CONTRACT DOCUMENTS
FOR
MAIN STREET SIDEWALK,
DRAINAGE, WATER, AND SEWER
IMPROVEMENTS
(MaineDOT PROJECT WIN 022204.00)
TOWN OF SOUTHWEST HARBOR, MAINE
MAY, 2022
BOOK 1 OF 2

Prepared by:
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(207) 223-2232

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MaineDOT FEDERAL PROJECT BIDDING INSTRUCTIONS

(SECTION 100)

Updated 04/29/2020

FEDERAL PROJECT

SECTION 100

Effective April 22, 2020
Supersedes November 05, 2019

BIDDING INSTRUCTIONS

1. Use pen and ink to complete all paper bids.

2. The following documents must be received before the time of the bid opening:
   a) Copy of Notice to Contractors;
   b) Completed Acknowledgement of Bid Amendments form;
   c) Completed Schedule of Items;
   d) Two copies of the completed and signed Contract Agreement, Offer & Award form;
   e) Bid Guaranty (if required); and
   f) Any other certifications or bid requirements listed in the bid documents that are 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) Properly completed and signed bid bond on the prescribed form in this package (or on a form that does not contain significant variations from the form) for 5% of the bid amount; or
   b) 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.

5. "FedEx First Overnight" delivery of paper bids is suggested. Other means, such as the U.S. Postal Service's Express Mail, have proven to be unreliable.

IN ADDITION, FOR FEDERAL-AID PROJECTS:

6. Complete and submit the DBE Proposed Utilization form with your bid. This is a curable defect. (This requirement applies only to projects with federal-aid funds.)

If you need more information about bid preparation, please call:

Annaleis Hafford, P.E., Vice-President *at* **207-223-2232**

For complete bidding requirements, refer to Section 102 of the Maine Department of Transportation, Standard Specifications, most recent Edition

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
WIN: 022204.00
Town: Southwest Harbor, Maine
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
WIN: 022204.00
Town: Southwest Harbor, Maine
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
WIN: 022204.00
Town: Southwest Harbor, Maine
Name of Contractor:

NOTE: This document is as an example. In all cases, the industry standard AIA format is acceptable.

SAMPLE

BID GUARANTY / BID BOND FORM

KNOW ALL 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 Municipality of _____in the sum of_____, for payment that Principal and Surety bind themselves, their heirs, executers, administrators, successors and assigns, jointly and severally. The condition of this obligation is that the Principal has submitted to the Municipality of _____, hereafter Municipality, a certain bid, attached hereto and incorporated as a part herein, to enter into a written contract for the construction of_____ _____, and if the Municipality shall accept said bid and the Principal shall execute and deliver a contract in the form attached hereto (properly completed in accordance with said bid) and shall furnish bonds for this faithful performance of said contract, and for the payment of all persons performing labor or furnishing material in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Signed and sealed this_____day of _____20____

WITNESS:

_____

_____

_____

PRINCIPAL:

By_____

By:_____

By:_____

WITNESS

_____

_____

SURETY:

By_____

By:_____

SAMPLE

NOTICE

Bidders:

Please use the attached "Request for Information" form to submit questions about this advertised Project. Include additional numbered pages as required.

RFI's may be submitted via e-mail to annaleis@olverassociatesinc.com.

These are the only allowable mechanisms for answering Project specific questions. The municipality 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. In the subject line, include the word RFI, the Project name and Work Identification Number (WIN).

RFI No: _____

Municipality of Southwest Harbor, Maine

REQUEST FOR INFORMATION

Date _____ **Time** _____

Information Requested for:

WIN(S): 022 204.00 **Town(s):** Southwest Harbor, Maine **Bid Date:** _____

Question(s): _____

Request by:

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

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

Complete this form and fax to 207-223-5448, Attn: Project Manager (name listed on the "Notice to Contractors"), or Email questions to annaleis@olverassociatesinc.com. Please include the word "RFI" along with the Project Name and Identification Number in the Subject line, or electronically by using the RFI Tab located on the Individual Projects Detail page.

NOTICE

Disadvantaged Business Enterprise Proposed Utilization

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

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

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

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

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

MaineDOTs 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 2022-2024

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 2022-24 (October 1, 2021 through September 30, 2024) MaineDOT has established an annual DBE participation goal of **1.97%** 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, 2024. MaineDOT 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 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 1.97% goal without the need to impose contract goals. DBE firms are listed on the MaineDOT website at:

http://www.maine.gov/mdot/disadvantaged-business-enterprises/pdf/directory.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

MaineDOT CONTRACTOR'S DBE/SUBCONTRACTOR PROPOSED UTILIZATION FORM

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

Contractor: _____ Telephone: _____ Ext _____

Contact Person: _____ Fax: _____

E-mail: _____

BID DATE: _____

FEDERAL PROJECT PIN # _____ PROJECT LOCATION: _____

TOTAL ANTICIPATED DBE____% PARTICIPATION FOR THIS CONTRACT

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

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

Equal Opportunity Use:

Form received:___/___/___Verified by: _____

FHWA ☐ FTA ☐ FAA ☐

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

Maine Department of Transportation Civil Rights Office

Directory of Certified Disadvantaged Business Enterprises 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.

MaineDOT FEDERAL PROJECT

NOTICE TO CONTRACTORS

TOWN OF SOUTHWEST HARBOR
NOTICE TO CONTRACTORS

Sealed Bids addressed to the Municipality of Southwest Harbor and endorsed on the wrapper "Bids for Main Street Sidewalk, Drainage, Water, and Sewer Improvements in the Municipality of Southwest Harbor" will be received from contractors at the Southwest Harbor Town Office, 26 Village Green Way, Southwest Harbor, Maine 04769 at 2 o'clock p.m. (prevailing time) on July 15, 2022 and at that time and place publicly opened and read. Bidders must complete a highway, bridge, or project specific pre-qualification through Maine DOT to be awarded the Contract. 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.

Description: Federal Aid Project No. 02220400, WIN 022204.00

Location: In Hancock County, project is located on Main Street (State Route 102), beginning approximately 500 LF South of Wood Street and extending 400 LF North of Apple Lane.

Outline of Work: New sidewalk, curbing, landscaping, sewer, water, and storm drain along with surface restoration and other incidental work.

The basis of award will be Section 1, Base Bid only.

For general information regarding Bidding and Contracting procedures, contact Annaleis Hafford at (207) 223-2232. For project-specific information, email all questions to Project Manager Annaleis Hafford P.E., Olver Associates Inc., at annaleis@olverassociatesinc.com. Questions received after 12:00 noon of the Monday (or, if that Monday is a state holiday, Friday) prior to the bid date will not be answered. Bidders shall not contact any other municipal staff for clarification of Contract provisions; the Municipality will not be responsible for any interpretations so obtained. A pre-bid conference shall be held Friday, July 1, 2022 at 10 o'clock a.m. (prevailing time) at the Southwest Harbor Town Office, 22 Village Green Way, Southwest Harbor, Maine 04769.

Plans, specifications and bid forms may be reviewed at the Municipal Office, located at 26 Village Green Way, Southwest Harbor, Maine. They may be purchased from Olver Associates Inc., Environmental Engineers, 290 Main Street, P.O. Box 679, Winterport, Maine, 04496 upon receipt of $200.00 for each set, plus $25.00 fee if mailing is required, payment in advance, all non-refundable.

Each Bid must be made upon blank forms provided by the Municipality and must be accompanied by a bid bond at 5% of the bid amount or an official bank check, cashier's check, certified check, or certificate of deposit. A Contract Performance Surety Bond and a Contract Payment Surety Bond, each for 100 percent of the Contract price, will be required of the successful Bidder.

This Contract is subject to all applicable Federal Laws. The Municipality of Southwest Harbor, in accordance with Title VI of the Civil Rights Act of 1964; Title 49 in the Code of Federal Regulations (CFR), Part 21; and 28 CFR, Part 50.3, hereby notifies all bidders that it will affirmatively assure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full 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.

All work shall be governed by the Maine Department of Transportation's Standard Specifications, most recent Edition, and Standard Details, most recent Edition. They may be purchased by phone at (207) 624-3536 from 8:00 a.m. to 4:30 p.m., price $10 [$15 by mail]. These publications are available online: https://www.maine.gov/mdot/contractors/publications/

The Municipality reserves the right to reject any or all bids.

Southwest Harbor, Maine
Date: May, 2022

Annaleis Hafford P.E., Vice-President
Olver Associates, Inc.

OA1356

NOTICE

All bids for Federal Projects **shall** be accompanied by the DBE Proposed Utilization form. Failure to submit the form with the bid will be considered a curable defect.

PROPOSAL & BID FORM

PROPOSAL

MAIN STREET SIDEWALK,
DRAINAGE, WATER, AND SEWER
IMPROVEMENTS
(MaineDOT PROJECT WIN 022204.00)

TOWN OF SOUTHWEST HARBOR, MAINE

Ms. Marilyn Lowell, Town Manager
Southwest Harbor Town Office
P. O. Box 745
Southwest Harbor, Maine 04679

The undersigned, as Bidder on the above indicated Project, declares that the only persons or parties interested as principals in this Bid or in the Contract proposed to be taken, are named herein; that this Bidder has carefully examined the location of the proposed work, the Drawings and Specifications including the Invitation to Bid, Notice to Contractors, Proposal, Notice of Award, Contract, Notice to Proceed, General Conditions, Supplemental General Conditions and Technical Specifications; and proposes and agrees if this Bid is accepted that he/she will contract to provide all necessary and proper labor, machinery, equipment, facilities, and incidentals, and to do all the Work and furnish all labor and material necessary or proper to carry out the Contract in the manner and time therein set forth, and that he/she will do all other things required and incidental to the completion of the Work.

All entries in the entire proposal have been made clearly and in ink; total prices bid have been written in both words and figures. All items defined in the Contract Documents have been bid upon.

It is understood that this Bid may not be withdrawn within 90 days after the actual date of the opening thereof.

_____
(Date)

_____
(Signed)
Name: _____
Title: _____
Representing: _____
Address: _____
_____

BID FORM

BIDDER agrees to perform all Work as described in these Contract Documents for the following unit prices for the payment items indicated:

ITEM	DESCRIPTION	APPROX. QUANTITY	UNITS	UNIT PRICE	TOTAL PRICE
1.	652.33 Drums	125	EA	$_____	$_____
2.	652.34 Cones	75	EA	$_____	$_____
3.	652.35 Construction Signs	300	SF	$_____	$_____
4.	652.36 Maintenance of Traffic Control Devices	330	CD	$_____	$_____
5.	652.38 Flagger	8,600	HR	$_____	$_____
6.	652.41 Portable Changeable Message Sign	2	EA	$_____	$_____
7.	202.1913 Removing Asbestos Pipe	500*	LF	$	$
8.	202.1912 Remove/Abandon Pipes	LS	LS	$_____	$_____
9.	202.15 Remove Catch Basins	5	EA	$_____	$_____
10.	604.161 Altering Catch Basins	1	EA	$_____	$_____
11.	604.18 Existing Manhole Cover Replacement and Rim Adjustment	5	EA	$_____	$_____
12.	621.00 New Trees and Plantings Allowance	LS	LS	$ 30,000.00	$ 30,000.00
13.	202.2111 Remove and Reset Existing Site Features (complete with the exception of any other bid item)	LS	LS	$ 50,000.00	$ 50,000.00
14.	201.111 Clearing	LS	LS	$_____	$_____
15.	525.326 Field Stone Retaining Wall (Sta. 0+15 to 0+78)	61	LF	$_____	$_____
16.	525.32 Granite Masonry Wall – Remove and Reset (Sta. 4+20 LT to 4+45 LT)	325	SF	$_____	$_____
17.	525.32 Granite Masonry Wall - Remove and Reset (Sta. 11+50 LT to 12+00 LT)	265	SF	$_____	$_____
18.	525.329 Dry-Laid Stone Wall-Remove and Reset (Sta. 9+25)	LS	LS	$_____	$_____
19.	203.21 Rock Excavation and Removal	1,000*	CY	$_____	$_____
20.	801.03 Test Pits	54*	EA	$_____	$_____

ITEM	DESCRIPTION	APPROX. QUANTITY	UNITS	UNIT PRICE	TOTAL PRICE
21.	203.20 Common Excavation	2,550	CY	$_____	$_____
22.	304.10 Aggregate Subbase and Base	1,650	CY	$_____	$_____
23.	610.08 Plain Rip-Rap	100*	CY	$_____	$_____
24.	656.75 Temporary Erosion Control	LS	LS	$_____	$_____
25.	642.183 Granite Steps	1	LS	$_____	$_____
26.	822.3220 6" Ø DI Water Line	20	LF	$_____	$_____
27.	822.3402 8" Ø DI Water Line	65	LF	$_____	$_____
28.	825.43 1" Ø CU Water Service	240*	LF	$_____	$_____
29.	825.33 1" Ø Corporation Stop Water Shutoffs	9	EA	$_____	$_____
30.	825.331 1" Ø Curb Stop Water Shutoffs and Curb Boxes	9	EA	$_____	$_____
31.	823.338 6" Ø Wedge Valves	1	EA	$_____	$_____
32.	824.30 Hydrants	3	EA	$_____	$_____
33.	822.3152 12" x 8" Tapping Sleeve with Wedge Valve	1	EA	$_____	$_____
34.	822.3152 12" x 6" Tapping Sleeve with Wedge Valve	1	EA	$_____	$_____
35.	801.03 Locate Existing 6" Ø and 12" Ø Water Lines	LS	LS	$_____	$_____
36.	823.332 Raise Existing Water Valves	10	EA	$_____	$_____
37.	403.213 Hot Mix Asphalt 12.5 mm HMA Base	600	Tons	$_____	$_____
38.	403.208 Hot Mix Asphalt 12.5 mm HMA Surface	250	Tons	$_____	$_____
39.	403.209 Hot Mix Asphalt 9.5 mm (Incidentals)	20	Tons	$_____	$_____
40.	403.211 Hot Mix Asphalt (Shim)	20	Tons	$_____	$_____
41.	627.75 White or Yellow Pavement and Curb Marking	200	SF	$_____	$_____
42.	627.733 4" White or Yellow Painted Pave Mark Line	1,500	LF	$_____	$_____
43.	608.26 Detectable Warning Field	72	SF	$_____	$_____
44.	609.11 Vertical Curb Type 1 Granite Curb	1,180	LF	$_____	$_____

ITEM	DESCRIPTION	APPROX. QUANTITY	UNITS	UNIT PRICE	TOTAL PRICE
45.	609.221 Terminal Curb Type 1	60	LF	$_____	$_____
46.	603.159 12" Ø SICPE Storm Drain	205	LF	$_____	$_____
47.	603.179 18" Ø SICPE Storm Drain	360	LF	$_____	$_____
48.	603.199 24" Ø SICPE Storm Drain	50	LF	$_____	$_____
49.	603.158 4" Ø SICPE Storm Drain Stubs	40	LF	$_____	$_____
50.	603.158 6" Ø SICPE Storm Drain	220	LF	$_____	$_____
51.	605.09 6" Ø SICPE Perforated Underdrain	2,700	LF	$_____	$_____
52.	605.20 12" Ø SICPE Perforated Underdrain	80	LF	$_____	$_____
53.	605.21 18" Ø SICPE Perforated Underdrain	10	LF	$_____	$_____
54.	604.152 4' Ø Precast Drain Manhole	4	EA	$_____	$_____
55.	604.131 4' Ø Precast Catch Basins	11	EA	$_____	$_____
56.	604.242 Catch Basin Type F3	2	EA	$_____	$_____
57.	604.245 Catch Basin Type F4-C	3	EA	$_____	$_____
58.	604.247 Catch Basin Type F5-C	1	EA	$_____	$_____
59.	604.248 Catch Basin Type F6	1	EA	$_____	$_____
60.	800.40 Existing Sewer System Video Survey	LS	LS	$_____	$_____
61.	631.32 Debris Removal from Sewer System Survey	5	Tons	$_____	$_____
62.	801.14 4" Ø PVC Building Sewer	460	LF	$_____	$_____
63.	801.17 8" Ø PVC Sewer	70	LF	$_____	$_____
64.	803.173 4' Ø Precast Sewer Manholes	2	EA	$_____	$_____
65.	801.50 Vertical Sewer Cleanouts	2*	EA	$_____	$_____
66.	673.10 Wet Cast Small Landscape Block Wall (Sta. 8+55)	200	SF	$_____	$_____
67.	615.07 Loam	200	CY	$_____	$_____
68.	618.13 Seeding Method Number 1	16.0	UN	$_____	$_____
69.	619.12 Mulch	16.0	UN	$_____	$_____
70.	606.611 Hemlock Guardrail (Sta. 3+80) and (Sta. 8+45)	85	LF	$_____	$_____

ITEM	DESCRIPTION	APPROX. QUANTITY	UNITS	UNIT PRICE	TOTAL PRICE
71.	645.280 Wood Post	4	EA	$_____	$_____
72.	645.292 Regulatory, Warning, Confirmation, and Route Marker Assembly Signs Type II	50	SF	$_____	$_____
73.	827.331 2" Rigid Insulation	2,000*	LF	$_____	$_____
74.	607.462 Cedar Fence	66	LF	$_____	$_____

TOTAL BID (IN FIGURES):$ _____

TOTAL BID (IN WORDS):_____

_____ Dollars

*Note: Asterisk indicates indeterminate quantity for bidding comparison.

The undersigned agrees to furnish all required insurance certificates and bonds within 10 days after formal acceptance of the proposal by the Owner as signified by issuance of Notice of Award. All insurance certificates and bonds must be furnished before formal execution of the contract by the Owner.

The undersigned agrees to the following:

a. To substantially complete the work within 330 calendar days and to complete the work within 360 calendar days of the formal Notice to Proceed.

b. That the Owner may retain liquidated damages of $1,000 per day for each day in excess of those mentioned above that the work is not completed as indicated.

The undersigned has attached the following documents to their bid:

1. Bid Bond.

2. MaineDOT Contractor's DBE/Subcontractor Proposed Utilization Form.

The undersigned acknowledges the receipt of the following Addenda:

_____

_____

Date: _____

Signed: _____

Name: _____

Title: _____

Representing: _____

Address: _____

_____

Telephone: _____

Fax: _____

(Seal - if Bid is by Corporation)
(Also attached Certificate of Authority
for signatory to execute contract)

ENGINEER'S
NOTICE OF AWARD

ENGINEER'S NOTICE OF AWARD

Dated_____, 2022

TO:_____(BIDDER)

ADDRESS:_____

_____

_____

OWNER'S PROJECT NO. OA1356

PROJECT: Main Street Sidewalk, Drainage, Water, and Sewer Improvements
Town of Southwest Harbor, Maine

OWNER'S CONTRACT NO. One

You are notified that your Bid dated_____, 2022 for the above Contract has been considered. You are the apparent successful bidder and have been awarded a contract for the work contained in the contract plans and specifications dated May, 2022.

The Contract Price of your contract is_____.

You must comply with the following conditions precedent within 10 days of the date of this Notice of Award, that is by _____, 2022.

1. You must deliver to the OWNER three fully executed counterparts of the Agreement including all the Contract Documents. This includes the three sets of Drawings. Each of the Contract Documents must bear your signature on the cover. (May be signed at preconstruction meeting).

2. You must deliver with the executed Agreement the insurance and performance and payment bond documentation as specified in the Contract Documents.

3. (List other conditions precedent.)

- Submit initial project schedule.

- Submit list of project subcontractors to be used.

Failure to comply with these conditions within the time specified will entitle OWNER to consider your bid abandoned and annul this Notice of Award and retain your Bid Security.

After you comply with those conditions, OWNER will notify you of scheduled contract implementation date by formal Notice to Proceed.

Town of Southwest Harbor, Maine
(OWNER)

By _____
Marilyn Lowell
Town Manager

Copy to ENGINEER
(Use Certified Mail,
Return Receipt Requested)

CONTRACT AGREEMENT, OFFER, & AWARD

CONTRACT AGREEMENT, OFFER & AWARD

AGREEMENT made on the date last signed below, by and between the Municipality of Southwest Harbor, Maine, a municipal corporation with its principal administrative offices located at 26 Village Green Way, Southwest Harbor, Maine 04679, with a mailing address of 26 Village Green Way, Southwest Harbor, Maine 04679, and (_____) a corporation or other legal entity organized under the laws of the State of Maine, with its principal place of business located at (_____).

The Municipality 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 022204.00** for Main Street Sidewalk, Drainage, Water, and Sewer Improvements in the town of Southwest Harbor, County of Hancock, 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 Municipality shall have the right to alter the nature and extent of the work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **June 1, 2024.** Furthermore, the Municipality may deduct from money 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, most recent 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, *MaineDOT Standard Specifications, Most recent Edition, MaineDOT Standard Details, most recent 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, *MaineDOT Standard Specifications most recent Edition, MaineDOT Standard Details most recent Edition,* as updated through advertisement, Supplemental Specifications, Special Provisions, Contract Agreement; and Contract Bonds contained herein for construction of:

WIN 022204.00 – Main Street Sidewalk, Drainage, Water, and Sewer Improvements

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 Municipality in writing.

The Offeror also agrees:

First: To do any extra work, not covered by the attached "Schedule of Items," which may be ordered by the Project Resident, and to accept as full compensation the amount determined upon a "Force Account" basis as provided in the *MaineDOT Standard Specifications, most recent 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 Municipality of Southwest Harbor 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 *MaineDOT Standard Specifications most recent 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 90 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 Municipality.

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

CONTRACTOR

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

G. Award.

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

MUNICIPALITY OF _____

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Date	By: _____
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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 Municipality shall have the right to alter the nature and extent of the work as provided in the Contract; payment to be made as provided in the same.

B. Time.

The Contractor agrees to complete all Work, except warranty work, on or before **June 1, 2024.** Furthermore, the Municipality may deduct from money 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, most recent 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 _____

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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.

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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.

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WIN 022204.00 – Main Street Sidewalk, Drainage, Water, and Sewer Improvements

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 Municipality in writing.

The Offeror also agrees:

First: To do any extra work, not covered by the attached "Schedule of Items," which may be ordered by the Project Resident, and to accept as full compensation the amount determined upon a "Force Account" basis as provided in the *MaineDOT Standard Specifications, most recent 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 Municipality of Southwest Harbor 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.

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

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with the terms of this solicitation, and to provide the appropriate insurance and bonds if this offer is accepted by the Municipality in writing.

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

CONTRACTOR

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

G. Award.

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

MUNICIPALITY OF _____

_____	_____
Date	By: _____
_____	
Witness	

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS
FHWA-1273-1

July 5, 2013

SPECIAL PROVISION

Projects funded by the Transportation Alternatives Program (TAP)

Appendix A to Division 100

(REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS)

Make the following changes to Appendix A to Division 100;

SECTION I, GENERAL

Replace the current Section 1, paragraph 4 with the following:

"4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose."

SECTION IV. DAVIS-BACON AND RELATED ACT PROVISIONS

Replace the second sentence of the first paragraph in Section IV with:

"The requirements apply to all projects."

APPENDIX A TO DIVISION 100

SECTION 1 - BIDDING PROVISIONS

A. Federally Required Certifications By signing and delivering a Bid, the Bidder certifies as provided in all certifications set forth in this Appendix A - Federal Contract Provisions Supplement including:

- Certification Regarding No Kickbacks to Procure Contract as provided on this page 1 below.
- Certification Regarding Non-collusion as provided on page 1 below.
- Certification Regarding Non-segregated Facilities as provided by FHWA Form 1273, section III set forth on page 21 below.
- "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion" as provided by FHWA Form 1273, section XI set forth on page 32 below.
- "Certification Regarding Use of Contract Funds for Lobbying" as provided by FHWA Form 1273, section XII set forth on page 35 below.

