmetic defects using a patching material from the MaineDOT Qualified Products List (QPL). The repair, including preparation of the repair area, mixing and application and curing of the patching material, shall be in accordance with the manufacturer's product data sheet. Corners that are not exposed in the final product may be ground smooth with no further repair necessary if the depth of the defect does not exceed 1/2 inch. Remove form ties and other hardware to a depth of not less than 1 inch from the face of the concrete and patch the holes using a patching material from the MaineDOT QPL.

Repair structural defects only with the approval of the Fabrication Engineer. Submit a nonconformance report (NCR) to the Fabrication Engineer with a proposed repair procedure. Do not perform structural repairs without an NCR that has been reviewed by the Fabrication Engineer. Structural defects include, but are not be limited to, exposed reinforcing steel or strand, cracks in bearing areas, through cracks and cracks 0.013 inch in width that extend more than 12 inches in length in any direction. Give the QAI adequate notice prior to beginning any structural repairs.

SECTION 677

MECHANICALLY STABILIZED EARTH RETAINING WALL

677.03 Design Requirements – Revise this section by replacing items 6, 7 and 8 in the second paragraph with the following:

- 6. FHWA-NHI-10-024, Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, Volumes I, current edition.**
- 7. FHWA-NHI-10-025, Design and Construction of Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, Volumes II, current edition.**
- 8. FHWA-NHI-09-087 Corrosion/Degradation of Soil Reinforcements for Mechanically Stabilized Earth Walls and Reinforced Soil Slopes, current edition**

On page 6 - 203 change “636.041” to “677.041”

Amend 677.042 Precast Panel Tolerances and Surface Finish by the addition of the following:

Defects Defects which may cause rejection of precast units include, but are not limited to, the following:

Any discontinuity (crack, rock pocket, etc.) of the concrete which could allow moisture to reach the reinforcing steel.

Rock pockets or honeycomb over 6 square inches in area or over 1 inch deep.

Edge or corner breakage exceeding 12 inches in length or 1 inch in depth.

Any other defect that clearly and substantially impacts the quality, durability, or maintainability of the structure, as determined by the Fabrication Engineer.

Repair honeycombing, ragged or irregular edges and other non-structural or cosmetic defects using a patching material from the MaineDOT Qualified Products List (QPL). The repair, including preparation of the repair area, mixing and application and curing of the patching material, shall be in accordance with the manufacturer's product data sheet. Corners that are not exposed in the final product may be ground smooth with no further repair necessary if the depth of the defect does not exceed 1/2 inch. Remove form ties and other hardware to a depth of not less than 1 inch from the face of the concrete and patch the holes using a patching material from the MaineDOT QPL.

Repair structural defects only with the approval of the Fabrication Engineer. Submit a nonconformance report (NCR) to the Fabrication Engineer with a proposed repair procedure. Do not perform structural repairs without an NCR that has been reviewed by the Fabrication Engineer. Structural defects include, but are not be limited to, exposed reinforcing steel or strand, cracks in bearing areas, through cracks and cracks 0.013 inch in width that extend more than 12 inches in length in any direction. Give the QAI adequate notice prior to beginning any structural repairs.

SECTION 681

PRECAST AGGREGATE-FILLED, CONCRETE BLOCK GRAVITY WALL

681.031 Concrete Units Revise this section by making the following changes:

In the second paragraph remove "A" and underline "Materials".

In the third paragraph remove "B" and underline "Quality Control and Quality Assurance".

In the fourth paragraph remove "C" and underline "Construction".

In the fifth paragraph remove "D" and underline "Concrete Testing".

In the sixth paragraph remove the "E" and underline "Tolerances".

SECTION 702

BITUMINOUS MATERIAL

702.01 Asphalt Cement - Remove this section in its entirety and replace with the following:

Performance-Graded Asphalt Binder (PGAB) that has not been modified with polymer shall conform to the requirements of AASHTO M 320. Polymer modified binder shall meet the requirements of AASHTO M 332 and AASHTO R 92, except that the percent difference in nonrecoverable creep compliance, J_{nr}diff, shall not be enforced. Performance-Graded Asphalt Binder shall not contain re-refined engine oil bottoms (REOB).

The Contractor shall arrange for the Supplier to furnish the following items to the Department's Asphalt Pavement Engineer:

a. A Quality Control Plan that conforms to the requirements of AASHTO R 26 "Certifying Suppliers of Performance-Graded Asphalt Binders" and

b. A CERTIFICATE OF ANALYSIS for all asphalt materials furnished for use on the project. The Certificate shall include the actual test results of the material in storage from which the shipments are being made. Certificates shall be supplied for each lot, batch, or blend of each type and grade of material. A new certificate shall be issued at least every 30 days or upon receiving or manufacture of a new material. The original of each Certificate of Analysis shall be mailed to the Departments Asphalt Pavement Engineer.

The Contractor shall give the supplier sufficient notice of orders to permit testing and certification. Material not certified will not be accepted for use.

Deliveries of asphalt materials shall be accompanied by a Bill of Lading containing the information required under Section 108.1.3 f. The Bill of Lading shall include the applicable certificate number and shall include a printed or stamped statement such as the following: "THIS IS TO CERTIFY THAT THE ASPHALT MATERIAL REPRESENTED BY THIS LOADING INVOICE CONFORMS TO THE SPECIFICATIONS OF THE PURCHASER FOR THE MATERIAL TYPE AND GRADE STATED THEREON."

In the event an intermediate hauler of the asphalt material is involved, a copy of their own delivery slip shall be furnished, as well as a copy of the supplier's loading invoice. The hauler's delivery slip and the supplier's loading invoice shall be cross-referenced by use of their respective serial numbers.

All non-bituminous components added to the binder prior to the sampling point for binder certification shall be included on the asphalt binder Certificate of Analysis identifying their presence. All non-bituminous components added after the certification sampling point and prior to transport shall be included on the Bill of Lading. All non-bituminous components added to the binder at the HMA plant shall be identified on the mix plant documentation and accompanied by test results and certification showing the effect of the additives introduced, if any.

702.04 Emulsified Asphalt

Revise this Section by removing the first paragraph in its entirety and replace with the following:

Emulsified Asphalt shall conform to the requirements of AASHTO M 140. Cationic emulsified asphalt shall conform to the requirements of AASHTO M 208. Anionic emulsified asphalt Grade RS-1h shall conform to the requirements in the following table:

Type	Rapid-Setting	
Grade	RS-1h	
Tests on Emulsions	min	max
Viscosity, Saybolt Furol at 25°C SFS	20	100
Storage Stability test, 24-h, % ^A	-	1.0
Demulsibility, 35 ml, 0.02 N CaCl ₂ , %	60	-
Sieve Test, % ^A	-	0.10
Residue by distillation, %	55	-
Tests on Residue from Distillation Test	min	max
Penetration, 25°C 100g, 5 s	40	90
Ductility, 25°C 5 cm/min, cm	40	-
Solubility in trichloroethylene or n-propyl bromide, %	97.5	-

^A This requirement is waived if successful application of material has been achieved in the field.

SECTION 703 **AGGREGATES**

703.01 Fine Aggregate for Concrete Replace the second paragraph with the following:

“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 organic plate number 3, the fine aggregate shall be rejected.”

703.0201 Alkali Silica Reactive Aggregates. Remove this section in its entirety and replace with the following:

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 an accredited independent lab submitted to the Department. Aggregate submittals will be required on a 5-year cycle, unless the source or character of the aggregate in question has changed within 5 years from the last test date.

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 as tested under ASTM C 1567.

Acceptable pozzolans and chemical admixtures that may be used when an aggregate is classified as potentially reactive include, but are not limited to the following:

Class F Coal Fly Ash meeting the requirements of AASHTO M 295.

Ground Granulated Blast Furnace Slag (Grade 100 or 120) meeting the requirements of AASHTO M 302.

Densified Silica Fume meeting the requirements of AASHTO M 307.

Lithium based admixtures

Metakaolin

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.

703.06 Aggregate for Base and Subbase - Remove the first two paragraphs in their entirety and replace with these:

“The following shall apply to Sections (a.) and (c.) below. The material 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 Washington State Degradation DOT Test Method T113, Method of Test for Determination of Degradation Value (January 2009 version) shall be performed, except that the test shall be performed on the 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 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. “

703.081 RAP for Asphalt Pavement

Remove this section in its entirety and replace with the following:

703.081 RAP for Asphalt Pavement Recycled Asphalt Pavement (RAP) may be introduced into hot-mix asphalt pavement at percentages approved by the Department according to the MaineDOT Policies and Procedures for HMA Sampling and Testing.

If approved by the Department, the Contractor shall provide documentation stating the source, test results for average residual asphalt content, and stockpile gradations showing RAP materials have been sized to meet the maximum aggregate size requirements of each mix designation. The Department will obtain samples for verification and approval prior to its use.

The maximum allowable percent of RAP shall be determined by the asphalt content, the percent passing the 0.075 mm sieve, the ratio between the percent passing the 0.075 mm sieve and the asphalt content, and Coarse Micro-Deval loss values as tested by the Department.

The maximum percentage of RAP allowable shall be the lowest percentage as determined according to Table 4 below:

Table 4: Maximum Percent RAP According to Test Results

Classification	Maximum RAP Percentage Allowed	Asphalt content standard deviation	Percent passing 0.075 mm sieve standard deviation	Percent passing 0.075 mm sieve / asphalt content ratio	Residual aggregate M-D loss value
Class III	10%	≤ 1.0	N/A	≤ 4.0	≤ 18
Class II	20%	≤ 0.5	≤ 1.0	≤ 2.8	
Class I	30%	≤ 0.3	≤ 0.5	≤ 1.8	

The Department will monitor RAP asphalt content and gradation during production by testing samples from the stockpile at approximately 15,000 T intervals (in terms of mix production). The allowable variance limits (from the numerical average values used for mix designs) for this testing are determined based upon the maximum allowable RAP percentage, and are shown below in Table 5.

Table 5: RAP Verification Limits

Classification	Asphalt content (compared to aim)	Percent passing 0.075 mm sieve (compared to aim)
Class III	± 1.5	± 2.0
Class II	± 1.0	± 1.5
Class I	± 0.5	± 0.7

For specification purposes, RAP will be categorized as follows:

Class III – A maximum of 10.0 percent of Class III RAP may be used in any base, intermediate base, surface, or shim mixture. A maximum of 20.0 percent of Class III RAP may be used in hand-placed mixes for item 403.209.

Class II – A maximum of 20.0 percent Class II RAP in any base, binder, surface, or shim course.

Class I – A maximum of 20.0 percent Class I RAP may be used in any base, intermediate base, surface, or shim mixture without requiring a change to the specified asphalt binder. A maximum of 30.0 percent Class I RAP may be used in in any base or intermediate base mixture provided that a PG 58-28 or PG 58-34 asphalt binder is used. A maximum of 30.0 percent Class I RAP may be used in any surface or shim mixture provided that PG 58-34 asphalt binder is used. Mixtures exceeding 20.0 percent Class I RAP must be evaluated and approved by the Department.

The Contractor may use up to two different RAP sources in any one mix design. The total RAP percentage of the mix shall not exceed the maximum allowed for the highest classification RAP source used (i.e. if a Class I & Class III used, total RAP must not exceed 30.0%). The blended RAP material must meet all the requirements of the classification for which the RAP is entered (i.e. 10% Class III with 20% Class I, blend must meet Class I criteria). The Department may take belt cuts of the blended RAP to verify the material meets these requirements. If the Contractor elects to use more than one RAP source in a design, the Contractor shall provide an acceptable point of sampling blended RAP material from the feed belt.

In the event that RAP source or properties change, the Contractor shall notify the Department of the change and submit new documentation stating the new source or properties a minimum of 72 hours prior to the change to allow for obtaining new samples and approval.

703.19 Granular Borrow

Remove the gradation requirements table, and replace with the following:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	Material for Underwater Backfill	Material for Embankment Construction
6 inch	100	
No. 40	0-70	0-70
No. 200	0-7.0	0-20.0

703.33 Stone Ballast - In the third paragraph, remove the words “ less than” before 2.60 and add the words “or greater” after 2.60.

SECTION 705 **JOINT MATERIAL**

705.03 Flexible Watertight Gaskets Revise this section by deleting it in its entirety and replace with “Flexible gaskets, either rubber or plastic, shall conform to ASTM C990”

SECTION 708

PAINTS AND PRESERVATIVES

708.05 Timber Preservative Revise this section by removing it in its entirety and replacing with:
“Timber preservatives shall conform to the requirements of AASHTO M 133 and AWWA Standard U1. All preservatives shall meet the requirements of the US EPA regulations under the Federal Insecticide, Fungicide and Rodenticide Act.”

SECTION 709 REINFORCING STEEL AND WELDED STEEL WIRE FABRIC

709.01 Reinforcing Steel Revise this section by removing the sentence starting with “The chemical composition...” in the third paragraph and replace it with the following:
“The chemical composition shall conform to one of the types listed in Table 2 of ASTM A955 or UNS S32304 Duplex.”

SECTION 710 FENCE AND GUARDRAIL

710.07 Guardrail Posts Amend subsection ‘a’ by removing the words “white oak”, “cedar”, “tamarack”, “maple”, “beech”, “birch” and “red oak” from the first sentence. Also in the first sentence, place an “**or**” between “pine” and “eastern hemlock”. In the second sentence remove the words “well seasoned”. Remove the sentence beginning with “Wood posts and offset brackets...” and replace it with: **“Wood posts and offset brackets shall be preservative treated in accordance with the requirements of AASHTO M 133 and AWWA U1, UC4A Commodity Specification A: Sawn Products.”**

SECTION 712 MISCELLANEOUS HIGHWAY MATERIAL

712.061- Structural Precast Concrete Units

Under the heading, Quality Control and Quality Assurance, revise the fourth paragraph to read:

“Acceptance is the prerogative of the Department. The Department will conduct Quality Assurance (QA) in accordance with Standard Specification Subsection 106.5. Testing deemed necessary by the Department that is in addition to the minimum testing requirements will be scheduled to minimize interference with the production schedule. The QAI will perform acceptance sampling and testing and will witness or review documentation, workmanship and testing to assure the Work is being performed in accordance with the Contract Documents.”

Under the heading, Construction, revise the paragraph beginning with “Recess inserts one inch...” by removing the first sentence and replacing it with **“Recess metal inserts and form ties a minimum of one inch, unless noted otherwise in the Contract.”**

Under the heading, Concrete Testing, revise the first paragraph to read as the following two paragraphs:

“Concrete Testing Acceptance of structural precast units, for each day’s production, will be determined by the Department, based on compliance with this specification and satisfactory concrete testing results.

At least once per week, the QAI will make 2 concrete cylinders (6 cylinders when the Contract includes permeability requirements) for use by the Department; cylinders shall be standard cured in accordance with AASHTO T23 (ASTM C31). The QAI will perform entrained air content and slump flow testing, determine water-cement ratio and determine temperature of the sampled concrete at the time of cylinder casting. All testing equipment required by the QAI to perform this testing shall be in accordance with Standard Specification Section 502.041, Testing Equipment. In addition, the Contractor shall provide a slump cone meeting the requirements of AASHTO T 119. Providing and maintaining testing and curing equipment shall be considered incidental to the work and no additional payment will be made.

Quality Control test cylinders shall be made and tested in accordance with the following standards:

AASHTO T 22 (ASTM C39) Test Method for Compressive Strength of Cylindrical Concrete Specimens

AASHTO T23 (ASTM C31) Practice for Making and Curing Concrete Test Specimens in Field

AASHTO T141 (ASTM C172) Practice for Sampling Freshly Mixed Concrete

AASHTO T152 (ASTM C231) Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

AASHTO T196 (ASTM C173) Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method

ASTM C1064 Test Method for Temperature of Freshly mixed Portland Cement Concrete

ASTM C1611 Standard Test Method for Slump Flow of Self-Consolidating Concrete”

Under the heading, Concrete Testing, **delete** the paragraph that begins:

“At least once per week, the Contractor shall make 2 concrete cylinders.....for use by the Department.....”

Under the heading, Concrete Testing, revise the paragraph beginning with “Perform compressive strength testing...” by replacing the word ”transfer” with the word **“stripping”**.

Under the heading, Concrete Testing, revise letter “b” to only read “Air Content shall be 5.5% to 7.5%.”

Under the heading, Surface Finish and Repairs, Revise this section by removing it and replacing it with:

“Surface Finish and Repairs. Exposed surfaces shall be finished and repaired in conformance with the referenced specification. If the finish is not specified, then surfaces shall have a uniform appearance; make repairs to remove and blend fins, patch minor spalls, tie holes, handling device recesses, entrapped air pockets, honeycombing, ragged or irregular edges and other non-structural or cosmetic defects using a patching material from the MaineDOT Qualified Products List (QPL). The repair, including preparation of the repair area, mixing and application and curing of the patching material, shall be in accordance with the manufacturer's product data sheet. Corners not exposed in the final product may be ground smooth with no further repair necessary, if the depth of the defect does not exceed one-half inch. Remove form ties and other hardware to a depth of not less than one inch from the face of the concrete and patch the holes using a patching material from the MaineDOT QPL.

Repair of structural defects: Structural defects include, but are not be limited to, exposed reinforcing steel, cracks in bearing areas, through cracks and cracks 0.013 inch in width that extend more than 12 inches in length in any direction. Repair structural defects only with the approval of the Fabrication Engineer. Submit a nonconformance report (NCR) to the Fabrication Engineer with a proposed repair procedure. Do not perform structural repairs without an NCR that has been reviewed by the Fabrication Engineer. Give the QAI adequate notice prior to beginning any structural repairs.”

SECTION 713

STRUCTURAL STEEL AND RELATED MATERIAL

Section 713.01- Structural Steel Revise this Section by removing the sentence:

“Impact test sampling and testing procedures shall be in accordance with AASHTO T.”

And replace it with: **“Impact test sampling and testing procedures shall be in accordance with AASHTO T 243 M/T 243 and AASHTO T 244.”**

713.02 High Strength Bolts Revise this section by adding **“F3125, Grade”** after **“ASTM”** in the first and fifth paragraphs. In the fifth paragraph, remove **“They shall meet the chemical and mechanical requirements of ASTM A 325”**

SECTION 717

ROADSIDE IMPROVEMENT MATERIAL

717.02 Agricultural Ground Limestone

In the table after the third paragraph which starts with **“Liquid lime...”** change the Specification for Nitrogen (N) from **“15.5 percent of which 1% is from ammoniac nitrogen and 14.5 /5 is from Nitrate Nitrogen”** to read **“15.5 % of which 1% is from Ammoniacal Nitrogen and 14.5 % is from Nitrate Nitrogen”**

717.061 Erosion Control Blankets Revise this section by removing it in its entirety and replacing it with the following:

“717.061 Erosion Control Blankets Shall consist of a machine produced rolled blanket of biodegradable fibers, evenly distributed over the entire area of blanket, of a consistent thickness, sewn into a biodegradable mesh on the top and bottom surface using a cotton blend thread. The blanket shall remain in place when subject to shear stress of 1.55 lb/ft². The blanket shall remain intact until grass is established. The blanket shall be a product currently listed on the department’s Qualified Products List (QPL) of Erosion Control Products. See Section 618.10 - Seeding, Maintenance and Acceptance.”

SECTION 720

STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS

720.01 Aluminum Supports Revise the first paragraph by removing the words ”light standards” from the last sentence. Amend this paragraph by adding “(AWS D1.2)” after “Aluminum D1.2”. Further amend this section by adding the following as a new second paragraph:

“All welds shall be inspected and conform with AWS D1.2, Clause 5, Inspection. 100% of welds shall be visually examined (VT). In addition to VT, 10% of all partial joint penetration (PJP) and fillet welds shall be dye penetrant tested (PT); locations to be PT examined will be designated by the QAI. 25% of complete joint penetration (CJP) welds shall be ultrasonic tested (UT) or PT based on the thinner material in the welded joint; joints with thinner material thicknesses less than 0.25 inch shall be PT examined and joints with thinner material thickness equal or greater than 0.25 inch shall be UT examined. Locations to be UT examined will be designated by the QAI. Extent of testing shall conform with AWS D1.2, Clause 5.”

720.02 Aluminum Mast Arm and Bracket Arm Revise the first paragraph by removing the words ”light standards” from the last sentence. Amend this paragraph by adding “(AWS D1.2)” after “Aluminum D1.2”.

Further amend this section by adding the following as a new second paragraph:

“All welds shall be inspected and conform with AWS D1.2, Clause 5, Inspection. 100% of welds shall be visually examined (VT). In addition to VT, 10% of all partial joint penetration (PJP) and fillet welds shall be dye penetrant tested (PT); locations to be PT examined will be designated by the QAI. 25% of complete joint penetration (CJP) welds shall be ultrasonic tested (UT) or PT based on the thinner material in the welded joint; joints with thinner material thicknesses less than 0.25 inch shall be PT examined and joints with thinner material thickness equal or greater than 0.25 inch shall be UT examined. Locations to be UT examined will be designated by the QAI. Extent of testing shall conform with AWS D1.2, Clause 5.”

720.10 Wood Utility Pole Amend the first sentence in this section by adding “, Red Pine” after “Douglas Fir”.

Replace the paragraph beginning with “Wood Utility poles...” with:

“Wood Utility poles shall be pressure treated, after fabrication in accordance with AASHTO Specifications M 133 and AWPA U1, UC4B, Commodity Specification D: Poles.”

720.12 Wood Sign Posts Remove the first sentence and replace with **“Wood sign posts shall be rectangular, straight and sound timber, cut from live growing native spruce, red pine, hemlock or cedar trees, free from loose knots or other structurally weakening defects of importance, such as shake or holes or heart rot.”**

Remove the paragraph beginning with “When pressure treated sign posts are called for on the plans ...” with **“When pressure treated sign posts are called for on the plans, the wood shall be Yellow Pine, Number 2 or better, or the species listed above. The pressure treated wood shall meet AASHTO M 133 and AWPA Standard U1, UC4A, Commodity Specification A: Sawn Products.”**

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 than 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."

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.

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 than 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.

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:

<u>Goals for female participation in each trade</u>	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:
(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 male 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 though 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 at 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

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.

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.”

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

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 U.S.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 (FHWA)**, 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.).



Environmental Summary Sheet

WIN: 18766.00

Date Submitted: 6/11/2019

Town: Gray

CPD Team Leader: Danielle Tetreau

ENV Field Contact: Valerie Derosier

NEPA Complete: Programmatic Categorical Exclusion (CE) 23 CFR 771.117.c.23 issued on 1/24/2019

☒ **Section 106**
No effect: SHPO Concurrence 8/4/2017
Section 106 Resources: none

☒ **Section 4(f) and 6(f)**
Section 4(f)
Review Complete - No use
Section 6(f)
Not Applicable - No takes

☐ **Maine Department of Inland Fisheries and Wildlife Essential Habitat**
Not Applicable **Timing Window:** Not Applicable

☒ **Section 7**
Species of Concern:
Northern long-eared bat: May affect, 4d approved – no clearing restrictions

☒ **Essential Fish Habitat**
No Effect - no EFH present

☐ **Maine Department of Conservation/Public Lands, Submerged Land Lease**
Not Applicable

☐ **Maine Land Use Regulation Commission**
Not Applicable

☐ **Maine Department of Environmental Protection**
Permit By Rule Section 11 – Approved #67388, 2/21/2019

**Applicable standards and permits are included with the contract*

☐ **Army Corps of Engineers: Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act.**
Category 2 - Permit # NAE-2019-0467
-Work Start Notification form to be completed by ENV Field Contact and submitted to ACOE with copy to Danielle Tetreau
-Compliance Certification form to be completed by ENV Field Contact and submitted to ACOE with copy to Danielle Tetreau

**Applicable standards and permits are included with the contract*

☐ **Stormwater Review**
Not Applicable

☒ **Special Provisions Required**

Special Provision 105-Timing of Work Restriction
General Construction Note - Hazardous Waste
Standard Specification 656-Erosion Control Plan
Special Provision 656-Minor Soil Disturbance
Special Provision 203-Dredge Spec
Special Provision 203 - Hazardous Waste

N/A ☐
N/A ☐
N/A ☐
N/A ☒
N/A ☒
N/A ☒

Applicable ☒
Applicable ☒
Applicable ☒
Applicable ☐
Applicable ☐
Applicable ☐

**All permits and approvals based on plans/scope as of: 11/30/2018*



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

MAINE GENERAL PERMIT (GP)
AUTHORIZATION LETTER AND SCREENING SUMMARY

ENVIRONMENTAL OFFICE
MAINE DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333

CORPS PERMIT # NAE-2019-00467
CORPS GP ID# 19-101
STATE ID# PBR

DESCRIPTION OF WORK:

Place temporary and permanent fill below the ordinary high water mark of Mill Brook at Gray, Maine in order to extend an existing culvert beneath Route 26 as part of a reconfiguration of the intersection of North Raymond Road and Route 26. This work will result in approximately 810 s.f. of permanent and 410 s.f. of temporary stream bed impact. This work is shown on the attached plans entitled "RTE. 26/N. RAYMOND RD. GRAY, CUMBERLAND COUNTY" in two sheets undated and "GRAY.ROUTE 26/N. RAYMOND RD." in two sheets dated "04/2018".
DOT WIN: 18766.00

LAT/LONG COORDINATES : 43.918092° N -70.355392° W USGS QUAD: GRAY, ME

I. CORPS DETERMINATION:

Based on our review of the information you provided, we have determined that your project will have only minimal individual and cumulative impacts on waters and wetlands of the United States. Your work is therefore authorized by the U.S. Army Corps of Engineers under the Federal Permit, the Maine General Permit (GP). http://www.nae.usace.army.mil/Portals/74/docs/regulatory/StateGeneralPermits/ME/Maine_General_Permit_2015.pdf

You must perform the activity authorized herein in compliance with all the terms and conditions of the GP [including any attached Additional Conditions and any conditions placed on the State 401 Water Quality Certification including any required mitigation]. Please review the enclosed GP carefully, including the GP conditions beginning on page 5, to familiarize yourself with its contents. You are responsible for complying with all of the GP requirements; therefore you should be certain that whoever does the work fully understands all of the conditions. You may wish to discuss the conditions of this authorization with your contractor to ensure the contractor can accomplish the work in a manner that conforms to all requirements.

If you change the plans or construction methods for work within our jurisdiction, please contact us immediately to discuss modification of this authorization. This office must approve any changes before you undertake them.

Condition 38 of the GP (page 16) provides one year for completion of work that has commenced or is under contract to commence prior to the expiration of the GP on October 13, 2020. You will need to apply for reauthorization for any work within Corps jurisdiction that is not completed by October 13, 2021.

This authorization presumes the work shown on your plans noted above is in waters of the U.S. Should you desire to appeal our jurisdiction, please submit a request for an approved jurisdictional determination in writing to the undersigned.

No work may be started unless and until all other required local, State and Federal licenses and permits have been obtained. **This includes but is not limited to a Flood Hazard Development Permit issued by the town if necessary.**

II. STATE ACTIONS: PENDING [☒], ISSUED [☐], DENIED [☐] DATE _____

APPLICATION TYPE: PBR: ☒ , TIER 1: ☐ , TIER 2: ☐ , TIER 3: ☐ , LURC: ☐ DMR LEASE: ☐ NA: ☐

III. FEDERAL ACTIONS:

JOINT PROCESSING MEETING: 2/21/19 LEVEL OF REVIEW: CATEGORY 1: ☐ CATEGORY 2: ☒

AUTHORITY (Based on a review of plans and/or State/Federal applications): SEC 10 ☐ , 404 ☒ , 10/404 ☐ , 103 ☐

EXCLUSIONS: The exclusionary criteria identified in the general permit do not apply to this project.

FEDERAL RESOURCE AGENCY OBJECTIONS: EPA NO , USF&WS NO , NMFS NO

If you have any questions on this matter, please contact my staff at 207-623-8367 at our Augusta, Maine Project Office. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0

JAY L. CLEMENT
SENIOR PROJECT MANAGER
MAINE PROJECT OFFICE

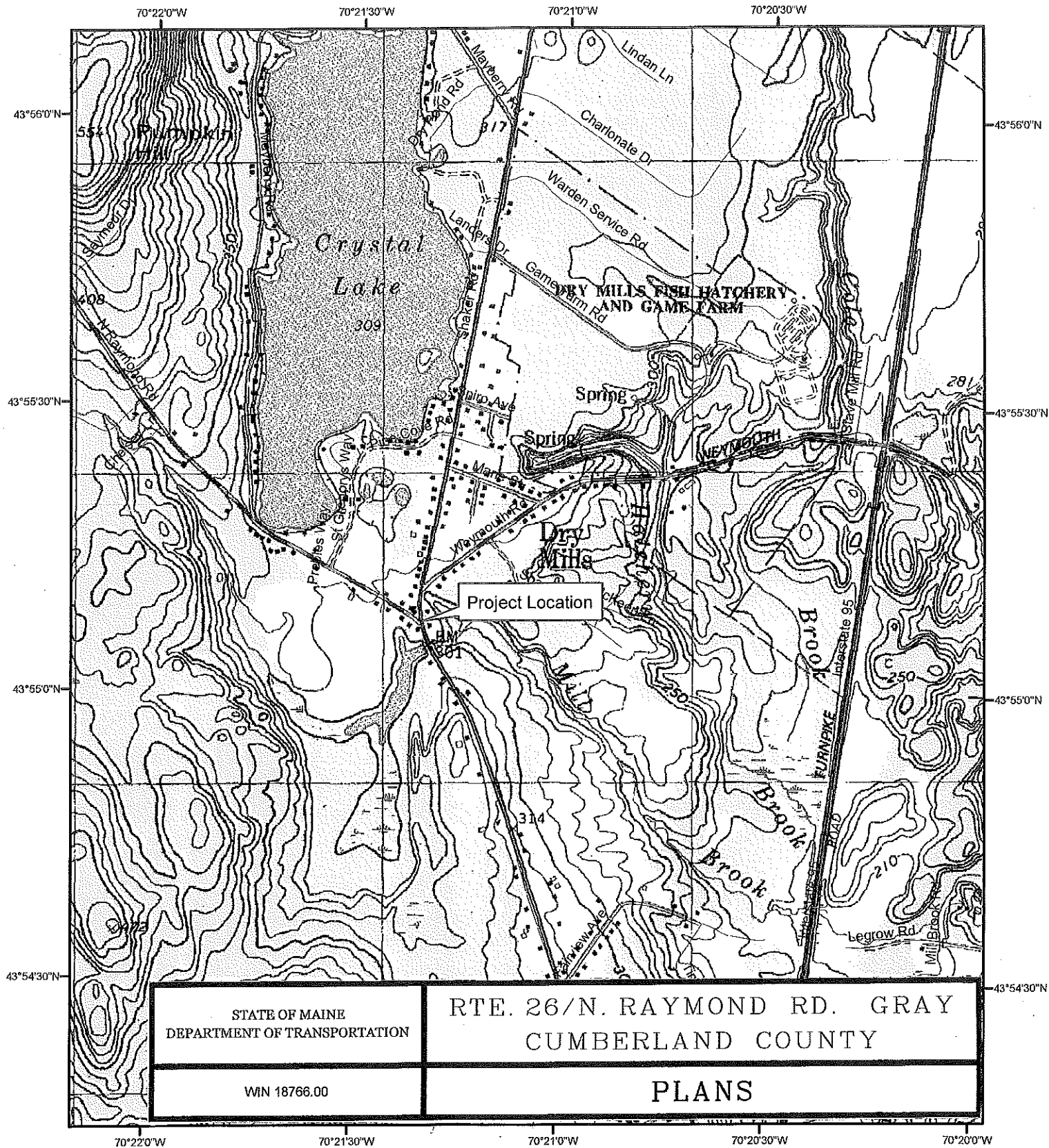
LINDSEY E. LEFEBVRE
CHIEF, PERMITS & ENFORCEMENT BRANCH
REGULATORY DIVISION
DATE 9/8/19



**US Army Corps
of Engineers®**
New England District

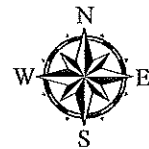
**PLEASE NOTE THE FOLLOWING CONDITIONS FOR
DEPARTMENT OF THE ARMY
GENERAL PERMIT
NO. NAE-2019-00467**

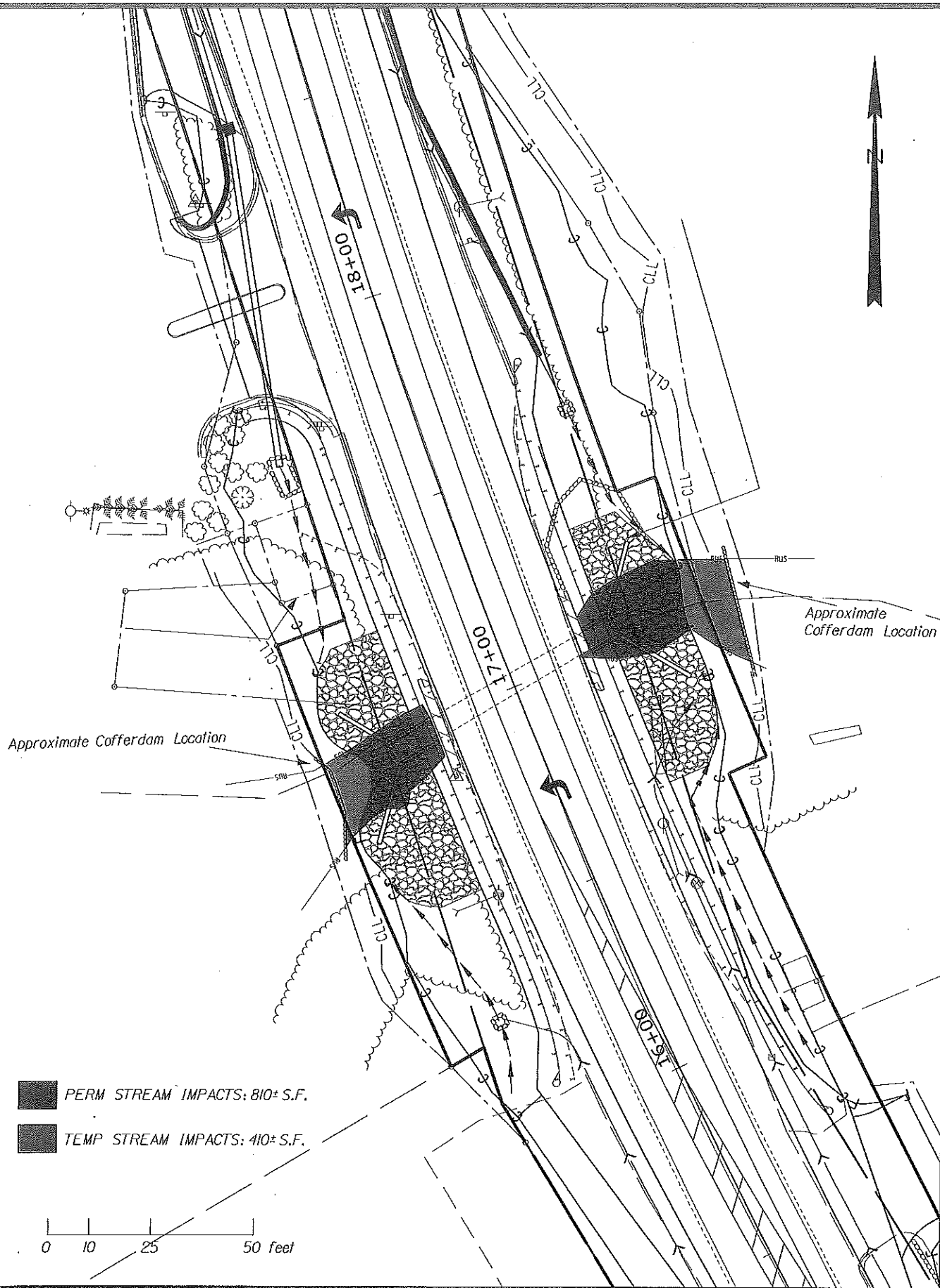
1. This authorization requires you to 1) notify us before beginning work so we may inspect the project, and 2) submit a Compliance Certification Form. You must complete and return the enclosed Work Start Notification Form(s) to this office at least two weeks before the anticipated starting date. You must complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work and any required mitigation (but not mitigation monitoring, which requires separate submittals).
2. The permittee shall assure 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 sub-contracts 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 the work. If the permit is issued after construction specifications but before receipt of bids or quotes, the entire permit shall be included as an addendum to the specifications. 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 of Engineers jurisdiction.
3. The permittee and his contractor(s) shall minimize the potential for effects to salmon and both sturgeon species by conducting all construction activities for the project in accordance with the Maine DOT - approved Soil Erosion and Water Pollution Control Plan. Instream turbidity will be visually monitored and all erosion controls will be inspected daily to ensure that the measures taken are adequate. If inspection shows that the erosion controls are ineffective, immediate action will be taken to repair, replace, or reinforce controls as necessary.
4. All exposed soils resulting from the construction will be promptly seeded and mulched in order to achieve vegetative stabilization.
5. All areas of temporary fill shall be restored to their original contour and character upon completion of the work.
6. In water work shall be conducted between July 15 and September 30 in order to minimize potential impacts to fisheries and local water quality.



0 225 450 900 1,350 1,800
Feet

MDOT WIN 18766
Gray - Route 26/N Raymond Rd
Intersection Improvement
Project Location: 43.918092, -70.355392





STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

RTE. 26/N. RAYMOND RD. GRAY
CUMBERLAND COUNTY

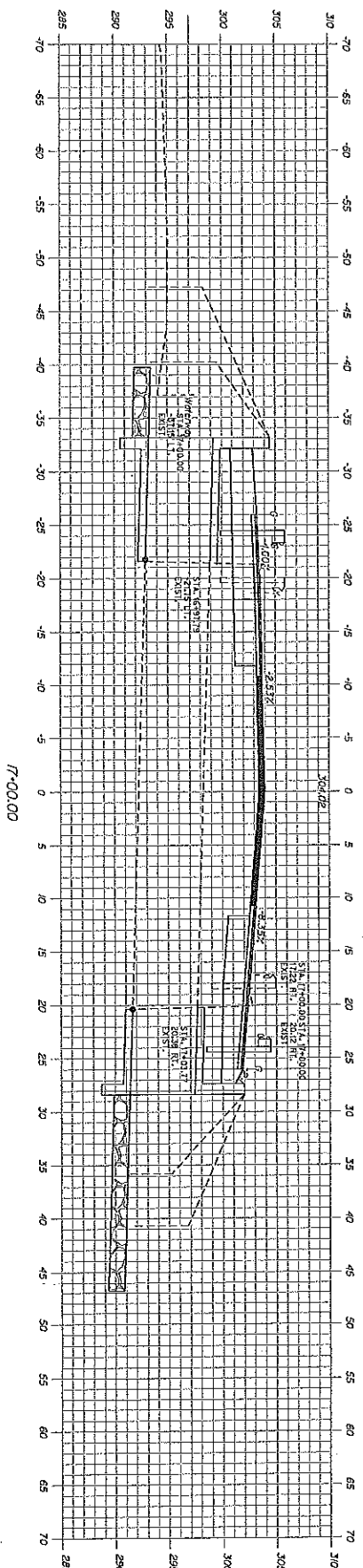
SHEET NUMBER

1

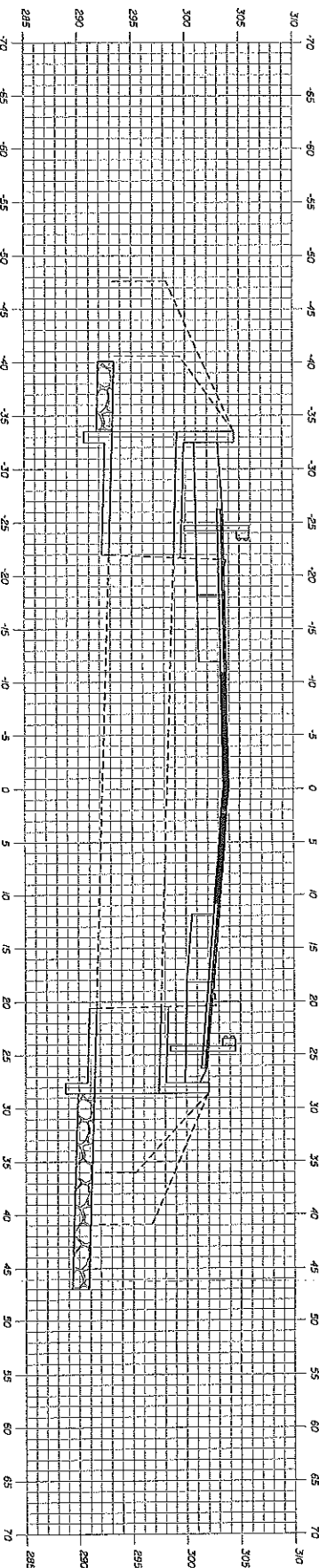
WIN 18766.00

PLANS

OF 1



17-00.83 (SKEWED)

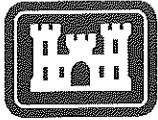


GRAY
ROUTE 26/N. RAYMOND RD.

PROJECT NUMBER	BY	DATE
17-00.83	T. HEBLEY	01/20/18
DESIGN-DETAILED		
CHECKED-REVIEWED		
DESIGN-DETAILED		
CHECKED-REVIEWED		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE
P.E. NUMBER
DATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
INTERSECTION GEOMETRIC DESIGN
WIN
18766.00
PROGRAM



**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

Permit Number: NAE-2019-00467

Project Manager Clement

Name of Permittee: Maine Dept. of Transportation

Permit Issuance Date: _____

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 *
* Permits and Enforcement Branch C *
* 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



**US Army Corps
of Engineers®**
New England District

WORK-START NOTIFICATION FORM
(Minimum Notice: Two weeks before work begins)

EMAIL TO: jay.l.clement@usace.army.mil

or

MAIL TO:

Jay Clement
US Army Corps of Engineers
Maine Project Office
442 Civic Center Drive
Augusta, Maine 04330

Corps of Engineers Permit No. NAE-2019-00467 was issued to the Maine Dept. of Transportation. This work is located in Mill Brook at Gray, Maine and authorized the permittee to place temporary and permanent fill below the ordinary high water mark in order to extend an existing culvert beneath Route 26 as part of a reconfiguration of the intersection of North Raymond Road and Route 26. This work will result in approximately 810 s.f. of permanent and 410 s.f. of temporary stream bed impact.

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: _____

Phone & email: () () _____

Proposed Work Dates: Start: _____ Finish: _____

Permittee/Agent Signature: _____ Date: _____

Printed Name: _____ Title: _____

Date Permit Issued: _____ Date Permit Expires: _____

FOR USE BY THE CORPS OF ENGINEERS

PM: Clement Submittals Required: No

Inspection Recommendation: Inspect as convenient

**DEPARTMENT OF THE ARMY
GENERAL PERMIT FOR
THE STATE OF MAINE**

The New England District of the U.S. Army Corps of Engineers (Corps) hereby issues a General Permit (GP) for activities subject to Corps jurisdiction in waters of the U.S. within the boundaries of the State of Maine. This GP is issued in accordance with Corps regulations at 33 CFR 320 - 332 [see 33 CFR 325.2(e)(2)]. This GP authorizes activity-specific categories of work that are similar in nature and cause no more than minimal individual and cumulative adverse environmental impacts. Refer to Page 2 for the list of activities and Appendix A for activity specific conditions of eligibility in inland and tidal waters.

I. GENERAL CRITERIA

1. In order for activities to qualify for this GP, they must meet the GP's terms and eligibility criteria (Pages 1–4), General Conditions (GC) (Pages 5 – 20), and Appendix A - Definition of Categories.
2. Under this GP, projects may qualify for the following:
 - Category 1: Category 1 Self -Verification Notification Form is required (SVNF – see Appendix B).
 - Category 2: Application to and written approval from the Corps is required (Pre-Construction Notification (PCN)). No work may proceed until written approval from the Corps is received.

If your project is ineligible for Category 1, it may qualify for Category 2 or an Individual Permit and you must submit an application (see Page 3). The thresholds for activities eligible for Categories 1 and 2 are defined in Appendix A. This GP does not affect the Corps Individual Permit review process or activities exempt from Corps regulation.

3. Prospective permittees need to read:
 - a. Section II to determine if the activity requires Corps authorization.
 - b. Sections III and IV to determine if the activity may be eligible for authorization under this GP, specifically whether it is eligible for Self-Verification (SV) or whether Pre-Construction Notification (PCN) is required.
4. Permittees must ensure compliance with all applicable General Conditions in Section IV. The Corps will consider unauthorized any activity requiring Corps authorization if that activity is under construction or completed and does not comply with all of the terms and conditions.
5. Project proponents are encouraged to contact the Corps with questions at any time. Pre-application meetings (see 33 CFR 325.1(b)), whether arranged by the Corps or requested by permit applicants, are encouraged to facilitate the review of projects. Pre-application meetings and/or site visits can help streamline the permit process by alerting the applicant to potentially time-consuming concerns that are likely to arise during the evaluation of their project (e.g., avoidance, minimization and compensatory mitigation requirements, historic properties, endangered species, essential fish habitat, and dredging contaminated sediments).

II. CORPS JURISDICTION/ACTIVITIES COVERED

1. Permits are required from the Corps of Engineers for the following work:

a. The construction of any structure in, over or under any navigable water of the United States (U.S.)¹, the excavating or dredging from or depositing of material in such waters, or the accomplishment of any other work affecting the course, location, condition, or capacity of such waters. The Corps regulates these activities under Section 10 of the Rivers and Harbors Act of 1899. See 33 CFR 322;

b. The discharge of dredged or fill material and certain discharges associated with excavation into waters of the U.S. (e.g. sidecasting). The Corps regulates these activities under Section 404 of the Clean Water Act (CWA). See 33 CFR 323; and

c. The transportation of dredged material for the purpose of disposal in the ocean. The Corps regulates these activities under Section 103 of the Marine Protection, Research and Sanctuaries Act. See 33 CFR 324.

2. Related laws:

33 CFR 320.3 includes a list of related laws, including: Section 401 of the CWA, Section 402 of the CWA, Section 307(c) of the Coastal Zone Management (CZM) Act of 1972, The National Historic Preservation Act of 1966, the Endangered Species Act, the Fish and Wildlife Act of 1956, the Marine Mammal Protection Act of 1972, Magnuson-Stevens Act, and Section 7(a) of the Wild and Scenic Rivers Act.

3. An activity listed below may be authorized by this GP only if that activity and the permittee satisfy all of the GP's terms and conditions. Any activity not specifically listed below may still be eligible for the GP; applicants are advised to contact the Corps for a specific eligibility determination. Category 1 and Category 2 eligibility criteria for each activity in both Inland and Tidal waters can be found in Appendix A.

1. Repair, Replacement, Expansion, and Maintenance of Authorized Structures and Fills
2. Moorings
3. Structures, Floats and Lifts
4. Aids to Navigation, and Temporary Recreational Structures
5. Dredging, Disposal of Dredged Material, Beach Nourishment, and Rock Removal and Relocation
6. Discharges of Dredged or Fill Material Incidental to the Construction of Bridges
7. Bank and Shoreline Stabilization
8. Residential, Commercial, Industrial, and Institutional Developments, and Recreational Facilities
9. Utility Line Activities
10. Linear Transportation Projects
11. Mining Activities
12. Boat Ramps and Marine Railways
13. Land and Water-Based Renewable Energy Generation Facilities and Hydropower Projects
14. Reshaping Existing Drainage Ditches and Mosquito Management
15. Oil Spill and Hazardous Material Cleanup
16. Cleanup of Hazardous and Toxic Waste
17. Scientific Measurement Devices
18. Survey Activities
19. Agricultural Activities
20. Fish and Wildlife Harvesting, Enhancement, and Attraction Devices
21. Habitat Restoration, Establishment and Enhancement Activities
22. Previously Authorized Activities
23. Stream & Wetland Crossings
24. Aquaculture

Note: Multiple activities may be authorized in the same GP, e.g. a recreational pier (#3) with an associated mooring (#2) or a windpower facility (#13) with an associated transmission line (#9).