Unless otherwise provided below, the term "Bidder", for the purposes of these certifications, includes the Bidder, its principals, and the person(s) signing the Bid. Upon execution of the Contract, the Bidder (then called the Contractor) will again make all the certifications indicated in this paragraph above.

CERTIFICATION REGARDING NO KICKBACKS TO PROCURE CONTRACT Except expressly stated by the Bidder on sheets submitted with the Bid (if any), the Bidder hereby certifies, to the best of its knowledge and belief, that it has not:

(A) employed or retained for a commission, percentage, brokerage, contingent fee, or other consideration, any firm or person (other then a bona fide employee working solely for me) to solicit or secure this contract;

(B) agreed, as an express or implied condition for obtaining this contract, to employ or retain the services of any firm or person in connection with carrying out the contract, or;

C) paid, or agreed to pay, to any firm, organization, or person (other than a bona fide employee working solely for me) any fee, contribution, donation, or consideration of any kind for, or in connection with, procuring or carrying out the contract;

By signing and submitting a Bid, the Bidder acknowledges that this certification is to be furnished to the Maine Department of Transportation and the Federal Highway Administration, U.S. Department of Transportation in connection with this contract in anticipation of federal aid highway funds and is subject to applicable state and federal laws, both criminal and civil.

CERTIFICATION REGARDING NONCOLLUSION Under penalty of perjury as provided by federal law (28 U.S.C. §1746), the Bidder hereby certifies, to the best of its knowledge and belief, that:

> the Bidder has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of competitive bidding in connection with the Contract.

For a related provisions, see Section 102.7.2 (C) of the Standard Specifications - "Effects of Signing and Delivery of Bids" - "Certifications", Section 3 of this Appendix A entitled "Other Federal Requirements" including section XI - "Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion" and section XII. - "Certification Regarding Use of Contract Funds for Lobbying."

****

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 that one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above describing the openings, screenings, procedures, and test to be used in the selection process.

Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth, both on the site and in other areas of a Contractor's workforce.

Validate all tests and other selection requirements.

Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

Ensure that all facilities and company activities are non segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction Contractor's and suppliers, including circulation of solicitations to minority and female Contractor associations and other business associations.

Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

C. Goals for Employment of Women and Minorities Per Executive Order 11246, craft tradesperson goals are 6.9% women and .5% minorities employed. However, goals may be adjusted upward at the mutual agreement of the Contractor and the Department. Calculation of these percentages shall not include On-the-Job Training Program trainees, and shall not include clerical or field clerk position employees.

For a more complete presentation of requirements for such Goals, see the federally required document "Goals for Employment of Females and Minorities" set forth in the next 6 pages below.

****

Start of GOALS FOR EMPLOYMENT OF FEMALES AND MINORITIES
Federally Required Contract Document

§60-4.2 Solicitations

(d) The following notice shall be included in, and shall be part of, all solicitations for offers and bids on all Federal and federally assisted construction contracts or subcontracts in excess of $10,000 to be performed in geographical areas designated by the Director pursuant to §60-4.6 of this part (see 41 CFR 60-4.2(a)):

Notice of Requirement for Affirmative Action to Ensure Equal Opportunity (Executive Order 11246)

1. The Offeror's or bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

Goals for female participation in each trade	6.9%

Goals for minority participation for each trade

Maine

001 Bangor, ME	0.8%
Non-SMSA Counties (Aroostook, Hancock, Penobscot, Piscataquis, Waldo, Washington)	
002 Portland-Lewiston, ME	
SMSA Counties: 4243 Lewiston-Auburn, ME (Androscoggin)	0.5%
6403 Portland, ME (Cumberland, Sagadahoc)	0.6%

Non-SMSA Counties: 0.5%
(Franklin, Kennebec, Knox, Lincoln, Oxford, Somerset, York)

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non federally involved construction.

The contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be in violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer identification number of the subcontractor, estimated dollar amount of the subcontract; estimated started and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the Contract resulting from this solicitation, the "covered area" is (insert description of the geographical areas where the contract is to be performed giving the state, county and city, if any).

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;

   c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department form 941;

   d. "Minority" includes:

(i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
(ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
(iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
(iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of the North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the contractor, is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors for Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a. through p. of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical areas where the work is being performed. Goals are published periodically in the Federal Register in notice form and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specific.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant, thereto.

6. In order for the non working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as expensive as the following:

   a. Ensure and maintain a working environment free of harassment, intimidation, coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, when possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

   b. Establish and maintain a current list of minority and female recruitment sources provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organization's responses.

   c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment sources or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

   d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

   e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment, efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing prior to the date for the acceptance of applications for apprenticeship or the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitation to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7 a through p.). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7 a through p. of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program and reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions take on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both make and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, specific minority group of women is underutilized.)

10. The Contractor shall not use the goals and timetables or affirmative action even through the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementation regulations by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.6.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g. mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and location sat which the work was performed. Records be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

End of GOALS FOR EMPLOYMENT OF FEMALES AND MINORITIES
Federally Required Contract Document

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D. Section '**D Disadvantaged Business Enterprise (DBE) Requirements**' is removed in its entirety. The DBE material is in:

Section 105.10 EQUAL OPPORTUNITY AND CIVIL RIGHTS.

SECTION 3 - OTHER FEDERAL REQUIREMENTS

Unless expressly otherwise provided in the Bid Documents, the provisions contained in this Section 3 of this "Federal Contract Provisions Supplement" are hereby incorporated into the Bid Documents and Contract.

A. Buy America

If the cost of products purchased for permanent use in this project which are manufactured of steel, iron or the application of any coating to products of these materials exceeds 0.1 percent of the contract amount, or $2,500.00, whichever is greater, the products shall have been manufactured and the coating applied in the United States. The coating materials are not subject to this clause, only the application of the coating. In computing that amount, only the cost of the product and coating application cost will be included.

Ore, for the manufacture of steel or iron, may be from outside the United States; however, all other manufacturing processes of steel or iron must be in the United States to qualify as having been manufactured in the United States.

United States includes the 50 United States and any place subject to the jurisdiction thereof.

Products of steel include, but are not limited to, such products as structural steel, piles, guardrail, steel culverts, reinforcing steel, structural plate and steel supports for signs, luminaries and signals.

Products of iron include, but are not limited to, such products as cast iron grates.

Application of coatings include, but are not limited to, such applications as epoxy, galvanized and paint.

To assure compliance with this section, the Contractor shall submit a certification letter on its letterhead to the Department stating the following:

> "This is to certify that products made of steel, iron or the application of any coating to products of these materials whose costs are in excess of $2,500.00 or 0.1 percent of the original contract amount, whichever is greater, were manufactured and the coating, if one was required, was applied in the United States."

B. Materials

a. Convict Produced Materials References: 23 U.S.C. 114(b)(2), 23 CFR 635.417
Applicability: FHWA's prohibition against the use of convict material only applies to Federal-aid highways. Materials produced after July 1, 1991, by convict labor may only be incorporated in a Federal-aid highway construction project if: 1) such materials have been produced by convicts who are on parole, supervised release, or probation from a prison; or 2) such material has been produced in a qualified prison facility, e.g., prison industry, with the amount produced during any 12-month period, for use in Federal-aid projects, not exceeding the amount produced, for such use, during the 12-month period ending July 1, 1987.

Materials obtained from prison facilities (e.g., prison industries) are subject to the same requirements for Federal-aid participation that are imposed upon materials acquired from other sources. Materials manufactured or produced by convict labor will be given no preferential treatment.

The preferred method of obtaining materials for a project is through normal contracting procedures which require the contractor to furnish all materials to be incorporated in the work. The contractor selects the source, public or private, from which the materials are to be obtained (23 CFR 635.407). Prison industries are prohibited from bidding on projects directly (23 CFR 635.112e), but may act as material supplier to construction contractors.

Prison materials may also be approved as State-furnished material. However, since public agencies may not bid in competition with private firms, direct acquisition of materials from a

prison industry for use as State-furnished material is subject to a public interest finding with the Division Administrator's concurrence (23 CFR 635.407d). Selection of materials produced by convict labor as State-furnished materials for mandatory use should be cleared prior to the submittal of the Plans Specifications & Estimates (PS&E).

b. Patented/Proprietary Products References: 23 U.S.C. 112, 23 CFR 635.411

FHWA will not participate, directly or indirectly, in payment for any premium or royalty on any patented or proprietary material, specification, or process specifically set forth in the plans and specifications for a project, unless:

- the item is purchased or obtained through competitive bidding with equally suitable unpatented items,
- the STA certifies either that the proprietary or patented item is essential for synchronization with the existing highway facilities or that no equally suitable alternative exists, or
- the item is used for research or for a special type of construction on relatively short sections of road for experimental purposes. States should follow FHWA's procedures for "Construction Projects Incorporating Experimental Features" (expermnt.htm) for the submittal of work plans and evaluations.

The primary purpose of the policy is to have competition in selection of materials and allow for development of new materials and products. The policy further permits materials and products that are judged equal may be bid under generic specifications. If only patented or proprietary products are acceptable, they shall be bid as alternatives with all, or at least a reasonable number of, acceptable materials or products listed; and the Division Administrator may approve a single source if it can be found that its utilization is in the public interest.

Trade names are generally the key to identifying patented or proprietary materials. Trade name examples include 3M, Corten, etc. Generally, products identified by their brand or trade name are not to be specified without an "or equal" phrase, and, if trade names are used, all, or at least a reasonable number of acceptable "equal" materials or products should be listed. The licensing of several suppliers to produce a product does not change the fact that it is a single product and should not be specified to the exclusion of other equally suitable products.

c. State Preference References: 23 U.S.C. 112, 23 CFR 635.409

Materials produced within Maine shall not be favored to the exclusion of comparable materials produced outside of Maine. State preference clauses give particular advantage to the designated source and thus restrict competition. Therefore, State preference provisions shall not be used on any Federal-aid construction projects.

This policy also applies to State preference actions against materials of foreign origin, except as otherwise permitted by Federal law. Thus, States cannot give preference to in-State material sources over foreign material sources. Under the Buy America provisions, the States are

permitted to expand the Buy America restrictions provided that the STA is legally authorized under State law to impose more stringent requirements.

d. State Owned/Furnished/Designated Materials References: 23 U.S.C. 112, 23 CFR 635.407

Current FHWA policy requires that the contractor must furnish all materials to be incorporated in the work, and the contractor shall be permitted to select the sources from which the materials are to be obtained. Exceptions to this requirement may be made when there is a definite finding, by MaineDOT and concurred in by Federal Highway Administration's (FHWA) Division Administrator, that it is in the public interest to require the contractor to use materials furnished by the MaineDOT or from sources designated by MaineDOT. The exception policy can best be understood by separating State-furnished materials into the categories of manufactured materials and local natural materials.

Manufactured Materials When the use of State-furnished manufactured materials is approved based on a public interest finding, such use must be made mandatory. The optional use of State-furnished manufactured materials is in violation of our policy prohibiting public agencies from competing with private firms. Manufactured materials to be furnished by MaineDOT must be acquired through competitive bidding, unless there is a public interest finding for another method, and concurred in by FHWA's Division Administrator.

Local Natural Materials When MaineDOT owns or controls a local natural materials source such as a borrow pit or a stockpile of salvaged pavement material, etc., the materials may be designated for either optional or mandatory use; however, mandatory use will require a public interest finding (PIF) and FHWA's Division Administrator's concurrence.

In order to permit prospective bidders to properly prepare their bids, the location, cost, and any conditions to be met for obtaining materials that are made available to the contractor shall be stated in the bidding documents.

Mandatory Disposal Sites Normally, the disposal site for surplus excavated materials is to be of the contractor's choosing; although, an optional site(s) may be shown in the contract provisions. A mandatory site shall be specified when there is a finding by MaineDOT, with the concurrence of the Division Administrator, that such placement is the most economical or that the environment would be substantially enhanced without excessive cost. Discussion of the mandatory use of a disposal site in the environmental document may serve as the basis for the public interest finding.

Summarizing FHWA policy for the mandatory use of borrow or disposal sites:

- mandatory use of either requires a public interest finding and FHWA's Division Administrator's concurrence,
- mandatory use of either may be based on environmental consideration where the environment will be substantially enhanced without excessive additional cost, and
- where the use is based on environmental considerations, the discussion in the environmental document may be used as the basis for the public interest finding.

Factors to justify a public interest finding should include such items as cost effectiveness, system integrity, and local shortages of material.

C. Standard FHWA Contract Provisions - FHWA 1273

Unless expressly otherwise provided in the Bid Documents, the following "Required Contract Provisions, Federal Aid Construction Contracts", FHWA-1273, are hereby incorporated into the Bid Documents and Contract.

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Cargo Preference Act : Contractor and Subcontractor Clauses. "Use of United States-flag vessels: The contractor agrees—"(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels."(2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590."(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract."(Reorganization Plans No. 21 of 1950 (64 Stat. 1273) and No. 7 of 1961 (75 Stat. 840) as amended by Pub. L. 91-469 (84 Stat. 1036) and Department of Commerce Organization Order 10-8 (38 FR 19707, July 23, 1973)) [42 FR 57126, Nov. 1, 1977]

The Cargo Preference Act requirements apply to materials or equipment that are acquired for a specific Federal-aid highway project. In general, the requirements are not applicable to goods or materials that come into inventories independent of an FHWA funded-contract. For example, the requirements would not apply to shipments of Portland cement, asphalt cement, or aggregates, as industry suppliers and contractors use these materials to replenish existing inventories. In general, most of the materials used for highway construction originate from existing inventories and are not acquired solely for a specific Federal-aid project. However, if materials or equipment are acquired solely for a Federal-aid project, then the Cargo Preference Act requirements apply."

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Start of FHWA 1273 REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS (As revised through May 1, 2012)

FHWA-1273 -- Revised May 1, 2012

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Nonsegregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Compliance with Governmentwide Suspension and Debarment Requirements
XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment,

termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability.

The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women.

Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even

though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act),

daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency..

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a

different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

*****

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS

This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

End of FHWA 1273

ATTACHMENTS TO MaineDOT
REQUIRED CONTRACT PROVISIONS

MaineDOT-A	Davis Bacon Wage Rates
MaineDOT-B	Contract Interpretation (SP Section 101)
MaineDOT-C	Electronic Payroll Requirements and Wage Rates (SP Section 104.3.8)
MaineDOT-D	Buy America Rule (SP Section 105.11)
MaineDOT-E	Non-Discrimination (Title VI Assurance)
MaineDOT-F	Utility Coordination (SP Section 104)
MaineDOT-G	Traffic Control and Management (SP Section 105)
MaineDOT-H	Time (SP Section 107)
MaineDOT-I	Clearing (SP Section 201)
MaineDOT-J	Hot Mix Asphalt (SP Section 403)
MaineDOT-K	Structural Concrete (SP Section 502)
MaineDOT-L	Detectable Warnings (SP Section 608)

MaineDOT-A

DAVIS BACON WAGE RATES

"General Decision Number: ME20220036 02/25/2022

Superseded General Decision Number: ME20210036

State: Maine

Construction Type: Highway

County: Hancock County in Maine.

HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $15.00 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 2022.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $11.25 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2022.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at https://www.dol.gov/agencies/whd/government-contracts.

Modification Number	Publication Date
0	01/07/2022
1	02/25/2022

ENGI0004-005 04/01/2018

	Rates	Fringes
POWER EQUIPMENT OPERATOR: Grader/Blade, Milling Machine, Paver (Asphalt, Aggregate, and Concrete), Roller Asphalt	$ 22.61	12.50

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* SUME2014-031 06/23/2017

	Rates	Fringes
CARPENTER, Includes Form Work	$ 18.34	2.84
HIGHWAY/PARKING LOT STRIPING: Laborer	$ 14.24 **	2.06
IRONWORKER, REINFORCING	$ 16.27	0.00
LABORER: Asphalt, Includes Raker, Shoveler, Spreader and Distributor	$ 13.97 **	3.14
LABORER: Common or General	$ 13.03 **	2.07
LABORER: Wheelman	$ 15.40	3.01
OPERATOR: Backhoe/Excavator/Trackhoe	$ 14.91 **	3.28
OPERATOR: Bobcat/Skid Steer/Skid Loader	$ 20.36	5.06
OPERATOR: Broom/Sweeper	$ 16.52	6.38
OPERATOR: Bulldozer	$ 16.58	2.89
OPERATOR: Loader	$ 17.79	5.88
OPERATOR: Mechanic	$ 22.30	8.71
OPERATOR: Screed	$ 18.82	4.75
OPERATOR: Roller (Earth)	$ 15.81	1.72
TRAFFIC CONTROL: Flagger	$ 9.00 **	0.00
TRAFFIC CONTROL: Laborer-Cones/ Barricades/Barrels - Setter/Mover/Sweeper	$ 17.48	5.37
TRUCK DRIVER: Dump Truck	$ 15.64	4.83
TRUCK DRIVER: TackTruck	$ 18.82	8.29

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

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** Workers in this classification may be entitled to a higher

minimum wage under Executive Order 14026 ($15.00) or 13658 ($11.25). Please see the Note at the top of the wage determination for more information.

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 https://www.dol.gov/agencies/whd/government-contracts.

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 National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

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

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

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

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

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

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

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

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

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END OF GENERAL DECISIO"

MaineDOT-B

CONTRACT INTERPRETATION
(SP SECTION 101)

SPECIAL PROVISION
SECTION 101
CONTRACT INTERPRETATION

The provisions of Section 101 of the Standard Specifications, "Contract Interpretation," shall apply with the following modifications:

101.2 Definitions.

Chief Engineer.

REPLACE: "The Chief Engineer of the Department."

With: "The Engineer of Record for the Project, Annaleis Hafford, of Olver Associates Inc."

Commissioner.

REPLACE: "The Commissioner of Transportation established by 23 MRSA §4205."

With: "The Town Manager of the Town of Southwest Harbor, Maine"

Department.

REPLACE: "The Department of Transportation of the State of Maine, as established by 23 MRSA §4205 et. seq. for the administration of Highway, Bridge, and other Public Works …"

With: "The Town of Southwest Harbor, Maine, acting through its Select Board and the Board's duly authorized representatives."

Project Manager.

REPLACE: "The Department's duly authorized representative for overall coordination of the Project."

With: "The Town of Southwest Harbor's duly authorized representative for overall coordination of the Project."

Resident.

REPLACE: "The Department's on-site representative."

With: "The Town of Southwest Harbor's on-site representative."

MaineDOT-C

ELECTRONIC PAYROLL REQUIREMENTS AND WAGE RATES (SP SECTION 104.3.8)

December 17, 2010
Supersedes December 30, 2009

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

January 5, 2005

SPECIAL
PROVISION
SECTION 104.3.8
(WAGE RATES)

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

MaineDOT-D

BUY AMERICA RULE (SP SECTION 105.11)

July 20, 2015
Supersedes (None)

Section 105
GENERAL SCOPE OF WORK

The Buy America rule shall apply to this project as there have been federal funding used in its development.

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."

Also see 105.11, Other Federal Requirements, in the Standard Specification Book

CERTIFICATION BY CONTRACTOR
OF COMPLIANCE WITH THE
USE OF AMERICAN IRON AND STEEL LAW
enacted on 1/17/2014

(To be attached to each pay application submitted for payment)

We, the Prime Contractor and Subcontractors, as named below, hereby certify that the use of American iron and steel in the construction of the Project named _____ _____, being requested in the pay application (or invoice) #_____ a dated _____, complies with the Use of American Iron and Steel Law, or that a waiver been obtained.

Prime Contractor Name: _____

_____	_____	_____
Signature of Official	Printed name	Date

Subcontractor Name	Signature of Official	Date
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

MaineDOT-E

NON-DISCRIMINATION (TITLE VI ASSURANCE)

MaineDOT

Integrity • Competence • Service

NON-DISCRIMINATION/TITLE VI POSTER

Title VI and Nondiscrimination Commitment to all USDOT funded programs:
Pursuant to Title VI of the Civil Rights Act of 1964 and related laws and regulations, MaineDOT will not exclude from participation in, deny the benefits of, or subject to discrimination anyone on the grounds of race, color, national origin, sex, age or disability.

Complaint Procedures:
MaineDOT has established a discrimination complaint procedure and will take prompt and reasonable action to investigate and eliminate discrimination when found. Any person who believes that he or she has been aggrieved by an unlawful discriminatory practice under Title VI has a right to file a formal complaint with MaineDOT. Any such complaint must be in writing and filed with the MaineDOT Title VI Coordinator within one hundred eighty (180) calendar days following the date of the alleged discriminatory occurrence. For more information, please contact the MaineDOT's Title VI Coordinator.

ADA/504 Statement:
Pursuant to Section 504 of the Rehabilitation Act of 1973 (Section 504), the Americans with Disabilities Act of 1990 (ADA) and related federal and state laws and regulations, MaineDOT will make every effort to ensure that its facilities, programs, services, and activities are accessible to those with disabilities. MaineDOT will provide reasonable accommodation to disabled individuals who wish to participate in public involvement events or who require special assistance to access MaineDOT facilities, programs, services or activities. Because providing reasonable accommodation may require outside assistance, organization or resources, MaineDOT asks that requests be made at least five (5) calendar days prior to the need for accommodation. Questions, concerns, comments or requests for accommodation should be made to MaineDOT's ADA Coordinator.

Services are provided free without charge for individuals with special needs with disabilities. Any fees will be paid by the recipient or subrecipient. The public will have access to translators, "I Speak Cards", TTY/TDD services and vital documents translated when requested.

MaineDOT Title VI/ADA Coordinator

Amy E. Hughes, Director
Civil Rights Office
Maine Department of Transportation
16 State House Station
Augusta, Maine 04333

Office Phone: (207) 624-3056
Cell Phone: (207) 592-1562
TYY: Users Dial MAINE RELAY 711

(APPENDIX A TO MAINEDOT TITLE VI ASSURANCE)
FEDERAL HIGHWAY ADMINISTRATION ASSISTED PROGRAMS

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 shall comply with the Regulations relative to nondiscrimination in federally assisted programs of the Maine Department of Transportation Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

(2) Nondiscrimination: The contractor, with regard to the work performed by it during the contract, shall 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 shall not participate either directly or indirectly in the discrimination prohibited by Section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

(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 shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

(4) Information and Reports: The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of Information, and its facilities as may be determined by the Maine Department of Transportation or the Federal Highway Administration to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the Maine Department of Transportation or the Federal Highway Administration as appropriate, and shall set forth what efforts it has made to obtain the information.

(5) Sanctions for Noncompliance: In the event of the contractor's noncompliance with nondiscrimination provisions of this contract, the Maine Department of Transportation shall impose contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:

(a) withholding of payments to the contractor under the contract until the contractor complies; and/or

(b) cancellation, termination, or suspension of the contract, in whole or in part.

(6) Incorporation of Provisions: The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto. The contractor shall take such action with respect to any subcontract or procurement as the Maine Department of Transportation or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the Maine Department of Transportation to enter into such litigation to protect the interests of the Maine Department of Transportation, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

(APPENDIX E TO MAINEDOT TITLE VI ASSURANCE)

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 U.S.C. §471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, subrecipients 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 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 of sex in education programs or activities (20 U.S.C. 1681 et seq.).

To:_____
(Union, employment agency or employee's representative)

_____
(Address)

Subject: Equal Employment Opportunities on
State Project No.: _____
Federal Aid Project No.: _____
Location: Southwest Harbor, ME
Description of Work: Main Street Sidewalk, Drainage, Water and Sewer Improvements

For Work related to the construction of the above listed Project to be performed under Contract No.: _____, I have pledged to provide equal employment opportunities without regard to race, color, religion, sex, national origin, sexual orientation, or disability. This pledge applies to all employees and applicants for employment in connection with:

- Hiring, Placement, Upgrading, Transfer or Demotion
- Recruitment, Advertising or Solicitation for Employment
- Treatment During Employment
- Rates of Pay or Other Forms of Compensation
- Selection for Training, Including Apprenticeship
- Layoff or Termination

Inquiries and complaints should be addressed to:
President's Committee on Equal Employment Opportunity
Washington, D.C. 20425

Signed: _____

_____
(Title)

For: _____
(Contractor)

_____

_____
(Address)

_____
(Dated)

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U.S. Department of Transportation (USDOT)

Federal Highway Administration – Standard Title VI / Nondiscrimination Assurances

DOT Order No. 1050.2A

The **Town of Southwest Harbor, Maine** (the Recipient) **AGREES THAT**, as a condition of receiving Federal financial assistance from the U.S. Department of Transportation (USDOT) through the Federal Highway Administration (FHWA), it 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), which prohibits discrimination based on race, color, national origin;
- 49 C.F.R. Part 21 (entitled Nondiscrimination 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 citations are referred to hereinafter 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 assure 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 the USDOT, including the FHWA."

The Civil Rights Restoration Act of 1987 clarified the original intent of Congress, with respect to Title VI and other nondiscrimination 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 nondiscrimination 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 Federal-aid 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 (regarding an "activity facilitated, or will be (regarding a "facility operated, or will be (regarding 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 Programs and, in adapted form, in all proposals for negotiated agreements regardless of funding source:

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"The Town of Southwest Harbor, 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 assure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full 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. If applicable, 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. If applicable, 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 regarding any matter arising under the Acts, the Regulations, and this Assurance.

By signing this ASSURANCE, the Town of Southwest Harbor 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 the FHWA and USDOT, or their designees, 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 Town of Southwest Harbor gives this ASSURANCE in consideration of and for obtaining any Federal grants, loans, contracts, agreements, property, and/or discounts, or other Federal and Federal financial assistance extended after the date hereof to the recipients by the USDOT under the Federal-Aid Highway Program. This ASSURANCE is binding on the State of Maine, 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 signing below is authorized to sign this ASSURANCE on behalf of the Recipient.

Town of Southwest Harbor

DocuSigned by:
Marilyn Lowell
D773C39754754D4...

By _____

Marilyn Lowell, Town Manager

DATED 1/10/2022

Encl.: Appendices A and E

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APPENDIX A TO THE TITLE VI ASSURANCES

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 Nondiscrimination 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, regarding 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 as set forth in Appendix E, 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.

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APPENDIX E TO THE TITLE VI ASSURANCES

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 based on 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 programs and projects);
- Federal Highway Act of 1973, (23 U.S.C. §324 et seq.), (prohibits discrimination based on sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. §794 et seq.), as amended, (prohibits discrimination based on disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. §6101 et seq.), (prohibits discrimination based on age);
- Airport and Airway Improvement Act of 1982, (49 U.S.C. §471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal 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 based on 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 based on race, color, national origin and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which assures 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 assure compliance with Title VI, you must take reasonable steps to assure 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 of sex in education programs or activities (20 U.S.C. 1681 et seq.).

MaineDOT-F

UTILITY COORDINATION (SP SECTION 104)

SPECIAL PROVISIONS
SECTION 104
Utilities

UTILITY COORDINATION

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

THE CONTRACTOR SHALL PLAN AND CONDUCT WORK ACCORDINGLY.

MEETING

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

GENERAL INFORMATION

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

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

Overview:

Utility/Railroad	Aerial	Underground	Railroad
Versant Power	X	X	
Consolidated Communications	X	X	
SWH Water and Sewer District		X	

Utility Contact Information		
Utility/Railroad	**Contact Person**	**Contact Phone**
Versant Power	David Perkins	207-949-3918
Consolidated Communications	Kyle Bouchard	207-745-2750
SWH Water and Sewer District	Steve Kenney	207-244-3948

Temporary utility adjustments are not anticipated. If any unexpected utility relocations become necessary, they shall be scheduled in accordance with Section 104 of the Standard Specifications and shall be performed by the appropriate utility company in conjunction with the work by the Contractor. Should the Contractor choose to have any poles temporarily relocated, all work shall be done at the Contractor's request and expense, with no additional cost or schedule impacts to the Department.

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

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

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

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

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

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

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

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

AERIAL

Utility Specific Issues:

Versant Power: no anticipated issues identified. Pole relocation will occur.

Consolidated Communications: no anticipated issues identified.

SUBSURFACE

Utility Specific Issues:

Versant Power: no anticipated issues identified.

Consolidated Communications: no anticipated issues identified.

SWH Water and Sewer District: no anticipated issues identified. Will be coordinating closely throughout construction.

MAINTAINING UTILITY LOCATION MARKINGS

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

UTILITY SIGNING

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

MaineDOT-G

TRAFFIC CONTROL AND MANAGEMENT
(SP SECTION 105)

WIN: 022204.00
Municipality: Southwest Harbor, Maine
Date: May, 2022

SPECIAL PROVISION
SECTION 105
GENERAL SCOPE OF WORK
(Traffic Control and Management)

Section 105, General Scope of Work, of the Standard Specifications is amended as follows:

MDOT SPECIAL PROVISION-SECTION 105

Two-way traffic (one lane in each direction) shall be maintained from June 10th through Labor Day between the hours of 9am and 7pm. Alternating one-way traffic will be allowed at all other times. Minimum allowable travel lane width shall be 11'. Maximum length of lane closure shall be 1,000 feet.

MaineDOT-H

TIME (SP SECTION 107)

SPECIAL PROVISION
SECTION 107
PROSECUTION AND PROGRESS
(Contract Time – Calendar Days)

This Contract shall be completed within (**360**) calendar days which are exclusive of July 1 through the second week of September, when no work is permitted under this contract. The Contractor may begin work in accordance with Standard Specification 104.4.2 and upon approval of all required submittals. The Contract Completion Date will be no later than (**June 1, 2024.**)

MaineDOT-I

CLEARING (SP SECTION 201)

Municipality: Southwest Harbor, Maine
WIN: 022204.00
DATE: May, 2022

SPECIAL PROVISION
SECTION 201

CLEARING
(Timing of Clearing)

Section 201, Clearing of the MaineDOT Standard Specifications is amended as follows:

MaineDOT SPECIAL PROVISION-SECTION 201

Due to upcoming changes in the federal regulations regarding the long-eared bat, the contractor shall be required to complete all tree clearing activities as required in this contract prior to November 1, 2022.

Note that clearing specifications also apply as contained in these specifications in Section 2110 – Site Clearing.

MaineDOT-J

HOT MIX ASPHALT (SP SECTION 403)

SPECIAL PROVISION
SECTION 403
HOT MIX ASPHALT

Desc. Of Course	Grad Design.	Item Number	Total Thick	No. Of Layers	Comp. Notes
Shoulders & Wood Street (As Indicated)					
Wearing	12.5 mm	403.208	1 ½"	1	3,10,30,32
Base	12.5 mm	403.213	2 ½"	1	3,10,30,32
Travelway - Profile Correction (As Indicated)					
Shim	9.5 mm	403.211	variable	1/more	3,10,20,30,31,33,54
Trenches within Travelway (As Directed)					
Wearing	12.5 mm	403.208	1 ½"	1	3,10,30,32,34,55
Base	12.5 mm	403.213	4 ½"	2	3,10,30,32,34,55
Sidewalks & Drives (As Indicated)					
Wearing	9.5 mm	403.209	2"	1/more	3,10,20,30,32

COMPLEMENTARY NOTES

3. The design traffic level for mix placed shall be 0 to <3 million ESALS. The design, verification, Quality Control, and Acceptance tests for this mix will be performed at **65 gyrations**.
10. Section 106.6 Acceptance, (2) **Method D** as specified Section 401.21 - Quality Assurance Methods B and D.
20. 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.
30. 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.
31. Compaction of the new Hot Mix Asphalt Pavement will be obtained using a minimal roller train consisting of a **10 ton** vibratory, **12 ton** pneumatic, and a **10 ton** finish roller for roadway work. A **Quality Control Technician (QCT)** shall be required for all roadway mixtures placed under this contract. A daily paving report, summarizing the mixture type, mixture temperature, equipment used, environmental conditions, and number of roller passes, shall be recorded and signed by the QCT and presented to the Department's representative by the **end of the working day**.
32. Compaction of the new Hot Mix Asphalt Pavement will be obtained using a minimal roller train consisting of a **10 ton** vibratory, and a **3-5 Ton** finish roller for roadway work. In areas inaccessible to a **10 ton** roller, compaction of the new Hot Mix Asphalt Pavement will be obtained using a minimal roller train consisting of a **3-5 ton** vibratory roller. Areas less than 2 feet wide shall be compacted with a minimum of a **150 pound** plate compactor. An approved release agent is required to ensure the mixture does not adhere to hand tools, rollers, pavers, and truck bodies. The use of petroleum based fuel oils, or asphalt stripping solvents will not be permitted.
33. Roadway HMA shim mixtures may be placed with a track or rubber tire mounted highway class paver with a minimum tractor weight of 28,000 pounds, equipped with a minimum main screed width of eight feet. Placement location, placement width and depth of shim layers will be as directed, and may vary.

34. The Contractor shall saw cut at a consistent width to allow transverse rolling of the trench. When applicable, a 10 ton roller will be required. In areas inaccessible to a **10 ton** roller, compaction of the new Hot Mix Asphalt Pavement will be obtained using a minimal roller train consisting of a 3-5 ton vibratory roller. The **minimum width of the trench shall be 5 feet** to accommodate a 3-5 ton vibratory roller. An approved release agent is required to ensure the mixture does not adhere to hand tools, rollers, pavers, and truck bodies. The use of petroleum based fuel oils, or asphalt stripping solvents will not be permitted. Payment for additional milling or saw cutting required shall not be considered directly, but instead shall be considered incidental to the paving items.
54. A milled joint of a **minimum of 1.0 inch** depth will be cut longitudinally at the centerline and transversely at the beginning and end of the profiled section and will be **tapered to 0.0 inches** (daylighted) to establish a consistent match point. The **width and length** of the daylighted area will **vary as directed by the Resident** but shall done in a manner that **a minimum of 1 inch depth of HMA can be placed in all impacted areas**. The milling required will not be paid for directly but shall **be considered incidental** to the paving items.
55. The Contractor shall saw cut at a consistent width to allow transverse rolling of the trench. When applicable, a 10 ton roller will be required. In areas inaccessible to a 10 **ton** roller, compaction of the new Hot Mix Asphalt Pavement will be obtained using a minimal roller train consisting of a 3-5 ton vibratory roller. The **minimum width of the trench shall be 5 feet** to accommodate a 3-5 ton vibratory roller. An approved release agent is required to ensure the mixture does not adhere to hand tools, rollers, pavers, and truck bodies. The use of petroleum based fuel oils, or asphalt stripping solvents will not be permitted. Payment for additional milling or saw cutting required shall not be considered directly, but instead shall be considered incidental to the paving items.

Tack Coat

A tack coat of emulsified asphalt, RS-1, RS-1h, CRS-1 or CRS-1h, Item 409.15 shall be applied to any existing pavement at a rate of approximately 0.030 gal/yd^2, and on milled pavement approximately 0.05 gal/yd^2 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/yd^2. Tack used will be paid for at the contract unit price for Item 409.15 Bituminous Tack Coat.

MaineDOT-K

STRUCTURAL CONCRETE (SP SECTION 502)

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

CLASS OF CONCRETE	ITEM NUMBER	DESCRIPTION	P	METHOD
A	608.08	Reinforced Concrete Sidewalk	-	C
A	608.26	Detectable Warning Field	-	C
Fill	673.10	Wet Cast Small Landscape Block Wall Footing	-	C
P	673.10	Wet Cast Small Landscape Block Wall	-	P
A	525.32	Granite Masonry Wall – Remove and Reset	-	C
Fill	609.11	Vertical Curb Type 1 Granite Curb Fill Concrete	-	C
A	525.329	Dry-Laid Stone Wall	-	C

MaineDOT-L

DETECTABLE WARNINGS (SP SECTION 608)

November 27, 2012
Supersedes May 15, 2008

SPECIAL PROVISION
SECTION 608
DETECTABLE
WARNINGS
(Cast Iron)

Description This work shall consist of furnishing and installing curb ramp detectable warning plates with truncated domes at the locations shown on the plans or as established by the Resident.

MATERIALS

Detectable Warnings The Contractor shall provide new cast iron detectable warning plates as manufactured by one of the manufacturers listed on Maine DOT's Qualified Products list of Cast Iron Detectable Warning Plates. This list can be found at:

http://www.maine.gov/mdot/tr/qpl/

Each field shall match the width of the ramp and shall have a natural finish.

Prior to starting this work, the Contractor shall submit for approval the name of the selected supplier, manufacturer's literature describing the product, installation procedures, and routine maintenance required.

Concrete Portland cement concrete shall meet the requirements of Section 502, Structural Concrete, Class A

CONSTRUCTION REQUIREMENTS

Existing Concrete Curb Ramps Existing Concrete shall be saw-cut to a dimension 100mm [4 in] larger than the detectable warning plates. New concrete shall be placed in the resulting opening and finished, and the new plates set into the wet concrete, according to manufacturer recommendations. New plates shall be set square with the curb edge and the base of the truncated domes shall be flush with adjacent surfaces to allow proper drainage.

New Concrete Curb Ramps New concrete shall be placed and finished for the ramp, and the new plates set into the wet concrete, according to manufacturer recommendations. New plates shall be set square with the curb edge and the base of the truncated domes shall be flush with adjacent surfaces to allow proper drainage

New Asphalt Ramps Asphalt shall be saw cut and removed to provide an opening that will allow for the dimensions of the cast iron plate surrounded by an additional 100mm [4 in] border on all sides of the plate. New concrete shall be placed in the resulting opening and finished, and the new plates set into the wet concrete, according to manufacturer recommendations. New plates shall be set square with the curb edge and the base of the truncated domes shall be flush with adjacent surfaces to allow proper drainage.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CURB RAMP

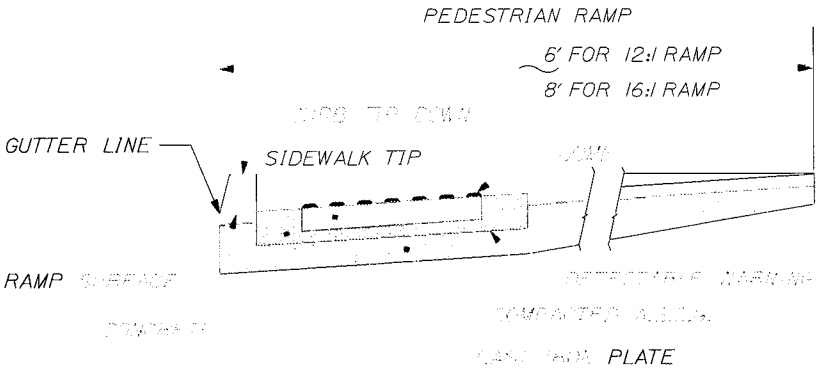
VIEWS AND DETAILS OF THE DETECTABLE WARNING

DETAILS

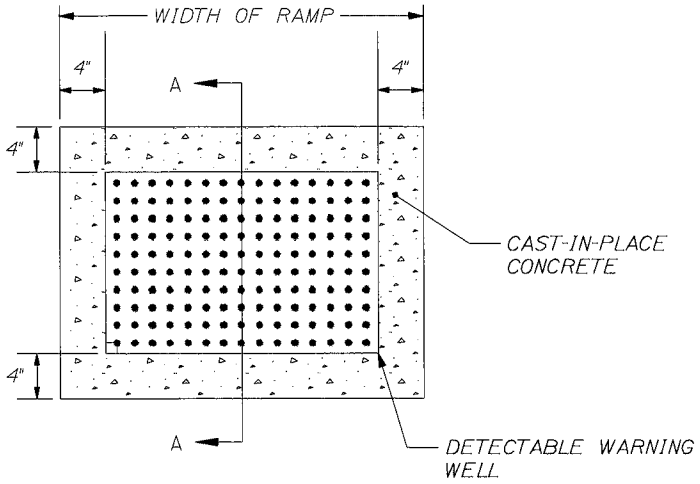
SHEET NUMBER 1

VIEWS AND DETAILS OF THE DETECTABLE WARNING

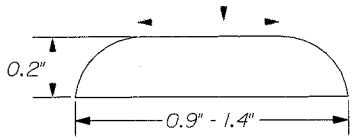
(NOT TO SCALE)



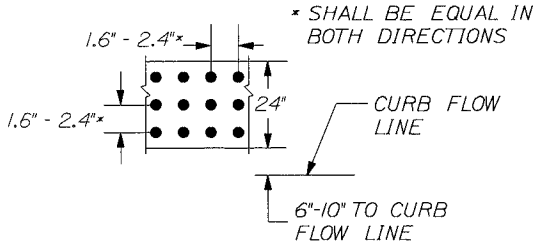
GUTTER



PLAN VIEW OF
DETECTABLE WARNING AND WELL

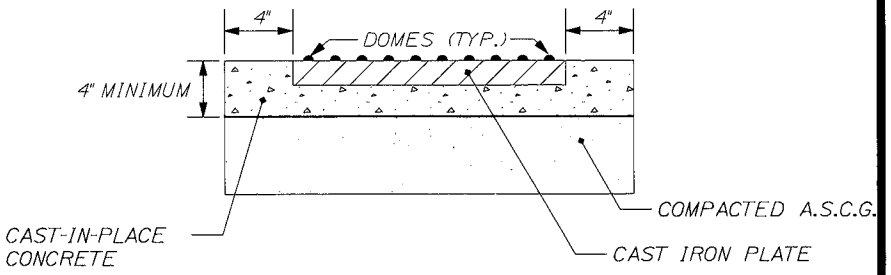


ELEVATION VIEW



PLAN VIEW

DOME AND DETECTABLE WARNING DETAILS

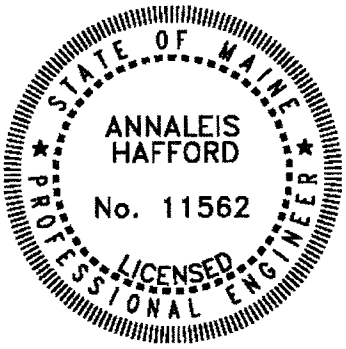


SECTION A-A

CONTRACT DOCUMENTS
FOR

MAIN STREET SIDEWALK, DRAINAGE, WATER, AND SEWER IMPROVEMENTS

(MaineDOT PROJECT WIN 022204.00)
TOWN OF SOUTHWEST HARBOR, MAINE
MAY, 2022
BOOK 2 OF 2



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TECHNICAL SPECIFICATIONS

DIVISION 1

GENERAL REQUIREMENTS

SECTION 01026

MEASUREMENT AND PAYMENT

SECTION 01026 - MEASUREMENT AND PAYMENT

PART 1 - GENERAL

1.01 DESCRIPTION

A. Scope: This section describes the measurement and payment for the work to be completed under each bid item in the Proposal. The descriptions may not reference all of the associated Work. Work specified, but not specifically designated as a bid item, is considered incidental to all bid items.

B. Payment procedures are described in the Agreement, General Conditions, and related documents.

C. Work Covered: The total price for the Contract shall cover all work shown on the Contract Drawings and required by the Specifications and other Contract Documents. All costs in connection with the Work, including furnishing all materials, equipment, supplies and appurtenances; providing all construction, and tools; and performing all necessary labor and supervision to fully complete the Work, shall be included in the lump sum price bid or the unit prices specified on the bid sheets. No item that is required for the proper and successful completion of the Work will be paid for outside of, or in addition to, the prices submitted in the bid. All Work not specifically identified within this section shall be considered incidental to the project and a subsidiary obligation of the Contractor and all costs in connection therewith shall be included in the prices.

PART 2 - PRODUCTS (not applicable)

PART 3 - EXECUTION

3.01 MEASUREMENT

A. Notify Engineer when necessary measurements must be taken. Do not proceed until measurements have been taken.

3.02 SCHEDULE OF PAYMENT ITEMS

A. Item 1 – 652.33 Drums:

1. Payment: As per MaineDOT specifications.

B. Item 2 – 652.34 Cones:

1. Payment: As per MaineDOT specifications.

C. Item 3 – 652.35 Construction Signs:

1. Payment: As per MaineDOT specifications.

D. Item 4 – 652.36 Maintenance of Traffic Control Devices:

1. Payment: As per MaineDOT specifications.

E. Item 5 – 652.38 Flagger:

1. Payment: As per MaineDOT specifications.

F. Item 6 – 652.41 Portable Changeable Message Sign:

1. Payment: As per MaineDOT specifications.

G. Item 7 – 202.1913 Removing Asbestos Pipe:

1. Payment: Unit price as stated in the Proposal.

2. Measurement: Unit price per linear foot as measured along the horizontal projection of the centerline of the pipe.

3. Includes: Removal of existing buried asbestos cement pipe along new sewer routes where encountered and as shown on the Drawings including all storage costs, disposal costs and incidentals.

4. Schedule of Payment: 100% upon completion.

H. Item 8 – 202.1912 Remove/Abandon Pipes:

1. Payment: Lump sum price as stated in the Proposal.

2. Measurement: Per completion of work.

3. Includes: Removal or abandonment of existing buried utility pipe along new work routes where encountered and as shown on the Drawings including all disposal costs.

4. Schedule of Payment: Measured by actual percent completion at time of requisition.

I. Item 9 – 202.15 Remove Catch Basins:

1. Payment: Unit price as stated in the Proposal per unit shown to be removed on the Drawings or as directed by the Engineer.

2. Measurement: Measured as complete units.

3. Includes: Cleaning, excavation, removal and disposal of existing structure, plugging or abandoning pipes as required, backfill, compaction and restoration of disturbed surfaces.

4. Schedule of Payment: 100% upon completion.

J. Item 10 – 604.161 Altering Catch Basins:

1. Payment: Unit price per unit as stated in the Proposal.

2. Measurement: Per unit completed.

3. Includes: Catchbasin modification to accept new drain work including coring, patching, boots and incidentals.

4. Schedule of Payment: 100% per unit upon completion.

K. Item 11 – 604.18 Existing Manhole Cover Replacement and Rim Adjustment

1. Payment: Unit price per unit as stated in the Proposal.

2. Measurement: Per unit completed.

3. Includes: Excavation, removal of existing frame and cover, removal of existing concrete or brick riser section as required,

installation of new riser section, installation of new concrete grade rings, new frame and cover, installation of new joint sealants, masonry work, backfill and compaction.

4. Schedule of Payment: 100% upon completion.

L. Item 12 – 621.00 New Trees and Plantings Allowance:

1. Payment: Actual costs incurred, plus a maximum 15% markup.

2. Measurement: Submit evidence of paid invoices and markup.

3. Includes: All new trees and plants as shown on the Drawings or as requested by Owner to be provided by Contractor including garden plantings, rose bushes, cedar hedges, trees, bushes and other landscaping. This item also includes labor and materials as required for excavation and planting as required by tree and plant supplier, watering and fertilizing as required for specific tree and plant, maintenance and protection of all new trees and plants during construction, and warranty of all new trees and plants for one full year after.

4. Schedule of Payment: 100% upon completion and evidence of paid invoices submitted.

M. Item 13 – 202.2111 Remove and Reset Existing Site Features (complete with the exception of any other bid item):

1. Payment: Lump sum price as stated in the Proposal.

2. Measurement: Paid in proportion to percentage of work completed at time of requisition.

3. Includes: Removal and resetting all existing site features as required for sidewalk, drainage, water and sewer improvements including but not limited to all gardens, plants, trees, bushes, landscaping components, rock or granite walls not included in bid items 15 through 18, landscape curbing and edging, signs, steps, walks, etc. not specifically noted on the Drawings for removal and disposal.