¹ Defined in Appendix F, Definitions and at 33 CFR 328.
Section II

III. PROCEDURES

1. State Approvals. Applicants are responsible for applying for and obtaining any of the required state or local approvals. Federal and state jurisdictions may differ in some instances. State permits may be required for specific projects regardless of the general permit category.

In order for authorizations under this GP to be valid, when any of the following state approvals or statutorily-required reviews is also required, the approvals must be obtained prior to the commencement of work in Corps jurisdiction.

- Maine Department of Environmental Protection (DEP): Natural Resources Protection Act (NRPA) permit, including permit-by-rule (PBR) and general permit authorizations; Site Location of Development Act permit; Maine Waterway Development and Conservation Act permit; and Maine Hazardous Waste, Septage, and Solid Waste Management Act license.
- Maine Department of Conservation, Agriculture & Forestry: Land Use Planning Commission (LUPC) permit.
- Maine Department of Marine Resources: Aquaculture Leases.
- Maine Department of Conservation, Bureau of Parks and Lands, Submerged Lands: Submerged Lands Lease.

NOTE: This GP may also be used to authorize projects that are not regulated by the State of Maine (e.g., certain seasonal floats or moorings).

2. How to Obtain/Apply for Authorization.

a. Category 1 (Self-Verification): Self-Verification Notification Form (SVNF) required. The SVNF is required for all SV eligible work in Maine unless otherwise stated in Appendix A. Activities that are eligible for SV are authorized under this GP and may commence without written verification from the Corps provided the prospective permittee has:

i. Confirmed that the activity will meet the terms and conditions of Category 1. Consultation with the Corps and/or other relevant federal and state agencies may be necessary to ensure compliance with the applicable general conditions (GCs) and related federal laws such as the National Historic Preservation Act (see GC 6), the Endangered Species Act (GC 8) and the Wild and Scenic Rivers Act (GC 9). Prospective permittees are encouraged to contact the Corps with SV eligibility questions. Activities not meeting the SV criteria must submit a PCN to the Corps.

ii. Submitted the SVNF (see GC 27 and Appendix B) to the Corps. **NOTE: A copy of a state permit application form may be an acceptable surrogate for the SVNF. Whichever form chosen needs to include a location map, plans, and an Official Species List for federally listed threatened or endangered species (Reference Appendix D).**

b. Category 2 (Pre-Construction Notification (PCN)): Application to and written verification from the Corps is required before work can proceed. For activities that do not qualify for SV or where otherwise required by the terms of the GP, the permittee must submit a PCN and obtain a written permit before starting work in Corps jurisdiction.

i. The Corps will coordinate review of all activities requiring PCN with federal and state agencies and federally recognized tribes, as appropriate. To be eligible and subsequently authorized, an activity must result in no more than minimal individual and cumulative effects on the aquatic environment as determined by the Corps in accordance with the criteria listed within this GP. This may require project modifications involving avoidance, minimization, or compensatory mitigation for unavoidable impacts to ensure that the net adverse effects of a project are no more than minimal.

ii. The Corps will attempt to issue a written eligibility determination within the state's review period. Regardless, work eligible for Category 2 may not proceed before Corps written approval is received.

c. All applicants for Category 2 projects must:

- i. Apply directly to the Corps using the state application form or the Corps application form (ENG Form 4345²), and apply directly to the state (DEP, LUPC, BPL or DMR) as applicable using the appropriate state form, if the work is regulated by the Corps and the state; or
 - ii. Apply directly to the Corps using the Corps application form (ENG Form 4345²) if the work is regulated by the Corps but not the state (DEP, LUPC, BPL or DMR).
 - iii. Provide application information (see “Information Typically Required” in Appendix C) to help ensure the application is complete and to speed project review.
 - iv. Obtain an Official Species List of federally threatened or endangered species in the project area (GC 8).
 - v. Submit a copy of their application materials to the Maine Historic Preservation Commission (MHPC) and all five Indian tribes listed at Appendix E, at the same time, or before, they apply to the Corps, to be reviewed for the presence of historic, archaeological or tribal resources in the permit area that the proposed work may affect. Submittals to the Corps shall include information to indicate that this has been done (a copy of the applicant’s cover letter to MHPC and tribes or a copy of the MHPC and tribal response letters is acceptable).
- d. Work that is not regulated by the State of Maine, but is subject to Corps jurisdiction, may still be eligible for authorization under this GP.

e. Emergency Situations: 33 CFR 325.2(e)4 states that an “emergency” is a situation which would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if corrective action requiring a permit is not undertaken within a time period less than the normal time needed to process the application under standard procedures.” Emergency work is subject to the same terms and conditions of this GP as non-emergency work, and similarly, must qualify for authorization under the GP; otherwise an IP is required. The Corps will work with all applicable agencies to expedite verification according to established procedures in emergency situations.

3. Individual Permits. Projects that are not authorized by this GP require an Individual Permit (IP) (33 CFR 325.5) and proponents must submit an application directly to the Corps. This GP does not affect the Corps IP review process or activities exempt from Corps regulation. For general information and application form, see the Corps website or contact the Corps (see Appendix E). The Corps encourages applicants to apply concurrently for a Corps IP and applicable state permits.

The Corps retains discretionary authority on a case-by-case basis to elevate a GP eligible project to an IP based on concerns for the aquatic environment or for any other factor of the public interest [33 CFR 320.4(a)]. Whenever the Corps notifies an applicant that an IP is required, no work in Corps jurisdiction may be conducted until the Corps issues the required authorization in writing indicating that work may proceed.

4. Enforcement/Non-Compliance. Work performed without the required Corps of Engineers permits is subject to administrative, civil, and criminal penalties. The Corps will evaluate unauthorized activities for enforcement action under 33 CFR 326.

The Corps will consider unauthorized any activity requiring Corps authorization if that activity is under construction or completed and does not comply with all of the terms and conditions of a GP or an IP. The Corps may elect to suspend enforcement proceedings if the permittee modifies his project to comply with a GP.

After considering whether a violation was knowing or intentional, and other indications of the need for a penalty, the Corps can elect to terminate an enforcement proceeding with an after-the- fact authorization under a GP, if all terms and conditions of the GP have been satisfied, either before or after the activity has been accomplished.

² Located at www.nae.usace.army.mil/missions/regulatory under “Forms & Publications.”
Section III

IV. GENERAL CONDITIONS

To qualify for GP authorization, the prospective permittee must comply with the following general conditions, as applicable.

1. Other Permits
2. Federal Jurisdictional Boundaries
3. Minimal Direct, Secondary, and Cumulative Impacts
4. Mitigation (Avoidance, Minimization, and Compensatory Mitigation)
5. Single and Complete Projects
6. Historic Properties
7. Corps Projects and Property
8. Federal Threatened and Endangered Species
9. Wild and Scenic Rivers
10. Navigation
11. Federal Liability
12. Utility Line Installation and Removal
13. Heavy Equipment in Wetlands or Mudflats
14. Temporary Fill
15. Restoration of Special Aquatic Sites (including wetland areas).
16. Soil Erosion, Sediment and Turbidity Controls
17. Time of Year Windows/Restrictions.
18. Aquatic Life Movements & Management of Water Flows
19. Water Quality and Coastal Zone Management
20. Floodplains and Floodways
21. Storage of Seasonal Structures
22. Spawning, Breeding, and Migratory Areas
23. Vernal Pools
24. Invasive and Other Unacceptable Species
25. Programmatic Agreements
26. Permit On-Site
27. Self-Verification Notification Form (SVNF)
28. Inspections
29. Maintenance
30. Property Rights
31. Transfer of GP Verifications
32. Modification, Suspension, and Revocation
33. Special Conditions
34. False or Incomplete Information
35. Abandonment
36. Enforcement Cases
37. Duration of Authorization
38. Previously Authorized Activities
39. Discretionary Authority
40. St. John/St. Croix Rivers.
41. National Lands
42. Essential Fish Habitat (EFH)
43. Work Site Restoration
44. Bank Stabilization
45. Stream Work & Crossings and Wetland Crossings

1. Other Permits. Permittees must obtain other federal, state, or local authorizations required by law. Applicants are responsible for applying for and obtaining all required state or local approvals. This includes, but is not limited to, the project proponent obtaining a Flood Hazard Development Permit issued by the town, if necessary. Inquiries may be directed to the municipality or to the Maine Floodplain Management Coordinator at (207) 287-8063. See <http://www.maine.gov/dacf/flood/>

2. Federal Jurisdictional Boundaries

a. Applicability of this GP shall be evaluated with reference to federal jurisdictional boundaries. Applicants are responsible for ensuring that the boundaries used satisfy the federal criteria defined at 33 CFR 328 “Waters of the U.S.” and 33 CFR 329 “Navigable Waters of the U.S.”

NOTE: Waters of the U.S. include the subcategories “navigable waters of the U.S.” and “wetlands.”

b. For Category 1 projects, proponents are not required to delineate the waters of the U.S. that they plan to impact, but must approximate the square footage of impacts in order to determine the review category (1 or 2 or Individual Permit). For projects filling <15,000 square feet (SF) of waters of the U.S. that do not qualify for Category 1 (e.g., vernal pool, secondary or endangered species impacts, etc.) and therefore require an application to the Corps (PCN), and for those filling ≥15,000 SF, applicants shall delineate all waters of the U.S. that will be filled (direct impacts) in accordance with the Corps of Engineers Wetlands Delineation Manual and the most recent regional supplement (see Appendix C). In addition, applicants shall approximately identify all waters of the U.S. on the property and *known* waters adjacent to the property in order for the Corps to evaluate secondary impacts. The waters of the U.S. shall be clearly shown on the project plans submitted with the application. This includes all waters of the U.S. in areas under DEP or LUPC jurisdiction regardless of whether they’re shown on LUPC zoning maps.

c. On a case-by-case basis, the Corps may modify/refine the above delineation and identification requirements for waters of the U.S. See www.nae.usace.army.mil/missions/regulatory >> Jurisdictional Limits and Wetlands for more information on delineating jurisdictional areas.

3. Minimal Direct, Secondary, and Cumulative Effects³

a. Projects authorized by this GP shall have no more than minimal direct, secondary and cumulative adverse environmental impacts. Category 2 applicants should provide information on secondary and cumulative impacts as stated in Appendix C. Compensatory mitigation may be required to offset unavoidable impacts (see GC 4) and to ensure that they are no more than minimal. Compensatory mitigation requirements will be determined on a case-by-case basis.

b. Secondary impacts to waterway and/or wetland areas, (e.g., areas drained, flooded, cleared, excavated or fragmented) shall be added to the total fill area when determining whether the project qualifies for Category 1 or 2. Direct, secondary and cumulative impacts are defined at Appendix A, Endnote 2 and Appendix F.

c. Site clearing, grading and construction activities in the upland habitat surrounding vernal pools (“Vernal Pool Management Areas”) are secondary impacts. See GC 23 for avoidance and minimization requirements and recommendations.

d. Bank stabilization activities in tidal waters are provided at Appendix A, Page 30. Direct impacts in tidal waters from contiguous bank stabilization projects in excess of 200 linear feet (Applicant or Applicant + Abutters combined) must undergo Category 2 review.

4. Mitigation (Avoidance, Minimization, and Compensatory Mitigation)

a. Discharges of dredged or fill material into waters of the U.S., including wetlands, shall be avoided and minimized to the maximum extent practicable through consideration of alternatives. The Corps may require compensatory mitigation of unavoidable direct and secondary impacts associated with Category 2 projects on a case-by-case basis.

b. Applicants proposing work in jurisdictional waters should consider riparian/forested buffers for stormwater management and low impact development (LID) best management practices (BMPs) to reduce

³ Direct, secondary and cumulative effects are defined at Appendix F, Definitions and Acronyms.

impervious cover and manage stormwater to minimize secondary impacts to aquatic resources to the maximum extent practicable.⁴

c. Compensatory mitigation⁵ for effects to waters of the U.S., including direct, secondary and temporal⁶, may be required for permanent impacts that exceed the SV area limits, and may be required for temporary impacts that exceed the SV area limits, to offset unavoidable impacts which remain after all appropriate and practicable avoidance and minimization has been achieved and to ensure that the adverse effects to the aquatic environment are no more than minimal. Proactive restoration projects or temporary impact work with no lasting secondary effects may generally be excluded from this requirement. Refer to Appendix G.

5. Single and Complete Projects⁷

a. This GP shall not be used to piecemeal work and shall be applied to single and complete projects. When determining the review category in Appendix A (Category 1 or 2) for a single and complete project, proponents must include any permanent historic fill placed since October 1995 that is associated with that project and all currently proposed temporary and permanent impact areas.

b. A single and complete project must have independent utility⁷.

c. Unless the Corps determines the activity has independent utility:

i. This GP shall not be used for any activity that is part of an overall project for which an Individual Permit is required.

ii. All components of a single project and/or all planned phases of a multi-phased project (e.g., subdivisions should include all work such as roads, utilities, and lot development) shall be treated together as constituting one single and complete project.

d. For linear projects, such as power lines or pipelines with multiple crossings, the single and complete project is all crossings of a single water of the U.S. (i.e., single waterbody) at a specific location. For linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly-shaped wetland or lake, etc., are not separate waterbodies and crossings of such features cannot be considered separately. If any crossing requires a Category 2 activity, then the entire linear project shall be reviewed as one project under Category 2.

6. Historic Properties

a. No undertaking shall cause effects (defined at 33 CFR 325 Appendix C and 36 CFR 800) on properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places⁸, including previously unknown historic properties within the permit area, unless the Corps or another Federal action agency has satisfied the consultation requirements of Section 106 of the National Historic Preservation Act (NHPA). The State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO) and the National Register of Historic Places can assist with locating information on: i) previously identified historic properties; and ii) areas with potential for the presence of historic resources, which may require identification and evaluation by qualified historic preservation and/or archaeological consultants in consultation with the Corps and the SHPO and/or THPO(s).

⁴ See: www.nae.usace.army.mil/missions/regulatory >> State General Permit >> Permit Resources >> Mitigation for this additional information: a) "Wetland BMP Manual - Techniques for Avoidance & Minimization," b) riparian/forested buffer BMPs, and c) LID BMPs. LID BMPs include, but are not limited to: replacing curbs and gutters with swales; using an open space design for subdivisions; using permeable, pervious or porous pavements; constructing bio-retention systems; and/or, adding a green roof or rain garden.

⁵ Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR 332. See also the New England District Compensatory Mitigation Guidance at www.nae.usace.army.mil/regulatory >> Mitigation.

⁶ Temporal loss: The time lag between the loss of aquatic resource functions caused by the permitted impacts and the replacement of aquatic resource functions at the compensatory mitigation site(s) (33 CFR 332.2).

⁷ Single and Complete Project and Independent Utility are defined in Appendix F - Definitions.

⁸ The majority of historic properties are not listed on the National Register of Historic Places and may require identification and evaluation by qualified historic preservation and/or archaeological consultants in consultation with the Corps and the SHPO and/or THPO(s).

b. For activities eligible for SV, proponents must ensure and document that the activity will not cause effects as stated in 6(a). Proponents must submit a PCN if the authorized activity may cause effects as stated in 6(a) as soon as possible to ensure that the Corps is aware of any potential effects of the permitted activity on any historic property to ensure all Section 106 requirements are met.

c. All PCNs shall: i) show notification to the SHPO and applicable THPO(s)⁹ for their identification of historic properties, ii) state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties, and iii) include any available documentation from the SHPO or THPO(s) indicating that there are or are not historic properties affected. Starting consultation early in project planning can save proponents time and money.

d. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

7. Corps Projects and Property

a. In addition to any authorization under this GP, proponents must contact the Corps Real Estate Division at (978) 318-8585 for work occurring on or potentially affecting Corps properties and/or Corps-controlled easements to initiate reviews and determine what real estate instruments are necessary to perform work. Permittees may not commence work on Corps properties and/or Corps-controlled easements until they have received any required Corps real estate documents evidencing site-specific permission to work.

b. Any proposed temporary or permanent alteration, or modification or use, including occupation, of a federal project (including but not limited to a levee, dike, floodwall, channel, anchorage, breakwater, seawall, bulkhead, jetty, wharf, pier or other work built but not necessarily owned by the United States), which would obstruct or impair the usefulness of the federal project in any manner, and/or would involve changes to the authorized federal project's scope, purpose, and/or functioning that go beyond minor modifications required for normal operations and maintenance, is not eligible for SV and requires review and approval by the Corps pursuant to 33 USC 408. Where Section 408 is applicable, a decision on a Department of the Army general permit application will not be rendered prior to the decision on a Section 408 request.

c. Any structure or work within any Corps Federal Navigation Project (FNP) or its buffer zone¹⁰, shall be subject to removal at the owner's expense prior to any future Corps dredging or the performance of periodic hydrographic surveys. See GC 10 for more requirements related to FNPs.

8. Federal Threatened and Endangered Species

a. No activity is authorized which: i) is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species; ii) "may affect" a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed; or iii) violates the ESA.

b. **All applicants must request an Official Species List from the US Fish & Wildlife Service and must include the list in the Corps permit application. To request an Official Species List, refer to the instructions in Appendix D.**

c. **For federally listed species in tidal waters, applicants should contact the National Marine Fisheries Service at: <http://www.greateratlantic.fisheries.noaa.gov/protected/section7/>**

⁹ Appendix E, 3(a)&(b). Historic Resources, provides contact information and each tribe's "area of concern."

¹⁰ See Appendix H for a list of FNPs. The buffer zone is equal to three times the authorized depth of the FNP.

d. A PCN is required if a threatened or endangered species, a species proposed for listing as threatened or endangered, or designated or proposed critical habitat (all hereinafter referred to as “listed species or habitat”), as identified under the ESA, is present in the action area¹¹.

e. Federal agencies should follow their own procedures for complying with the requirements of the ESA but should coordinate that consultation with the Corps as well.

9. Wild and Scenic Rivers.¹² Any activity that occurs in the designated main stem of, within 0.25 mile up or downstream of the designated main stem of, or in tributaries within .25 miles of the designated main stem of a National Wild and Scenic River, or in “bordering and contiguous wetlands” (see Appendix A, Endnote 1) that are adjacent to the designated main stem of a National Wild and Scenic River, or that has the potential to alter flows within a river within the National Wild and Scenic River System, is not eligible for Category 1 regardless of size of the impacts. This condition applies to both designated Wild and Scenic Rivers and rivers officially designated by Congress as study rivers for possible inclusion while such rivers are in an official study status. National Wild and Scenic Rivers System segments for Maine as of October 2015 include: Allagash River beginning at Telos Dam continuing to Allagash checkpoint at Eliza Hole Rapids, approximately 3 miles upstream of the confluence with the St. John River (length = 92 miles); and 11.25 miles of the York River, in the State of Maine, from its headwaters at York Pond to the mouth of the river at York Harbor, plus its tributaries (currently under study).

10. Navigation

a. Any structure or work that extends closer to the horizontal limits of any Corps Federal Navigation Project (see Appendix H) than a distance of three times the project’s authorized depth shall be subject to removal at the owner’s expense prior to any future Corps dredging or the performance of periodic hydrographic surveys. This is applicable to Category 1 and 2. Reference Appendix A, Page 28 (Mooring) and Page 29 (Structures, Floats & Lifts).

b. There shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein, and no attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity authorized herein.

c. The permittee understands and agrees that if future U.S. operations require the removal, relocation, or other alteration of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration.

d. A PCN is required for all work in, over or under an FNP or its buffer zone unless otherwise indicated in Appendix A. (Reference Appendix A, Endnote 13, Page 36)

11. 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 U.S. 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.

12. Utility Line Installation and Removal

a. Subsurface utility lines shall remain subsurface. If it is necessary to discharge dredged or filled material not previously authorized in order to keep such utility lines buried or restore them to their original subsurface condition, a PCN and written verification from the Corps may be required (e.g., in the case of side

¹¹ The “Endangered Species Consultation Handbook – Procedures for Conducting Consultation and Conference Activities Under Section 7 of the ESA,” defines action area as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. [50 CFR 402.02].”

¹² Additional information can be found at: <http://www.rivers.gov>.

casting into wetlands from utility trenches). Certain repair, replacement or maintenance activities may be eligible for Category 1 – refer to Appendix A.

b. Subsurface utility lines must be installed at a sufficient depth to avoid damage from anchors, dredging, etc., and to prevent exposure from erosion and stream adjustment. In accordance with Corps New England District Regulation NEDER 1110-1-9 (www.nae.usace.army.mil/missions/regulatory >> [Useful Links and Documents](#)), as an absolute minimum, the bottom cover associated with the initial installation of utility lines under navigable waters and navigation channels shall be 48 inches in soil or 24 inches in rock excavation in competent rock unless specified in a written determination. These minimum bottom cover requirements for pipelines and cables shall be measured from the maximum depth of dredging to the top of the utility. The maximum depth of dredging, in waterways having existing FNPs, is generally considered to be the authorized project depth plus any allowance for advanced maintenance and the allowable overdepth for dredging tolerances. In waterways that do not have existing FNPs, this depth should be taken as two feet below the existing bottom or maximum depth of proposed dredging, as applicable.

c. Aerial utility lines that cross navigable waters must meet minimum clearances. See 33CFR322.5(i).

d. For horizontal directional drilling work, returns of drilling fluids to the surface (i.e., frac-outs) are not authorized and require restoration to the maximum extent practicable in accordance with the terms and conditions of this GP. The permittee and its contractor shall have onsite and shall implement the procedures detailed in a frac-out contingency plan for monitoring drilling operations and for the immediate containment, control and recovery/removal of drilling fluids released into the environment should a discharge of material occur during drilling operations.

e. Within the context of any new installations, any abandoned or inactive utility lines should be removed and faulty lines (e.g., leaking hazardous substances, petroleum products, etc.) should be removed or repaired to the extent practicable. A PCN and written verification from the Corps is required if they are to remain in place, e.g., to protect sensitive areas or ensure safety.

f. No work shall drain a water of the U.S. by providing a conduit for water on or below the surface. Trench plugs installed along pipelines may be effective.

13. Heavy Equipment in Wetlands or Mudflats. Operating heavy equipment other than fixed equipment (drill rigs, fixed cranes, etc.) within wetlands shall be minimized, and such equipment shall not be stored, maintained or repaired in wetlands, to the maximum extent practicable. Where construction requires heavy equipment operation in wetlands, the equipment shall either have low ground pressure (typically <3 psi), or it shall be placed on swamp/construction/timber mats (herein referred to as “construction mats” and defined at Appendix A, Endnote 4) that are adequate to support the equipment in such a way as to minimize disturbance of wetland soil and vegetation. Construction mats are to be placed in the wetland from the upland or from equipment positioned on swamp mats if working within a wetland. Dragging construction mats into position is prohibited. Other support structures that are capable of safely supporting equipment may be used with written Corps authorization (Category 2 authorization or Individual Permit). Similarly, the permittee may request written authorization from the Corps to waive use of mats during frozen, dry or other conditions. An adequate supply of spill containment equipment shall be maintained on site. Construction mats should be managed in accordance with the Construction Mat BMPs at www.nae.usace.army.mil/missions/regulatory >> State General Permits >> Permit Resources.

14. Temporary Fill. Temporary fill that qualifies for Category 1 (e.g., <15,000 SF of combined temporary and permanent fill associated with the single and complete project) or is authorized in writing under Category 2, shall adhere to the following:

a. All temporary fill and disturbed soils shall be stabilized to prevent its eroding into waters of the U.S. where it is not authorized. Work shall include phased or staged development to ensure only areas under active development are exposed and to allow for stabilization practices as soon as practicable, typically within three calendar days after disturbance. Accelerated stabilization (the providing of temporary or permanent cover by the end of the work day to prevent erosion) shall be employed as necessary. Temporary fill must be placed in a manner that will prevent it from being eroded by expected high flows.

b. Unconfined temporary fill authorized for discharge into waters of the U.S. (e.g., temporary stream crossings) shall consist of material that minimizes impacts to water quality (e.g. washed stone, stone, etc.).

c. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Place materials in a location and manner that does not adversely impact surface or subsurface water flow into or out of the wetland. Temporary fill authorized for discharge into wetlands shall be placed on geotextile fabric or other appropriate material laid on the pre-construction wetland grade where practicable to minimize impacts and to facilitate restoration to the original grade. Construction mats are excluded from this requirement.

d. Temporary fill, construction mats and corduroy roads shall be entirely removed as soon as they are no longer needed to construct the authorized work. Temporary fill shall be placed in its original location or disposed of at an upland site and suitably contained to prevent its subsequent erosion into waters of the U.S. To qualify for Category 1, temporary fill placed during the: i.) growing season must be removed before the beginning of the next growing season; and ii.) non-growing season may remain throughout the following growing season, but must be removed before the beginning of the next growing season.

e. Temporary fill, construction mats and corduroy roads are considered temporary only if they are removed as soon as they are no longer needed to construct the authorized work.

f. Construction debris and/or deteriorated materials shall not be located in waters of the U.S.