4. Schedule of Payment: 100% upon completion.

5. Special Note: Contractor is responsible for maintaining all plants, trees, bushes and garden planting for replanting as needed with temporary planting, watering, fertilizing, and protection. Contractor is responsible for replacing any and all plants, trees, bushes and garden plantings that perish as a result of construction activities.

6. Special Note: There are some areas as noted on the Drawings where the property Owner will be responsible for removing and replanting existing plantings. Contractor is responsible for all other plantings outside those specific areas.

N. Item 14 - 201.111 Clearing:

1. Payment: Lump sum price as stated in the Proposal.

2. Measurement: Per completion of work.

3. Includes vegetation trimming and removal (trees and brush), and any other site clearing necessary to access sites to complete project work.

4. Schedule of Payment: Measured by actual percent completion at time of requisition.

O. Item 15 – 525.326 Field Stone Retaining Wall (Sta. 0+15 to 0+78):

1. Payment: Unit price as stated in the Proposal.

2. Measurement: Unit price per linear foot as measured along the wall.

3. Includes: All labor and materials required for the complete removal, safe storage, site preparation, compaction, placing of native materials or suitable backfill, and resetting of rock retaining wall and incidentals as required for sidewalk improvements and as noted on Drawings.

4. Schedule of Payment: 100% upon completion.

P. Item 16 – 525.32 Masonry Wall – Remove and Reset (Sta. 4+20 LT to 4+45 LT):

1. Payment: Unit price as stated in the Proposal.

2. Measurement: Unit price per square foot as measured along the face of the wall.

3. Includes: All labor and materials required for the complete removal, safe storage, site preparation, compaction, reinforced concrete footing, placing of native materials or suitable backfill, additional blocks not on-site, construction adhesive, and resetting of granite retaining wall and incidentals as required for sidewalk improvements and as noted on Drawings.

4. Schedule of Payment: 100% upon completion.

Q. Item 17 – 525.32 Granite Masonry Wall – Remove and Reset (Sta. 11+50 LT to 12+00 LT):

1. Payment: Unit price as stated in the Proposal.

2. Measurement: Unit price per square foot as measured along the face of the wall.

3. Includes: All labor and materials required for the complete removal, safe storage, site preparation, reinforced concrete footing, placing of native materials or suitable backfill, additional blocks not on-site, and resetting of granite retaining wall and plantings and incidentals as required for sidewalk improvements and as noted on Drawings.

4. Schedule of Payment: 100% upon completion.

R. Item 18 – 525.329 Dry-Laid Stone Wall – Remove and Reset (Sta. 9 +25):

1. Payment: Lump sum price as stated in the Proposal.

2. Measurement: Per completion of work.

3. Includes: All labor and materials required for the complete removal, safe storage, site preparation, compaction, footing or

leveling pad, placing of native materials or suitable backfill, and resetting of rock retaining wall and incidentals as required for sidewalk improvements and as noted on Drawings.

4. Schedule of Payment: 100% upon completion.

S. Item 19 – 203.21 Rock Excavation and Removal:

1. Payment: Unit price per cubic yard as stated in the Proposal.

2. Measurement: Measurement of ledge in place prior to blasting and excavation within pay limits as shown on the Drawings and as determined by the Engineer unless prior written approval is provided by Engineer to measure after blasting. If measured after blasting, it shall be adjusted down by a factor of 20% for payment to compensate for swelling.

3. Includes: Preblast survey, seismic monitoring, line drilling or some other means to limit impact of ledge removal vibration on existing building, drilling and blasting, excavation, dewatering, removal, replacement of materials removed with select gravel, and disposal of rock and boulders greater than two cubic yards each.

4. Schedule of Payment: Upon excavation - 100%.

5. Note: No unit price adjustment will be made for ledge removal if quantity varies from that estimated on the bid sheet. This is an indeterminate item and it should be recognized that the quantity may be higher or lower than stated.

6. Special Note: Contractor shall provide line drilling or some other means or method to reduce the vibration and shock impact of ledge removal activities on existing building structures adjacent to work area and provide ledge profile as shown on cross-sections.

T. Item 20 – 801.03 Test Pits:

1. Payment: Unit price per each test pit unit as stated in the Proposal.

2. Measurement: Per unit completed.

3. Includes: Clearing, excavation, dewatering, backfilling, and compaction in locations as shown in Drawings or as directed by the Engineer.

4. Schedule of Payment: 100% upon completion.

5. Limitation: In order to qualify as a test pit for payment, at least 10 CY of material must be excavated in search of a specific buried site feature. Only one test pit payment per each specific site feature will be made.

U. Item 21 – 203.20 Common Excavation:

1. Payment: Unit price per cubic yard as stated in the Proposal.

2. Measurement: Measured in place as indicated on the Drawings and as directed by the Engineer.

3. Includes: Excavation, dewatering, and removal of shoulder, embankment, driveway and sidewalk excavation materials including the disposal of material as specified.

4. Schedule of Payment: 100% upon completion.

V. Item 22 – 304.10 Aggregate Subbase and Base:

1. Payment: Unit price per cubic yard placed for shoulder, driveway and sidewalk subbase and base materials as stated in the Proposal.

2. Measurement: Measured in place as indicated on the Drawings and as directed by the Engineer.

3. Includes: Subgrade preparation, removal and disposal of unsuitable fill and placement of suitable materials, subbase and base aggregates, placement, grading, compaction, and maintenance as specified and placed in locations noted, and as directed by the Engineer.

4. Schedule of Payment: Installation - 90%; compaction testing - 10%.

W. Item 23 – 610.08 Plain Rip-Rap:

1. Payment: Unit price per cubic yard as stated in the Proposal.

2. Measurement: As measured in-place within the limits shown on the Drawings or as directed by Engineer.

3. Schedule of Payment: 100% per unit upon completion.

X. Item 24 – 656.75 Temporary Erosion Control:

1. Payment: Lump sum as stated in the Proposal.

2. Measurement: One lump sum unit including temporary erosion control during project construction and throughout the warranty period.

3. Includes: Installation and maintenance of all erosion control as necessary to comply with Federal, State, and local regulations, applicable permits, and to prevent adverse impacts on adjacent lands or waterway.

4. Schedule of Payment: Installation - 75%; removal at end of project – 25%.

Y. Item 25 – 642.183 Granite Steps:

1. Payment: Lump sum price to install all sets of steps as stated in the Proposal.

2. Measurement: Lump sum upon completion.

3. Includes: clearing, excavation, base preparation, filter fabric, stone, granite steps, backfilling, compaction, and incidentals as indicated on the Drawings.

4. Schedule of Payment: 100% upon completion.

Z. Item 26 – 822.3220 6" Ø DI Water Line:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: As measured along the horizontal projection of the centerline of the pipe.

3. Includes: Excavation, bedding, backfill, compaction, aggregate base and subbase, thrust blocks, shoring and bracing, dewatering, disinfection, pipe, and fittings as shown on the Drawings or as required.

4. Schedule of Payment: Installation - 85%; compaction testing - 10%; flushing and disinfection - 5%.

AA. Item 27 – 822.3402 8" Ø DI Water Line:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: As measured along the horizontal projection of the centerline of the pipe.

3. Includes: Clearing, excavation, bedding, backfill, compaction, base and subbase, thrust blocks, shoring and bracing, dewatering, disinfection, pipe, testing, and fittings as shown on the Drawings or as required.

4. Schedule of Payment: Installation - 85%; leakage and compaction testing - 10%; flushing and disinfection - 5%.

BB. Item 28 – 825.43 1" Ø CU Water Service:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: As measured along the horizontal projection of the centerline of the pipe; measured from water main to connection with existing building water service or curb stop.

3. Includes: Excavation, bedding, backfill, compaction, aggregate base and subbase, shoring and bracing, dewatering, pipe fittings and disconnection of existing service from existing 6" Ø CI watermain as shown on the Drawings or as required.

4. Schedule of Payment: Installation - 100%.

5. Note: Estimated quantity reflects the potential of additional existing water services connected to the existing 6" Ø CI water main, not shown on the Drawings.

CC. Item 29 – 825.33 1" Ø Corporation Stop Water Shutoffs:

1. Payment: Unit price per corporation stop as stated in the Proposal.

2. Measurement: Per unit installed, including all appurtenances required to provide unit in accordance with Drawings and as specified.

3. Includes: Excavation, backfill, aggregate base and subbase, compaction, dewatering, fittings, valve, saddle and appurtenances required to provide working unit as specified and as on Drawings.

4. Schedule of Payment: Installation - 100%.

DD. Item 30 – 825.331 1" Ø Curb Stop Water Shutoffs and Curb Boxes:

1. Payment: Unit price per unit as stated in the Proposal.

2. Measurement: Per unit installed, including all appurtenances required to provide unit in accordance with Drawings and as specified.

3. Includes: Excavation, backfill, dewatering, fittings, curb box, stem, valve, and appurtenances required to provide working unit as specified and as on Drawings. Also includes valve box extension and cover.

4. Schedule of Payment: Installation - 85%; testing - 15%.

EE. Item 31 – 823.338 6" Ø Wedge Valves:

1. Payment: Unit price per unit as stated in the Proposal.

2. Measurement: Per unit installed, including all appurtenances required to provide unit in accordance with Drawings and as specified.

3. Includes: Excavation, backfill, compaction, aggregate base and subbase, dewatering, fittings, valve box, riser to grade, valve, and

appurtenances required to provide working unit as specified and as on Drawings.

4. Schedule of Payment: Installation - 100%.

FF. Item 32 – 824.30 Hydrants:

1. Payment: Unit price per unit as stated in the Proposal.

2. Measurement: Per unit installed, including all fittings, and appurtenances required to provide unit in accordance with Drawings and as specified.

3. Includes: Excavation, backfill, aggregate base and subbase, bedding, shoring and bracing, dewatering, fittings, bracing, piping to hydrant, hydrants, thrust blocks, and concrete work as specified and shown on Drawings.

4. Schedule of Payment: Installation - 100%.

GG. Item 33 – 822.3152 12" x 8" Tapping Sleeve with Wedge Valve:

1. Payment: Unit price per unit as stated in the Proposal.

2. Measurement: Per unit installed, including all appurtenances required to provide unit in accordance with Drawings and as specified.

3. Includes: Excavation, backfill, aggregate base and subbase, dewatering, fittings, sleeve, wedge valve, valve box, riser to grade, fittings, and appurtenances required to provide working unit as specified and as on Drawings.

4. Schedule of Payment: Installation - 100%.

HH. Item 34 – 822.3152 12" x 6" Tapping Sleeve with Wedge Valve:

1. Payment: Unit price per unit as stated in the Proposal.

2. Measurement: Per unit installed, including all appurtenances required to provide unit in accordance with Drawings and as specified.

3. Includes: Excavation, backfill, aggregate base and subbase, dewatering, fittings, sleeve, wedge valve, valve box, riser to grade, fittings, and appurtenances required to provide working unit as specified and as on Drawings.

4. Schedule of Payment: Installation - 100%.

II. Item 35 – 801.03 Locate Existing 6" Ø and 12" Ø Water Lines:

1. Payment: Lump sum price as stated in the Proposal.

2. Measurement: One lump sum.

3. Includes: Field survey and location of the existing 6" Ø and 12" Ø CI water mains, valves and services on Main Street from Apple Lane to The Village at Ocean's End, field record information and ties to existing piping and all found valves, and incidentals.

4. Schedule of Payment: 100% upon completion.

JJ. Item 36 – 823.332 Raise Existing Water Valves:

1. Payment: Unit price per each as stated in the Proposal.

2. Measurement: Per valve adjusted to necessary grade.

3. Includes: Excavation, raising of existing main and service valve box structure, select gravel backfill around adjusted valve box, maintenance of adjusted valve box and further adjustments as necessary until final surface restoration and all incidentals.

4. Schedule of Payment: Installation - 100%.

KK. Item 37 – 403.213 Hot Mix Asphalt 12.5 mm HMA Base:

1. Payment: As per MaineDOT specifications.

LL. Item 38 – 403.208 Hot Mix Asphalt 12.5 mm HMA Surface:

1. Payment: As per MaineDOT specifications.

MM. Item 39 – 403.209 Hot Mix Asphalt 9.5 mm (Incidentals):

1. Payment: As per MaineDOT specifications.

NN. Item 40 – 403.211 Hot Mix Asphalt (Shim):

1. Payment: As per MaineDOT specifications.

2. Explanation: Sta. 8+00 to Sta. 9+00.

OO. Item 41 - 627.75 White or Yellow Pavement and Curb Marking:

1. Payment: Unit price per unit as stated in the Proposal.

2. Measurement: Per unit installed.

3. Includes: Painting of pavement markings to restore all pavement markings, to their original layout and condition prior to the start of the project and new markings as shown on the Drawings.

4. Schedule of Payment: Installation – 100%.

PP. Item 42 - 627.733 4" White or Yellow Painted Pave Mark Line:

1. Payment: Unit price per unit as stated in the Proposal.

2. Measurement: Per unit installed.

3. Includes: Painting of pavement markings to restore all pavement markings, to their original layout and condition prior to the start of the project and new markings as shown on the Drawings.

4. Schedule of Payment: Installation – 100%.

QQ. Item 43 – 608.26 Detectable Warning Field:

1. Payment: Unit price per square foot as stated in the Proposal.

2. Measurement: Per unit installed.

3. Includes: Excavation, concrete materials, preparation and placement of concrete base and reinforcement, detectable warning

plates, installation of detectable warning plates, finishing of concrete, protection and curing of installed unit.

4. Schedule of Payment: Installation – 100%.

5. Explanation: SF measurements does not include 4" concrete borders.

RR. Item 44 – 609.11 Vertical Curb Type 1:

1. Payment: As per MaineDOT specifications.

SS. Item 45 – 609.221 Terminal Curb Type 1:

1. Payment: As per MaineDOT specifications.

TT. Item 46 – 603.159 12"Ø SICPE Storm Drain:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: As measured along the horizontal projection of the centerline of the pipe.

3. Includes: Excavation, bedding, backfill, roadway base and subbase shoring and bracing, dewatering, compaction, pipe and fittings as shown on the Drawings or as required.

4. Schedule of Payment: Installation - 90%; compaction testing and cleaning - 10%.

UU. Item 47 – 603.179 18"Ø SICPE Storm Drain:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: As measured along the horizontal projection of the centerline of the pipe.

3. Includes: Excavation, bedding, backfill, roadway base and subbase, shoring and bracing, dewatering, compaction, pipe and fittings, and rip rap plunge pools as shown on the Drawings or as required.

4. Schedule of Payment: Installation - 90%; compaction testing and cleaning - 10%.

VV. Item 48 – 603.199 24"Ø SICPE Storm Drain:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: As measured along the horizontal projection of the centerline of the pipe.

3. Includes: Excavation, bedding, backfill, roadway base and subbase, compaction, shoring and bracing, dewatering, pipe, and fittings as shown on the Drawings or as required.

4. Schedule of Payment: Installation - 90%; compaction testing and cleaning - 10%.

WW. Item 49 – 603.158 4"Ø SICPE Storm Drain Stubs:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: Linear feet measured along the horizontal projection of the centerline of the pipe from the main storm drain to the end of the pipe.

3. Includes: Excavation, bedding, backfill, roadway base and subbase, shoring and bracing, dewatering, pipe, and fittings as shown on the Drawings or as required.

4. Schedule of Payment: Installation - 90%; compaction testing - 10%.

XX. Item 50 – 603.158 6"Ø SICPE Storm Drain:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: As measured along the horizontal projection of the centerline of the pipe.

3. Includes: Excavation, bedding, backfill, roadway base and subbase, compaction, shoring and bracing, dewatering, pipe, and fittings as shown on the Drawings or as required.

4. Schedule of Payment: Installation - 90%; compaction testing and cleaning - 10%.

YY. Item 51 – 605.09 6"Ø SICPE Perforated Underdrain:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: As measured along the horizontal projection of the centerline of the pipe.

3. Includes: Excavation, stone bedding, pipe material, placement of pipe, fittings, fabric, crushed stone top layer and incidentals as required or as shown on the Drawings.

4. Schedule of Payment: Installation - 90%; Compaction testing - 10%.

ZZ. Item 52 – 605.20 12"Ø SICPE Perforated Underdrain:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: As measured along the horizontal projection of the centerline of the pipe.

3. Includes: Excavation, stone bedding, pipe material, placement of pipe, fittings, fabric, crushed stone top layer and incidentals as required or as shown on the Drawings.

4. Schedule of Payment: Installation - 90%; Compaction testing - 10%.

AAA. Item 53 – 605.21 18"Ø SICPE Perforated Underdrain:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: As measured along the horizontal projection of the centerline of the pipe.

3. Includes: Excavation, stone bedding, pipe material, placement of pipe, fittings, fabric, crushed stone top layer and incidentals as required or as shown on the Drawings.

4. Schedule of Payment: Installation - 90%; Compaction testing - 10%.

BBB. Item 54 – 604.152 4' Ø Precast Drain Manhole:

1. Payment: Unit price per each installation as stated in the Proposal.

2. Measurement: Measured as complete units.

3. Includes: Earthwork, shoring and bracing, dewatering, manholes, frames and covers and all piping, fittings and supports within the manholes as specified and as shown on Drawings.

4. Schedule of Payment: Manhole installation - 70%; inverts – 10%; compaction – 10%, frames and covers – 10%.

CCC. Item 55 – 604.131 4' Ø Precast Catch Basins:

1. Payment: Unit price per each installation as stated in the Proposal.

2. Measurement: Measured as complete units.

3. Includes: Earthwork, shoring and bracing; dewatering, catch basins, frames and grates and all piping, fittings and supports within the catch basins as specified and as shown on Drawings.

4. Schedule of Payment: Installation - 80%; frames and grate installation – 10%, compaction and testing - 10%.

DDD. Item 56 – 604.242 Catch Basin Type F3:

1. Payment: Unit price per each installation as stated in the Proposal.

2. Measurement: Measured as complete units.

3. Includes: Earthwork, shoring and bracing; dewatering, catch basins, frames and grate and all piping, fittings and supports within the catch basins as specified and as shown on Drawings.

4. Schedule of Payment: Basin installation - 80%; frames and grates installation – 10%; compaction and testing – 10%.

EEE. Item 57 – 604.245 Catch Basin Type F4-C:

1. Payment: Unit price per each installation as stated in the Proposal.

2. Measurement: Measured as complete units.

3. Includes: Earthwork, shoring and bracing; dewatering, catch basins, frames and grate and all piping, fittings and supports within the catch basins as specified and as shown on Drawings.

4. Schedule of Payment: Basin installation - 80%; frames and grates installation – 10%; compaction and testing – 10%.

FFF. Item 58 – 604.247 Catch Basin Type F5-C:

1. Payment: Unit price per each installation as stated in the Proposal.

2. Measurement: Measured as complete units.

3. Includes: Earthwork, shoring and bracing; dewatering, catch basins, frames and grate and all piping, fittings and supports within the catch basins as specified and as shown on Drawings.

5. Schedule of Payment: Basin installation - 80%; frames and grates installation – 10%; compaction and testing – 10%.

GGG. Item 59 – 604.248 Catch Basin Type F6:

1. Payment: Unit price per each installation as stated in the Proposal.

2. Measurement: Measured as complete units.

3. Includes: Earthwork, shoring and bracing; dewatering, catch basins, frames and grate and all piping, fittings and supports within the catch basins as specified and as shown on Drawings.

4. Schedule of Payment: Basin installation - 80%; frames and grates installation – 10%; compaction and testing – 10%.

HHH. Item 60 – 800.40 Existing Sewer System Video Survey:

1. Payment: Lump sum price as stated in the Proposal.

2. Measurement: One lump sum.

3. Includes: Field survey and location of all existing manholes and sewer services in the sewer system on Main Street from Apple Lane to The Village at Ocean's End, excavation and access into all the existing manholes, cleaning and CCTV video survey of the existing system to verify and locate all found manholes and document existing conditions of the sewer system with report in both hard copy and electronic format, field record information and ties to all found manholes and incidentals.

4. Schedule of Payment: 100% upon completion.

III. Item 61 – 631.32 Debris Removal from Sewer System Survey:

1. Payment: Unit price as stated in the Proposal per ton of sanitary sewer system debris removed from the existing sanitary sewer system on Main Street from Apple Lane to The Village at Ocean's End and properly disposed of in an environmentally acceptable manner.

2. Measurement: Debris removed shall be measured as tons of removed material contained in vacuum truck or other truck volume used to haul removed debris with excess water decanted and returned to the sewer system prior to trucking to an off-site disposal facility.

3. Includes: All labor, equipment, materials, trucking costs, disposal fees, and incidentals required to clean the existing sanitary sewer system on Main Street from Apple Lane to The Village at Ocean's End and truck to a licensed site for disposal.

4. Schedule of Payment: 100% upon full cleaning and debris disposal with appropriate tipping scale receipt verifying tonnage from disposal facility.

JJJ. Item 62 – 801.14 4" Ø PVC Building Sewer:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: Linear feet as measured along the horizontal projection of the centerline of the pipe.

3. Includes: Excavation, stone bedding, backfill, compaction, roadway base and subbase, shoring and bracing, dewatering, pipe, fittings, capping of existing service where required, and incidentals as shown on the Drawings or as required to provide complete installation.

4. Schedule of Payment: Installation - 90%; compaction and testing 10%.

KKK. Item 63 – 801.17 8" Ø PVC Sewer:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: Linear feet as measured along the horizontal projection of the centerline of the pipe; measured from and to inside face of manhole and or to the end of a capped pipe.

3. Includes: Excavation, compaction, stone bedding, backfill, roadway base and subbase, shoring and bracing, dewatering, cleaning, pipe, fittings and incidentals as shown on the Drawings or as required.

4. Schedule of Payment: Installation - 85%; compaction and air testing - 10%; cleaning - 5%.

LLL. Item 64 – 803.173 4'Ø Precast Sewer Manholes:

1. Payment: Unit price per each installation as stated in the Proposal.

2. Measurement: Measured as complete units.

3. Includes: Earthwork, shoring and bracing, dewatering, manholes, frames and covers and all piping, fittings and supports within the manholes as specified and as shown on Drawings.

4. Schedule of Payment: Manhole installation - 60%; inverts – 10%; compaction – 10%, frames and covers – 10%, and leakage testing – 10%.

MMM. Item 65 – 801.50 Vertical Sewer Cleanouts:

1. Payment: Unit price per each installation as stated in the Proposal.

2. Measurement: Measured as complete units.

3. Includes: Earthwork, shoring and bracing, dewatering, frame and cover, insulation, concrete, and all piping, fittings and supports contained as specified and as shown on the Drawings.

4. Schedule of Payment: Installation - 90%; finishing cover - 10%.

NNN. Item 66 – 673.10 Wet Cast Small Landscape Block Wall (Sta. 8+55)

1. Payment: As per MaineDOT specifications.

OOO. Item 67 – 615.07 Loam:

1. Payment: Unit price per cubic yard as stated in the Proposal.

2. Measurement: Measured as complete units.

3. Includes: Loam, fertilizer, erosion control mesh, jute mat, and installation in accordance with specifications.

4. Schedule of Payment: 50% when installed, 50% when established and accepted by Owner.

PPP. Item 68 – 618.13 Seeding Method Number 1:

1. Payment: Unit price per 1,000 SF.

2. Measurement: Measured as complete units.

3. Includes: Seed, incidentals, and installation in accordance with specifications.

6. Schedule of Payment: 50% when installed, 50% when established and accepted by Owner.

QQQ. Item 69 – 619.12 Mulch:

1. Payment: Unit price per 1,000 SF.

2. Measurement: Measured as complete units.

3. Includes: Mulch, incidentals, and installation in accordance with specifications.

4. Schedule of Payment: 50% when installed, 50% when established and accepted by Owner.

RRR. Item 70 – 606.611 Hemlock Guardrail (Sta. 3+80) and (Sta. 8+45):

1. Payment: Unit price as stated in the Proposal.

2. Measurement: Unit price per linear foot as measured along the feature.

3. Includes: Installation of Hemlock Guardrail, all materials, concrete, ledge drilling, sleeves, select backfill, and incidentals as required to protect slope area and as noted on the Drawings.