15. Restoration of Special Aquatic Sites (Including Wetland Areas)

a. Temporary fills must be removed in their entirety and the affected areas restored to their pre-construction condition, function and elevation. Restoration shall typically commence no later than the completion of construction.

b. For excavated areas, “restored to pre-construction condition, function and elevation” means careful removal of existing soil and vegetation, separate topsoil and subsoil stockpiling, soil protection, and replacement back to the original location such that the original soil layering and vegetation schemes are approximately the same, unless otherwise authorized. Plan for natural settling that will occur (the initial post-restoration elevation of the backfilled areas should be above the desired final grade as topsoil may settle by 33% to 50%), minimize compaction, and ensure that topsoil is void of gravel and subsoil. A minimum of 4 inches of topsoil should be at the surface after the soil has settled. Wetland areas temporarily disturbed shall be stabilized (e.g., seeded or planted). Seed mixes and vegetation shall include only plant species native to New England and shall not include any species listed as “Invasive and Other Unacceptable Plant Species” in the “New England District Compensatory Mitigation Guidance” (see GC 24 and refer to Appendix G). This list may be updated periodically.

c. Limit compaction to the minimum needed to promote a successful seedbed; avoid a ‘fluffy’ seedbed, which is susceptible to erosion until the plants get established, and a compacted topsoil layer, which is counter-productive and will lead to greater erosion susceptibility down the road. Test soils for compaction. A soil probe, auger, or shovel should be able to retrieve samples of post-restoration profile. Equipment refusal shall be considered a failure of restoration, in which case the soil should be restored through deep-ripping and/or de-compaction, or other appropriate methods, and wetland hydrology must be maintained. See the BMPs at [>> State General Permits >> Permit Resources >> Restoration](http://www.nae.usace.army.mil/missions/regulatory).

d. In areas of authorized temporary disturbance, cut woody vegetation (trees, shrubs, etc.) shall be cut at or above ground level and not uprooted in order to prevent disruption to the wetland soil structure and to allow stump sprouts to revegetate the work area, unless otherwise authorized.

e. Trenches shall be constructed or backfilled so that the trench does not drain waters of the U.S. (e.g., materials or methods that create a French drain effect).

16. Soil Erosion, Sediment and Turbidity Controls

a. Adequate sedimentation and erosion control management measures, practices and devices, such as phased construction, installation of sediment control barriers (i.e. silt fence, vegetated filter strips, geotextile silt fences, erosion control mixes, hay bales or other devices) downhill of all exposed areas, retention of existing vegetated buffers, application of temporary mulching during construction, and permanent seeding and stabilization shall be installed and properly maintained to reduce erosion and retain sediment on-site during and after construction. They shall be capable of preventing erosion; of collecting sediment, suspended and floating materials; and of filtering fine sediment.

- b. Temporary sediment control barriers shall be removed upon completion of work, but not until all disturbed areas are permanently stabilized. The sediment collected by these sediment barriers shall be removed and placed at an upland location and stabilized to prevent its later erosion into a waterway or wetland.
- c. All exposed soil and other fills shall be permanently stabilized at the earliest practicable date .

17. Time of Year Work Windows/Restrictions. For activities where work is authorized in streams and tidal waters that causes turbidity or sediment re-suspension or other construction related disturbances, work must be conducted during the following TOY work windows (not during the TOY restrictions) unless otherwise authorized by the Corps under Category 2 review:

	<u>TOY Restriction</u> (no work)	<u>TOY Work Window</u> (work allowed)
Non-tidal waters	Oct. 01 through Jul. 14	Jul. 15 through Sep. 30
Tidal waters	Apr. 10 through Nov. 07	Nov. 08 through Apr. 09

Alternate windows authorized under Category 2 may include species specific windows recommended by the Maine Dept. of Marine Resources and/or Maine Dept. of Inland Fisheries & Wildlife.

18. Aquatic Life Movements & Management of Water Flows

- a. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. Unless otherwise stated, activities impounding water in a stream require a PCN to ensure impacts to aquatic life species are avoided and minimized. All permanent and temporary crossings of waterbodies (e.g., streams, wetlands) shall be:
 - i. Suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species; and
 - ii. Properly aligned and constructed to prevent bank erosion or streambed scour both adjacent to and inside the culvert. Permanent and temporary crossings of wetlands shall be suitably culverted, spanned or bridged in such a manner as to preserve hydraulic and ecological connectivity between the wetlands on either side of the road.
- b. To avoid adverse impacts on aquatic organisms, the low flow channel/thalweg shall remain unobstructed during periods of low flow, except when it is necessary to perform the authorized work.
- c. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the preconstruction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

19. Water Quality and Coastal Zone Management

- a. Applicants must satisfy any conditions imposed by the state and EPA, where applicable, in their CWA § 401 Water Quality Certifications (WQC) for this GP, or in any Individual § 401 WQC. See Appendix E for state-specific contact information and to determine if any action is required to obtain a 401 WQC. The Corps may require additional water quality management measures to ensure that the authorized activity does not cause or contribute to a violation of water quality standards. All projects authorized by this GP shall be designed, constructed and operated to minimize or eliminate the discharge of pollutants.
- b. Applicants must satisfy any additional conditions imposed by the state in their Coastal Zone Management (CZM) Act consistency concurrences for this GP, or in any Individual CZM consistency concurrences. The Corps may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

20. Floodplains and Floodways

- a. Appropriate measures must be taken to minimize flooding to the maximum extent practicable.
- b. Activities within 100-Year Floodplains must comply with applicable Federal Emergency Management Agency (FEMA)-approved state and/or local floodplain management permitting requirements. Proponents may need to coordinate with FEMA and apply for a formal change to the flood insurance study products or forward a set of project plans and relevant technical documentation in a digital format to the Risk

Analysis Branch Chief, Mitigation Division, FEMA, Region 1, 99 High Street, Boston, Massachusetts 02110. Applicants should provide a copy of any documentation to the Corps along with the PCN.

c. Proponents may have to obtain a Flood Hazard Development Permit issued by the town. Inquiries may be directed to the municipality or to the Maine Floodplain Management Coordinator at (207) 287-8063. See <http://www.maine.gov/dacf/flood/>

21. Storage of Seasonal Structures. Seasonal or recreational structures such as pier sections, floats, aquaculture structures, etc. that are removed from the waterway for a portion of the year (often referred to as seasonal structures) shall be stored in an upland location landward of mean high water (MHW) or ordinary high water (OHW) and not in wetlands, tidal wetlands, their substrate or on mudflats. These seasonal structures may be stored on the fixed, pile-supported portion of the structure that is waterward of MHW or OHW. Seasonal storage of structures in navigable waters, e.g., in a protected cove on a mooring, requires Corps approval and local harbormaster approval.

22. Spawning, Breeding, and Migratory Areas

a. Jurisdictional activities and impacts such as excavations, discharges of dredged or fill material, and/or suspended sediment producing activities in jurisdictional waters that provide value as fish migratory areas, fish and shellfish spawning or nursery areas, or amphibian and migratory bird breeding areas, during spawning or breeding seasons shall be avoided and minimized to the maximum extent practicable.

b. Jurisdictional activities in waters of the United States that provide value as breeding areas for migratory birds must be avoided to the maximum extent practicable. The permittee is responsible for obtaining any “take” permits required under the USFWS’s regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the USFWS to determine if such “take” permits are required for a particular activity (See Appendix E).

23. Vernal Pools

a. Only vernal pools that meet the current definition of waters of the U.S. are regulated by the Corps.

b. Direct and indirect adverse effects to all vernal pools (VPs), including their envelopes and critical terrestrial habitats (VP Management Areas¹³), shall be avoided and minimized to the maximum extent practicable. Site clearing, grading, and construction activities associated with a regulated activity in the VP Management Area may cause these adverse effects to the VP.

c. The State of Maine has specific protections for vernal pools.¹⁴

d. When any regulated activities occur within 750 feet of a vernal pool, the following management practices must be followed for all work within any VP Management Area (750’ of a VP’s edge) *in order to qualify for Category I*:

- i. No disturbance within the VP Depression or VP Envelope (area within 100 feet of the VP Depression’s edge)¹⁵;
- ii. Maintain a minimum of 75% of the Critical Terrestrial Habitat (area within 100-750 feet of the VP Depression’s edge) as unfragmented forest with at least a partly-closed canopy of overstory trees to provide shade, deep litter and woody debris;
- iii. Maintain or restore forest corridors connecting wetlands and significant vernal pools;
- iv. Minimize forest floor disturbance; and
- v. Maintain native understory vegetation and downed woody debris.

¹³ The Corps VP Management Area, which includes the VP and a 750’ radius from the VP’s edge, is defined at Appendix A, Endnote 5.

¹⁴ Appendix G, 10(a)-(d) provides links to the state’s Significant Wildlife Habitat regulations and references that provide impact minimization measures to reference when designing projects.

¹⁵ The no disturbance requirement in the VP envelope [see (b)(i)(1)], and (b)(i)(2), do not apply to temporary impacts associated with construction mats in previously disturbed areas of existing utility project (e.g., transmission lines, gas pipelines) or linear transportation project (e.g., roads, highways, railways, trails, airport runways and taxiways) right-of-ways provided there is a Vegetation Management Plan that avoids, minimizes and mitigates impacts to aquatic resources.

vi. Cape Cod style-curbing or no curbing options shall be used on new roads to facilitate amphibian passage. (Reference Appendix G)

e. A PCN is required for any regulated activity within 750' of a vernal pool when all work within the VP Management Area does not comply with the Category 1 requirements in (d) above. Information on directional buffers in accordance with the VP Directional Buffer Guidance document may be provided in order to demonstrate minimal impact and avoid compensation requirements (Reference Appendix G). Conservation of the un-impacted area within the VP Management Area will often be required.

f. GC 2 requires applicants to delineate or approximately identify on the project plans all waters of the U.S., which contain vernal pools.

g. GC 23(b-d) do not apply to projects that are within a municipality and meet the provisions of a Corps-approved VP Special Area Management Plan (VP SAMP) and are otherwise eligible for self-verification.

24. Invasive and Other Unacceptable Species¹⁶

a. The introduction or spread of invasive or other unacceptable plant or animal species on the project site or areas adjacent to the project site caused by the site work shall be avoided to the maximum extent practicable. For example, construction mats and equipment shall be thoroughly cleaned and free of vegetation and soil before and after use. The introduction or spread of invasive plant or animal species on the project site caused by the site work shall be controlled.

b. No cultivars, invasive or other unacceptable plant species may be used for any mitigation, bioengineering, vegetative bank stabilization or any other work authorized by this GP. However, non-native species and cultivars may be used when it is appropriate and specified in a written verification, such as using *Secale cereale* (Annual Rye) to quickly stabilize a site. All PCNs should explain the reason for using non-native species or cultivars.

25. Programmatic Consultations or Agreements. The Corps requirements to comply with Section 106 of the NHPA, Section 7 of the Endangered Species Act or Essential Fish Habitat conservation under the Magnuson-Stevens Act may be satisfied by a Programmatic Agreement with the Corps, New England District or another federal action agency. Any Corps, New England District Programmatic Agreements will be available on our website.

26. Permit On Site. The permittee shall ensure that a copy of this GP and any accompanying authorization letter with attached plans are at the site of the work authorized by this GP whenever work is being performed and that all construction personnel performing work which may affect waters of the U.S. are aware of its terms and conditions. The entire permit authorization shall be made a part of any and all contracts and subcontracts for work that affects areas of Corps jurisdiction at the site of the work authorized by this GP. This shall be achieved by including the entire permit authorization in the specifications for work. The term "entire permit authorization" means this entire GP and the authorization letter (including its drawings, plans, appendices and other attachments) and also includes permit modifications. If the authorization letter is issued after the construction specifications, but before receipt of bids or quotes, the entire permit authorization shall be included as an addendum to the specifications. If the authorization letter is issued after receipt of bids or quotes, the entire permit authorization shall be included in the contract or subcontract. Although the permittee may assign various aspects of the work to different contractors or subcontractors, all contractors and subcontractors shall be obligated by contract to comply with all environmental protection provisions contained within the entire GP authorization, and no contract or subcontract shall require or allow unauthorized work in areas of Corps jurisdiction.

¹⁶ For the purposes of this GP, plant species that are considered invasive and unacceptable are provided in Appendix G "Invasive and other Unacceptable Plant Species" of our document "Compensatory Mitigation Guidance" at www.nae.usace.army.mil/missions/regulatory >> Mitigation. Chapter 4(e) Planting is also particularly relevant. The June 2009 "Corps of Engineers Invasive Species Policy" provides policy, goals and objectives and is located at www.nae.usace.army.mil/missions/regulatory >> Invasive Species. Additional information can be found at: www.eddmaps.org/ipane.

27. Self-Verification Notification Form (SVNF). Permittees must complete and submit the SVNF provided at Appendix B to the Corps for work authorized by this GP unless otherwise noted in Appendix A. **NOTE: A copy of a state permit application form may be an acceptable surrogate for the SVNF provided either form used also include plans and an Official Species List of federally listed threatened or endangered species.**

28. Inspections. The permittee shall allow the Corps 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 this GP and any written verification. The Corps may also require post-construction engineering drawings for completed work, post-dredging survey drawings for any dredging work, or other post-construction reports. To facilitate these inspections, the permittee shall complete and return to the Corps the following forms:

- For Category 1/Self-Verification: The SVNF (see Appendix B).
- For Category 2/PCN: The a) Work-Start Notification Form and b) Compliance Certification Form, when either is provided with the authorization letter.

29. Maintenance

a. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable general conditions and activity-specific conditions to a written verification.

b. The requirement in (a) above does not include maintenance of dredging projects. Each maintenance dredging event exceeding the self-verification limits requires a new PCN unless an unexpired, written PCN or other Corps authorization specifies that the permittee may “dredge and maintain” an area for a particular time period. Self-verification or PCN maintenance dredging includes only those areas and depths previously authorized and actually dredged. Maintenance dredging with ocean or open water disposal will always require a PCN and at least Category 2 review.

c. Some maintenance activities may not be subject to regulation under Section 404 in accordance with 33 CFR 323.4(a)(2). Refer to Appendix A, Endnote 7.

30. Property Rights. This GP does not convey any property rights, either in real estate or material, or any exclusive privileges, nor does it authorize any injury to property or invasion of rights or any infringement of federal, state, or local laws or regulations.

31. Transfer of GP Verifications. When the structures or work authorized by this GP are still in existence at the time the property is transferred, the terms and conditions of this GP, including any special conditions, will continue to be binding on the entity or individual who received the GP authorizations, as well as the new owner(s) of the property. If the permittee sells the property associated with a GP verification, the permittee may transfer the GP verification to the new owner by submitting a letter to the Corps (see Appendix E for address) to validate the transfer. A copy of the GP verification must be attached to the letter, and *the letter must contain the new owner’s contact information and the following statement and signature:*

“When the structures or work authorized by this GP are still in existence at the time the property is transferred, the terms and conditions of this GP, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this GP and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

(Transferee)

(Date)

32. Modification, Suspension, and Revocation. Any work authorized under this GP by self-verification or PCN may be either modified, suspended, or revoked, in whole or in part, pursuant to the policies and procedures of 33 CFR 325.7. Any such action shall not be the basis for any claim for damages against the U.S.

33. Special Conditions. The Corps may independently, or at the request of the federal resource agencies, impose other special conditions on a project authorized pursuant to this GP that are determined necessary to minimize adverse navigational and/or environmental effects or based on any other factor of the public interest. Failure to comply with all terms and conditions of the authorization, including special conditions, constitutes a permit violation and may subject the permittee to criminal, civil or administrative penalties and/or an ordered restoration.

34. False or Incomplete Information. If the Corps makes a determination regarding the eligibility of a project under this GP and subsequently discovers that it has relied on false, incomplete or inaccurate information provided by the permittee, the Corps may determine that the GP authorization is not valid; modify, suspend or revoke the authorization; and the U.S. Government may institute legal proceedings.

35. Abandonment. If the permittee decides to abandon the activity authorized under this GP, unless such abandonment is merely the transfer of property to a third party, he/she may be required to restore the area to the satisfaction of the Corps.

36. Enforcement cases. This GP does not apply to any existing or proposed activity in Corps jurisdiction associated with an ongoing Corps or EPA enforcement action, until such time as the enforcement action is resolved or the Corps or EPA, as appropriate, determines that the activity may proceed independently without compromising the enforcement action.

37. Duration of Authorization. This GP expires on October 12, 2020. Activities authorized under this GP that have commenced (i.e., are under construction) or are under contract to commence before this GP expires will have until October 12, 2021 to complete the activity under the terms and conditions of the current GP.

38. Previously Authorized Activities.

a. Projects that have received authorization (Category 1 or 2) from the Corps and that were completed under the previous PGPs, nationwide permits, regional general permits or letters of permission, shall remain authorized.

b. Activities authorized pursuant to 33 CFR Part 330.3 (“Activities occurring before certain dates”) are not affected by this GP.

c. Any work not commenced nor completed that was authorized in a written letter from the Corps under the GP in effect between October 12, 2010 and October 12, 2015 remains authorized subject to the terms and general conditions of this GP along with any special conditions in the authorizing written letter. Exception – if previously authorized work is not commenced and a new federally listed threatened or endangered species could be affected, the Corps must consult with the Service(s) prior to re-authorizing the work under this GP. Requests for re-authorization must include an updated Official Species list. To request an Official Species List, refer to the instructions in Appendix D.

39. Discretionary Authority. Notwithstanding compliance with the terms and conditions of this permit, the Corps retains discretionary authority to require Category 2 or Individual Permit review based on concerns for the aquatic environment or for any other factor of the public interest [33 CFR 320.4(a)]. This authority is invoked on a case-by-case basis whenever the Corps determines that the potential consequences of the proposal warrant a higher level of review based on the concerns stated above. This authority may be invoked for projects that may contribute to cumulative environmental impacts that are more than minimal or if there is a special resource or concern associated with a particular project that is not already covered by the remaining conditions of the GP and that warrants greater review. Whenever the Corps notifies an applicant that an Individual Permit may be required, the project is not authorized under this GP and no work may be conducted until an Individual Permit is obtained or until the Corps notifies the applicant that further review has demonstrated that the work may proceed under this GP.

40. St. John/St. Croix Rivers. Work within the Saint John and Saint Croix River basins that requires approval of the International Joint Commission is not eligible for Category 1 and a PCN to the Corps is required if any temporary or permanent use, obstruction or diversion of international boundary waters could affect the natural

flow or levels of waters on the Canadian side of the line; or if any construction or maintenance of remedial works, protective works, dams, or other obstructions in waters downstream from boundary waters could raise the natural level of water on the Canadian side of the boundary.

41. National Lands. Activities that impinge upon the value of any National Wildlife Refuge, National Forest, National Marine Sanctuary, National Park or any other area administered by the National Park Service, U.S. Fish and Wildlife Service (USFWS) or U.S. Forest Service are not eligible for Category 1 and require a PCN.

42. Essential Fish Habitat (EFH). Any work in the following rivers and streams, including all tributaries to the extent that they are currently or were historically accessible for salmon migration, shall not be authorized under Category 1 of the GP and must be screened for potential impacts to EFH (see Appendix G for more information).

Androscoggin River	Aroostook River	Boyden River	Dennys River
Ducktrap River	East Machias River	Hobart Stream	Kennebec River
Machias River	Narraguagus River	Orland River	Passagassawaukeag River
Patten Stream	Penobscot River	Pleasant River	Presumpscot River
Saco River	Sheepscot River	St. Croix River	Tunk Stream
			Union River

The above does not apply to the following activities which may qualify for Category 1 work:

- Exploratory drilling and borings for bridges.
- Moorings (see Appendix A, Page 28 for Category 1 thresholds and requirements)
- Structures, floats & lifts (see Appendix A, Page 29 for Category 1 thresholds and requirements)
- Other activities specified in a programmatic agreement with NMFS.

43. Work Site Restoration

a. Wetland areas where permanent disturbance is not authorized shall be restored to their original condition and elevation, which under no circumstances shall be higher than the pre-construction elevation. Original condition means careful protection and/or removal of existing soil and vegetation, and replacement back to the original location such that the original soil layering and vegetation schemes are approximately the same, unless otherwise authorized.

b. Upon completion of construction, all disturbed wetland areas (the disturbance of these areas must be authorized) shall be properly stabilized. Any seed mix shall contain only plant species native to New England and shall not contain any species listed in the “Invasive and Other Unacceptable Plant Species” Appendix in the “New England District Compensatory Mitigation Guidance” (see GC 24 and refer to Appendix G). This list may be updated periodically.

c. In areas of authorized temporary disturbance, if trees are cut they shall be cut at ground level and not uprooted in order to prevent disruption to the wetland soil structure and to allow stump sprouts to revegetate the work area, unless otherwise authorized.

44. Bank Stabilization

a. Projects involving construction or reconstruction/maintenance of bank stabilization structures within Corps jurisdiction shall be designed to minimize environmental effects, effects to neighboring properties, scour, etc. to the maximum extent practicable.

b. Project proponents must design and construct bank stabilization projects using this sequential minimization process: avoidance of aquatic resource impacts, diversion of overland flow, vegetative stabilization, stone-sloped surfaces, and walls/bulkheads. Vertical walls/bulkheads shall only be used in situations where reflected wave energy can be tolerated.

c. Inland Water bank stabilization activities necessary for erosion prevention must meet all of the following criteria: i) No material is placed in excess of the minimum needed for erosion protection; ii) The activity is no more than 500 feet in total length along the bank(s); iii) The activity will not exceed an average of one cubic yard per running foot placed along the bank below the plane of the ordinary high water mark; iv) Structures angled steeper than 1H:1V and any material other than angular or sub-angular stone or fiber roll revetments require at least a Category 2 review; v) The activity does not involve discharges of dredged or fill

material into special aquatic sites; vi) No material is of the type, or is placed in any location, or in any manner, to impair surface water flow into or out of any water of the U.S.; vii) No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored trees and treetops may be used in low energy areas); and viii) The activity is not a stream channelization activity.

d. Bank stabilization activities in tidal waters are provided at Appendix A, Page 30 & 31. Direct impacts in tidal waters from contiguous bank stabilization projects in excess of 200 linear feet (Applicant or Applicant + Abutters combined) must undergo Category 2 review.

45. Stream Work and Crossings & Wetland Crossings

Notes:

a. For *Stream Work and Crossings* below, conditions (a) and (b) apply to Inland Waters and Wetlands (see Appendix A, Page 1 for definition) and Navigable Waters (see Appendix A, Page 27 for definition). Conditions (c)-(l) below only apply to Inland Waters and Wetlands that are streams. All new and replacement crossings in Navigable Waters require an application to the Corps and at least a Category 2 review.

b. In-stream work in a watershed occupied by listed Atlantic salmon, Atlantic sturgeon, or shortnose sturgeon [see GC 8(b)] and some stream work such as crossings on EFH waters (see GC 42) is not eligible for Category 1.

c. “High-Quality Stream Segments” are shown at www.maine.gov/dep/gis/datamaps and may be useful in evaluating impacts to fisheries. GIS shape files are under “Other Google Earth Interactive Maps” and PDFs by county are under “DEP GIS Maps.” See Appendix E for more state contact information.