4. Schedule of Payment: 100% upon completion.

SSS. Item 71 – 645.280 Wood Post:

1. Payment: Unit price per each installation as stated in the Proposal.

2. Measurement: Measured as complete units.

3. Includes: All earthwork, fill materials, posts, backfilling, compaction, hardware, installation, and incidentals.

4. Schedule of Payment: 100% upon completion.

TTT. Item 72 – 645.292 Regulatory, Warning, Confirmation, and Route Marker Assembly Signs Type II:

1. Payment: Unit price per square foot as stated in the Proposal.

2. Measurement: Measured in place as shown on the Drawings or as directed by the Engineer.

3. Includes: Sheeting, sign depictions, accessories, and all incidentals for the complete installation of signs as indicated on the Drawings.

4. Schedule of Payment: 100% upon completion.

5. Explanation: If signs are to be hung double sided, payment will be made based on the square footage of each individual sign.

UUU. Item 73 – 827.331 2" Rigid Insulation:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: Measured in place as shown on the Drawings or as directed by the Engineer.

3. Includes: Insulation over pipe and structures as shown on the Drawings and as specified.

4. Schedule of Payment: 100% upon installation.

5. Explanation: If 4" insulation called for in places, payment will be based on double the 2" price.

VVV. Item 74 – 607.462 Cedar Fence:

1. Payment: Unit price per linear foot as stated in the Proposal.

2. Measurement: Measured in place as shown on the Drawings or as directed by the Engineer.

3. Includes: All labor and materials required for the complete installation of the fence, including posts, fence panels, rails, cross bracing, hardware, post caps, post installation, and mounting of rails and panels, and incidentals, and as shown on Drawings.

4. Schedule of Payment: 100% upon installation.

*** END OF SECTION ***

SECTION 01040

PROJECT COORDINATION

SECTION 01040 - PROJECT COORDINATION

PART 1 - GENERAL

1.01 COORDINATION

A. Coordinate both the procedural timing and the listing (naming and sequencing) of reports/activities required by provisions of this section and other sections.

B. Update at monthly or shorter time intervals. Make appropriate distribution of each report and updated report to entities involved in the Work including Engineer and Owner.

C. Provide close coordination of progress schedule, schedule of values, listing of Subcontracts, schedule of submittals, progress reports, and payment requests.

1.02 PROGRESS SCHEDULE

A. Bar-Chart Schedule:

1. Secure critical time commitments for performing major elements of the Work. Within 10 days of date established for "Commencement of the Work", and at least 3 days before the pre-construction meeting, submit a comprehensive bar chart type progress schedule indicating each major category or unit of Work to be performed at site, milestones, durations, submittals and approvals, and a timeline, and including minor units which are, nevertheless, involved in overall sequencing of the Work. Milestones to be included in the schedule include: (A) start of Work, (B) beginning and ending of planned Work suspensions, (C) Completion of Physical Work, and (D) Completion. If the Contractor Plans to Complete the Work before the specified Completion date, the Schedule shall so indicate.

2. Any restrictions that affect the Schedule of Work such as paving restrictions windows must be charted with the related activities to demonstrate that the schedule of Work complies with the Contract.

3. Arrange schedule to graphically show major sequences required in intermeshing of Work, and to show how substantial completion is scheduled to allow for Engineer's procedure for certification thereof.

4. Prepare and maintain the critical path diagram schedule to show required data clearly for entire Construction Time, and to permit reproduction for required distribution.

5. Phasing: Arrange schedule with notations to show how sequence of Work is affected by requirements for phased completion.

B. Update Schedule:

1. Provide updated schedule with each monthly payment request. Updates should highlight any changes in the schedule, any delays due to suppliers, Subcontractors or the Contractor's own activities. Payment will not be authorized without schedule updates.

1.03 REPORTING

A. Daily Reports: The Contractor shall prepare a daily report, recording the following information concerning events at the site; and submit duplicate copies to Engineer at regular intervals not exceeding weekly intervals.

List of Subcontractors at the site.
Count of personnel at the site, by job classification.
List of major equipment utilized on site, noting equipment parked or broken down.
High/low temperatures, general weather conditions.
Accidents (refer to accident reports).
Meetings and significant decisions.
Unusual events (refer to special reports).
Stoppages, delays, shortages, losses.
Emergency procedures, field orders.
Orders/requests by governing authorities.
Change orders received, implemented.
Services connected, disconnected.
Substantial completions authorized.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01095

REFERENCE STANDARDS AND DEFINITIONS

SECTION 01095 - REFERENCE STANDARDS AND DEFINITIONS

PART 1 - GENERAL

1.01 DEFINITIONS

A. General Explanation: Certain terms used in Contract Documents are defined generally in this article. Definitions and explanations of this section are not necessarily either complete or exclusive, but are general for the Work to the extent not stated more explicitly in another provision of the Contract Documents. Basic contract definitions are also included in the Conditions of the Contract. Definitions and items included in MaineDOT documents, incorporated here or by reference, are also applicable.

B. General Requirements: The provisions and requirements of Division-1. General Requirements apply to entire Work of Contract.

C. Indicated: The term "Indicated" refers to graphic representations, details, notes, or schedules on Drawings, to other paragraphs or schedules in the specifications, and to similar means of recording requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used in lieu of "indicated," it is for purpose of helping reader locate cross-reference, and no limitation of location is intended except as specifically noted.

D. Directed, Requested, etc.: Where not otherwise explained, terms such as "directed," "requested," "authorized," "selected," "approved," "required," "accepted," and "permitted" mean "directed by Engineer," "requested by Engineer," etc. However, no such implied meaning will be interpreted to extend Engineer's responsibility into Contractor's area of construction supervision.

E. Approve: Where used in conjunction with Engineer's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of term "approved" will be held to limitations of Engineer's responsibilities and duties as specified in General, Supplemental General, and Supplementary Conditions. In no case will "approval," by Engineer be interpreted as a release of Contractor from responsibilities to fulfill requirements of Contract Documents.

F. Project Site: The space available to Contractor for performance of the Work, either exclusively or in conjunction with others performing other Work as part of the Project. The extent of Project site is shown on the Drawings, and may or may not be identical with description of the land upon which Project is to be built.

G. Furnish: Except as otherwise defined in greater detail, term "furnish" is used to mean supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.

H. Install: Except as otherwise defined in greater detail, term "install" is used to describe operations at Project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing protecting, cleaning and similar operations, as applicable in each instance.

I. Provide: Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.

J. Installer: The entity (person or firm) engaged by Contractor or its Subcontractor or sub-subcontractor for the performance of a particular unit of Work at Project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (Installers) be expert in operations they are engaged to perform.

K. Testing Laboratory: An independent entity engaged to perform specific inspections or tests of the Work, either at Project site or elsewhere; and to report and (if required) interpret results of those inspections or tests.

1.02 SPECIFICATION EXPLANATIONS

A. Overlapping and Conflicting Requirements: Where compliance with two or more industry standards or sets of requirements is specified, and overlapping of those different standards or requirements establishes different or conflicting minimums or levels of quality, most stringent requirement (which is generally recognized to be also most costly) is intended and will be enforced, unless specifically detailed language written into the Contract Documents (not by way of reference to an industry standard) clearly indicates that a less stringent requirement is to be fulfilled. Refer apparently-equal-but-different requirements,

and uncertainties as to which level of quality is more stringent, to Engineer for a decision before proceeding.

B. Contractor's Options: Except for overlapping or conflicting requirements, where more than one set of requirements are specified for a particular unit of Work, option is intended to be Contractor's regardless of whether specifically indicated as such.

C. Minimum Quality/Quantity: In every instance, quality level or quantity shown or specified is intended as minimum for the Work to be performed or provided. Except as otherwise specifically indicated, actual Work may either comply exactly with that minimum (within specified tolerances), or may exceed that minimum within reasonable limits. In complying with requirements, indicated numeric values are either minimums or maximums as noted or as appropriate for context of requirements. Refer instances of uncertainty to Engineer for decision before proceeding.

D. Specialists; Assignments: In certain instances, Specification text requires (or at least implies) that specific Work be assigned to specialists or expert entities, who must be engaged for performance of those units of Work. These must be recognized as special requirements over which Contractor has no choice or option. These assignments must not be confused with (and are not intended to interfere with) normal application of regulations, union jurisdictions and similar conventions. One purpose of such assignments is to establish which party or entity involved in a specific unit of Work is recognized as "expert" for indicated construction processes or operations. Nevertheless, final responsibility for fulfillment of entire set of requirements remains with Contractor.

1.03 INDUSTRY STANDARDS

A. General Applicability of Standards: Applicable standards of construction industry have same force and effect (and are made a part of Contract Documents by reference) as if copied directly into Contract Documents, or as if published copies were bound herewith.

1. Referenced standards (referenced directly in Contract Documents or by governing regulations) have precedence over non-referenced standards which are recognized in industry for applicability to Work.

2. Non-referenced standards recognized in the construction industry are hereby defined, except as otherwise limited in Contract Documents, to

have direct applicability to the Work, and will be so enforced for performance of the Work.

B. Copies of Standards: Provide where needed for proper performance of the Work; obtain directly from publication sources.

C. Abbreviation and Names: Where acronyms or abbreviations are used in specifications or other Contract Documents they are defined to mean the industry recognized name of trade association, standards generating organization, governing authority or other entity applicable to context of text provision. Refer to "Encyclopedia of Associations," published by Gale Research Co., available in large libraries.

1.04 SUBMITTALS

A. Permits, Licenses and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, notices, receipts for fee payments, judgments, and similar documents, correspondence and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01200

PROJECT MEETINGS

SECTION 01200 - PROJECT MEETINGS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. General: Attend the following meetings:

Preconstruction conferences
Progress meetings

B. Meetings will be held at the job site to the maximum extent practicable. The Engineer will compile minutes of meetings and provide copies to Contractor.

1.02 PERSONNEL

A. Attendees: Persons designated by the Contractor to attend meetings shall have authority to commit the Contractor to actions agreed upon in the meetings.

B. Attendance: Assign the same personnel to represent Contractor at meetings through the entire Project duration. Require attendance of Subcontractors when necessary or when requested by the Engineer.

1.03 PRECONSTRUCTION CONFERENCE

A. General: Meeting will be scheduled within 10 days of issuance of Notice to Proceed. Provide attendance by Contractor's personnel and all major Subcontractors.

B. Minimum Agenda: The following will be discussed:

AGENDA ITEMS FOR PRE-CONSTRUCTION MEETING
(Federally Funded Project)

1. Introductions

2. Review Scope of Project
   a. Acknowledge Amendments
   b. Completion Date
   c. Liquidated Damages

3. Permits Obtained (if required)

4. Construction Safety
    a. Primary consideration during construction
    b. Emergency contact list including 24 hour contacts
    c. Contractor safety plan to be provided
    d. Traffic Control Plan (TCP) must be reviewed and approved by Maine DOT

5. Schedule for the completion of work to be provided
    a. Are there utility issues?
    b. Update schedule as required
    c. Daily construction activities to be recorded
    d. Town must pay contractor first, then request reimbursement on a monthly basis

6. Labor Requirements
    a. Davis-Bacon wage rates apply to prime and all subs if project has federal money
    b. Certified payrolls with classifications to be submitted & reviewed in Elations
    c. Payroll labor interviews
    d. DBE participation & CUF form

7. Construction Control
    a. Minimum Testing Requirements
    b. Subcontract Approval *(FHWA-1273 must be inserted in all subcontracts)*
    c. Measurement & documentation of materials used for payment purposes
    d. Engineering oversight of activities
    e. Manufacturer's certification for materials
    f. Soil Erosion and Water Pollution Plan (SEWPCP)
    g. Quality control plans, mix design submittals, pre-pave meeting
    h. Buy America: steel/iron product certifications

8. Communications
    a. Requests for Information (RFIs)
    b. Change Orders require MaineDOT review; must include detailed description of scope change, independent cost estimate & time
    c. Notification of anticipated issues, claims or disputes

1.04 UTILITY COORDINATION MEETING

A. General: Meeting will be scheduled within 10 days of issuance of Notice to Proceed. Provide attendance by Contractor's personnel, all major Subcontractors and representatives of affected Utility Companies.

B. Minutes: The Owner's Representative will prepare minutes of the utility coordination meeting and distribute them to all attendees. Any requests to revise the minutes must be made to the Owner's Representative within 7-days of distribution. These minutes will constitute the final record of the meeting.

C. Minimum Agenda: The following will be discussed:

1. Tentative construction schedule.
2. Project completion dates.
3. Identifying potential utility conflicts with proposed work.
4. Identifying necessary tree clearing or trimming.
5. Identifying potential blasting necessary. (See also Section 02170).
6. Safety.
7. Temporary Relocations.
8. Unforeseen Utility Relocations.
9. Cost.

1.05 PROGRESS MEETINGS

A. General: Meetings will be held monthly on a schedule acceptable to Contractor, Engineer, and Owner.

B. Minimum Agenda:

1. Establish date and time for next meeting.
2. Review progress of the Work since last meeting.
3. Identify problems which impeded planned progress and impacts on project schedule.
4. Review revised schedule and next month's work.
5. Discuss status of project submittals.
6. Discuss status of open payment requisitions.
7. Present project comments or issues from Owner.
8. Present project comments or issues from regulatory or funding agencies.
9. Present project comments or issues from Contractor.
10. Present project comments or issues from Engineer.

11. Review pending claims or change orders.
12. Discuss other pertinent topics.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01300

SUBMITTALS

SECTION 01300 - SUBMITTALS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. Submittal requirements specified in this section include Shop Drawings, product data, samples and miscellaneous Work-related submittals. Individual submittal requirements are specified in applicable sections for each unit of work. Refer to other Division-1 sections and other Contract Documents for requirements of administrative submittals.

B. Definitions: Work-related submittals of this section are categorized for convenience as follows:

1. Shop Drawings include specially-prepared technical data for this project, including drawings, diagrams, data sheets, reports, instructions, measurements and similar information.

2. Product data include standard printed information on materials, products and systems.

C. Miscellaneous submittals related directly to the Work (non-administrative) include warranties, project photographs, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standards, Record Drawings, field measurement data, and similar information.

1.02 GENERAL SUBMITTAL REQUIREMENTS

A. Coordination and Work Sequencing:

1. Coordinate preparation and processing of submittals with performance of the Work so that Work will not be delayed by submittals.

2. Coordinate and sequence different categories of submittals for same Work, and for interfacing units of Work, so that one will not be delayed for coordination of Engineer's review with another.

3. Indicate all deviations from the requirements of the Contract Documents.

B. Preparation of Submittals: Provide permanent marking on each submittal to identify project, date, Contractor, Subcontractor, submittal name and similar information to distinguish it from other submittals. Include specifications section reference and submittal log reference to clearly define to what portion of Work that is applicable to submittal. Show Contractor's executed review and approval marking and provide space for Engineer's "Action" marking. Submittals which are received from sources other than through Contractor's office will be returned by Engineer "without action".

C. Grouping of Submittals: Unless otherwise specified, make submittals in groups containing all associated items to ensure that information is available for checking each item when it is received. Partial submittals may be rejected as not complying with the provisions of the Contract Documents.

D. Number of Submittals: Submit number of copies to be returned plus 4 copies which will be retained by the Engineer. Additional copies may be requested by the Engineer.

1.03 SUBMITTAL CONTENTS

A. Shop Drawings: Provide newly-prepared information, on reproducible sheets, with graphic information at accurate scale (except as otherwise indicated), with name of preparer indicated (firm name). Show dimensions and note which are based on field measurement. Identify materials and products in the Work shown. Indicate compliance with standards, and special coordination requirements. Do not allow Shop Drawing copies without appropriate final "Action" markings by Engineer to be used in connection with the Work.

B. Product Data: Collect required data into one submittal for each unit of Work or system; and mark each copy to show which choices and options are applicable to project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked, and special coordination requirements.

1.04 PROCESSING OF SUBMITTALS

A. Engineer's Action: Where action and return is required or requested, Engineer will review each submittal, mark with "Action", and where possible return

within two weeks of receipt. Where submittal must be held for coordination, or additional time is required for review of complex items, Contractor will be so advised by Engineer without delay.

B. Action Stamp: Engineer's action stamp, for use on submittals to be returned to Contractor, is self-explanatory.

C. Additional Submittals: If an intermediate submittal is necessary, process the same as the initial submittal.

D. Allow two weeks for reprocessing each submittal.

E. No extension of Contract Time will be authorized because of failure to transmit submittals to the Engineer sufficiently in advance of the Work to permit processing.

1.05 INCORPORATION OF WORK

A. No work shall be incorporated into project until such time as Contractor has formally submitted a Submittal for all materials and until Engineer has reviewed and approved submittal.

B. No payment will be approved for any work incorporated into project without an approved submittal.

C. Failure by Contractor to provide Submittals for work in a timely manner shall be grounds for suspension of contract by Owner at no penalty to Owner. Contract will not be resumed until Contractor has properly issued all Submittals. No additional contract time will be provided for period of time that project is delayed due to submittals not being issued in a timely manner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01400

QUALITY CONTROL

SECTION 01400 - QUALITY CONTROL

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for quality-control services.

B. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by Engineer.

C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.

D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.

1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.

2. Specified inspections, tests, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.

3. Requirements for Contractor to provide quality-control services required by Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.02 RESPONSIBILITIES

A. Contractor Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract documents and

required by authorities having jurisdiction. Costs for these services are included in the Contract Price.

B. Contractor's Tests: Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform quality-control services. Costs for these services are included in the Contract Price.

C. Retesting: The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.

D. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated noncompliance with Contract Document requirements.

E. Associated Services: Cooperate with agencies performing required inspections, tests, and similar services, and provide reasonable auxiliary services as required. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include, but are not limited to, the following:

1. Provide access to the Work.

2. Furnish incidental labor and facilities necessary to facilitate inspections and tests.

3. Provide facilities for storage and curing of test samples.

4. Provide the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.

5. Provide security and protection of samples and test equipment at the Project Site.

F. Duties of the Testing Agency: The independent agency engaged to perform inspections, sampling, and testing of materials and construction specified in individual Sections shall cooperate with the Engineer and the Contractor in

performance of the agency's duties. The testing agency shall provide qualified personnel to perform required inspections and tests.

1. The agency shall notify the Engineer and the Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

2. The agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.

3. The agency shall not perform any duties of the Contractor.

1.03 SUBMITTALS

A. Unless the Contractor is responsible for this service, the independent testing agency shall submit a certified written report, in duplicate, of each inspection, test, or similar service to the Engineer. If the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection, test, or similar service through the Contractor.

B. Report Data: Written reports of each inspection, test, or similar service include, but are not limited to, the following:

1. Date of issue.

2. Project title and number.

3. Name, address, and telephone number of testing agency.

4. Dates and locations of samples and tests or inspections.

5. Names of individuals making the inspection or test.

6. Designation of Work and test method.

7. Identification of product and Specification Section.

8. Complete inspection or test data.

9. Test results and an interpretation of test results.

10. Ambient conditions at the time of sample taking and testing.

11. Comments or professional opinion on whether inspected or tested Work complies with Contract Document requirements.

12. Name and signature of laboratory inspector.

13. Recommendations on retesting.

1.04 QUALITY ASSURANCE

A. Qualifications for Service Agencies: Engage inspection and testing service agencies, including independent testing laboratories, that are prequalified as complying with the American Council of Independent Laboratories' "Recommended Requirements for Independent Laboratory Qualification" and that specialize in the types of inspections and tests to be performed.

B. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 REPAIR AND PROTECTION

A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes.

B. Protection construction exposed by or for quality-control service activities, and protect repaired construction.

C. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

END OF SECTION

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES

SECTION 01500 - TEMPORARY CONSTRUCTION FACILITIES

PART 1 - GENERAL

1.01 REQUIREMENTS

A. Provide temporary facilities including:

Contractor's office and storage facilities as needed by contractor
Telephone at project site
Sanitary facilities for Contractor's personnel
Fire protection
Safety equipment
Maintain all existing water and sewer utilities active
Daily site maintenance measures

B. Signs, Barricades, and Warning Devices: Section 01570, Traffic Control.

C. Other Temporary Facilities: See General Conditions, Article 6.

D. Payment for temporary facilities is incidental to the Project.

1.02 QUALITY ASSURANCE

A. General: Comply with OSHA and local regulations, NFPA, and local regulations and requirements.

B. Conditions of Use: Install, operate, maintain and protect temporary facilities in a manner and at locations which will be safe, non-hazardous, sanitary and protective of persons and property.

1.03 SUBMITTALS

A. Flow diversion and by-pass plan shall be submitted in advance for review and approval prior to implementing flow diversion or by-pass operations when applicable.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 CONTRACTOR'S OFFICE AND STORAGE FACILITIES

A. General: Provide facilities adequate for Contractor's administration of Contract, shelter for personnel, and storage of materials and equipment which must be protected from weather. Extent of facilities to be provided shall be at discretion of and as needed by Contractor, but shall not be responsibility of Owner. Engineer reserves the right to reject equipment and materials that have not been properly stored by Contractor.

3.02 TELEPHONE AT PROJECT SITE

A. Telephone: Provide a telephone for work related use by Contractor's personnel.

3.03 SANITARY FACILITIES

A. General: Provide self-contained toilet units in sufficient numbers for use of all persons involved in the Work.

3.04 FIRE PROTECTION AND SAFETY EQUIPMENT

A. General: Provide fire extinguishers, first aid facilities and other safety facilities as required by local, state, and OSHA requirements.

3.05 MAINTAIN ALL EXISTING UTILITY SERVICES

A. Locate all buried utility services and main lines for water, sewer, storm drainage, telephone, cable, electric, gas, and others as may exist as shown on plans or as indicated by Owner of utility.

B. Confirm all utility locations with Owner of utility prior to excavation.

C. Maintain all active utility services for duration of project and return to equal or better condition as existed prior to project at the completion of the work.

D. Repair at no cost to the Owner all utilities damaged by Contractor's work in accordance with provisions of Contract Documents.

3.06 DAILY TEMPORARY SITE MEASURES

A. Clean all roads, walkways, parking areas, sidewalks, and work areas by sweeping.

B. Apply calcium chloride to unpaved road surfaces for dust control.

C. Barricade all open excavations utilizing MaineDOT approved barrels, Jersey barriers, or sheeting material in a manner acceptable to Owner.

D. Clean up and discard all debris daily.

E. Provide lighting of temporary barricades in traffic areas.

F. Where appropriate, fill excavation and remove construction equipment from public roadways on a daily basis.

END OF SECTION

SECTION 01570

MaineDOT SECTION 652

MAINTENANCE OF TRAFFIC

SECTION 652 - MAINTENANCE OF TRAFFIC

652.1 Description This work shall consist of furnishing, installing, maintaining and removing traffic control devices necessary to provide reasonable protection for motorists, pedestrians and construction workers in accordance with these Specifications, the applicable provisions of Section 105.4.5 – Maintenance of Existing Structures.

Traffic control devices include signs, signals, lighting devices, markings, barricades, channelizing, and hand signaling devices, traffic officers, and flaggers.

652.2 Materials All traffic control devices shall conform to the requirements of Part VI of the latest edition of the MUTCD, and MASH 16 guidelines.

All signs shall be fabricated with high intensity fluorescent retroreflective sheeting conforming to ASTM D 4956 - Type VIII, or Type IX (prismatic). All barricades, drums, and vertical panel markers shall be fabricated with high intensity orange and white fluorescent retroreflective sheeting conforming ASTM D 4956 - Type VII, Type VIII, or Type IX (prismatic).