Conditions for Stream Work and Crossings:

a. All permanent crossings of rivers, streams, brooks, etc. (hereon referred to as “streams”) shall be suitably culverted, bridged, or otherwise designed to i) withstand and to prevent the restriction of high flows to qualify for Category 1, and ii) not obstruct the movement of or not substantially disrupt the necessary life-cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, beyond the actual duration of construction unless the activity’s primary purpose is to impound water to qualify for Category 1 or 2. (*NOTE: Areas of fill and/or cofferdams must be included in total waterway/wetlands impacts to determine applicability of this GP.*)

b. Any work that temporarily or permanently impacts upstream or downstream flood conditions, or permanently impacts wetlands in excess of Category 1 thresholds, must be reviewed at least under Category 2. See the documents referenced in Appendix G, 8(c) and (d) for guidance.

c. New Stream Crossings. For new stream crossings to qualify for Category 1:

- Must ensure compliance with GC 45(a) and GC 45(b) above.
- Shall be designed and constructed in accordance with the Corps General Stream Crossing Standards provided on Page 19 and the stream simulation document listed at Appendix G, 8(a).

d. Replacement Stream Crossings. For replacement stream crossings to qualify for Category 1:

- Must ensure compliance with GC 45(a) and GC 45(b) above.
- Shall be designed and constructed in accordance with the Corps General Stream Crossing Standards provided on Page 19 and the stream simulation document listed at Appendix G, 8(a).

e. Culvert Extensions. Culvert extensions on culverts that do not meet the Corps General Stream Crossing Standards do not qualify for Category 1 and require an application to the Corps and at least Category 2 review.

f. Temporary Stream Crossings.
Note: The General Stream Crossing Standards don’t apply to temporary stream crossings.

- Temporary stream crossings or cofferdams shall be used for equipment access across streams [see Appendix G, 8(e)]. Note: Areas of fill and/or cofferdams must be included in total waterway/wetlands impacts to determine the review category in Appendix A.
- Temporary stream crossings shall be removed within 180 days to qualify for Category 1.

iii. Temporary stream crossings that are not spans¹⁷ (typically culverts) must be designed in accordance with 1-6 below to qualify for Category 1. Category 2 applications should include information demonstrating 2-6 below:

1. Installed and removed during the low flow period specified in GC 45(l) below.
2. Placed on geotextile fabric or other material where practicable to ensure restoration to the original grade. Soil may not be used to construct or stabilize these structures and rock must be large enough to allow for easy removal without disrupting the streambed.
3. Designed and maintained to withstand and pass high flows. Water height should be no higher than the top of the culvert's inlet. A minimum culvert diameter of two feet is required to pass debris. Culverts must be aligned to prevent bank erosion or streambed scour.
4. Equipped with energy dissipating devices installed downstream if necessary to prevent scour.
5. Designed and maintained to prevent soil from entering the waterbody.
6. Removed upon the completion of work. Impacts to the streambed or banks requires restoration to their original condition using stream simulation methods¹⁸.

g. Slip Lining. Work using slip lining (retrofitting an existing culvert by inserting a smaller diameter pipe), invert lining, or resulting in decreased diameter, does not qualify for Category 1, either as new work or maintenance activities.

h. Work in Flowing Waters. To qualify for Category 1, no unconfined fill [see GC 14(b)] or excavation in flowing waters is allowed. To accomplish this:

i. Bank stabilization work below ordinary high water (OHW) shall utilize erosion controls such as inflatable cofferdams, jersey barrier, silt screen, turbidity curtain, etc. where practicable to prevent sediment input to the stream and to minimize turbidity and sedimentation impacts for sensitive life stages. Bank stabilization above OHW must utilize erosion controls.

ii. Management techniques such as temporary flume pipes, culverts, cofferdams, etc. must be used to maintain normal flows within the stream boundary's confines, or water diversions may be used immediately up and downstream of the work footprint (see Appendix A, Endnote 6) or work must be performed in the dry under no flow conditions, or under very low flow conditions following the practices in GC 45(a).

i. Minimization. In order to make the Category 2 review process more efficient and result in a faster decision, new and replacement stream crossings should be designed using the least intrusive and environmentally damaging method following this sequential minimization process: 1) spans with no stream impacts, 2) spans with stream impacts, and 3) embedded culverts with stream simulation or low-slope design.

j. Maintenance Requirements. The permittee shall maintain the work authorized herein in good condition and in conformance with the terms and general conditions of this permit to facilitate aquatic life passage as stated in GC 45(a). Culverts that develop "hanging" inlets or outlets, result in bed washout, or a stream that doesn't match the characteristics of the substrate in the natural stream channel such as mobility, slope, stability confinement will require maintenance or repair to comply with this GC. This does not apply to GC 45(f) above.

k. Maintenance and Replacement Information. An existing stream crossing must be authorized and in compliance with all conditions of its authorization(s) to qualify for maintenance not subject to regulation. See Appendix A, Endnote 7. A non-serviceable crossing is not eligible for maintenance and is therefore considered as a replacement crossing [see GC 45(d)].

l. Work Window. For projects that otherwise meet the terms of Category 1, in-stream construction work shall be conducted during the low flow period July 15 – September 30 in any year. Projects that are not to be conducted during that time period are ineligible for Category 1 and shall be screened pursuant to Category 2, regardless of the waterway and wetland fill and/or impact area.

Corps General Stream Crossing Standards (required for Category 1; recommended for Category 2):

- a. Culverts must be embedded:

¹⁷ For the purposes of this GP, spans are bridges, three-sided box culverts, open-bottom culverts or arches that span the stream with footings landward of bankfull width.

¹⁸ Design and construction shall be in accordance with the stream simulation document listed at Appendix G, 8(a).

- ≥ 2 feet for box culverts and other culverts with smooth internal walls,
- ≥ 1 foot for corrugated pipe arches
- ≥ 1 foot and at least 25 percent for corrugated round pipe culverts

b. **For new crossings**, spans¹⁷ are required to avoid or cause minimal disruption to the streambed and to meet the requirements of General Condition 45(a) and 45(b). Footings and abutments must be landward of 1.2 times bankfull width. To the greatest extent practicable, work in the stream shall be minimized, and design and construction shall allow the streambed's natural structure and integrity to remain intact. Any fill or excavation of the streambed below bankfull width other than footings, support pilings, or work specified in 45(h)ii requires Category 2 review and, unless demonstrated otherwise, stream simulation¹⁸ to establish substrate and banks in the span structure and work area as specified in (d) and (e) below.

c. **For replacement crossings**, spans¹⁷ are required to meet the requirements of General Condition 45(a) and 45(b). Footings and abutments shall be landward of 1.2 times bankfull width. Unless demonstrated otherwise, stream simulation¹⁸ is required to establish substrate and banks in the span structure and work area as specified in (d) and (e) below.

d. Crossings must have a natural bottom substrate within the structure matching the characteristics of the substrate in the natural stream channel and the banks (mobility, slope, stability, confinement, grain and rock size) at the time of construction and over time as the structure has had the opportunity to pass significant flood events. To allow terrestrial passage for wildlife and prevent undermining the footings, crossings shall have a bank on both sides of the stream matching the horizontal profile of the existing stream and banks¹⁸. Note: Installation of substrate material within smaller culverts may not be safe or practicable. In these cases, it may be necessary to allow for natural deposition and bed development unless alternative methods are identified.

e. Crossings must be designed and constructed¹⁸ with appropriate bed forms and streambed characteristics so that water depths and velocities are comparable to those found in the natural channel at a variety of flows. In order to provide appropriate water depths and velocities at a variety of flows and especially low flows, it is usually necessary to reconstruct the streambed or preserve the natural channel within the structure. Otherwise, the width of the structure needed to accommodate higher flows will create conditions that are too shallow at low flows. The grain and rock size, and arrangement of streambed materials within the structure should be in accordance with (d) above. Flows could go subsurface within the structure if only large material is used without smaller material filling the voids.

Conditions for Wetland Crossings:

a. All temporary and permanent crossings of wetlands shall be suitably culverted, bridged, or otherwise designed to: i) Withstand and prevent the restriction of high flows, ii) Not obstruct the movement of or not substantially disrupt the necessary life-cycle movements of those species of aquatic life indigenous to the wetland, including those species that normally migrate through the area, beyond the actual duration of construction unless the activity's primary purpose is to impound water. See Appendix E for the Maine DEP's crossing standards.

b. To qualify for Category 1, new and replacement wetland crossings that are permanent shall be culverted, spanned or bridged in such a manner as to preserve hydraulic and ecological connectivity, at its present level, between the wetlands on either side of the road. To meet this requirement, we recommend that culverts, spans or bridges be placed at least every 50 feet with an opening at least 2 feet high and 3 feet wide at ground level where practicable. Closed bottom culverts shall be embedded at least 6 inches with a natural bottom.

c. In the case of non-compliance, the permittee shall take necessary measures to correct wetland damage due to lack of hydraulic and ecological connectivity.

d. Any work that results in flooding, results in impacts to wetlands on either side of the wetland crossing in excess of Category 1 thresholds, or impacts wetland drainage from the upgradient side of the wetland crossing does not qualify for Category 1.


 Robert J. Desista
 Deputy Chief, Regulatory Division
 For DISTRICT ENGINEER

DATE

10/13/15

APPENDIX A: DEFINITION OF CATEGORIES

A. INLAND WATERS AND WETLANDS	Inland Waters and Wetlands: Waters that are regulated under Section 404 of the Clean Water Act, including rivers, streams, lakes, ponds and wetlands, and <i>excluding Section 10 Navigable Waters of the U.S. (tidal and freshwater)</i>. The jurisdictional limits are the ordinary high water (OHW) mark in the absence of adjacent wetlands, beyond the OHW mark to the limit of adjacent wetlands when adjacent wetlands are present, and the wetland limit when only wetlands are present. For the purposes of this GP and designated activities, fill placed in the area between the mean high water (MHW) and the high tide line (HTL), and in the bordering and contiguous wetlands¹ to tidal waters are reviewed in the Navigable Waters section. (See B. Navigable Waters on page 27 below.) Projects not meeting Category 1 require an application for review as a Category 2 or Individual Permit project. All Category 1 and 2 projects must comply with all of this GP's applicable terms (Pages 1 – 4) and General Conditions (Pages 5–20).	
ACTIVITY	CATEGORY 1 Self-Verification Eligible (SVNF Required)	CATEGORY 2 (PCN Required)
1. Repair, Replacement, and Expansion of Maintenance of Authorized Structures and Fills	Repair or maintenance of existing, currently serviceable, authorized fills with no expansion or change in use: • Conditions of the original authorization apply. • Minor deviations in fill design allowed.⁷ • The repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events is authorized, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. • No effect on federally listed endangered or threatened species or critical habitat.	Replacement of non-serviceable fills, or repair/maintenance of serviceable fill, with expansion <3 acres, or with a change in use.
2. Moorings	NA – moorings in non-navigable inland waters are not subject to Corps jurisdiction. Note: Moorings placed in freshwater navigable waters are reviewed in the Navigable Waters section. (See B. Navigable Waters on Page 28 below.)	NA
3. Structures, Floats & Lifts	For solid fill or crib supported structures on inland waters, <15,000 square feet (SF) of waterway and/or wetland fill, associated secondary impacts², and temporary fills. • No effect on federally listed endangered or threatened species or critical habitat. • Note: Temporary or permanent structures placed in freshwater navigable waters are reviewed in the Navigable Waters section. (See B. Navigable Waters on page 29 below.)	1. Work not eligible for Category 1 2. ≥15,000 SF to <3 acres of inland waterway and/or wetland fill and associated secondary impacts (e.g., areas drained, flooded, fragmented, or excavated).
4. Aids to Navigation and Temporary Recreational Structures	NA - this activity in non-navigable inland waters is not subject to Corps jurisdiction. Note: Aids to Navigation and other structures placed in freshwater navigable waters are reviewed in the Navigable Waters section. (See B. Navigable Waters on page 30 below.)	NA

5. Dredging, Disposal of Dredged Material, Beach Nourishment, and Rock Removal and Relocation	1. For regulated discharges associated with excavation, and disposal <15,000 SF inland waterway and/or wetland impacts. 2. The activity does not occur in navigable waters of the U.S. 3. Stream channelization, relocation or loss of streambed including impoundments or discharge of tailings into streams does not occur. 4. No effect on federally listed endangered or threatened species or critical habitat.	1. Work not eligible for Category 1 2. ≥15,000 SF to <3 acres of inland waters.
6. Discharges of Dredged or Fill Material Incidental to the Construction of Bridges	NA - For discharges incidental to the construction of bridges in inland waters of the U.S. refer to Activity 23 (Stream and Wetland Crossings) and GC 45. Note: Discharges of Dredged or Fill Material Incidental to the Construction of Bridges in freshwater navigable waters are reviewed in the Navigable Waters section. (See B. Navigable Waters on page 30 below.)	NA
7. Bank and Shoreline Stabilization	Inland bank stabilization <500 FT long and ≤1 CY of fill per linear foot below OHW, provided: • ≤1 cubic yard of fill per linear foot placed along the bank waterward of ordinary high water. • Work complies with the GCs (GC 44 in particular), including: ○ No structures angled steeper than 1H:1V allowed. Only rough-faced stone or fiber roll revetments allowed. ○ No in-stream work involving fill or excavation in flowing waters (see GC 45(h)). • In-water work limited to Jul 15 – Sep 30. • No work in vernal pools⁵ or SAS³. • No effect on federally listed endangered or threatened species or critical habitat.	Work not eligible for Category 1
8. Residential, Commercial, Industrial, and Institutional Developments, and Recreational Facilities	1. <15,000 SF of inland waterway and/or wetland fill and associated secondary impacts² (e.g., areas drained, flooded, fragmented, mechanically cleared or excavated). Fill area includes all temporary and permanent fill, and regulated discharges associated with excavation. Construction mats are considered as fill. [See GC 14] <u>Provided:</u> • Historic fill + proposed impact area <15,000 SF complies with GC 5, Single and Complete Projects. • No work in special aquatic sites (SAS)⁴ other than wetlands. • No effect on federally listed endangered or threatened species or critical habitat. 2. For work in Vernal Pool (VP) Management Areas (includes VPs)⁵:	1. Work not eligible for Category 1. 2. ≥15,000 SF to <3 acres of inland waterway and/or wetland fill and associated secondary impacts (e.g., areas drained, flooded, fragmented, or excavated). Fill area includes all temporary and permanent fill (including mats), and regulated discharges associated with excavation. 3. <i>Mechanical clearing without grubbing or other soil disturbance >3 acres as a secondary impact may still be eligible for Category 2 at the discretion of the Corps.</i> See GC 2 and Appendix C for wetland delineation

	• See GC 23 and Appendix C for VP delineation requirements. • See GC 23 to determine if work qualifies for Category 1 or 2. • See Appendix G for VP documents providing mitigation guidance.	requirements.
9. Utility Line Activities	1. <15,000 SF of inland waterway and/or wetland fill, associated secondary impacts², and temporary fills. 2. The activity does not occur in, over, or under navigable waters of the U.S. 3. Intake structures that are dry hydrants used exclusively for firefighting activities with no stream impoundments. 4. There is no permanent change in pre-construction contours in waters of the U.S. 5. Material resulting from trench excavation is temporarily side cast into waters of the U.S. for ≤3 months and is placed in such a manner that it is not dispersed by currents or other forces. 6. The utility line is placed within and does not run a) parallel to, or b) along a streambed. 7. Stream channelization, relocation or loss of streambed including impoundments does not occur. 8. No effect on federally listed endangered or threatened species or critical habitat. 9. There is no discharge in SAS other than non-tidal wetlands. 10. Construction mats⁴ of any area necessary to conduct activities that were previously authorized, authorized under Category 1, or not subject to regulation (see Endnote 7). Authorized construction mats must be in place for <3 months, removed immediately upon work completion, and the wetlands must be restored (see GC 43). 11. Stream crossings must comply with GC 17.	1. Work not eligible for Category 1 2. ≥15,000 SF to <3 acres of inland waterway and/or wetland fill and associated secondary impacts (e.g., areas drained, flooded, fragmented, or excavated). Fill area includes all temporary and permanent fill (including mats), and regulated discharges associated with excavation. 3. <i>Mechanical clearing without grubbing or other soil disturbance >3 acres as a secondary impact may still be eligible for Category 2 at the discretion of the Corps.</i>
10. Linear Transportation Projects (not including stream crossings) For stream crossings, refer to Activity 23	1. <15,000 SF of inland waterway and/or wetland fill associated secondary impacts (e.g., areas drained, flooded, fragmented, mechanically cleared or excavated). Fill area includes all temporary and permanent fill, and regulated discharges associated with excavation. Construction mats are considered fill. (See GC 14.) Provided: • Historic fill + proposed impact area <15,000 SF and complies with GC 5 single and complete projects. • No work in special aquatic sites (SAS) other than wetlands. 2. Construction mats⁴ of any area necessary to conduct activities that were previously authorized, authorized under Category 1, or not subject to regulation (see Endnote 7). Authorized construction mats must be in place for <3 months, removed immediately upon work completion, and the wetlands must be restored (see GC 43). 3. No effect on federally listed endangered or threatened species or critical habitat.	1. ≥15,000 SF to <3 acres of inland waterway and/or wetland fill and associated secondary impacts (e.g., areas drained, flooded, fragmented, or excavated). Fill area includes all temporary and permanent fill (including mats), and regulated discharges associated with excavation. 2. <i>Mechanical clearing without grubbing or other soil disturbance >3 acres as a secondary impact may still be eligible for Category 2 at the discretion of the Corps.</i>

11. Mining Activities	1. <15,000 SF of inland waterway and/or wetland fill, associated secondary impacts, and temporary impacts. 2. The activity does not occur in navigable waters of the U.S. 3. Stream channelization, relocation or loss of streambed including impoundments or discharge of tailings into streams does not occur. 4. No effect on federally listed endangered or threatened species or critical habitat.	1. Work not eligible for Category 1. 2. ≥15,000 SF to <3 acres of inland waterway and/or wetland fill and associated secondary impacts (e.g., areas drained, flooded, fragmented, or excavated). Fill area includes all temporary and permanent fill (including mats), and regulated discharges associated with excavation.
12. Boat Ramps	1. <15,000 SF of inland waterway and/or wetland fill, associated secondary impacts, and temporary impacts. 2. No effect on federally listed endangered or threatened species or critical habitat.	1. Work not eligible for Category 1 2. >15,000 SF and < 3 acres of impact.
13. Land and Water-Based Renewable Energy Generation Facilities and Hydropower Projects	<i>For land-based facilities:</i> 1. <15,000 SF of inland waterway and/or wetland fill, associated secondary impacts, and temporary impacts. 2. Stream channelization, relocation or loss of streambed including impoundments does not occur. 3. No effect on federally listed endangered or threatened species or critical habitat. <i>For water-based facilities and hydropower projects:</i> No new facilities are eligible.	<i>For land-based activities:</i> 1. Work not eligible for Category 1. 2. >15,000 SF and < 3 acres impact. 3. <i>Mechanical clearing without grubbing or other soil disturbance >3 acres as a secondary impact may still be eligible for Category 2 at the discretion of the Corps.</i> <i>For water-based facilities and hydropower projects:</i> > 3 acres of impact will require an IP.
14. Reshaping Existing Drainage Ditches & Mosquito Management	Not Applicable	Not Applicable
15. Oil Spill and Hazardous Material Cleanup	Jurisdictional activities required for the containment and cleanup of oil and hazardous substances that are subject to the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300) provided that the work is done in accordance with the Spill Control and Countermeasure Plan required by 40 CFR 112.3 or any existing state contingency plan and provided that the Regional Response Team (if one exists in the area) concurs with the proposed containment and cleanup action. SAS³ must typically be restored in place at the same elevation. Note: SVN^F or a surrogate state reporting form may be submitted after the fact.	Work not eligible for Category 1

16. Cleanup of Hazardous and toxic waste	Specific jurisdictional activities to effect the containment, stabilization, or removal of hazardous or toxic waste materials, including court ordered remedial action plans or related settlements, which are performed, ordered or sponsored by a government agency with established legal or regulatory authority. SAS should be restored in place at the same elevation. • <15,000 SF of inland waterway and/or wetland fill, associated secondary impacts, and temporary impacts. • No stream channelization, relocation or loss of streambed occurs. • The project does not involve establishing new disposal sites or expanding existing sites used for the disposal of hazardous or toxic waste. • No effect on federally listed endangered or threatened species or critical habitat.	Work not eligible for Category 1
17. Scientific Measurements Devices	1. Scientific measurement devices whose purpose is to measure and record scientific data, such as staff gages, water recording devices, water quality testing and improvement devices, and similar structures. This excludes any biological sampling devices. Structures may not restrict or concentrate movement of aquatic organisms. 2. No effect on federally listed endangered or threatened species or critical habitat.	Work not eligible for Category 1
18. Survey Activities	1. Jurisdictional survey activities, such as core sampling, seismic exploratory operations, plugging of seismic shot holes and other exploratory-type bore holes, exploratory trenching, soil surveys, sampling, and historic resources surveys (but not recovery). Exploratory trenches must be restored in accordance with GC 43. The construction of temporary pads is authorized provided the discharge doesn't exceed 25 CY. This doesn't authorize permanent structures or the drilling and the discharge of excavated material from test wells for oil and gas exploration (the plugging of such wells is authorized). 2. No effect on federally listed endangered or threatened species or critical habitat.	Work not eligible for Category 1
19. Agricultural Activities	1. For those activities subject to Corps jurisdiction¹⁶, <15,000 SF of inland waterway and/or wetland fill, associated secondary impacts, and temporary impacts. 2. No stream channelization, relocation, loss of streambed, or farm ponds in streams. 3. No effect on federally listed endangered or threatened species or critical habitat.	1. ≥15,000 SF to <3 acres of inland waterway and/or wetland fill and associated secondary impacts (e.g., areas drained, flooded, fragmented, or excavated). Fill area includes all temporary and permanent fill (including mats), and regulated discharges associated with excavation. 2. > 3 acres of impact will require an IP.