Construction signs shall be fabricated from materials that are flat, free from defects, retro-reflectorized, and of sufficient strength to withstand deflections using a wind speed of 80 miles/hr.

All barricades, cones, drums, and construction signs may be constructed from new or recycled plastic.

652.2.2 Signs Only signs with symbol messages conforming to the design of the Manual of Uniform Traffic Control Devices shall be used unless the Resident approves the substitution of word messages.

652.2.3 Flashing Arrow Boards Flashing Arrows must be of a type that has been submitted to AASHTO's National Transportation Product Evaluation Program (NTPEP) for evaluation.

Flashing Arrow Boards units shall meet requirements of the current Manual on Uniform Traffic Control Devices (MUTCD) for Type "C" as described in Section 6F.56 - Temporary Traffic Control Devices. A Flashing Arrow Board shall have matrix of a minimum of 15 low-glare, sealed beam, Par 46 elements capable of either flashing or sequential displays as well as the various operating modes as described in the MUTCD, Chapter 6-F. If a flashing Arrow Board consisting of a bulb matrix is used, each element should be recess-mounted or equipped with an upper hood of not less than 180 degrees. The color presented by the elements shall be yellow.

Flashing Arrow Boards elements shall be capable of at least a 50 percent dimming from full brilliance. Full brilliance should be used for daytime operation and the dimmed mode shall be used for nighttime operation. Flashing Arrow Boards shall be at least 96 inches x 48

inches and finished in non-reflective black. The Flashing Arrow Boards shall be interpretable for a distance not less than 1 mile.

Operating modes shall include, flashing arrow, sequential arrow, sequential chevron, flashing double arrow, and flashing caution. In the three arrow signals, the second light from the arrow point shall not operate.

The minimum element on-time shall be 50 percent for the flashing mode, with equal intervals of 25 percent for each sequential phase. The flashing rate shall be not less than 25 nor more than 40 flashes per minute. All on-board circuitry shall be solid state.

Primary power source shall be 12 volt solar with a battery back-up to provide continuous operation when failure of the primary power source occurs, up to 30 days with fully charged batteries. Batteries must be capable of being charged from an onboard 110 volt AC power source and the unit shall be equipped with a cable for this purpose.

Controller and battery compartments shall be enclosed in lockable, weather-tight boxes.

The Flashing Arrow Boards shall be mounted on a pneumatic-tired trailer or other suitable support for hauling to various locations, as directed. The minimum mounting height of an arrow panel should be 7 feet from the roadway to the bottom of the Flashing Arrow Boards.

The face of the trailer shall be delineated on a permanent basis by affixing retro-reflective material, known as conspicuity material, in a continuous line as seen by oncoming drivers.

A portable changeable message sign may be used to simulate an arrow panel display.

652.2.4 Other Devices Vertical panel markers shall be orange and white striped, 8 inches wide by 24 inches high. On the Interstate System, vertical panel markers shall be orange and white striped, 12 inches wide by 36 inches high.

Cones shall be orange in color, at least 28 inches high, and retro-reflectorized. Retro-reflection shall be provided by a white band of retro-reflective sheeting conforming to Section 719.01, 6 inches wide, no more than 3 to 4 inches from the top of the cone, and a 4 inch wide white band at least 2 inches below the 6 inch band.

Drums shall be of plastic or other yielding material, and shall be approximately 36 inches high and a minimum of 18 inches in diameter. There shall be at least two retro-reflectorized orange and at least two retro-reflectorized white stripes at least 4 inches wide on each drum. Metal drums shall not be used.

Warning lights and battery operated flashing and steady burn lights shall conform to the requirements Section 712.23 - Flashing Lights.

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.

Type I barricades shall be 2 feet minimum, 8 feet maximum in length with an 8 inch wide rail mounted 3 feet minimum above the ground. Type II barricades shall be 2 feet in length with two 8 inch wide rails, and the top rail shall be mounted 3 feet minimum above the roadway. Type III barricades shall be 8 feet in length with three 8 inch wide rails, and the top rail shall be mounted 5 feet minimum above the roadway. The cross members of all barricades shall be of ½ or ⅝ inch thick plywood or other lightweight rigid material such as plastic, fiberglass or fiber wood as approved by the Resident. The predominant color for

supports and other barricade components shall be white, except that unpainted galvanized metal or aluminum components may be used.

652.2.5 Portable Changeable Message Sign Trailer mounted Portable Changeable Message Signs (PCMS) must be of a type that has been submitted to AASHTO's National Transportation Product Evaluation Program (NTPEP) for evaluation. The PCMS unit shall meet or exceed the current specifications of the Manual on Uniform Traffic Control Devices (MUTCD), 6F.55.

The front face of the sign should be covered with a low-glare protective material. The color of the LED elements shall be amber on a black background. The PCMS should be visible from a distance of 0.5 mile day and night and have a minimum 15° viewing angle. Characters must be legible from a distance of at least 650 feet.

The message panel should have adjustable display rates (minimum of 3 seconds per phase), so that the entire message can be read at least twice at the posted speed, the off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed. Each message shall consist of either one or two phases. A phase shall consist of up to eight characters per line. The unit must be capable of displaying at least three lines of text with eight characters per line. Each character shall be 18 inches high. Each character module shall use at least a five wide and seven high pixel matrix. The text of the messages shall not scroll or travel horizontally or vertically across the face of the sign.

Units shall automatically adjust their brightness under varying light conditions to maintain legibility.

The control system shall include a display screen upon which messages can be reviewed before being displayed on the message sign. The control system shall be capable of maintaining memory when power is unavailable. Message must be changeable with either a notebook computer or an on-board keypad. The controller shall have the capability to store a minimum of 200 user-defined and 200 pre-programmed messages. Controller and battery compartments shall be enclosed in lockable, weather-tight boxes.

PCMS units shall have the capability of being made programmable by means of wireless communications. PCMS units shall also be fully capable of having an on-board radar system installed if required for a particular application.

PCMS' primary power source shall be solar with a battery back-up to provide continuous operation when failure of the primary power source occurs. Batteries must be capable of being charged from a 110 volt AC power source. The unit must also be capable of being operated solely from a 110 volt AC power source and be equipped with a cable for this purpose.

The PCMS shall be mounted on a trailer in such a way that the bottom of the message sign panel shall be a minimum of 7 feet above the roadway in urban areas and 5 feet above the roadway in rural areas when it is in the operating mode. PCMS trailers should be of a

heavy duty type with a 2 inch ball hitch and a minimum of four leveling jacks (at each corner). The sign shall be capable of being rotated 360° relative to the trailer. The face of the trailer shall be delineated on a permanent basis by affixing retro-reflective material, known as conspicuity material, in a continuous line as seen by oncoming drivers.

CONSTRUCTION REQUIREMENTS

652.3.1 Responsibility of the Department The Department will provide Project traffic requirements such as allowable lane or road closures, minimum temporary lane widths, work zone speed limits, timing limitations, and allowable special detours and temporary structures. No revisions to these requirements will be permitted unless the Contractor can thoroughly demonstrate an overall benefit to the public and a Contract Modification is approved.

652.3.2 Responsibility of the Contractor The Contractor shall provide continuous and effective traffic control and management for the Project that is appropriate to the construction means, methods, and sequencing allowed by the Contract and selected by the Contractor.

652.3.3 Submittal of Traffic Control Plan The Contractor shall submit, at or before the Preconstruction Meeting, a Traffic Control Plan (TCP) that provides the following information to the Department:

a. The name, telephone number, and other contact numbers (cellular phone, pager, if any) of the Contractor's Traffic Control Supervisor (TCS). The TCS is the person with overall responsibility for insuring the contractor follows the TCP. and who has received Work Zone Traffic Control Training commensurate with the level of responsibility shown in the requirements of the Contract, and who is empowered to immediately resolve any work zone traffic control deficiencies or issues. Provide documentation that the Traffic Control Supervisor has completed a Work Zone Traffic Control Training Course (AGC, ATSSA, or other industry-recognized training), and a Supervisory refresher training every 5 years thereafter. Submit training certificates or attendance roster that includes the course name, training entity, and date of training.

Traffic Control Training Course curriculum must be based on the standards and guidelines of the MUTCD and must include, at a minimum, the following:

1. Parts of Temporary Traffic Control Zone
2. Appropriate use and spacing of signs
3. Use and spacing of channelizing devices
4. Flagging basics
5. Typical examples and applications

The Traffic Control Supervisor, or designee directly overseeing physical installation, adjustment, and dismantling of work zone traffic control, will ensure all personnel performing those activities are trained to execute the work in a safe and proper manner, in accordance with their level of decision-making and responsibility.

b. Proposed construction phasing or sequencing that reasonably minimizes traffic impacts. The Contractor shall conduct the Work such that traffic delays do not exceed 10 minutes unless longer periods are authorized by the Department. The Contractor shall provide advance signing to warn motorists of expected traffic backups or queues.

c. A written narrative and/or plan explaining how traffic and pedestrians will be moved through the Project Limits, including transitions during the change from one phase of construction to the next, as applicable.

d. Temporary traffic control treatments at all intersections with roads, rail crossings, businesses, parking lots, pedestrian ways, bike paths, trails, residences, garages, farms, and other access points, as applicable.

e. A list of all Contractor or Subcontractor certified flaggers to be used on the Project, together with the number of flaggers which will be used for each type of operation that flagging is needed. If the Contractor is using a flagging Subcontractor, then the name and address of the Subcontractor may be provided instead of a list of flaggers.

f. A procedure for notifying the Resident, local emergency officials, and local government officials (including the name and phone numbers of such officials) whenever significant traffic impacts are anticipated or occur and the plan for removing all lane restrictions in case of emergency or significant traffic impact. For a related provision, see Section 105.2.3 - Project Specific Emergency Planning.

g. A description of any special detours including provisions for constructing, maintaining, signing, and removing the detour or detours, including all temporary bridges and accessory features and complete restoration of the impacted land.

h. The maximum length of requested contiguous lane closure. The Contractor shall not close excessive lengths of traffic lane to avoid moving traffic control devices.

i. The proposed temporary roadway surface conditions and treatments. The Contractor shall provide an adequate roadway surface at all times; taking into account traffic speed, volume, and duration.

j. The coordination of appropriate temporary items (drainage, concrete barriers, barrier end treatments, impact attenuators, and traffic signals) with the TCP.

k. The plan for unexpected nighttime work, the contractor shall provide a list of emergency nighttime lighting equipment and safety personnel available on-site or have the ability to have them on site within an hour of the time of need.

l. The plan for meeting any project specific requirements contained in special provision 105 and/or 107

m. The lighting plan if night work is anticipated.

The Department will review the TCP for completeness and conformity with Federal requirements, Contract provisions, the current edition of the MUTCD, and Department policy and procedures. The Department will review and provide comments to the Contractor within 14 days of receipt of the TCP. No review or comment by the Department, or any failure to review or comment, shall relieve the contractor of its responsibility to design and implement the plan in accordance with the Contract, or to shift any responsibility to the Department. If the TCP is determined by the Department to be operationally ineffective, the Contractor shall submit modifications of the TCP to the Department for review, and shall implement these changes at no additional cost to the Contract. Nothing in this Section shall negate the Contractor's obligations set forth in Section 110 - Indemnification, Bonding, and Insurance. The creation and modification of the TCP will be considered incidental to the related 652 items.

652.3.4 General Prior to starting any work on any part of the project adjacent to or being used by the traveling public, the Contractor shall install the appropriate traffic control devices in accordance with the plans, specifications and the latest edition of Manual of Uniform Traffic Control Devices, Part VI. The Contractor shall continuously maintain the traffic control devices in their proper position, and they shall be kept clean, legible and in good repair throughout the duration of the work. If notified that the traffic control devices are not in place or not properly maintained, the Contractor may be ordered to immediately suspend work until all deficiencies are corrected.

No equipment or vehicles of the Contractor, their subcontractors, or employees engaged in work on this contract shall be parked or stopped on lanes carrying traffic, or on lanes or shoulders adjacent to lanes carrying traffic, at any time, except as required by ongoing work operations. Contractor equipment or vehicles shall never be used to stop, block, or channelize traffic.

The Contractor shall not store material or park equipment within 15 feet of the edge of the established travel lanes. Equipment parked overnight between 15 and 30 feet of the edge of the travel lane shall be placed behind positive barriers if feasible, or clearly marked by channelizing devices or other reflective devices.

Channelization devices shall include Vertical Panel Markers, Barricades, Cones, and Drums. These devices shall be installed and maintained at the spacing determined by the MUTCD through the work area.

Channelization devices consisting of barricades or drums, at a maximum spacing of 50 feet, shall be used in guardrail areas when neither the existing guardrail nor the new guardrail is in place.

The Contractor shall maintain existing guardrails and/or barriers until removal is necessary for construction. The Contractor shall use a temporary barrier or appropriate channelizing devices while the guardrails and/or barriers are absent. Permanent guardrails and barriers shall be installed as soon as possible to minimize risk to the public.

All excavation areas adjacent to the roadway shall be channelized continuously in both directions for the length of the project in all areas where the centerline strip is not effective in accordance with the latest edition of the MUTCD.

Where the roadway is adjacent to an area being excavated, a minimum 2 foot shoulder should be maintained and the effective slope of the earth excavation beyond the 2 foot shoulder shall not be steeper than a 1½ horizontal to 1 vertical. The effective slope of rock excavation shall not be steeper than 1 horizontal to 1 vertical beyond the 2 foot shoulder. In the case of cuts over 5 feet deep, a Concrete Barrier or other approved barrier shall be placed between the travel lane and the excavated area.

In this instance, travel speeds shall be limited by specific advisory signing to 20 miles per hour in all cases. When excavation does not leave sufficient usable widths to maintain two-way traffic as provided in Section 105.4 - Maintenance of Work, one-lane traffic controlled by a traffic signal or continuous flagging may be considered. Closely spaced vertical panels, drums or other channelizing devices shall be used on any of these types of areas that are left exposed for short durations.

When paving operations or shoulder grading leave a 3 inch or less exposed vertical face at the edge of the traveled way, channelization devices shall be placed 2 feet outside the edge of the pavement at intervals not exceeding 600 feet and a 48 inch by 48 inch W8-9 Low Shoulder sign shall be placed at a maximum spacing of ½ mile. When paving operations or shoulder grading leave greater than a 3 inch exposed vertical face at the edge of the traveled way, the Contractor shall place shoulder material for a width of at least 4 feet to meet the pavement grade, and place channelizing devices as above, before the lane is opened to traffic.

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.

Special Detours and temporary structures, if used, shall meet applicable AASHTO standards, including curve radii and grade.

652.3.5 Installation of Traffic Control Devices All traffic control devices shall be in conformance with NCHRP 350 requirements and installed as per manufactures recommendations.

Portable signs shall be erected on temporary sign supports approved crashworthy devices so that the bottom of the sign is either 1) 12 inches or 2) greater than 5 feet above the traveled

way. Post-mounted signs shall be erected so the bottom of the sign is no less than 5 feet above the traveled way, and 7 feet above the traveled way in business, commercial, and residential areas. Post-mounted signs must be erected so that the sign face is in a true vertical position. All signs shall be placed so that they are not obstructed in any manner and immediately modified to ensure proper visibility if obstructed. Signs may be mounted lower or higher to fit the situation when authorized by the Resident. Cones shall be either weighted or nailed. Tires will not be allowed as weights.

Vertical panel markers shall be mounted with the top at least 4 feet above the traveled way.

Drums shall not be weighted on the top. Drain holes shall be provided to prevent water from accumulating in the drums. Drums may be weighted with up to 6 inches of loose dry sand.

The Contractor shall operate and maintain the flashing arrow board unit and trailer and shall continuously supply fuel and lubrication for dependable service during the life of the contract. The units shall remain in continuous night and day service at locations designated until the Resident designates a new location or discontinuance of service.

The Contractor shall maintain the devices in proper position and clean them as necessary. Maintenance shall include the covering and uncovering of all signs when no longer applicable (even if for a very short duration). The sign shall be considered adequately covered when no part of the sign face is visible either around or through the covering.

The Contractor shall replace damaged traffic control devices with devices of acceptable quality, as directed by the Resident.

652.3.6 Traffic Control The Contractor shall provide a minimum roadway width of 22 feet for two-way traffic and 11 feet for one-way traffic. The existing travel way width shall be maintained to the maximum extent practical. Vertical panel markers, drums, cones, or striping shall be used to clearly delineate the roadway through the construction area. Two-way traffic operation shall be provided at all times that the Contractor is not working on the project. One-way traffic shall be controlled through work areas by flaggers, utilizing radios, field telephones, or other means of direct communication.

The traffic control devices shall be moved or removed as the work progresses to assure compatibility between the uses of the traffic control devices and the traffic flow. Traffic control devices that become unnecessary shall be immediately removed from use.

Pavement markings shall be altered as required to conform to the existing traffic flow pattern. Repainting of pavement marking line, if required to maintain the effectiveness of the line, shall be considered maintenance of traffic control devices. No separate payment will be made. Inappropriate existing pavement markings shall be removed whenever traffic is rerouted, and temporary construction pavement markings shall be placed. Obliteration and removal of non-applicable markings and placement of temporary construction pavement

markings shall be considered maintenance of traffic control devices and will be paid for under the appropriate Contract item. Traffic changes shall not be made unless there is sufficient time, equipment, materials, and personnel available to complete the change properly before the end of the workday. This provision will not be required when traffic is rerouted for brief periods during daylight hours and the route can be clearly defined by channelizing devices, or flaggers, or both.

652.4 Flaggers 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.

Flagger stations shall be located far enough in advance of the workspace so that approaching road users will have sufficient distance to stop at the intended stopping point. While flagging, the flagger should stand either on the shoulder adjacent to the traffic being controlled, or in the closed lane. At a spot obstruction with adequate sight distance, the flagger may stand on the shoulder opposite the closed sections to operate effectively. Under no circumstances shall the flagger stand in the lane being used by moving traffic or have their back to oncoming traffic. The flagger should be clearly visible to approaching traffic at all times and should have a clear escape route.

When conditions do not allow for proper approach sight distance of a flagger or storage space for waiting vehicles, additional flaggers shall be used at the rear of the backlogged traffic or at a point where approaching vehicles have adequate stopping sight distance to the rear of the backlogged traffic. All flagger stations shall be signed, even when in close proximity. The signs shall be removed or covered when flagger operations are not in place, even if it is for a very short duration.

Flaggers shall be provided as a minimum, a 10 minute break, every 2 hours and a 30 minute or longer lunch period away from the work station. Flaggers may only receive 1 unpaid break per day; all other breaks must be paid. Sufficient certified flaggers shall be available onsite to provide for continuous flagging operations during break periods. If the flaggers are receiving the appropriate breaks, breaker flagger(s) shall be paid starting 2 hours after the work begins and ending 2 hours before the work ends. A maximum of 1 breaker per 6 flaggers will be paid. (1 breaker flagger for 2 to 6 flaggers, 2 breaker flaggers for 7 to 12 flaggers, etc). If a flagger station is manned for 10 hours or more, then ½ hour for lunch will be deducted from billable breaker flagger hours.

652.4.1 Traffic Officers Traffic officers will be uniformed police officers.

652.5 Warning Lights Warning lights shall be installed at locations designated by the Resident before any work is done on the portions of roadway being used by traffic. Upon installation, all warning lights shall remain in continuous operation during the life of the project, unless otherwise authorized by the Resident.

When a suitable 120-volt AC power service source is available within 500 feet of the designated warning light location, power operated flashing lights shall be installed. Two alternately flashing lamps shall be mounted approximately 24 inches above the sign, spaced approximately 24 inches apart.

When a suitable 120-volt AC power service source is not available, battery operated flashing lights may be erected. Four flashing lamps shall be mounted approximately 6 inches above the sign, spaced approximately 12 inches apart.

The power service connections shall be installed to the satisfaction of both the power company and the Resident. The Contractor shall make all necessary arrangements for the power service connections and be responsible for all charges incurred thereby, including power charges. The Contractor shall also be responsible for all outstanding bills from the electric power company for preliminary work done by the electric company for the power service connection.

When batteries are required for battery operated flashing lights, they shall be provided and replaced by the Contractor as necessary.

652.5.1 Rumble Strip Crossing When lane shifts or lane closures require traffic to cross a permanent longitudinal rumble strip for 7 calendar days or less, the Contractor shall install warning signs that read "RUMBLE STRIP CROSSING" with a supplemental Motorcycle Plaque, (W8-15P).

When lane shifts or lane closures require traffic to cross a permanent longitudinal rumble strip for more than 7 calendar days, the Contractor shall pave in the rumble strips in the area that traffic will cross, unless otherwise directed by the Resident. Rumble strips shall be replaced prior to the end of the project, when it is no longer necessary to cross them.

652.6.1 Daylight Work Times Unless otherwise described in the Contract, the Contractor is allowed to commence work and end work daily according to the Sunrise/Sunset times procured at: https://www.sunrisesunset.com/usa/Maine/ . If the Project town is not listed, the closest town on the list will be used as agreed at the Preconstruction Meeting. Any work conducted before sunrise or after sunset will be considered Night Work.

652.6.2 Night Work When Night Work occurs (either scheduled or unscheduled), the Contractor shall provide and maintain lighting on all equipment, at all work stations, and all flagger stations.

The lighting facilities shall be capable of providing light of sufficient intensity to permit good workmanship, safety and proper inspection at all times. The lighting shall be cut off and arranged on stanchions at a height that will provide perimeter lighting for each piece of equipment and will not interfere with traffic, including commercial vehicles, approaching the work site from either direction.

The Contractor shall have available portable floodlights for special areas.

The Contractor shall utilize padding, shielding or other insulation of mechanical and electrical equipment, if necessary, to minimize noise, and shall provide sufficient fuel, spare lamps, generators, etc. to maintain lighting of the work site.

The Contractor shall submit, as a subset of the Traffic Control Plan, a lighting plan at the Preconstruction Conference, showing the type and location of lights to be used for night work. The Resident may require modifications be made to the lighting set up in actual field conditions.

Prior to beginning any Night Work, the Contractor shall furnish a light meter for the Residents use that is capable of measuring the range of light levels from 5 to 20 foot-candles.

Horizontal illumination, for activities on the ground, shall be measured with the photometer parallel to the road surface. For purposes of roadway lighting, the photometer is placed on the pavement. Vertical illumination, for overhead activities, shall be measured with the photometer perpendicular to the road surface. Measurements shall be taken at the height and location of the overhead activity.

Night Work lighting requirements:

Mobile Operations: For mobile-type operations, each piece of equipment (paver, roller, milling machine, etc) will carry indirect (i.e. balloon type) lights capable of producing at least 10 foot-candles of lighting around the work area of the equipment.

Fixed Operations: For fixed-type operations (flaggers, curb, bridge, pipes, etc.), direct (i.e. tower) lighting will be utilized capable of illuminating the work area with at least 10 foot-candles of light.

Hybrid Operations: For hybrid-type operations (guardrail, sweeping, Inslope excavation, etc.), either direct or indirect lighting may be utilized. The chosen lights must be capable of producing at least 10 foot-candles of light around the work area of the equipment

Inspection Operations: Areas required to be inspected by the Department will require a minimum of 5 foot-candles of lighting. This may be accomplished through direct or indirect means.

All workers shall wear safety apparel labeled as meeting the ANSI 107-2004 standard performance for Class 3 risk exposure.

The Contractor shall apply 2- inch wide retro-reflective tape, with alternating red and white segments, to outline the front back and sides of construction vehicles and equipment, to define their shape and size to the extent practicable. Pickup trucks and personal vehicles are exempt from this requirement. The Contractor shall furnish approved signs reading "Construction Vehicle - Keep Back" to be used on trucks hauling to the project when such signs are deemed necessary by the Resident. The signs shall be a minimum of 30 inches by 60 inches, Black and Orange, ASTM D 4956 - Type VII, Type VIII, or Type IX (prismatic).