20. Fish and Wildlife Harvesting, Enhancement and Attraction Devices and Activities	NA - this activity in non-navigable inland waters, if not involving a discharge of dredged or fill material, is not subject to Corps jurisdiction. Note: Related structures placed in freshwater navigable waters (e.g. the upper Penobscot or Kennebec Rivers) are reviewed in the Navigable Waters section. (See B. Navigable Waters on Page 33 below.)	Not Applicable
21. Habitat Restoration, Establishment and Enhancement Activities	<15,000 SF of inland waterway and/or wetland fill, associated secondary impacts, and temporary impacts. - The activity is supported in writing by a local, state, or non-Corps Federal environmental agency. Water impoundments require PCN. - No conversion of i) a stream to wetland or vice versa, wetland to a pond or uplands, and ii) one wetland type to another. - No dam removal. - No effect on federally listed endangered or threatened species or critical habitat.	- Work not eligible for Category 1 - Aquatic habitat restoration, establishment, and the enhancement of wetlands and riparian areas and the restoration and enhancement of streams and other open waters with impacts of any area $\geq 15,000$ SF, provided those activities result in net increase in overall aquatic resource functions and services.⁸
22. Previously Authorized Activities	Any work not commenced nor completed that was authorized in a written letter from the Corps under the GP in effect between October 12, 2010 and October 12, 2015. The terms and general conditions of this GP apply along with any special conditions in the written authorization.	
23. Stream & Wetland Crossings	- River, stream and brook work and crossings: - Must comply with GC 45 in particular, including: - No slip lining [see GC 45 (g)]. - No in-stream work involving fill or excavation in flowing waters [see GC 45(h)]. - In-stream work limited to Jul 15 – Sep 30 [see GC 45 (l)]. - No work in riffles and pools³. - No stream relocations. - No dams or dikes⁶. - No effect on federally listed endangered or threatened species or critical habitat. <15,000 SF of inland waterway and/or wetland fill, associated secondary impacts, and temporary impacts. - Wetland crossings must comply with the particularly relevant GC 45.	Work not eligible for Category 1
24. Aquaculture (freshwater)	For land based installations, <15,000 SF of inland waterway and/or wetland fill, associated secondary impacts, and temporary impacts. - In-stream/in-water work limited to Jul 15 – Sep 30. - No effect on federally listed endangered or threatened species or critical habitat. Note: Related structures placed in freshwater navigable waters are reviewed in the Navigable Waters section. (See B. Navigable Waters, below.)	Work not eligible for Category 1

B. NAVIGABLE WATERS	Navigable Waters of the United States: Waters that are subject to the ebb and flow of the tide and/or the tidal and non-tidal portions of the Federally designated navigable waters (the Penobscot River, Kennebec River, and Lake Umbagog) (Section 10 Rivers and Harbors Act of 1899). The jurisdictional limits are the mean high water (MHW) line in tidal waters and the ordinary high water (OHW) mark in non-tidal portions of the federally designated navigable rivers. For the purposes of this GP, fill placed in the area between the mean high water (MHW) and the high tide line (HTL), and in the bordering and contiguous wetlands¹ to tidal waters are also reviewed in this Navigable Waters section. Projects not meeting Category 1 require an application for review as a Category 2 or Individual Permit project. All Category 1 and 2 projects must comply with all of this GP's applicable terms (Pages 1 - 4) and General Conditions (Pages 5 - 20).
ACTIVITY	CATEGORY 1 Self-Verification Eligible (SVNF Required)
1. Repair, Replacement, Expansion, and Maintenance of Authorized (or grandfathered) Structures and Fills	CATEGORY 2 (PCN Required) 1. Replacement of non-serviceable structures and fills or repair/maintenance of serviceable structures or fills, with fill, replacement or expansion <1 acre, or with a change in use. 2. <1 acre temporary or permanent fill, excavation and/or secondary impacts. Fill area includes all temporary and permanent waterway fills, provided: • Temporary or permanent fill in eelgrass¹⁴ <1000 SF. • Permanent fill in SAS (excluding eelgrass¹⁴) <4300 SF. 3. Standard Pile Driving Conditions. Work involving piles shall adhere to one of the four methods below: • Piles installed in-the-dry during low water or in-water between Nov. 8th - Apr. 9th, or • Must be drilled and pinned to ledge, or • Vibratory hammers used to install any size and quantity of wood, concrete or steel piles, or • Impact hammers limited to one hammer and <50 piles installed/day with the following: wood piles of any size, concrete piles ≤18-inches diameter, steel piles <12-inches diameter if the hammer is ≤3000 lbs and a wood cushion is used between the hammer and steel pile, and • For the methods above: - o In-water noise levels shall not exceed >187dB cSEL re 1μPa or 206dB peak re 1μPa at a distance >10m from the pile being installed, and - o In-water noise levels >150dB peak re 1μPa shall not exceed 12 consecutive hours on any given day and a 12 hour recovery period (i.e., in-water noise below 150dB peak re 1μPa) must be provided between work days. • Existing derelict, degraded or abandoned piles in the project area that are affected by project activities should be removed and properly disposed of in an upland location landward of MHW or OHW and not in wetlands, tidal wetlands, their substrate or mudflats.

2. Moorings	1. Private, non-commercial, non-rental, single-boat moorings, provided: • Authorized by the local harbormaster/town. • Not associated with any boating facility.¹¹ • Boat or mooring not located in a Federal Navigation Project or buffer zone¹² other than in a Federal Anchorage¹². Moorings in a Federal Anchorage not associated with a boating facility¹¹ and are not for rent. • No interference with navigation. • No new moorings located in SAS³. Prior to installation of moorings, a site-specific eelgrass survey should be conducted to document that eelgrass is not present. • When existing, authorized moorings in SAS³ are going to be replaced, they should be replaced with low impact mooring technology that prevents mooring chains from resting or dragging on the bottom substrate at all tides and helical anchors, or equivalent SAS protection systems where practicable. 2. Minor relocation of previously authorized moorings, provided: • Authorized by the local harbormaster/town. • Not located in SAS³ • No interference with navigation. • Cannot be relocated into a Federal Navigation Project¹² other than a Federal Anchorage¹² Note: Cat 1 eligible moorings do not require SVNf.	1. Moorings associated with an existing boating facility¹¹. An eelgrass¹⁴ survey may be required. 2. Moorings that don't meet the terms in Category 1 and don't require an Individual Permit. This includes private moorings with no harbormaster or means of local approval. 3. Moorings located such that they, and/or vessels docked or moored at them, are within the buffer zone of the horizontal limits¹³ of a Federal Channel¹². (See Appendix H.) The buffer zone is equal to 3 times the authorized depth of that channel. 4. An IP is required for moorings within the horizontal limits¹¹, or with moored vessels that extend, into the horizontal limits of a Federal Navigation Project¹², except those in Federal Anchorages¹². <i>For 1-4 above, siting of new individual moorings in SAS³, including eelgrass¹⁴, should be avoided to the maximum extent practicable. If SAS³ cannot be avoided, plans should show elastic mooring systems that prevent mooring chains from resting or dragging on the bottom substrate at all tides and helical anchors, or equivalent SAS protection systems, where practicable. For moorings that appear to impact SAS, the Corps may require an eelgrass survey.</i>
3. Structures, Floats and Lifts	1. Reconfiguration of existing authorized structures shall occur in-the-dry during low water. 2. Minor relocation of <u>previously authorized</u> floats or moored floats/lobster cars, provided: • Authorized by the local harbormaster/town. • Not located in SAS³. • No interference with navigation. • Cannot be relocated into a Federal Navigation Project¹² other than a Federal Anchorage¹².	1. New structures or floats, including floatways/skidways, built to access waterway (seasonal and permanent). Includes both pile supported and crib supported structures. 2. Expansions to existing boating facilities¹¹ • Pile-supported structures <400 SF, with attached floats totaling ≤200 SF. • Structures are ≤4' wide and have at least a 1:1 height:width ratio¹¹. • Floats supported a minimum of 18" above the substrate during all tides. • Structures & floats not located within 25' of any eelgrass⁸. • Moored vessels not positioned over SAS³.

	• <i>The Corps may require a letter of no objection from the abutter if structure is to be within 25 feet of the property line.</i> • <i>No structure extends across >25% of the waterway width at mean low water.</i> • <i>Not located within the buffer zone of the horizontal limits¹³ of a Corps Federal Navigation Project (FNP) (Appendix F). The buffer zone is equal to three times the authorized depth of that FNP.</i> 3. An Individual Permit is required for structures or floats, including floatways/skidways, located such that they and/or vessels docked or moored at them are within the horizontal limits¹³ of a Corps Federal Navigation Project¹² (see Appendix H). 4. An Individual Permit is required for structures & floats associated with a new or previously unauthorized boating facility¹¹. 5. Standard Pile Driving Conditions. Work involving piles shall adhere to one of the four methods below: • Piles installed in-the-dry during low water or in-water between Nov. 8th - Apr. 9th, or • Must be drilled and pinned to ledge, or • Vibratory hammers used to install any size and quantity of wood, concrete or steel piles, or • Impact hammers limited to one hammer and <50 piles installed/day with the following: wood piles of any size, concrete piles ≤18-inches diameter, steel piles <12-inches diameter if the hammer is ≤3000 lbs and a wood cushion is used between the hammer and steel pile, and • For the methods above: ○ In-water noise levels shall not exceed >187dB cSEL re 1μPa or 206dB peak re 1μPa at a distance >10m from the pile being installed, and ○ In-water noise levels >150dB peak re 1μPa shall not exceed 12 consecutive hours on any given day and a 12 hour recovery period (i.e., in-water noise below 150dB peak re 1μPa) must be provided between work days. • Existing derelict, degraded or abandoned piles in the project area that are affected by project activities should be removed and properly disposed of in an upland location landward of MHW or OHW and not in wetlands, tidal wetlands, their substrate or mudflats.

4. Aids to Navigation and Temporary Recreational Structures	1. Temporary buoys, markers, floats, etc. for recreational use during specific events, provided they are removed within 30 days after use is discontinued. 2. The placement of aids to navigation and regulatory markers which are approved by and installed in accordance with the requirements of the U.S. Coast Guard. (See 33 CFR 66, Chapter I, subchapter C).” Note: Cat 1 eligible aids to navigation and regulatory markers do not require SVNf.	Work not eligible for Category 1
5. Dredging, Disposal of Dredged Material, Beach Nourishment, and Rock Removal and Relocation	1. Maintenance dredging¹⁰ for navigational purposes <1,000 CY with upland disposal. Includes return water from upland contained disposal area, provided: • Proper siltation controls are used. • Dredging & disposal operation limited to Nov. 8 – Apr. 9. • No impact to SAS³. • No dredging in intertidal areas. • No dredging within 100’ of shellfish beds. • No dredging in areas designated as Critical Habitat for Atlantic salmon [see GC 8(b) & (c)]. • For dredging in tidal waters outside of Atlantic salmon critical habitat, applicants must contact NMFS (see GC 8) to ensure no impacts to listed species such as shortnose sturgeon, Atlantic surgeon, and listed sturgeon critical habitat. • Project proponents must contact the USFWS for work on coastal beaches to ensure no impacts to piping plovers, roseate terns, rufa red knot, or their habitat [see GC 8(c)]. • No underwater blasting. 2. Maintenance dredging is not eligible for Category 1 if conducted in tidal portions of the Penobscot river upstream of a line extending from Turner Point in Castine to Moose Point (formerly Squaw Point) on Cape Jellison in Stockton Springs or in tidal portions of the Kennebec or Androscoggin Rivers upstream of a line extending from Doubling Point in Arrowsic to Hospital Point in West Bath.	1. Maintenance dredging¹⁰ ≥1,000 CY, new dredging <25,000 CY, or projects not meeting Category 1. Includes return water from upland contained disposal areas. Disposal includes: • Upland. • Beach nourishment (above mean high water) of any area provided the dredging’s primary purpose is navigation or the sand is from an upland source. • Open water & confined aquatic disposal, if Corps finds the material suitable. 2. Beach nourishment associated with dredging when the primary purpose is not navigation requires at least a Category 2 review. 3. Maintenance or new dredging¹⁰ and/or disposal in or affecting a SAS³ requires an Individual Permit.

6. Discharges of Dredged or Fill Material Incidental to the Construction of Bridges	1. Discharges of dredged or fill material incidental to the construction of bridges across navigable waters of the U.S., including cofferdams, abutments, foundation seals, piers, and temporary construction and access fills provided the U.S. Coast Guard authorizes such discharges as part of the bridge permit or appropriate approval. 2. Causeways and approach fills are not included in this category and require Category 2 or Individual Permit authorization.	<1 acre temporary or permanent fill, excavation and/or secondary impacts (e.g., areas drained, flooded, fragmented or mechanically cleared). Fill area includes all temporary and permanent waterway fills, provided: • Temporary or permanent fill in eelgrass¹⁴ <1000 SF. • Permanent fill in SAS (excluding eelgrass¹⁴) <4300 SF.
7. Bank and Shoreline Stabilization	1. Bank stabilization projects <200 linear feet provided: • ≤1 cubic yard of fill per linear foot placed along the bank waterward of high tide line. No fill or equipment will occur in SAS³. • Work conducted in the intertidal zone must be conducted in-the-dry during low water. • No structures angled steeper than 1H:1V and only rough-faced stone or fiber roll revetments allowed. • No driving of piles or sheeting. 2. Bank stabilization projects in excess of 200 linear feet (Applicant or Applicant + Abutters combined) must undergo Category 2 review.	1. Work not eligible for Category 1. 2. <1 acre temporary or permanent fill, excavation and/or secondary impacts (e.g., areas drained, flooded, fragmented or mechanically cleared). Fill area includes all temporary and permanent waterway fills, provided: • Temporary or permanent fill in eelgrass¹⁴ <1000 SF. • Permanent fill in SAS (excluding eelgrass¹⁴) <4300 SF.
8. Residential, Commercial, and Industrial Institutional Developments, and Recreational Facilities	Not Eligible	1. <1 acre temporary or permanent fill, excavation and/or secondary impacts (e.g., areas drained, flooded, fragmented or mechanically cleared). Fill area includes all temporary and permanent waterway fills, provided: • Temporary or permanent fill in eelgrass¹⁴ <1000 SF. • Permanent fill in SAS (excluding eelgrass¹⁴) <4300 SF. 2. Conversions of previously authorized pile supported buildings over navigable waters to residences, offices, or other non-water dependent uses require at least a Category 2 review. 3. Floating house boats or businesses on floats require Category 2 review.
9. Utility Line Activities	1. Repair or maintenance of existing, currently serviceable, authorized utilities with no expansion or change in use: • Conditions of the original authorization apply. • Trenching or filling is confined to the existing footprint. • In water work conducted between Nov 8 and Apr 9. • No new impact to SAS. 2. Particularly relevant is GC12. 3. <u>New work</u> in, over, or under navigable waters requires a PCN and Category 2 review. 4. Except for aerial utility lines, work is not eligible for Category 1 if conducted in tidal portions of the Penobscot River upstream of a line extending from Turner Point in Castine to Moose Point (formerly	1. New or replacement installations or work not otherwise eligible for Category 1. 2. <1 acre temporary or permanent fill, excavation and/or secondary impacts (e.g., areas drained, flooded, fragmented or mechanically cleared). Fill area includes all temporary and permanent waterway fills, provided: • Temporary or permanent fill in eelgrass¹⁴ <1000 SF. • Permanent fill in SAS (excluding eelgrass¹⁴) <4300 SF. 3. Particularly relevant is GC12

	Squaw Point) on Cape Jellison in Stockton Springs or in tidal	
10. Linear Transportation Projects (Not Including Stream Crossings)	Not eligible	<1 acre temporary or permanent fill, excavation and/or secondary impacts (e.g., areas drained, flooded, fragmented or mechanically cleared). Fill area includes all temporary and permanent waterway fills, provided: • Temporary or permanent fill in eelgrass¹⁴ <1000 SF. • Permanent fill in SAS (excluding eelgrass¹⁴) <4300 SF.
11. Mining Activities	Not Eligible	Not Eligible
12. Boat Ramps and Marine Railways	1. No new impact to SAS 2. Marine railway and boat ramp work not eligible for maintenance⁷ (i.e. not currently serviceable⁷) may be replaced “in-kind” with minor deviations⁷ provided: • Work is in the intertidal zone. • No fill expansion below high tide line. • Work conducted in-the-dry during low water. 3. No new boat ramps or marine railways.	1. Work not eligible for Category 1 2. <1 acre temporary or permanent fill, excavation and/or secondary impacts (e.g., areas drained, flooded, fragmented or mechanically cleared). Fill area includes all temporary and permanent waterway fills, provided: • Temporary or permanent fill in eelgrass¹⁴ <1000 SF. • Permanent fill in SAS (excluding eelgrass¹⁴) <4300 SF.
13. Land and Water-Based Renewable Energy Generation Facilities and Hydropower Projects	Not Eligible	1. <1 acre temporary or permanent fill, excavation and/or secondary impacts (e.g., areas drained, flooded, fragmented or mechanically cleared). Fill area includes all temporary and permanent waterway fills, provided: • Temporary or permanent fill in eelgrass¹⁴ <1000 SF. • Permanent fill in SAS (excluding eelgrass¹⁴) <4300 SF. 2. No new impoundments.
14. Reshaping Existing Drainage Ditches and Mosquito Management	1. ≤500 linear feet of drainage ditch will be modified. The reshaping of the ditch cannot increase drainage capacity beyond the original as-built capacity nor can it expand the area drained by the ditch as originally constructed (i.e., the capacity of the ditch must be the same as originally constructed and it cannot drain additional wetlands or other waters of the U.S.). 2. No new ditches or relocation of drainage ditches constructed in waters of the U.S.; the location of the centerline of the reshaped drainage ditch must be approximately the same as the location of the centerline of the original drainage ditch. 3. No effect on federally listed endangered or threatened species or critical habitat	1. Work not eligible for Category 1 2. <1 acre temporary or permanent fill, excavation and/or secondary impacts (e.g., areas drained, flooded, fragmented or mechanically cleared). Fill area includes all temporary and permanent waterway fills, provided: • Temporary or permanent fill in eelgrass¹⁴ <1000 SF. • Permanent fill in SAS (excluding eelgrass¹⁴) <4300 SF.

15. Oil Spill and Hazardous Material Cleanup	Jurisdictional activities required for the containment and cleanup of oil and hazardous substances that are subject to the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300) provided that the work is done in accordance with the Spill Control and Countermeasure Plan required by 40 CFR 112.3 and any existing state contingency plan and provided that the Regional Response Team (if one exists in the area) concurs with the proposed containment and cleanup action. SAS ³ must typically be restored in place at the same elevation. Note: SVNf or a surrogate state reporting form may be submitted after the fact. No SVNf is required for Category 1 eligible containment booms.	Work not eligible for Category 1
16. Cleanup of Hazardous and Toxic Waste	Not eligible - except for booms placed for hazardous and toxic waste containment and absorption and prevention which are eligible for SV. Note: No SVNf is required for Category 1 eligible containment booms.	Specific jurisdictional activities with impacts of any area required to affect the containment, stabilization, or removal of hazardous or toxic waste materials that are performed, ordered, or sponsored by a government agency with established legal or regulatory authority. Wetlands and other SAS must typically be restored in place at the same elevation to qualify.
17. Scientific Measurement Devices	Scientific measurement devices whose purpose is to measure and record scientific data, such as staff gages, water recording devices, water quality testing and improvement devices, and similar structures. Structures may not restrict or concentrate movement of aquatic organisms; no activity results in a hazard to navigation; and no activity requiring underwater blasting.	1. Work not eligible for Category 1 2. <1 acre temporary or permanent fill, excavation and/or secondary impacts (e.g., areas drained, flooded, fragmented or mechanically cleared). Fill area includes all temporary and permanent waterway fills, provided: • Temporary or permanent fill in eelgrass ¹⁴ <1000 SF. • Permanent fill in SAS (excluding eelgrass ¹⁴) <4300 SF.
18. Survey Activities	Jurisdictional survey activities such as exploratory drilling, surveying and sampling activities, excluding any biological sampling devices. Does not include any activity requiring underwater blasting, seismic exploratory operations, or oil and gas exploration and fill for roads or construction pads. No activity may result in a hazard to navigation.	1. Work not eligible for Category 1 2. <1 acre temporary or permanent fill, excavation and/or secondary impacts (e.g., areas drained, flooded, fragmented or mechanically cleared). Fill area includes all temporary and permanent waterway fills, provided: • Temporary or permanent fill in eelgrass ¹⁴ <1000 SF. • Permanent fill in SAS (excluding eelgrass ¹⁴) <4300 SF.
19. Agricultural Activities	Not Eligible	Not Eligible

20. Fish & Wildlife Harvesting, Enhancement and Attraction Devices and Activities (Not Aquaculture)	Fish and wildlife harvesting, enhancement, and attraction devices and activities such as pound nets, crab traps, crab dredging, eel pots, lobster traps, and clam and oyster digging, and small fish attraction devices such as open water fish concentrators (sea kites, etc.). This does not authorize artificial reefs or impoundments and semi-impoundments of waters of the U.S. for the culture or holding of motile species such as lobster, or the use of covered oyster trays or clam racks. No activity that may result in a hazard to navigation. Note: A SVNf is not required for these Category 1 eligible devices and activities.	1. Work not eligible for Category 1. 2. Impoundments or semi-impoundments of waters of the U.S. for the culture or holding of motile species such as lobster and new fish weirs with an impounded area $\leq \frac{1}{2}$ acre. For Aquaculture operations, refer to Activity 24.
21. Habitat Restoration, Establishment and Enhancement Activities	1. Cultch placement in tidal waters is eligible for SV provided there are no salt marsh or vegetated shallow impacts. 2. SAS planting and transplanting ≤ 100 SF in tidal waters; 3. No artificial or living reefs. 4. The activity is authorized in writing by a local, state, or non-Corps federal environmental agency. Water impoundments require PCN. 5. No conversion of i) a stream to wetland or vice versa, wetland to a pond or uplands, and ii) one wetland type to another. 6. No dam removal. 7. Shellfish habitat enhancement such as brushing the flats is eligible for Category 1, <i>but not the use of netting which requires Category 2 review.</i>	1. Work not eligible for Category 1. 2. Aquatic habitat restoration, establishment and enhancement provided those activities are proactive and result in net increases in aquatic resource functions and services.⁸
22. Previously Authorized Activities	Any work not commenced nor completed that was authorized in a written letter from the Corps under the GP in effect between October 12, 2010 and October 12, 2015. The terms and general conditions of this GP apply along with any special conditions in the written authorization.	
23. Stream & Wetland Crossings	Not Eligible	All temporary or permanent crossings of tidal navigable waters or adjacent tidal wetlands not eligible as maintenance require a PCN. GC 45 applies
24. Aquaculture	Not Eligible	Shellfish & finfish aquaculture (with the exception of Atlantic salmon and any other salmonid, or other federally listed endangered or threatened species), or other aquaculture facilities with no more than minimal individual and cumulative impacts to environmental resources or navigation. This is inclusive but not limited to cages, nets, bags, racks, long lines, fences, posts, poles, predator screening, etc. Aquaculture guidelines are provided at: www.maine.gov/dmr/aquaculture/index.htm.

Endnotes/Definitions

¹**Bordering and Contiguous Wetlands:** A bordering wetland is immediately next to its adjacent waterbody and may lie at, or below, the ordinary high water mark (mean high water in navigable waters) of that waterbody and is directly influenced by its hydrologic regime. Contiguous wetlands extend landward from their adjacent waterbody to a point where a natural or manmade discontinuity exists. Contiguous wetlands include bordering wetlands as well as wetlands that are situated immediately above the ordinary high water mark and above the normal hydrologic influence of their adjacent waterbody. Note, with respect to the federally designated navigable rivers, the wetlands bordering and contiguous to the tidally influenced portions of those rivers are reviewed under “II. Navigable Waters.”

² **Direct, Secondary, and Cumulative Impacts/Effects:**

Direct Impacts: The immediate loss of aquatic ecosystem within the footprint of the fill.

Secondary Impacts: These are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material. Information about secondary effects on aquatic ecosystems shall be considered prior to the time final section 404 action is taken by permitting authorities. Some examples of secondary effects on an aquatic ecosystem are a) fluctuating water levels in all impoundment and downstream associated with the operation of a dam, b) septic tank leaching and surface runoff from residential or commercial developments on fill, and c) leachate and runoff from a sanitary landfill located in waters of the U.S. Put another way, secondary effects are those impacts outside the footprint of the fill that arise from and are associated with the discharge of dredged or fill material, including the operation of an activity or facility associated with the discharge. Examples may include habitat fragmentation; interruption of travel corridors for wildlife (for example, for amphibians that migrate to and from seasonal or vernal pools used as breeding habitat); hydrologic regime changes; and impacts from operation and maintenance activities for constructed facilities; such as noise/lighting, storm water runoff, and road kill of wetland dependent wildlife. Using the directions contained in the guidelines, we consider the circumstances of a proposed discharge and the project of which it is a part to evaluate the scope, extent, severity, and permanence of direct, secondary, and cumulative adverse effects upon the aquatic ecosystem.

Cumulative Impacts: The extent of past, present, and foreseeable developments in the area may be an important consideration in evaluating the significance of a particular project's impacts. Although the impacts associated with a particular discharge may be minor, the cumulative effect of numerous similar discharges can result in a large impact. Cumulative impacts should be estimated only to the extent that they are reasonable and practical.

³**Special Aquatic Sites:** Includes wetlands and saltmarsh, mudflats, riffles and pools, and vegetated shallows (predominantly comprised of eelgrass in Maine).

⁴**Construction Mats:** Constructions, swamp and timber mats (herein referred to as “construction mats”) are generic terms used to describe structures that distribute equipment weight to prevent wetland damage while facilitating passage and providing work platforms for workers and equipment. They are comprised of sheets or mats made from a variety of materials in various sizes. A timber mat consists of large timbers bolted or cabled together. Corduroy roads, which are not considered to be construction mats, are cut trees and/or saplings with the crowns and branches removed, and the trunks lined up next to one another. Corduroy roads are typically installed as permanent structures. Like construction mats, they are considered as fill whether they're installed temporarily or permanently.