All vehicles used on the project, including pickup trucks and personal vehicles, shall be equipped with amber flashing lights, visible from both front and rear, or by means of single, approved type, revolving, flashing or strobe lights mounted so as to be visible 360°. The vehicle flashing system shall be in continuous operation while the vehicle is on any part of the project.

The 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. Failure to follow the approved Lighting Plan will result in a Traffic Control violation.

Payment for lighting, vehicle mounted signs and other costs accrued because of night work will not be made directly but will be considered incidental to the related contract items.

652.7 Method of Measurement Signs and panel markers will be measured by the square foot for all signs authorized and installed. Flashing arrow boards, portable-changeable message signs, and flashing and steady burn lights, will be measured by each unit authorized and installed on the project. Barricades, drums, and cones will be measured by each unit authorized. No additional payment will be made for devices that require replacement due to poor condition or inadequate retroreflectivity.

The accepted quantity of traffic officer and flagger time will be the number of hours the designated station is occupied. The number of hours authorized for payment will be measured to the nearest ¼ hour.

Maintenance of traffic control devices will be measured by the calendar day or as one lump sum for all authorized and installed traffic control devices.

Warning lights will be measured by the group of lights furnished.

652.8 Basis of Payment The accepted quantity of signs and panel markers will be paid for at the contract unit price per square foot. Such payment will be full compensation for furnishing and installing all signs, sign supports, and all incidentals necessary to complete the installation of the signs.

The accepted quantity of flashing arrow boards, portable-changeable message signs, barricades, battery operated flashing and steady burn lights, drums, and cones will be paid for

at the contract unit price each for the actual number of devices authorized, furnished, and installed. Such payment shall be full compensation for all incidentals necessary to install and maintain the respective devices.

Failure by the contractor to follow the Contracts 652 Special Provisions and Standard Specification and/or the Manual on Uniform Traffic Control Devices (MUTCD) and/or the Contractors own Traffic Control Plan will result in a violation letter and result in a reduction in payment as shown in the schedule below. The 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. Any reduction in payment under this Special Provision will be in addition to forfeiting payment of maintenance of traffic control devices for that day.

ORIGINAL CONTRACT AMOUNT		Amount of Penalty Damages per Violation		
From More Than	Up to and Including	1st	2nd	3rd & Subsequent
$0	$1,000,000	$250	$500	$1,250
$1,000,000	$2,000,000	$500	$1,000	$2,500
$2,000,000	$4,000,000	$1,000	$2,000	$5,000
$4,000,000	and more	$2,000	$4,000	$10,000

652.8.1 Maintenance of Traffic Control Devices

652.8.1.1 Payment by Calendar Day Maintenance of Traffic Control Devices will be paid for at the contract unit price per calendar day for each calendar day that the Contractor maintains traffic as specified herein. Such payment will be full compensation for moving devices as many times as necessary; for replacing devices damaged, lost, or stolen; and for cleaning, maintaining, and removing all devices used for traffic control, including replacing temporary pavement marking lines.

The contract unit price per calendar day for Maintenance of Traffic Control Devices shall be full payment each day for such maintenance, encompassing all areas of the contract, regardless of whether or not the work areas or projects are geographically separated.

652.8.1.2 Payment by Lump Sum Maintenance of Traffic Control Devices will be paid at the contract lump sum price. Such payment will be full compensation all days that the Contractor maintains traffic as specified herein, and for moving devices as many times as necessary; for replacing devices damaged, lost, or stolen; and for cleaning, maintaining, and removing all devices used for traffic control, including replacing temporary pavement marking lines.

The contract lump sum price for Maintenance of Traffic Control Devices shall be full compensation for all days for such maintenance, encompassing all areas of the contract, regardless of whether or not the work areas or projects are geographically separated.

652.8.2 Other Items

The accepted quantities of flagger hours will be paid for at the contract unit price per hour for each flagging station occupied excluding lunch breaks, and for each approved breaker flagger. Overtime hours, as reported on the certified payrolls, will be paid an additional 30% of the bid price for 652.38. The computation and additional payment for overtime hours will occur during the project close-out process and will be paid as additional hours of 652.38 to the nearest ¼ hour. The contract unit price shall be full compensation for hiring, transporting, equipping, supervising, and the payment of flaggers and all overhead and incidentals necessary to complete the work.

There will be no payment made under any 652 pay items after the expiration of the adjusted total contract time.

The accepted quantities of traffic officer hours will be paid for at the contract unit price per hour for each station occupied, with no additional payment for overtime. This price shall be full compensation for supplying uniformed officers with police cruisers, and all incidentals necessary to complete the work; including transportation, equipment, and supervision.

The accepted quantities of warning lights will be paid for at the contract unit price, per group, complete in place including the necessary power, and remaining in operation during active work of the project or as otherwise directed. Upon completion of the work, the lamps, fixtures, and the framework required to properly mount the lamps shall remain the property of the Contractor.

Payment for temporary pavement marking lines and pavement marking removal will be made under the respective pay item in Section 627 - Pavement Markings.

Payment for temporary traffic signals will be made under Section 643 - Traffic Signals.

There will be no payment made under any 652 pay items after the expiration of the adjusted total contract time.

Payment will be made under:

Pay Item		Pay Unit
652.30	Flashing Arrow	Each
652.31	Type I Barricade	Each
652.311	Type II Barricade	Each
652.312	Type III Barricades	Each
652.32	Battery Operated Light	Each
652.33	Drum	Each

652.34	Cone	Each
652.35	Construction Signs	Square Foot
652.36	Maintenance of Traffic Control Devices	Calendar Day
652.361	Maintenance of Traffic Control Devices	Lump Sum
652.37	Warning Lights	Group
652.38	Flaggers	Hour
652.381	Traffic Officers	Hour
652.41	Portable-Changeable Message Sign	Each

SECTION 01600

MATERIALS

SECTION 01600 - MATERIALS

PART 1 - GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

A. Definitions:

1. "Products" are items purchased for incorporation into the Work, regardless of whether specifically purchased for Project or taken from Contractor's stock of previously purchased products. The term "products" includes the terms "materials" and "equipment".

2. "Materials" are products which must be substantially cut, shaped, worked, mixed, finished, refined or otherwise fabricated, processed, installed or applied to form units of Work.

1.02 QUALITY ASSURANCE

A. Source Limitations: To the greatest extent possible provide products and materials of a singular generic kind and from a single source.

B. Compatibility: Select products and materials which are compatible with other products and materials already selected and are suitable for proper performance in the completed Work.

1.03 PRODUCT DELIVERY - HANDLING - STORAGE

A. General: Deliver, handle and store products in accordance with manufacturer's recommendations and by methods and means which will prevent damage, deterioration, and loss including theft.

B. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.

C. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.

D. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.

E. Inspect products upon delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

F. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.

G. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.

H. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

2.01 PRODUCT SELECTION

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.

1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.

2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

B. Product Selection Procedures: The Contract Documents and governing regulations govern product selection. Procedures governing product selection include the following:

1. Proprietary Specification Requirements: Where Specifications name only a single product or manufacturer, provide the product indicated. No substitutions will be permitted.

2. Semiproprietary Specification Requirements: Where Specifications name two or more products or manufacturers, provide one of the products indicated. No substitutions will be permitted.

3. Where Specifications specify products or manufacturers by name, accompanied by the term "or equal" or "or approved equal," comply with the Contract document provisions concerning "substitutions" to obtain approval for use of an unnamed product.

4. Nonproprietary Specifications: When Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.

5. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.

6. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements and are recommended by the manufacturer for the application indicated. Manufacturer's recommendations may be contained in published product literature or by the manufacturer's certification of performance.

7. Compliance with Standards, Codes, and Regulations: Where Specifications only require compliance with an imposed code, standard, or regulation, select a product that complies with the standards, codes, or regulations specified.

PART 3 - EXECUTION

3.01 INSTALLATION OF PRODUCTS

A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated.

END OF SECTION

SECTION 01631

SUBSTITUTIONS

SECTION 01631 - SUBSTITUTIONS

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for handling requests for substitutions made after award of the Contract.

B. Multiple Prime Contracts: Provisions of this Section apply to the construction activities of each prime Contractor.

C. Division 1 Section 01600 "Materials" specifies requirements governing the Contractor's selection of products and product options.

1.02 DEFINITIONS

A. Definitions in this Article do not change or modify the meaning of other terms used in the Contract Documents.

B. Substitutions: Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the Contractor after award of the Contract are considered to be requests for substitutions. The following are not considered to be requests for substitutions:

1. Substitutions requested during the bidding period, and accepted by Addendum prior to award of the Contract, are included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.

2. Revisions to the Contract Documents requested by the Owner or Engineer.

3. Specified options or products and construction methods included in the Contract Documents.

4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.03 SUBMITTALS

A. Substitution Request Submittal: The Engineer may consider requests for substitution if received within 30 days after commencement of the Work. Requests received more than 30 days after commencement of the Work will be rejected at the discretion of the Engineer.

1. Submit three copies of each request for substitution for consideration. Submit requests in the form and according to procedures required for change-order proposals.

2. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers.

3. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:

a) Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate contractors, that will be necessary to accommodate the proposed substitution.

b) A detailed comparison of significant qualities of the proposed substitution with those of the Work specified. Significant qualities may include elements, such as performance, weight, size, durability, and visual effect.

c) Product Data, including Drawings and descriptions of products and fabrication and installation procedures.

d) Samples, where applicable or requested.

e) A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.

f) Cost information, including a proposal of the net change, if any, in the Contract Sum.

g) The Contractor's certification that the proposed substitution conforms to requirements in the Contract Documents in every respect and is appropriate for the applications indicated.

h) The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.

B. Engineer's Action: If necessary, the Engineer will request additional information or documentation for evaluation within two weeks of request for substitution. The Engineer will notify the Contractor of acceptance or rejection of the substitution within three weeks of receipt of the request, or two weeks of receipt of additional information or documentation, whichever is later. Acceptance will be in the form of a change order.

C. Use the product specified if the Engineer cannot make a decision on the use of a proposed substitute within the time allocated.

PART 2 - PRODUCTS

2.01 SUBSTITUTIONS

A. Conditions: The Engineer will receive and consider the Contractor's request for substitution when one or more of the following conditions are satisfied, as determined by the Engineer. If the following conditions are not satisfied, the Engineer will return the requests without action except to record noncompliance with these requirements.

1. Extensive revisions to the Contract Documents are not required.

2. Proposed changes are in keeping with the general intent of the Contract Documents.

3. The request is timely, fully documented, and properly submitted.

4. The specified product or method of construction cannot be provided within the Contract Time. The Engineer will not consider the request if the specified product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.

5. The request is directly related to an "or-equal" clause or similar language in the Contract Documents.

6. The requested substitution offers the Owner a substantial advantage, in cost, time, or other considerations, after deducting additional responsibilities the Owner must assume. The Owner's additional responsibilities may include compensation to the Engineer for redesign and evaluation services, increased cost of other construction by the Owner, and similar considerations.

7. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.

8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials and where the Contractor certifies that the substitution will overcome the incompatibility.

9. The specified product or method of construction cannot be coordinated with other materials and where the Contractor certifies that the proposed substitution can be coordinated.

10. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provides the required warranty.

B. The Contractor's submittal and the Engineer's acceptance of Shop Drawings, Product Data, or Samples for construction activities not complying with the Contract Documents do not constitute an acceptable or valid request for substitution, nor do they constitute approval.

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

SECTION 01700 - CONTRACT CLOSEOUT

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:

1. Inspection procedures.

2. Project record document submittal.

3. Submittal of warranties.

4. Final site cleaning.

B. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2.

1.02 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.

1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete.

2. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.

3. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.

4. Advise the Owner of pending insurance changeover requirements.

5. Submit specific warranties and similar documents.

6. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities.

7. Submit record drawings, final project photographs, damage or settlement surveys, and similar final record information.

8. Complete final site cleanup requirements.

9. Provide Owner with signed, notarized lien waiver forms from all suppliers and subcontractors used by Contractor in project.

B. Inspection Procedures: On receipt of a request for inspection, the Engineer will either proceed with inspection or advise the Contractor of unfulfilled requirements. The Engineer will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.

1. The Engineer will repeat inspection when requested and assured that the Work is substantially complete.

2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.03 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following: (List exceptions in the request.)

1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.

2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.

3. Submit a certified copy of the Engineer's final inspection list of items to be completed or corrected, endorsed and dated by the Engineer. The certified copy of the list shall state that each item has been completed or

otherwise resolved for acceptance and shall be endorsed and dated by the Engineer.

4. Submit consent of surety to final payment.

5. Submit a final liquidated damages settlement statement.

6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Reinspection Procedure: The Engineer will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Engineer.

1. Upon completion of reinspection, the Engineer will prepare a certificate of final acceptance. If the Work is incomplete, the Engineer will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.

2. If necessary, reinspection will be repeated.

1.04 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes. Protect record documents from deterioration and loss in a secure, fire-resistant location. Provide access to record documents for the Engineer's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which drawing is most capable of showing conditions fully and accurately. Where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Mark record sets with red erasable pencil. Use other colors to distinguish between variations in separate categories of the Work.

2. Mark new information that is important to the Owner but was not shown on Contract Drawings or Shop Drawings.

3. Note related change-order numbers where applicable.

4. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.

5. Ties shown on record drawings shall be measurements taken off permanent structures such as buildings, utility poles, manholes and hydrants. Ties to vegetation, trees, rocks or other non-permanent site features are not acceptable.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 FINAL CLEANING

A. Cleaning: Clean each surface and area to the condition expected in a normal building site cleanup and restoration program.

B. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.

END OF SECTION

SECTION 01740

WARRANTIES

SECTION 01740 - WARRANTIES

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers standard warranties on products and special warranties.

1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 1 Section "Submittals" specifies procedures for submitting warranties.

2. Division 1 Section "Contract Closeout" specifies contract closeout procedures.

3. Divisions 2 for specific requirements for warranties on products and installations specified to be warranted.

4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

C. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.02 DEFINITIONS

A. Standard product warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

B. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.03 WARRANTY REQUIREMENTS

A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.

B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

D. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

E. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to

refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

1.04 SUBMITTALS

A. Submit written warranties to the Engineer prior to the date certified for Substantial Completion. If the Engineer's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Engineer.

1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Engineer within 15 days of completion of that designated portion of the Work.

B. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier, or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Engineer, for approval prior to final execution.

C. Form of Submittal: At Final Completion, compile two copies of each required warranty properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

D. Bind warranties and bonds in heavy-duty, commercial-quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8 1/2 by 11 inch (115 by 280 mm) paper.

1. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.

2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor.

3. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

DIVISION 2

SITE CONSTRUCTION

SECTION 02110

SITE CLEARING

SECTION 02110 - SITE CLEARING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Site clearing work to be conducted as part of this project includes, but is not limited to:

1. Protection of existing trees to remain or outside of work area.

2. Removal, temporary planting, and/or relocation of trees and other vegetation.

3. Clearing and grubbing, including removal of waste materials in project area.

4. Removing and/or resetting above ground improvements, including but not limited to pipes, signs, fences, light posts, hydrants, landscaping, stairways, steps, rock walls, granite walls, gardens, utility pole coordination, and all site features required to conduct new work.

5. Removal and/or resetting where required of underground features and utilities, manholes, sewers, water mains, drains, catchbasins, and culverts.

6. Removal of sidewalks, roadways, driveways, curbing and resetting where required.

7. Removal of pavement from areas to be reconstructed or resurfaced.

8. Removal of electrical or utility conduits.

9. Clearing of trees and brush as required to complete new work.

1.02 RELATED SECTIONS

A. Section 02210 - Temporary Erosion Control.

1.03 PROJECT CONDITIONS

A. Confine all clearing and grubbing to the following locations:

1. Areas where work is required to be done, restricted to the minimum extent required to properly install the work.

2. Within the easements provided by Owner.

3. Within the property lines of lands owned by Owner.

B. Traffic: Conduct site clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.

C. Protection of Existing Improvements: Provide protections necessary to prevent damage to existing improvements unless indicated to be permanently removed.

1. Protect improvements on adjoining properties and on Owner's property.

2. Restore damaged improvements, whether or not shown on the Drawings, to their original condition, as acceptable to property owners.

D. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation to remain in place against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip line, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.

1. Water trees and other vegetation to be temporary transplanted as required to maintain their health during course of construction operations.

2. Provide protection for roots over 1 1/2 inch in diameter that are cut during construction operations. Coat cut faces with an emulsified asphalt or other acceptable coating formulated to use on damaged plant tissues. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.

3. Repair or replace trees and vegetation to remain that are damaged by construction operations in a manner acceptable to Engineer. Employ a licensed arborist to repair damage to trees and shrubs.

E. Improvements on Private Property: Authority for performing removal and alteration work on private property will be obtained by Owner prior to award of contract.

F. Reset Disturbed Property Pins or Monuments by a Professional Surveyor at Contractor's expense.

G. Asbestos Cement Piping shall be disposed of as required by the DEP. Asbestos pipe is expected to be encountered in this work.

1. All disturbed asbestos cement (AC) sewer piping shall be removed from trench and segregated from general construction fill. Disposal of all AC piping materials is regulated under DEP Chapter 401.

2. Disposal of all other piping materials shall comply with DEP disposal requirements and may require a beneficial use license prior to use as construction fill.

1.04 EXISTING SERVICES

A. General: Indicated locations are approximate; determine exact locations before commencing work.

B. Identify service lines and capping locations on Project Record Documents.

1.05 STORAGE AND HANDLING

A. Store trees, plants and shrubs temporarily removed and intended to be replanted in protected areas and give ample water to keep them in a thriving condition for subsequent replanting.

B. Store fences, signs, guardrails, curbing, landscaping features, and other items removed during construction at approved locations for subsequent reinstallation.

C. Obstruction of roads, driveways, sidewalks, gutters and drainage ditches, swales and channels with stored materials is not permitted.

1.06 JOB CONDITIONS

A. The locations of trees, plantings, vegetation, sidewalks, fences, curbs and other living and nonliving items, as shown on the Drawings, have been determined by actual surveys at the time surveys were made. Since that time, the condition of the site may have changed. Remove and replace all obstacles and obstructions, as required to complete the Work, whether shown on the Drawings or not, at no extra cost to Owner.

B. Explosives are not permitted for clearing and grubbing operations.

C. Use all means necessary to protect existing objects not to be removed. In the event of damage, make all necessary repairs and replacements and restore to its original condition, as acceptable to Engineer at no cost to the project.

1.07 SCHEDULING

A. Pavements which are required to be removed shall be saw cut in advance, but do not remove until installation of work commences.

B. Do not remove highway signs, guardrails, and other control, safety, and warning devices until just prior to installation work in the immediate area of such improvements. Regulatory signs must be maintained via temporary support.

C. Do not remove fences until Owner is notified at least four (4) days in advance. Do not remove fences more than 48 hours in advance of work in that location. Provide temporary fencing acceptable to Owner where indicated on Drawings.

D. All items removed and intended to reset shall be temporarily stored and protected and reinstalled as soon as possible after completion of all work in that area.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that all boundaries, including permanent and temporary easements, property lines, rights-of-way, and grading limits have been accurately and clearly marked.

B. Verify that work areas and other items of work are accurately located and clearly marked.

3.02 PREPARATION

A. Identify all trees, plantings, and other objects which are considered necessary to be removed, cut, trimmed, or temporarily relocated.

B. Accompany Engineer through the site to inspect items to be trimmed, removed, relocated or replanted prior to start of work. If Contractor wishes to remove, either permanently or temporarily, any vegetation not specifically identified on the Drawings to be removed, make request to Engineer at least 7 days in advance. All vegetation must be maintained unless specifically authorized for removal by Engineer or in writing by property owner.

3.03 SITE CLEARING

A. General: Remove trees, shrubs, grass, and other vegetation, improvements, or obstructions, as required, to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated. Removal includes digging out and off site disposal of stumps and roots.

B. Topsoil: Topsoil is defined as friable clay loam surface soil found in a depth of not less than 4 inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over 2 inches in diameter, and without weeds, roots, and other objectionable material.

1. Where existing trees are to remain, leave existing topsoil in place within drip lines to prevent damage to root system.

C. Clearing and Grubbing: Clear only trees, shrubs, and other vegetation as approved by Engineer.

1. Completely remove stumps, roots, and other debris protruding through ground surface.

2. Use only hand methods for grubbing inside drip line of trees to remain.

3. Fill depressions caused by clearing and grubbing operations with satisfactory soil material, unless further excavation or earthwork is indicated. Place fill material in horizontal layers not exceeding 6 inches loose depth, and thoroughly compact each layer to a density equal to adjacent original ground.

4. Remove and waste materials or debris in the work area and dispose of off-site.

5. Removal/Restoration of Existing Improvements: Remove and restore existing above grade and below grade improvements as indicated and as necessary to facilitate new construction. Store fences, signs, walks, guard rails, curbs, and other items designated to be restored.

D. Trees and Plantings:

1. In grassed, planted, and open areas, do not remove or trim trees or plantings without the prior permission of Engineer. Remove and preserve small trees, plantings, flowers and similar vegetation for reuse.

2. In wooded areas, trees may be removed and/or trimmed, as required, for the proper installation of the Work. Gross and unnecessary removal of trees is not permitted.

3. If it is impractical to fell trees as a whole, remove them in sections according to standard practices of professional tree removal. Fell trees to the center of the area being cleared to minimize damage to trees that are to be left standing.

4. Immediately after felling a tree, remove branches, cut trunk and limbs and remove all materials from the site and dispose of in a lawful manner. If cut trees are noted to remain on site and become the property of the owner, cut all tree branches and trunk sections in excess of 3" in diameter in to two foot lengths, and stack neatly in a location as directed by the Engineer.

5. All trees to be trimmed shall be evenly cut to achieve neat severance with the least possible damage to the tree. Review proposed tree trimming with Engineer prior to work.

E. Pavements, Walks, & Curbs:

1. Remove existing pavements, walks, and curbs to the limits shown on the Drawings, or if not shown, to the minimum extent possible to perform the work.

2. Saw-cut asphalt and concrete paved surfaces before removal. Use a saw which will cut a neat, straight joint line.

F. Walls, Fences, and Other Obstructions:

1. All walls, fences, signs, and other obstructions encountered shall be carefully removed and stored for subsequent replacement.

2. Do not disturb property markers unless absolutely necessary. If it becomes necessary to disturb or remove a property marker, employ a Registered Land Surveyor at no extra cost to the Owner to establish the property marker location by providing a minimum of four (4) ties to the marker. The Registered Land Surveyor shall replace the property marker as soon as possible.

G. Manholes, Catchbasins and Culverts:

1. Remove all manhole and catchbasins frames, covers, risers, tops, cones, barrels, base sections and slabs where indicated on the Drawings or as directed by the Engineer.

2. Remove all culverts and pipes where indicated by the Drawings or as directed by the Engineer.

3. Fill all voids created with select granular fill or with aggregate subbase and base if under traveled ways or sidewalks.

4. Compact all backfill as specified herein.

H. Electrical Utilities:

1. Maintain electric utilities for duration of project.

2. Temporarily relocate if interfering with work area, or permanently relocate as indicated on Drawings, or as directed by Engineer.

3. Restore at completion of project.

3.04 SALVAGEABLE ITEMS

A. Owner retains first refusal of salvage value of all items removed from site including stumpage, wood, site improvements, and incidentals. Contractor shall allow Owner to inspect all items removed during site clearing operations. If Owner wishes to retain items, Contractor shall remove them to storage area to be identified by Owner.

B. Contractor shall not claim loss of salvage value for items retained by Owner as a justification for a price increase or change order under this Contract.