⁵**Vernal Pools:** A vernal pool, also referred to as a seasonal forest pool, is a temporary to semi-permanent body of water occurring in a shallow depression that typically fills during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet or outlet and no viable populations of predatory fish. A vernal pool may provide the primary breeding habitat for wood frogs (*Rana sylvatica*), spotted salamanders (*Ambystoma maculatum*), blue-spotted salamanders (*Ambystoma laterale*), and fairy shrimp (*Eubranchipus* sp.), as well as valuable habitat for other plants and wildlife, including several rare, threatened, and endangered species. A vernal pool intentionally created for the purposes of compensatory mitigation is included in this definition. For the purposes of this GP, the presence of any of the following species in any life stage in any abundance level/quantity would designate the waterbody as a vernal pool: fairy shrimp, blue spotted salamanders, spotted salamanders or wood frogs. The Corps may determine during a Category 2 review that a waterbody should not be regulated as a VP based on available evidence. For the purposes of this GP, the VP Management Areas are the: Vernal Pool Depression (includes the vernal pool depression up to the spring or fall high water mark, and includes any vegetation growing within the depression), Vernal Pool Envelope (area within 100 FT of the VP Depression's edge) and Critical Terrestrial Habitat (area within 100-750 FT of the Vernal Pool Depression's edge). [*Note: Critical Terrestrial Habitat is defined as 100 -750 FT on page 243 of the document “Science and Conservation of Vernal Pools in Northeastern North America.” Calhoun and deMaynadier, 2008, which is referenced in Appendix G, page 3, Paragraph 10(b).

⁶ **Water Diversions:** Water diversions are activities such as bypass pumping or water withdrawals. Temporary flume pipes, culverts or cofferdams where normal flows are maintained within the stream boundary's confines aren't water diversions. "Normal flows" are defined as no change in flow from pre-project conditions.

⁷ **Maintenance:** a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3 – "Activities occurring before certain dates," provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification.

- Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards that are necessary to make repair, rehabilitation, or replacement are authorized.
- Currently serviceable means useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.
- No seaward expansion for bulkheads or any other fill activity is considered Category 1 maintenance.
- Only structures or fills that were previously authorized and are in compliance with the terms and condition of the original authorization can be maintained as a non-regulated activity under 33 CFR 323.4(a)(2), or in accordance with the Category 1 or 2 thresholds in Appendix A.

b) The state's maintenance provisions may differ from the Corps and may require reporting and written authorization from the state.

c) Contact the Corps to determine whether stream crossing replacements require a written application to the Corps for at least a Category 2 review.

d) Exempted Maintenance. In accordance with 33 CFR 323.4(a)(2), any discharge of dredged or fill material that may result from any of the following activities is not prohibited by or otherwise subject to regulation under Section 404 of the CWA: "Maintenance, including emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, bridge abutments or approaches, and transportation structures. Maintenance does not include any modification that changes the character, scope, or size of the original fill design."

⁸ **Aquatic Habitat Restoration, Establishment and Enhancement:** The Corps will decide if a project qualifies and must determine in consultation with federal and state agencies that the net effects are beneficial. The Corps may refer to Nationwide Permit 27 published in the 3/12/07 Federal Register. Activities authorized here may include, but are not limited to: the removal of accumulated sediments; the installation, removal, and maintenance of small water control structures, dikes, and berms; the installation of current deflectors; the enhancement, restoration, or establishment of riffle and pool stream structure; the placement of in-stream habitat structures; modifications of the stream bed and/or banks to restore or establish stream meanders; the backfilling of artificial channels and drainage ditches; the removal of existing drainage structures; the construction of small nesting islands in inland waters; the construction of open water areas; the construction of native shellfish species habitat over unvegetated bottom for the purpose of habitat protection or restoration in tidal waters; shellfish seeding; activities needed to reestablish vegetation, including plowing or discing for seed bed preparation and the planting of appropriate wetland species; mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and other related activities. Only native plant species should be planted at the site.

⁹ **Brushing the Flats:** The placement of tree boughs, wooden lath structure, or small-mesh fencing on mudflats to enhance recruitment of soft-shell clams (*Mya arenaria*).

¹⁰ **Maintenance Dredging:** This includes only those areas and depths previously authorized by the Corps and dredged. The Corps may require proof of authorization. Maintenance dredging typically refers to the routine removal of sediment to maintain the design depths of serviceable navigation channels, harbors, basins, marinas, boat launches, and port facilities. Maintenance dredging is conducted for navigational purposes and does not include any expansion of the previously dredged area or depth. The Corps may review a maintenance dredging activity as new dredging if sufficient time has elapsed to allow for the colonization of SAS, shellfish, etc.

¹¹ **Boating Facilities:** Facilities that provide for a fee, rent, or sell mooring space, such as marinas, yacht clubs, boat clubs, boat yards, town facilities, dockminiums, etc.

¹² **Federal Navigation Projects (FNPs):** FNPs are comprised of Federal Channels and Federal Anchorages. See Appendix F for their location and contact the Corps for more information. "Horizontal Limits" is the outer edge of an FNP. "Buffer Zone" is equal to three times the authorized depth of that channel.

¹³ **Horizontal Limits:** The outer edge of a Federal Navigation Project (FNP). See Appendix F and contact the Corps for information on FNP's.

¹⁴ **Eelgrass (*Zostera marina*):** A type of rooted aquatic vegetation that exists in intertidal and shallow subtidal areas known as vegetated shallows. See www.nero.noaa.gov/hcd/ for eelgrass survey guidance. Note: Eelgrass surveys should be conducted between May and October unless otherwise directed.

¹⁵ **Structures:** The height of structures shall at all points be equal to or exceed the width of the deck. For the purpose of this definition, height shall be measured from the marsh substrate to the bottom of the longitudinal support beam.

¹⁶ **Agricultural Activities:** The Clean Water Act exempts certain discharges associated with normal farming, ranching, and forestry activities such as plowing, cultivating, minor drainage, and harvesting for the production of food, fiber, and forest products, or upland soil and water conservation practices (Section 404(f)(1)(A)). Applicants are strongly advised to contact the Corps for a determination of whether their activity is exempt or requires a permit.



Appendix B: Self-Verification Notification Form
(for all tidal and non-tidal projects in Maine subject to Corps jurisdiction)

**US Army Corps
of Engineers®**
New England District

At least two weeks before work commences, complete **all** fields (write “none” if applicable) below or use the fillable form at www.nae.usace.army.mil/missions/regulatory.aspx. Send this form, a location map, any project plans, and an Official Species List (See GC 8) to the address noted below; fax to (207) 623-8206; or email to jay.l.clement@usace.army.mil. The two-week lead time is not required for emergency situations (see page 4 for definition). Please call (207) 623-8367 with questions.

Maine Project Office
U.S. Army Corps of Engineers
New England District
675 Western Avenue #3
Manchester, Maine 04351

State Permit Number: _____
Date of State Permit: _____
State Project Manager: _____

Permittee: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Contractor: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Consultant/Engineer/Designer: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Wetland/Vernal Pool Consultant: _____
Address, City, State & Zip: _____
Phone(s) and Email: _____

Project Location/Description: _____
Address, City, State & Zip: _____
Latitude/Longitude Coordinates: _____ Tax Map/Lot: _____
Waterway Name: _____
Work Description: _____

Provide any prior Corps permit numbers: _____
Proposed Work Dates: Start: _____ Finish: _____

Area of wetland impact: _____ SF (leave blank if work involves structures & no fill in Navigable Waters)
Area of waterway impact: _____ SF (leave blank if work involves structures & no fill in Navigable Waters)
Area of compensatory mitigation provided: _____ SF

Work will be done under the following Appendix A categories (circle all that apply):

I. Inland Waters and wetlands: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
II. Navigable Waters: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Your name/signature below, as permittee, indicates that you accept and agree to comply with the terms, eligibility criteria, and general conditions of Category 1 of the Maine General Permit.

Permittee Printed Name: _____

Permittee Signature: _____ Date: _____



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New England District

Appendix C: Content of Pre-Construction Notification

In addition to the following required information, the applicant must provide additional information as the Corps deems essential to make a public interest determination including, where applicable, a determination of compliance with the Section 404(b)(1) guidelines or ocean dumping criteria. Such additional information may include environmental data and information on alternate methods and sites as may be necessary for the preparation of the required environmental documentation. For a more comprehensive checklist, go to www.nae.usace.army.mil/missions/regulatory >> Forms >> Application and Plan Guideline Checklist. Please check with the Corps for project-specific requirements.

Information required for all projects:

- ☐ Corps application form ([ENG Form 4345](#)) or appropriate state application form (see Appendix E). Forms may need to be supplemented to include the information noted below.
- ☐ Proof of notification to the SHPO and the appropriate THPOs (see Appendix E).
- ☐ Official Species List for any federally listed endangered or threatened species (Instructions at Appendix D)
- ☐ Drawings, sketches, or plans (detailed engineering plans and specifications are not required) that are legible, reproducible (color is encouraged, but features must be distinguishable in black and white), no larger than 11"x17", with bar scale. Wetland area impact sheets should have the highest resolution possible to show work within Corps jurisdiction (do not just reduce project overview or cut large-scale plan into quadrant sheets). Provide locus map and a plan overview of the entire property with a key index to the individual impact sheets. A locus map on a section of color USGS topographic map is encouraged. Digital submissions are encouraged.
- ☐ Include:
 - ☐ All direct, secondary, permanent and temporary effects the project would cause, including the anticipated amount of impacts to waters of the U.S. expected to result from the activity, in acres, linear feet, or other appropriate unit of measure.
 - ☐ Any historic permanent fill associated with each single and complete project.
 - ☐ Cross-section views of all wetland and waterway fill areas and wetland replication areas.
 - ☐ Delineation of all wetlands, other special aquatic sites (vegetated shallows, saltmarsh, mudflats, riffles and pools, coral reefs, and sanctuaries and refuges), and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Use Federal delineation methods and include Corps wetland delineation data sheets (see GC 2).
 - ☐ MLW and MHW elevations in tidal waters. Show the HTL elevations when fill is involved. Show OHW elevation in lakes and non-tidal streams.
 - ☐ Existing and proposed conditions.
 - ☐ For vegetated shallow and eelgrass survey guidance, see www.nae.usace.army.mil/missions/regulatory >> Jurisdictional Limits and Wetlands >> Submerged Aquatic Vegetation Survey Guidance for the New England Region.
 - ☐ Show all known VPs on the project site. See GC 23 for vernal pool identification requirements.
- ☐ Volume, type, and source of fill material to be discharged into waters and wetlands, including the area(s) (in square feet or acres) of fill in wetlands, below OHW in inland waters and below the HTL in coastal waters.

- An Official Species List of federally “listed species or critical habitat” present in the action area (see GC 8).
- A restoration plan showing how all temporary fills and structures will be removed and the area restored to pre-project conditions (see GC 43).

Information that may be required:

- Photographs of wetland/waterway to be impacted. Photos at low tide are preferred for work in tidal waters.
- For drawings, sketches, or plans:
 - The vertical datum for all coastal projects must be in U.S. survey feet and referenced to MLLW and current tidal epochs, with a reference chart showing conversion factor to NAVD88; do not use local datum. See www.nae.usace.army.mil/missions/regulatory >> Forms and Publications >> Vertical Datum - FEMA (Jul 2007);
 - The horizontal state plane coordinates shall be in U.S. survey feet and based on the appropriate state plane coordinate system.
- For the construction of a filled area or pile or float-supported platform, the use of, and specific structures to be erected on, the fill or platform.
- For the discharge of dredged or fill material into waters of the U.S. or the transportation of dredged material for the purpose of disposing of it in ocean waters, the source of the material; the purpose of the discharge, a description of the type, composition and quantity of the material; the method of transportation and disposal of the material; and the location of the disposal site.
- For the discharge of dredged or fill material into waters of the U.S., include a statement describing how impacts to waters of the U.S. are to be avoided and minimized. Include either a statement describing how impacts to waters of the U.S. are to be compensated for or a statement explaining why compensatory mitigation should not be required for the proposed impacts.
- Purpose and need for the proposed activity;
- Limits and coordinates of any Federal Navigation Project in the vicinity of the project area.
- Limits and coordinates of any proposed mooring field, reconfiguration zone or aquaculture activity. Provide coordinates for all corners;
- Schedule of construction/activity;
- Names and addresses of adjoining property owners;
- Location and dimensions of adjacent structures;
- List of authorizations required by other Federal, interstate, state, or local agencies for the work, including all approvals received or denials already made.
- Identification and description of potential impacts to Essential Fish Habitat (defined at VI. Definitions and Acronyms).
- Identification of potential discharges of pollutants to waters, including potential impacts to impaired waters, in the project area (see GC 19).
- Invasive Species Control Plan (see GC 24). For sample control plans, see www.nae.usace.army.mil/missions/regulatory >> Invasive Species.
- Wildlife Action Plan (WAP) maps. Contact Maine Inland Fisheries & Wildlife (Appendix E) or on line at http://www.maine.gov/ifw/wildlife/conservation/action_plan.html

Information for dredging projects that may be required:

- Sediment testing, including physical (e.g., grain-size analysis), chemical and biological testing. For projects proposing open water disposal, applicants are encouraged to contact the Corps as early as possible regarding sampling and testing protocols. Sampling and testing of sediments without such contact should not occur and if done, would be at the applicant’s risk.
- The area in square feet and volume of material to be dredged below mean high water.

- ☐ Existing and proposed water depths.
- ☐ Type of dredging equipment to be used.
- ☐ Nature of material (e.g., silty sand).
- ☐ Any existing sediment grain size and bulk sediment chemistry data for the proposed or any nearby projects.
- ☐ Information on the location and nature of municipal or industrial discharges and occurrence of any contaminant spills in or near the project area.
- ☐ Shellfish survey.
- ☐ Location of the disposal site (include locus sheet).
- ☐ Identification and description of any potential impacts to Essential Fish Habitat.
- ☐ Delineation of submerged aquatic vegetation (e.g., eelgrass beds).

Information for aquaculture projects that may be required:

- ☐ Maine Aquaculture guidelines and joint Corps/Maine DMR applications may be found at: www.maine.gov/dmr/aquaculture/index.htm.
- ☐ In addition to the information required above, applications must also include:
 - ☐ Whether canopy predator nets are being used.

Appendix D: Instruction for USFWS IPaC Project Builder/Official Species List

NOTE: These instructions are subject to change by the USFWS. Users should check this GP's Corps webpage for the latest instructions or click [here](#).

In your internet browser go to <http://ecos.fws.gov/ipac/>

1. Click on get started.
2. Click on enter project location.
3. Search or zoom to your project location. (You can enter an address and then zoom in with your mouse).
4. Define your area. (Select the polygon tool and click around the boundary of your project.) or (Use the draw a line tool for linear projects)

Note: You can change/select the map from Streets to Satellite or Topo in the lower left corner of the map.

5. Click finished drawing then click confirm and select continue.

6. On the next page under Tasks (lower left), select Request an official species list. The pane will open. Select "request official species list" again.

7. A new page will open. Fill in the project information blanks with the project name, brief description, project type, lead agency, and contact information. Be sure to check the box to verify this is a legitimate project. Click on Submit Official Species List Request.

8. You will be sent an e-mail with instructions to complete the request by clicking on the link provided.

9. The site will open Official Species List Request Completed. Under the Maine Ecological Services Field Office address you will see "Official Species List Document". Click on that link and your document will open. Save and or print a copy and **include the entire report with your application.**

Note, you will receive a second e-mail with the same information. You can save the link in the event you need to return to the IPaC site for an updated list.

If a period of time has passed since your initial "Official Species List" identifier number was generated, you may choose to generate an "UPDATED SPECIES LIST". To do this, return to the IPaC homepage at <http://ecos.fws.gov/ipac> site. In the middle of the page, click the purple "Need an updated species list" link.

On the request an "Updated Official Species List" page, complete the information in the boxes provided. You will need the project specific official consultation code generated and stated on the original official list as well as the email address entered with the original submission.

Click "Request Updated Species List". Print, or save.

Appendix E: Contacts and Tribal Areas of Interest

1. Federal

U.S. Army Corps of Engineers
Maine Project Office
675 Western Avenue #3
Manchester, ME 04351
(207) 623-8367 (phone); (207) 623-8206 (fax)

Federal Emergency Management Agency
99 High St.
Boston, MA 02110
(877) 336-2734 (phone)
(Flood Plain Management)

U.S. Environmental Protection Agency
5 Post Office Square
Suite 100 (OEP05-2)
Boston, MA 02109-3912
(617) 918-1589 (phone)

National Marine Fisheries Service
55 Great Republic Drive
Gloucester, MA 01930
(978) 281-9102 (phone); (978) 281-9301 (fax)
(Federal endangered species & EFH)

U.S. Fish and Wildlife Service
Maine Field Office
17 Godfrey Drive, Suite 2
Orono, ME 04473
(207) 866-3344 (phone); (207) 866-3351 (fax)
(Federal endangered species)

National Park Service
North Atlantic Region
15 State Street
Boston, MA 02109
(617) 223-5203 (phone)
(Wild and Scenic Rivers)

National Marine Fisheries Service
Maine Field Office
17 Godfrey Drive Suite 1
Orono, ME 04473
(207) 866-7379 (phone); (207) 866-7342 (fax)
(Federal endangered species)

Commander (dpb)
First Coast Guard District
One South Street - Battery Bldg
New York, NY 10004-1466
(212) 668-7021 (phone); (212) 668-7967 (fax)
(bridge permits)

2. State of Maine

a. Department of Environmental Protection *(State permits & Water Quality Certifications)*

Division of Land Resource Regulation
Bureau of Land and Water Quality
17 State House Station
Augusta, Maine 04333
(207) 287-7688 (phone)

Eastern Maine Regional Office
106 Hogan Road
Bangor, Maine 04401
(207) 941-4570 (phone)

Southern Maine Regional Office
312 Canco Road
Portland, Maine 04103
(201) 822-6300 (phone)

Northern Maine Regional Office
1235 Central Drive - Skyway Park
Presque Isle, Maine 04769
(207) 764-0477 (phone)

b. Department of Agriculture, Conservation and Forestry

i. Maine Land Use Planning Commission (LUPC) (State permits & Water Quality
Certifications in the unorganized areas of the State)

Augusta Office
22 State House Station
Augusta, Maine 04333-0022
(207) 287-2631 (phone); (207) 287-7439 (fax)

Greenville Regional Office
43 Lakeview Drive
P.O. Box 1107
Greenville, Maine 04441
(207) 695-2466 (phone); (207) 695-2380 (fax)

Rangeley Regional Office
133 Fyfe Road
PO Box 307
West Farmington, ME 04992
(207) 670-7493 (phone); (207) 287-7439 (fax)

Downeast Regional Office
106 Hogan Rd, Suite 8
Dorothea Dix Complex
Bangor, Maine 04401
(207) 941-4052 (phone); (207) 941-4222 (fax)

Ashland Regional Office
45 Radar Road
Ashland, ME 04732-3600
(207) 435-7963 (phone); (207) 435-7184 (fax)

East Millinocket Regional Office
191 Main Street
East Millinocket, ME 04430
(207) 746-2244 (phone); (207) 746-2243 (fax)

ii. Maine Coastal Program

Department of Agriculture, Conservation and Forestry
Bureau of Resource Information and Land Use Planning
17 Elkins Lane {physical address}
State House Station 93
Augusta, Maine 04333-0038
(207) 287-2801 (phone); (207) 287-2353 (fax)
(CZM consistency determinations)

iii. Division of Parks and Public Lands

22 State House Station
Augusta, Maine 04333
(207) 287-3061 (phone); (207) 287-6170 (fax)
(submerged lands leases)

c. Department of Marine Resources

P.O. Box 8
West Boothbay Harbor, Maine 04575
(207) 633-9500 (phone); (207) 624-6024 (fax)
(aquaculture leases)

3. Historic Properties

a. State Historic Preservation Officer (SHPO)

Mr. Kirk F. Mohny, Director

Maine Historic Preservation Commission (MHPC)
65 State House Station
Augusta, Maine 04333-0065
(207) 287-2132 (phone); (207) 287-2335 (fax)
Area of concern: The entire State of Maine

b. Tribal Historic Preservation Officers (THPOs)

Note: The area of concern for each tribe is the entire State of Maine

THPO & Environmental Planner
Houlton Band of Maliseet Indians
88 Bell Road
Littleton, Maine 04730
(207) 532-4273, x215 (phone)
(207) 532-6883 (fax)
envplanner@maliseets.com
ogs1@maliseets.com

THPO
Aroostook Band of Micmacs
7 Northern Road
Presque Isle, Maine 04769
(207) 764-1972 (phone); (207) 764-7667 (fax)
jpictou@mimca-nsn.gov

THPO
Passamaquoddy Tribe of Indians
Pleasant Point Reservation
P.O. Box 343
Perry, Maine 04667
(207) 853-2600 (phone); (207) 853-6039 (fax)
soctomah@gmail.com

THPO
Penobscot Nation
Cultural and Historic Preservation Dept.
12 Wabanaki Way
Indian Island, Maine 04468
(207) 817-7471 (phone)
chris.sockalexis@penobscotnation.org

THPO
Passamaquoddy Tribe of Indians
Indian Township Reservation
P.O. Box 301
Princeton, Maine 04668
(207) 796-2301 (phone)
(207) 796-5256 (fax); soctomah@gmail.com

4. Organizational Websites (Note – Subject to Change):

U.S. Army Corps of Engineers, N.E. District
U.S. Army Corps of Engineers, Headquarters
U.S. Environmental Protection Agency
National Marine Fisheries Service
U.S. Fish and Wildlife Service
National Park Service
Maine Department of Environmental Protection
Maine Department of Agriculture,
Conservation and Forestry
Maine Land Use Planning Commission
Maine Department of Marine Resources
State of Maine - Aquaculture Guidelines

www.nae.usace.army.mil/missions/regulatory.aspx
See above link>>Useful Links>>Federal Agency Links
www.epa.gov/owow/wetlands
www.nmfs.noaa.gov
www.fws.gov/mainefieldoffice
www.nps.gov/rivers/index.html
www.maine.gov/dep
www.maine.gov/acf/index.shtml

www.maine.gov/doc/lupc/commission/offices.shtml
www.maine.gov/dmr/index.htm
www.maine.gov/dmr/aquaculture/index.htm

Appendix F: Definitions

Definitions

Attendant Features: Occurring with or as a result of; accompanying.

Biodegradable: A material that decomposes into elements found in nature within a reasonably short period of time and will not leave a residue of plastic or a petroleum derivative in the environment after degradation. Examples of biodegradable materials include jute, sisal, cotton, straw, burlap, coconut husk fiber (coir) or excelsior. In contrast, degradable plastics break down into plastic fragments that remain in the environment after degradation.

Boating facilities: These provide, rent or sell mooring space, such as marinas, yacht clubs, boat yards, dockominiums, town facilities, land/home owners, etc. Not classified as boating facilities are piers shared between two abutting properties or town mooring fields that charge an equitable user fee based on the actual costs incurred.

Brushing the Flats: The placement of tree boughs, wooden lath structure, or small-mesh fencing on mudflats, or any bottom disturbance (e.g., discing, plowing, raking, etc.), to enhance recruitment of shellfish.

Buffer Zone: The buffer zone of an FNP is equal to three times the authorized depth of the FNP.

Construction mats: Constructions, swamp and timber mats (herein referred to as “construction mats”) are generic terms used to describe structures that distribute equipment weight to prevent wetland damage while facilitating passage and providing work platforms for workers and equipment. They are comprised of sheets or mats made from a variety of materials in various sizes. A timber mat consists of large timbers bolted or cabled together. Corduroy roads, which are not considered to be construction mats, are cut trees and/or saplings with the crowns and branches removed, and the trunks lined up next to one another. Corduroy roads are typically installed as permanent structures. Like construction mats, they are considered as fill whether they are installed temporarily or permanently.

Cumulative effects: See “Direct, secondary, and cumulative effects.”

Direct, secondary, and cumulative effects:

Direct Effects: The loss of aquatic ecosystem within the footprint of the discharge of dredged or fill material. Direct effects are caused by the action and occur at the same time and place.

Secondary Effects: These are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material. Information about secondary effects on aquatic ecosystems shall be considered prior to the time final Section 404 action is taken by permitting authorities. Some examples of secondary effects on an aquatic ecosystem are a) aquatic areas drained, flooded, fragmented, or mechanically cleared, b) fluctuating water levels in all impoundment and downstream associated with the operation of a dam, c) septic tank leaching and surface runoff from residential or commercial developments on fill, and d) leachate and runoff from a sanitary landfill located in waters of the U.S. See 40 CFR 230.11(h).

Cumulative Effects: The changes in an aquatic ecosystem that are attributable to the collective effect of a number of individual 1) discharges of dredged or fill material, or 2) structures. Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems. See 40 CFR 230(g).

Dredging:

Maintenance Dredging: Includes areas and depths previously authorized by the Corps and dredged. The Corps may require proof of authorization. Maintenance dredging typically refers to the routine removal of accumulated sediment from channel beds to maintain the design depths of navigation channels, harbors, marinas, boat launches and port facilities. Routine maintenance dredging is conducted regularly for navigational purposes (typically at least once every ten years) and does not include any expansion of the previously dredged area or depth. The Corps may review a maintenance dredging activity as new dredging if sufficient time has elapsed to allow for the colonization of SAS,

shellfish, etc. The main characteristics of maintenance dredging projects are variable quantities of material; soft, uncompacted soil; contaminant content possible; thin layers of material; occurring in navigation channels and harbors; repetitive activity

New Dredging: Dredging of an area or to a depth that has never been authorized by the Corps or dredged.

Dredged material & discharge of dredged material: These are defined at 323.2(c) and (d). The term dredged material means material that is excavated or dredged from waters of the U.S.

Essential Fish Habitat (EFH): This is broadly defined to include those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

Fill material & discharge of fill material: These are defined at 323.2(e) and (f). The term fill material is defined as material placed in waters of the U.S. where the material has the effect of either replacing any portion of a water of the U.S. with dry land or changing the bottom elevation of any portion of a water of the U.S.

Federal anchorages, Federal channels and Federal turning basin: Refer to Appendix H for those in Maine

Federal navigation projects (FNPs): These areas are maintained by the Corps; authorized, constructed and maintained on the premise that they will be accessible and available to all on equal terms; and are comprised of Federal Anchorages, Federal Channels and Federal Turning Basins. The buffer zone is equal to three times the authorized depth of a FNP. More information on the following FNPs is provided at www.nae.usace.army.mil/missions/navigation.aspx >> Navigation Projects.

Flume: An open artificial water channel, in the form of a gravity chute, that leads water from a diversion dam or weir completely aside a natural flow. A flume can be used to measure the rate of flow.

Frac out: During normal drilling operations, drilling fluid travels up the borehole into a pit. When the borehole becomes obstructed or the pressure becomes too great inside the borehole, the ground fractures and fluid escapes to the surface.

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Individual Permit: A Department of the Army authorization that is issued following a case-by-case evaluation of a specific structure or work in accordance with the procedures of 33 CFR 322, or a specific project involving the proposed discharge(s) in accordance with the procedures of 33 CFR 323, and in accordance with the procedures of 33 CFR 325 and a determination that the proposed discharge is in the public interest pursuant to 33 CFR 320.

Maintenance: Regulations on maintenance are provided at 33 CFR 323.4. The following definitions are applicable:

Minor deviations: Deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards, which are necessary to make repair, rehabilitation, or replacement are permitted, provided the adverse environmental effects resulting from such repair, rehabilitation, or replacement are minimal.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Marina reconfiguration zone: A Corps-authorized area in which permittees may rearrange pile-supported structures and floats without additional authorizations. A reconfiguration zone does not grant exclusive privileges to an area or an increase in structure or float area.

Navigable waters of the U.S.: See Waters of the U.S. below.

Overall project: See "single and complete linear project" below.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Permanent impacts: Permanent impacts means waters of the U.S. that are permanently affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent impacts include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. Temporary impacts include waters of the U.S. that are temporarily filled, flooded, excavated, drained or mechanically cleared because of the regulated activity.

Pre-construction notification (PCN): A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by this GP. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of these GPs. A PCN may be voluntarily submitted in cases where PCN is not required and the project proponent wants confirmation that the activity is authorized under this GP.

Secondary effects: See “Direct, secondary, and cumulative effects.”

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the U.S. (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for the purposes of this GP. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately. The overall project, for purposes of this GP, includes all regulated activities that are reasonably related and necessary to accomplish the project purpose.

Single and complete non-linear project: For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. For non-linear projects, the single and complete project must have independent utility (see definition).

Special aquatic sites: These include inland and saltmarsh wetlands, mud flats, vegetated shallows, sanctuaries and refuges, coral reefs, and riffle and pool complexes. These are defined at 40 CFR 230 Subpart E.

Stream channelization: The manipulation of a stream’s course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Temporary impacts: See permanent impacts above.

Utility line: Any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and radio and television communication. The term ‘utility line’ does not include activities that drain a water of the U.S., such as drainage tile or French drains, but it does apply to pipes conveying drainage from another area.

Vegetated shallows: Permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation, such as eelgrass and widgeon grass (*Ruppia maritima*) in marine systems (doesn’t include salt marsh) as well as a number of freshwater species in rivers and lakes. Note: These areas are also commonly referred to as submerged aquatic vegetation (SAV).

Vernal pools (VPs): For the purposes of this GP, VPs are depressional wetland basins that typically go dry in most years and may contain inlets or outlets, typically of intermittent flow. Vernal pools range in both size and depth depending upon landscape position and parent material(s). Pools usually

support one or more of the following obligate indicator species: wood frog, spotted salamander, blue-spotted salamander, marbled salamander, Jefferson's salamander and fairy shrimp. However, they should preclude sustainable populations of predatory fish.

VP areas are:

- Depression (includes the VP depression up to the spring or fall high water mark, and includes any vegetation growing within the depression),
- Envelope (area within 100 feet of the VP depression's edge), and
- Critical terrestrial habitat (area within 100-750 feet of the VP depression's edge).

Note: See footnote to GC 23. The Corps may determine during the PCN review that a waterbody should not be designated as a VP based on available evidence.

Water diversions: Water diversions are activities such as bypass pumping (e.g., "dam and pump") or water withdrawals. Temporary flume pipes, culverts or cofferdams where normal flows are maintained within the stream boundary's confines aren't water diversions. "Normal flows" are defined as no change in flow from pre-project conditions.

Weir: A barrier across a river designed to alter the flow characteristics. In most cases, weirs take the form of a barrier, smaller than most conventional dams, across a river that causes water to pool behind the structure (not unlike a dam) and allows water to flow over the top. Weirs are commonly used to alter the flow regime of the river, prevent flooding, measure discharge and help render a river navigable.

Waters of the U.S. & Waters of the United States (U.S.): The term waters of the U.S. and all other terms relating to the geographic scope of jurisdiction are defined at 33 CFR 328. Also see Section 502(7) of the Federal CWA [33 USC 1352(7)]. Waters of the U.S. include jurisdictional wetlands. Not all waters and wetlands are jurisdictional. Contact the Corps with any questions regarding jurisdiction.

Navigable waters: Refer to 33 CFR 329. These waters include the following federally designated navigable waters in New England. This list represents only those waterbodies for which affirmative determinations have been made; absence from this list should not be taken as an indication that the waterbody is not navigable:

ME: All tidal waters; Kennebec River to Moosehead Lake; Penobscot River to the confluence of the East and West Branch at Medway, Maine; Lake Umbagog within the State of Maine.

Appendix G: Additional References

1. GC 2: Federal Jurisdictional Boundaries.

(a) Corps Wetlands Delineation Manual, regional supplements, and Corps Wetland Delineation Data Sheets: www.nae.usace.army.mil/missions/regulatory and then “Wetlands and Jurisdictional Limits.”

(b) The USFWS publishes the 1988 National List of Plant Species that Occur in Wetlands (www.nwi.fws.gov).

The Natural Resources Conservation Service (NRCS) publishes the current hydric soil definition, criteria and lists: <http://soils.usda.gov/use/hydric>. For the Field Indicators for Identifying Hydric Soils in N.E., see www.neiwpcc.org/hydricsoils.asp.

2. GC 5: Single and Complete Project.

Single and complete project means the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. For example, if construction of a residential development affects several different areas of a headwater or isolated water, or several different headwaters or isolated waters, the cumulative total of all filled areas should be the basis for deciding whether or not the project will be covered by Category 1 or 2.

The **Independent utility** test is used to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

3. GC 8: Threatened and Endangered Species.

(a) The following NMFS site must be referenced to ensure that listed species or critical habitat are not present in the action area [GC 8(b)] or to provide information on federally-listed species or habitat [GC 8(e)]: www.nero.noaa.gov/prot_res/esp/ListE&Tspec.pdf. Contact the USFWS for information to check for the presence of listed species (see Appendix D for contact information & procedures).

(b) The Endangered Species Act Consultation Handbook – Procedures for Conducting Section 7 Consultations and Conferences, defines action area as “all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action. [50 CFR 402.02].”

4. GC 42: Essential Fish Habitat.

As part of the GP screening process, the Corps may coordinate with NMFS in accordance with the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act to protect and conserve the habitat of marine, estuarine and anadromous finfish, mollusks, and crustaceans. This habitat is termed “Essential Fish Habitat (EFH)”, and is broadly defined to include “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” There are EFH waters throughout inland and coastal waters in Maine. For additional information, see the EFH regulations 50 CFR 600 at www.nero.noaa.gov/hcd including the “Guide for EFH Descriptions” at www.nero.noaa.gov/hcd/list.htm. Additional information on the location of EFH can be obtained from NMFS (see Appendix D for contact information).

5. GC 4: Avoidance, Minimization and Compensatory Mitigation.

(a) See www.nae.usace.army.mil/missions/regulatory and then “Mitigation” to view the April 10, 2008 “Final Compensatory Mitigation Rule” (33 CFR 332) and related documents. The Q&A document states: “In order to reduce risk and uncertainty and help ensure that the required compensation is provided, the rule establishes a preference hierarchy for mitigation options. The most preferred option

is mitigation bank credits, which are usually in place before the activity is permitted. In-lieu fee program credits are second in the preference hierarchy, because they may involve larger, more ecologically valuable compensatory mitigation projects as compared to permittee-responsible mitigation. Permittee-responsible mitigation is the third option, with three possible circumstances: (1) conducted under a watershed approach, (2) on-site and in kind, and (3) off-site/out-of-kind.

(b) Compensatory mitigation may take the form of wetland preservation, restoration, enhancement, creation, and/or in lieu fee (ILF) for inclusion into the Natural Resources Mitigation Fund for projects in DEP and LURC territories. Avoidance of wetland impacts will reduce the ILF dollar total for applicants. The ILF compensation program was established to provide applicants with a flexible compensation option over and above traditional permittee responsible compensation projects. See the Maine ILF Agreement at www.nae.usace.army.mil/missions/regulatory, “Mitigation” and then “Maine,” or www.maine.gov/dep/blwq/docstand/nrpa/ILF_and_NRCP/index.htm.

6. GCs 24, 15, and 43: Invasive Species.

(a) Information on what are considered “invasive species” is provided in our “Compensatory Mitigation Guidance” document at www.nae.usace.army.mil/missions/regulatory under “Mitigation.” The “Invasive Species” section has a reference to our “Invasive Species Control Plan (ISCP) Guidance” document, located at www.nae.usace.army.mil/missions/regulatory under “Invasive Species,” which provides information on preparing an ISCP.

(b) The June 2009 “Corps of Engineers Invasive Species Policy” is at www.nae.usace.army.mil/missions/regulatory under “Invasive Species” and provides policy, goals and objectives.

7. GC 44: Bank Stabilization.

This generally eliminates bodies of water where the reflected wave energy may interfere with or impact on harbors, marinas, or other developed shore areas. A revetment is sloped and is typically employed to absorb the direct impact of waves more effectively than a vertical seawall. It typically has a less adverse effect on the beach in front of it, abutting properties and wildlife. See the Corps Coastal Engineering Manual [EM 1110-2-1100](#) at www.nae.usace.army.mil/missions/regulatory under “Useful Links and Documents” for design and construction guidance.

8. GC 45: Stream and Wetland Crossings.

(a) Projects should be designed and constructed to ensure long-term success using the most recent manual located at www.nae.usace.army.mil/missions/regulatory under “Stream and River Continuity,” currently “Stream Simulation: An Ecological Approach to Providing Passage for Aquatic Organisms at Road-Stream Crossings, by the U.S. Forest Service.” Section 5.3.3 is of particular importance. Sections 7.5.2.3 Construction Methods and 8.2.11 Stream-Simulation Bed Material Placement both show important steps in the project construction.

(b) For more information on High-Quality Stream Segments and their components see:

i. High-Quality Stream Segments are shown at www.maine.gov/dep/gis/datamaps.

ii. Class A Waters or Class AA Waters:

www.mainelegislature.org/legis/statutes/38/title38sec465.html, and

www.mainelegislature.org/legis/statutes/38/title38sec467.html.

iii. Outstanding river segments www.mainelegislature.org/legis/statutes/38/title38sec480-P.html.

(c) The Massachusetts Dam Removal and the Wetland Regulations offer guidance to evaluate the positive and negative impacts of culvert replacement, including the loss of upstream wetlands, which may be offset by the overall benefits of the river restoration. See

www.nae.usace.army.mil/missions/regulatory and then “Stream and River Continuity.”

(d) The ME DOT's document "Waterway and Wildlife Crossing Policy and Design Guide for Aquatic Organism, Wildlife Habitat, and Hydrologic Connectivity," 3rd Edition, July 2008, may be used as guidance to evaluate impacts to aquatic, wildlife and surface water resources when designing, constructing, repairing and maintaining stream crossings. Note: Adherence to this DOT document does not ensure compliance with this GP. Projects must comply with the requirements of this GP including GC 45 and the Corps General Stream Crossing Standards contained therein.

www.maine.gov/mdot/environmental-office-homepage/fishpassage/3rd%20edition%20-%20merged%20final%20version%207-01-08a1.pdf.

(e) GC 45(f): The Skidder Bridge Fact Sheet at www.nae.usace.army.mil/missions/regulatory under "Stream and River Continuity" may be a useful temporary span construction method.

9. GC 45: Wetland Crossings. The Maine DEP's crossing standards are at 06-096 DEP, Chapter 305: Permits by Rule, 9 & 10) Crossings (utility lines, pipes and cables).
www.maine.gov/dep/blwq/rules/NRPA/2009/305/305_effective_2009.pdf

10. GC 23: Protection of Vernal Pools.

(a) The state's Significant Wildlife Habitat rules ([Chapter 335](#), Section 9(C) "Habitat management standards for significant vernal pool habitat") are located at www.maine.gov/dep/blwq/docstand/nrpapage.htm#rule under "Rules."

(b) The following documents provide conservation recommendations:

i. Best Development Practices: Conserving pool-breeding amphibians in residential and commercial development in the northeastern U.S., Calhoun and Klemens, 2002. Chapter III, Management Goals and Recommendations, Pages 15 – 26, is particularly relevant. (Available for purchase at www.maineaudubon.org/resource/index.shtml and on Corps website*.)

ii. Science and Conservation of Vernal Pools in Northeastern North America, Calhoun and deMaynadier, 2008. Chapter 12, Conservation Recommendations section, Page 241, is particularly relevant. (Available for purchase via the internet. Chapter 12 is available on Corps website*.)

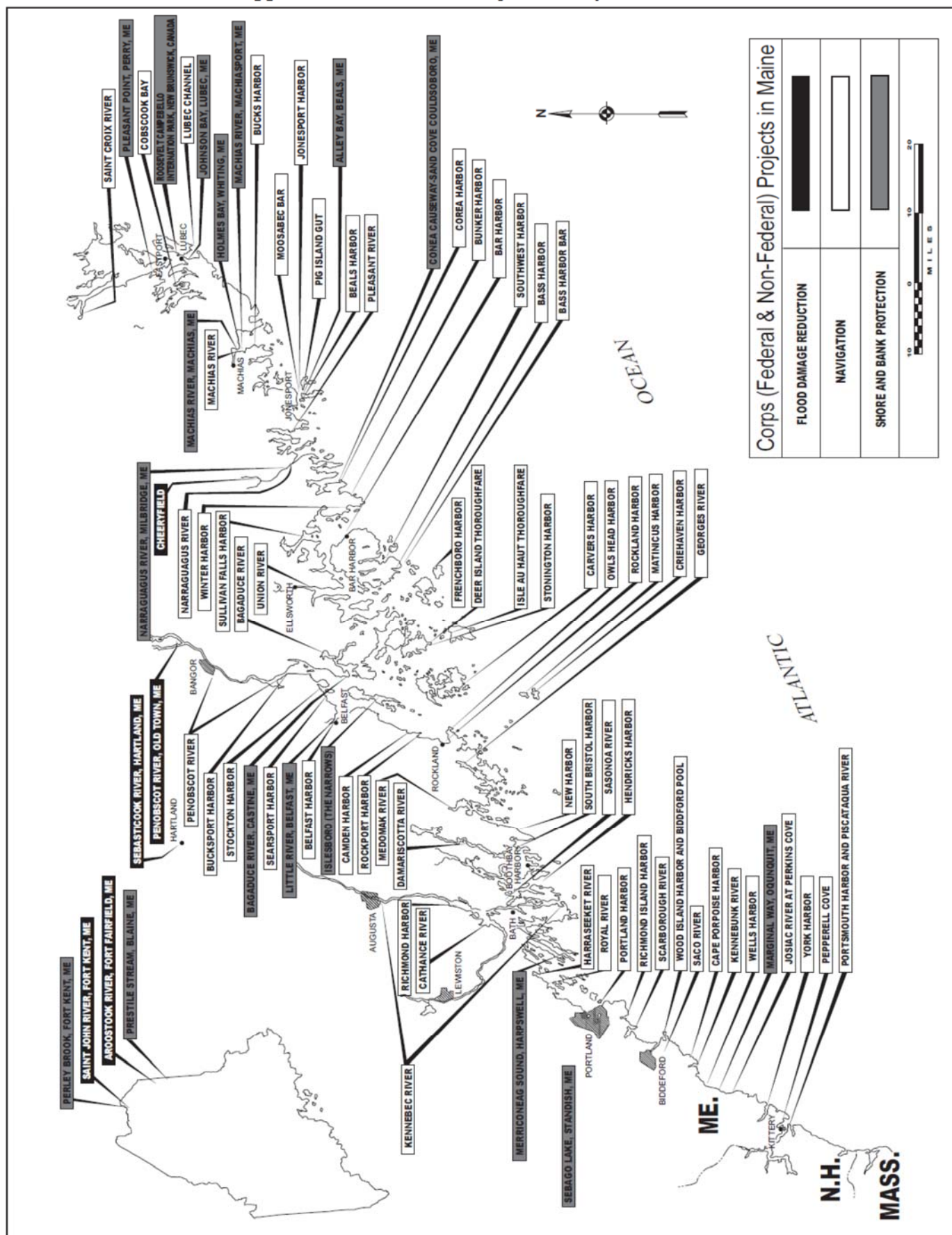
* www.nae.usace.army.mil/reg under "Vernal Pools."

(c) Cape Cod Curbing: For smaller roads and driveways, the most important design feature to consider is curbing. Granite curbs and some traditional curbing can act as a barrier to amphibian and hatchling turtle movements. Large numbers of salamanders have been intercepted in their migrations by curbs and catch basins. Use of Cape Cod curbs rather than traditional curbing may be one solution. Alternatively, where storm water management systems require more traditional curbing, it may be possible to design in escape ramps on either side of each catch basin. Cape Cod curbing is shown on Page 35 of the document cited in 10.b.i above. Bituminous material is not required; other materials such as granite are acceptable.

(d) The VP Directional Buffer Guidance document is located at www.nae.usace.army.mil/missions/regulatory under: 1) "State General Permits" and then "Maine," and 2) "Vernal Pools."

11. GC 29: Maintenance. River restoration projects that are designed to accommodate the natural dynamic tendencies of the fluvial system are maintained in accordance with the project's design objectives (Category 1) or the Corps authorization letter (Category 2). These projects are generally designed to support and implement channel assessment and management practices that recognize a stream's natural dynamic tendencies.

Appendix H: Federal Navigation Projects in Maine



DEPARTMENT OF ENVIRONMENTAL PROTECTION
PERMIT BY RULE NOTIFICATION FORM
 (For use with DEP Regulation, Natural Resources Protection Act- Permit by Rule Standards, Chapter 305)
 PLEASE TYPE OR PRINT IN BLACK INK ONLY

APPLICANT INFORMATION (Owner)		AGENT INFORMATION (If Applying on Behalf of Owner)	
Name:	Maine DOT - Danielle Tetreau	Name:	
Mailing Address:	16 State House Station	Mailing Address:	
Town:	Augusta	Town:	
State and Zip Code:	Maine 04333	State and Zip Code:	
Daytime Phone #:	207-592-2358	Daytime Phone #:	
Email Address:	danielle.tetreau@maine.gov	Email Address:	

PROJECT INFORMATION			
Part of a larger project? (check one):	☐ Yes ☒ No	After the Fact? (check one):	☐ Yes ☒ No
Project Town:	Gray	Project Location (Address):	Route 26/ N. Raymond Road
Brief Project Description:	Culvert extension to support the proposed intersection improvement project. See attached.		
Brief Directions to Site:	Located 280 ft. south of the intersection of Rt. 26 and N. Raymond Road. See attached.		

PERMIT BY RULE (PBR) SECTIONS (Check at least one): I am filing notice of my intent to carry out work which meets the requirements for Permit By Rule (PBR) under DEP Rules, Chapter 305. I and my agents, if any, have read and will comply with all of the standards in the Sections checked below.

☐ Sec. (2) Act. Adj. to Protected Natural Res.	☐ Sec. (10) Stream Crossing	☐ Sec. (17) Transfers/Permit Extension
☐ Sec. (3) Intake Pipes	☒ Sec. (11) State Transportation Facil.	☐ Sec. (18) Maintenance Dredging
☐ Sec. (4) Replacement of Structures	☐ Sec. (12) Restoration of Natural Areas	☐ Sec. (19) Activities in/on/over significant vernal pool habitat
☐ Sec. (5) REPEALED	☐ Sec. (13) F&W Creation/Enhance/Water Quality Improvement	☐ Sec. (20) Activities located in/on/over high or moderate value inland waterfowl & wading bird habitat or shorebird feeding & roosting areas
☐ Sec. (6) Movement of Rocks or Vegetation	☐ Sec. (14) REPEALED	
☐ Sec. (7) Outfall Pipes	☐ Sec. (15) Public Boat Ramps	
☐ Sec. (8) Shoreline stabilization	☐ Sec. (16) Coastal Sand Dune Projects	
☐ Sec. (9) Utility Crossing		

NOTE: Municipal permits may also be required. Contact your local code enforcement office for more 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 more information.

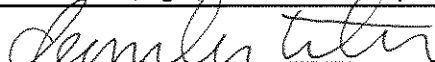
NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS

- ☐ **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 check for the correct fee made payable to: "Treasurer, State of Maine". The current fee for NRPA PBR Notifications can be found at the Department's website: <http://www.maine.gov/dep/feesched.pdf>
- ☒ **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.

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 also understand that this PBR becomes effective 14 calendar days after receipt by the Department *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 rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.

Signature of Agent or Applicant:		Date:	2-15-2019

Keep a copy as a record of permit. Send the form with attachments via certified mail or hand deliver to the Maine Dept. of Environmental Protection at the appropriate regional office listed below. The DEP will send a copy to the Town Office as evidence of the DEP's receipt of notification. No further authorization by DEP will be issued after receipt of notice. Permits are valid for two years. **Work carried out in violation of any standard is subject to enforcement action.**

AUGUSTA DEP
17 STATE HOUSE STATION
AUGUSTA, ME 04333-0017
(207)287-7688

PORTLAND DEP
312 CANCO ROAD
PORTLAND, ME 04103
(207)822-6300

BANGOR DEP
106 HOGAN ROAD
BANGOR, ME 04401
(207)941-4570

PRESQUE ISLE DEP
1235 CENTRAL DRIVE
PRESQUE ISLE, ME 04769
(207)764-0477

OFFICE USE ONLY	Ck.#	Date	Staff	Staff	After Photos
PBR # 67388	FP	2/20/2019	Acc. Date 2-21-19	Def. Date	

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**.