3.05 DISPOSAL OF WASTE MATERIALS

A. Contractor shall remove and dispose of all site clearing debris and items that Owner does not elect to salvage.

B. Removal from Owner's Property: Remove waste materials from Owner's property and dispose of by methods conforming to all Federal, State, and local regulations.

END OF SECTION

SECTION 02160

EXCAVATION SUPPORT SYSTEMS

SECTION 02160 - EXCAVATION SUPPORT SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. General support system work includes, but is not limited to, the following:

1. Shoring and bracing necessary to protect existing buildings, treatment reactors, streets, walkways, utilities, and other improvements and excavation against loss of ground or caving embankments.

2. Maintenance of shoring and bracing.

3. Removal of shoring and bracing, as required.

B. Types of shoring and bracing systems include, but are not limited to, the following:

1. Steel H-section (soldier) piles.

2. Timber lagging.

3. Steel sheet piles.

4. OSHA approved trench boxes.

1.02 SUBMITTALS

A. General: Submit each item in this Article in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Layout drawings for excavation support system and other data prepared by, or under the supervision of, a qualified professional engineer. System design and calculations must be acceptable to local authorities having jurisdiction.

1.03 QUALITY ASSURANCE

A. Engineer Qualification: A professional engineer legally authorized to practice in jurisdiction where Project is located, and experienced in providing successful engineering services for excavation support systems similar in extent required for this Project.

B. Supervision: Engage and assign supervision of excavation support system to a qualified professional engineer foundation consultant.

1. Submit name of engaged consultant and qualifying technical experience.

C. Regulations: Comply with codes and ordinances of governing authorities having jurisdiction.

1.04 JOB CONDITIONS

A. Before starting work, verify governing dimensions and elevations.

1. Verify condition of adjoining properties.

2. Take photographs to record any existing settlement or cracking of structures, pavements, and other improvements.

3. Prepare a list of such damages, verified by dated photographs, and signed by Contractor and others conducting investigation.

B. Survey adjacent structures and improvements, employing qualified professional engineer, and establishing exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

C. During excavation, resurvey benchmarks weekly, maintaining accurate log of surveyed elevations for comparison with original elevations. Promptly notify Engineer if changes in elevations occur or if cracks, sags, or other damage is evident.

1.05 EXISTING UTILITIES AND STRUCTURES

A. Protect existing active sewer, water, gas, electricity, and other utility services and adjacent structures.

B. Notify municipal agencies and service utility companies having jurisdiction. Comply with requirements of governing authorities and agencies for protection, relocation, removal, and discontinuing of services.

PART 2 - PRODUCTS

2.01 MATERIALS

A. General: Provide adequate shoring and bracing materials which will support loads imposed. Materials need not be new, but should be in serviceable condition.

B. Structural Steel: ASTM A 36.

C. Steel Sheet Piles: ASTM A 328.

D. Timber Lagging: Any species, rough-cut, mixed hardwood, nominal 3 inches thick, unless otherwise indicated.

PART 3 - EXECUTION

3.01 CONFORMANCE WITH OSHA

A. Comply with all OSHA regulations.

3.02 SHORING

A. Wherever shoring is required, locate the system to clear permanent construction and to permit forming and finishing of concrete surfaces.

B. Provide shoring system adequately anchored and braced to resist earth and hydrostatic pressures.

C. Shoring systems retaining earth on which the support or stability of existing structures is dependent must be left in place at completion of work.

3.03 BRACING

A. Locate bracing to clear columns, floor framing construction, and other permanent work. If necessary to move a brace, install new bracing prior to removal of original brace.

B. Do not place bracing where it will be cast into or included in permanent concrete work, except as otherwise acceptable to Engineer.

C. Install internal bracing, if required, to prevent spreading or distortion of braced frames.

D. Maintain bracing until structural elements are supported by other bracing or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

E. Remove sheeting, shoring, and bracing in stages to avoid disturbance to underlying soils and damage to structures, pavements, facilities, and utilities.

F. Repair or replace, as acceptable to Engineer and Owner, adjacent work damaged or displaced through installation or removal of shoring and bracing work.

END OF SECTION

SECTION 02170

USE OF EXPLOSIVES

SECTION 02170 - USE OF EXPLOSIVES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Covers the work necessary for the use of explosives and blasting in connection with structural excavation and trench excavation.

B. Preblast survey as required in advance of blasting activities.

1.02 RELATED SECTIONS

A. Section 02200 - Earthwork.

B. All requirements of MaineDOT Standard Specifications, 2020.

1.03 DEFINITIONS

A. Rock Excavation shall consist of removing: Hard igneous, metamorphic and sedimentary bedrock which cannot be excavated with ordinary excavating machinery and cannot be excavated without employing means such as, but not limited to, drilling and blasting, drilling and splitting or hoe-ramming; and all boulders, solid mortared stone masonry and concrete masonry, each having a volume of 2 cubic yards or more.

1.04 SUBMITTALS

A. Submittals shall be made in accordance with Section Submittals in Division 1, General Requirements. In addition, the following specific information shall be provided:

1. Permits: The Contractor shall submit a copy of all applicable permits for transportation, storage, and use of explosives to the Engineer.

2. Evidence of Blasting Notification published in local newspaper as required.

3. Initial Blast Designs: The Contractor shall submit the following information for initial blast design for each surface or trench excavation as appropriate:

   a. Number, location, diameter, depth, and inclination of drill holes on a scaled drawing of the excavation.

   b. Type of explosive, location, and weight of charge in each hole.

   c. Total amount of explosives in the blast and maximum charge per delay period.

   d. Delay arrangement showing delay period in each hole.

   e. The method of detonation, including the type of blasting cap, character, and source of firing current.

4. Blasting Monitoring Plan: Prior to commencement of blasting operations, the Contractor shall submit, in writing, Contractor's plan for monitoring operations to assure compliance with the vibration limitation. As a minimum, this plan shall provide for the following:

   a. The Contractor's recommended vibration limitation provided that it does not exceed that specified in these Contract Documents.

   b. Name of a qualified blast vibration specialist who will be responsible for establishing the monitoring program and interpretation of the vibration readings. The vibration specialist shall not be an employee of the blasting company performing the work. Only independent personnel working for an independent geotechnical engineering firm shall be acceptable.

   c. Names of the trained personnel provided to operate the equipment and interpret the recordings.

   d. The type and model of blasting seismograph proposed for use.

   e. The number and location of proposed monitoring stations.

   f. The methods to be used to coordinate blast detonation with recording of the blast.

g. The steps to be taken if blasting vibrations equal or exceed the vibration limits.

5. Blasting Records: The Contractor shall submit the following blasting records and information for each blast detonated:

a. Location of the blast in relation to project stationing or elevation.

b. Date and time of loading and detonation of the blast.

c. Name of person in responsible charge of the loading and firing and blaster permit number.

d. Signature and title of person making recording entries.

e. Details of each blast according to the criteria listed above for the initial blast design.

f. Vibration records including the location and distance of the seismograph geophones to the blast and to the nearest structure, and the measured peak particle velocity.

g. Air blast overpressure records, if appropriate.

h. Comments by the blaster in charge regarding any misfires, unusual results, or unusual effects.

i. Any other records required by Maine Statute and local codes and regulations.

j. Preblast survey: The contractor shall submit the Preblast Survey a minimum of 14 days in advance of scheduled blasting activities. As outlined in Part 3.04.

1.05 DELIVERY, STORAGE AND HANDLING

A. When using explosives, the Contractor shall use the utmost care to protect life and property. Explosives must be transported, stored, and used in compliance with this Contract, in compliance with all applicable federal, State, and local laws, rules and regulations, and in accordance with all applicable provisions of

the latest version of the Blasters' Handbook published by the International Society of Explosives Engineers (ISEE) of Cleveland, Ohio. In any case, the Contractor shall comply with the recommendations contained in Chapter 13 - "Blasting Safety" of said Blasters' Handbook, unless a qualified person conducting the blasting operations for the Contractor certifies to the Department in 1-51 writing that certain provisions of said Chapter 13 are not necessary to protect life and property.

1.06 PROJECT CONDITIONS

A. Other requirements: The Contractor shall provide to the Department general liability insurance coverage covering use of explosives in accordance with Section 110.3.2 - Commercial General Liability. Immediately after the blast, the Contractor shall remove any debris that is obstructing Highway, pedestrian, railroad, or marine traffic flow. The Contractor shall not use perchlorate in its blasting operations.

B. Blasting Zone: The Contractor shall define a blasting zone. When using electric detonators, the blasting zone must allow safe distances from radio transmitters based upon their power output frequency. The blasting zone must include all areas within which people could be injured or property could be damaged by the blast. The Contractor shall mark Highways conspicuously at the perimeter of the blasting zone with signs in accordance with MUTCD. If applicable, the Contractor shall place signage along railroads and appropriate notice shall be provided to marine traffic. The Contractor shall provide a sufficient number of flaggers stationed outside the blasting zone to stop all approaching traffic during blasting operations.

C. Blasting or other operations necessary for the removal of an existing structure or obstruction, which might damage new construction, shall be completed before placing the new work. If this is not feasible, the work shall be done only when approved and entirely at the Contractor's risk.

D. MaineDOT Provisions: The 2020 MaineDOT Standard Specifications apply to blasting work, specifically Section 203.042. In the case of conflicts, the Contractor shall comply with the strictest applicable codes, regulations or specifications.

PART 2 - PRODUCTS

2.01 MINIMUM SEISMOGRAPH REQUIREMENTS

A. Seismic frequency range of 2 to 150 HZ.

B. Sound frequency range of 2 to 500 HZ.

C. Capability of recording longitudinal, transverse, and vertical peak particle velocity and frequency.

D. Capability of printing out the following data on-site for immediate review by Engineer and Contractor.

1. Date and time of blast.

2. Instrument location.

3. Distance to blast.

4. Peak particle velocity (longitudinal, vertical, and transverse).

5. Frequency (HZ).

6. Airblast (dB and psi).

E. Provide instrument type data, last calibration date, and seismograph operator.

F. Calibration must have occurred within past year.

G. Instrument shall be owned and operated by independent qualified vibration specialist hired by Contractor to monitor blast.

PART 3 - EXECUTION

3.01 HOURS OF OPERATION

A. All blasting shall occur during daylight hours, 8:00 AM to 5:00 PM EST, Monday through Friday.

3.02 WARNING SYSTEM

A. The Contractor shall erect signboards of adequate size stating that blasting operations are taking place in the area, and such signs shall be clearly visible at all points of access to the area.

B. Air horn shall be sounded prior to each blast using the following sequence:

1. Three whistles at five minutes prior to blast.

2. Two whistles at one minute prior to blast.

3. Single whistle when "all clear" after shot has been checked for misfires.

C. Traffic control shall be utilized to keep traffic and pedestrians clear of blast area during all blasting operations. Traffic shall be stopped prior to the first warning signal on the air horn and shall not be allowed to pass through the blast area until the "all clear" signal has been given.

D. Blasting mats shall be used over all blast areas to prevent the possibility of flying rock and debris.

E. Signage shall be used to clearly mark all blasting areas and to define the different air horn warning sequences that will be used.

3.03 SAFEGUARDS

A. Explosives shall be handled, transported, used, controlled, stored, and monitored as prescribed by the most stringent of the rules promulgated by the State of Maine, the provisions specified in the OSHA Standards, these Specifications, and local codes and ordinances.

B. The first blasting operation at each location shall be monitored by the Contractor as a test case, and the proper drilling pattern and amount and type of explosive to be subsequently used shall be determined from the vibration record.

C. Vibration recording shall be continued for every blast round. Changes in drilling patterns, delay sequence, and amount of explosives shall be made when records indicate vibration in excess of the established vibration limits.

D. Blasting mats shall be used over all blast areas to prevent the possibility of flying rock and debris.

E. After a blast is fired, all loose and shattered rock or other loose material which may endanger the structure or the workers shall be removed and the excavation made safe before proceeding with the work.

F. Before drilling of a new round, the ledge face shall be thoroughly cleaned and examined for holes containing unexploded powder.

G. Blasting techniques shall be developed and improved as work progresses.

H. The fact that the removal of loose or shattered rock or other loose material may enlarge the excavation beyond the required limits shall not relieve the Contractor of responsibility for such removal and subsequent additional backfill, and the Contractor shall not be entitled to additional payment.

I. In the event damage to any structure occurs due to blasting work, all blasting shall be suspended immediately and a report shall be made to the Engineer. Before being allowed to resume blasting operations, the Contractor may be required to adjust the hole pattern, delay sequence, weight of explosives, or take other appropriate measures to control the effects of blasting.

3.04 PREBLAST SURVEY

A. Preblast survey shall be conducted by an independent firm from the blasting Contractor:

1. Schedule preblast survey with Engineer ten days before survey is to begin to allow Engineer to send letter notification to affected property owners. No preblast survey work shall be allowed until all property owners are notified by Engineer in writing. Placing notices in doorways prior to the survey shall not be allowed to substitute for this requirement. The Owners of all utilities that may be impacted by blasting shall be notified and their utilities shall be included in the preblast survey.

2. Conduct preblast survey as required for submittal and review by Engineer prior to any blasting or blasting related operations.

3. Survey to be performed by an independent geotechnical business entity, acceptable to the Engineer, with a minimum 5 years experience in similar type surveys.

4. Property owner must be present during preblast survey.

5. Preblast Survey shall include, but not be limited to:

   a. Still photos taken at 50 foot maximum stationing along project baseline. (4" x 6" glossy color prints)

   b. High quality video tape of entire construction area.

   c. High quality video tape of each structure within 500 LF of blasting location to show both interior and exterior preblast conditions. Highlight existing defects in structures and pavements. Provide some means of establishing scale of existing defects; i.e. include tape measure or folding ruler at defect during video taping.

   d. Video shall be done with high quality, full-HD, 1080P, commercial grade equipment with super high resolution zoom to allow equipment still viewing without distortion of the viewed area. Distorted and poor quality video taping will be rejected.

   e. Provide clearly labeled index sheet and binder for all photo and video reports.

   f. Still photos and video tapes shall be retained by the preblast surveyor and shall be available for viewing by the Owner and Engineer within 24 hours upon request.

6. Engineer shall be given copy of the preblast survey along with photos and videos at least fourteen days prior to beginning of blasting for review.

3.05 NOTICE OF IMPENDING BLAST

A. Contractor shall publish notice of impending blast in newspaper of local general circulation at least ten days and no more than thirty days prior to commencement of blasting operations.

B. Copy of notice shall be submitted to Engineer prior to publication.

C. Published notice shall include the following information:

1. Name, address, and telephone numbers of the general contractor and the blasting subcontractor.

2. Identification of specific areas where blasting will occur.

3. Anticipated dates and times of blasting operations.

4. Methods to be used to control access to blasting area.

D. Contractor shall notify Utility Companies with facilities that could be damaged by the blast with at least 24 hours prior notice that includes the anticipated time of the initial blast.

3.06 VIBRATION LIMITATION AND RECORDING

A. All blasting shall be done in such a manner so that vibrations reaching adjacent structures and facilities are within specified limits.

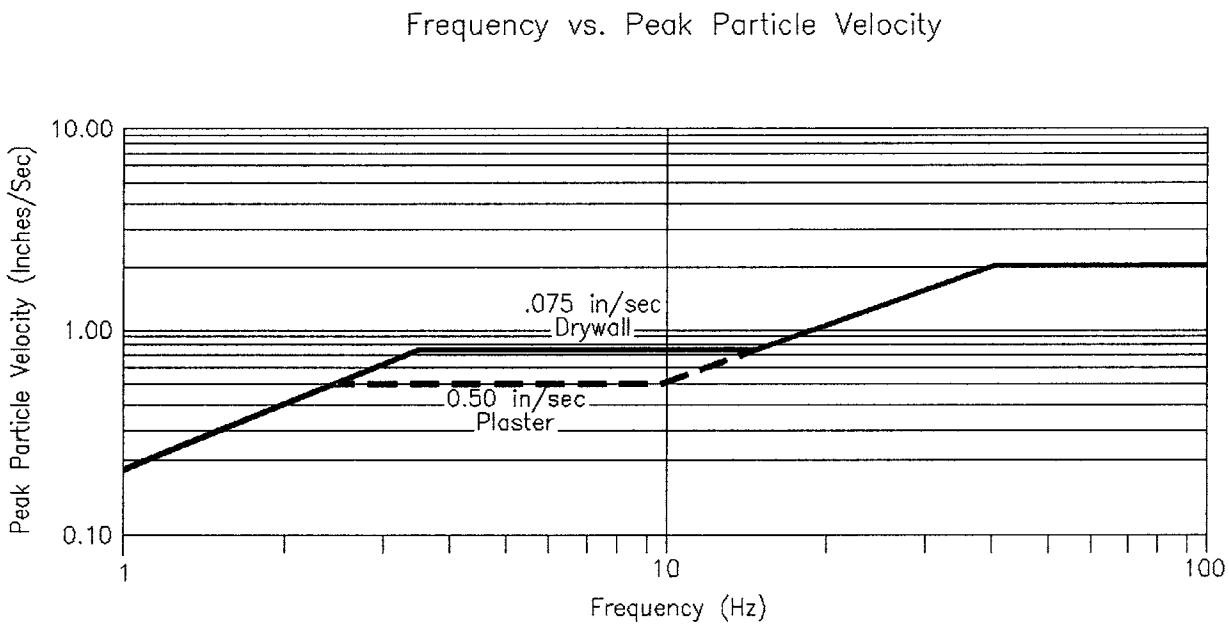
B. Vibrations shall be recorded using an approved seismograph(s) for each blasting occurrence.

C. Recording of blast vibrations and interpretation of the results shall be done by trained personnel under the direction of a qualified blast vibration specialist approved by the Engineer.

D. Vibrations shall be monitored by measuring the Peak Particle Velocity in the vicinity of blasting.

E. Peak Particle Velocity is defined as a maximum of the three velocity components, measured in three mutually perpendicular directions at any point by an appropriate instrument.

F. The maximum Peak Particle Velocity occurring on, or at, the structure closest to the point of blasting operations, shall be established by the Contractor if not specified for a project. However, the established Peak Particle Velocity shall not exceed 2 inches per second. At blasting frequencies lower than 10 HZ, the maximum peak particle velocity shall be established from the following graph:



G. Blasting operations shall be controlled so that air blast overpressures, measured at the building nearest to the surface opening, do not exceed 0.015 psi.

H. The blast vibration specialist shall, at the Contractor's cost, supervise establishment of the program and initial operation of the equipment, be on-site of the job during all blasting operations within 100 LF of a structure or utility, or if requested by the Engineer.

3.07 BLASTING RECORDS

A. The Contractor shall maintain a record of each blast detonated. This record shall include the information listed above. Results and interpretation of individual blasting records shall be made available to the Engineer within 24 hours of blasting.

END OF SECTION

SECTION 02200

EARTHWORK

SECTION 02200 - EARTHWORK

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Earthwork includes the following:

1. Excavation of soils, rock, debris, fill, and miscellaneous as required.

2. Excavation and sawcutting of paved and concrete areas.

3. Dewatering, drainage, and moisture control in excavated areas as required.

4. Aggregates for fill, backfill, base, subbase, bedding, drainage, riprap and miscellaneous as required.

5. Backfilling of trench, sidewalk, and roadway excavation.

6. Compaction of trench, sidewalk, and roadway excavation.

7. Grading of areas prior to surface restoration.

8. Disposal of excess material.

9. Test pits as required.

10. Filter fabric and jute mat where required.

11. Trench marking tape where required.

12. Flowable fill as required in areas where rapid backfilling is needed or where adjacent slabs or structures have been undermined by excavation.

1.02 RELATED SECTIONS

A. Section 02110 - Site Clearing.

B. Section 02160 - Excavation Support Systems.

C. Section 02170 - Use of Explosives.

D. Section 02210 – Temporary Erosion Control.

E. Section 02490 - Trees, Shrubs, and Ground Covers.

F. Section 02510 - Water Distribution Systems.

G. Section 02511 – MaineDOT Section 400 - Pavements.

H. Section 02620 - Granite Curbs.

I. Section 02700 - Sewerage and Drainage.

J. Section 02720 - Precast Concrete Sewerage/Drainage Structures.

K. Section 02930 - Lawns and Grasses.

L. Section 03300 – Cast-in-Place Concrete.

1.03 PAY LIMITS

A. Excavation Measurement: Volume of excavation actually removed, measured in original position, but not to exceed the following unless specifically shown otherwise on Drawings.

1. 24 inches outside of precast manhole or catchbasin measured as square.

2. Pipe pay limits as shown on Drawings.

B. Unit prices for rock excavation include replacement with approved materials.

1.04 DEFINITIONS

A. Base Course: The layer placed above the subbase.

B. Common Borrow: Soil material obtained off-site when sufficient approved soil material is not available from excavation.

C. Excavation consists of the removal of material encountered to subgrade elevations and the reuse or disposal of materials removed.

D. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below ground surface.

E. Subbase Course: The layer placed between the subgrade and base course.

F. Subgrade: The uppermost surface of an excavation or the top surface of a fill on backfill at elevations defined on the Drawings.

G. Unauthorized excavation consists of removing materials beyond indicated subgrade elevations or dimensions or pay limits without direction by the Engineer. Unauthorized excavation, as well as remedial work directed by the Engineer, shall be at the Contractor's expense.

H. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within building lines.

1.05 SUBMITTALS

A. Submit the following according to the Conditions of the Contract and Division 1 Specification Sections:

1. Product data for the following:

a) Each type of warning tape.

b) Filter fabric.

2. Samples of the following when requested:

a) Samples sealed in air-tight containers of each proposed soil material required from on-site or borrow sources.

b) 12-by-12-inch sample of filter fabric.

3. Test Reports: Submit the following:

a) Grain size analysis of each soil material proposed for incorporation into work with one test provided for every 1000 CY of material placed or at other frequency determined by Engineer.

b) One optimum moisture-maximum density curve for each soil material incorporated into work or at other frequency as determined by Engineer.

1.06 QUALITY ASSURANCE

A. Codes and Standards: Perform earthwork complying with requirements of authorities having jurisdiction.

B. Testing and Inspection Service: Owner will employ a qualified independent geotechnical engineering testing agency to verify that soils comply with specified requirements and to perform required field and laboratory testing.

1.07 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted in writing by the Engineer and then only after acceptable temporary utility services have been provided.

1. Provide a minimum 72 hours notice to the Engineer and receive written notice to proceed before interrupting any utility.

B. Demolish and abandon existing underground utilities indicated to be removed. Coordinate with utility companies to shutoff services if lines are active.

C. Data on indicated subsurface conditions are not intended as representations or warranties of accuracy or continuity between soil borings. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn therefrom by Contractor. Data is made available for convenience of Contractor who may make additional subsurface explorations at his/her own cost to obtain additional data on subsurface conditions.

D. Test pits: Excavate test pits to gain additional information on project conditions where shown on the Drawings or as directed by Engineer. Comply with earthwork requirements of this Section.

1.08 PROTECTION

A. Protection of surfaces: Do not operate equipment on surfaces beyond the work area as much as practicable. Surfaces which are outside the specified limits of Work which become damaged shall be repaired by the Contractor at no additional cost to the Owner.

B. Maintain excavations with approved barricades, lights, and signs to protect life and property until excavation is filled and graded to a condition acceptable to the Engineer.

C. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

D. Provide Preblast Survey as defined in Section 02170 prior to rock removal.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

A. Provide approved soil materials complying with this specification.

B. Suitable materials: As indicated on Drawings or that meet these specifications.

C. Unsuitable materials: Material containing excessive clay, vegetation, organic matter; debris; pavement over four inches in greatest dimension; stones or boulders over four inches in greatest dimension; frozen material and material which, in the opinion of the Engineer, will not provide a suitable foundation or subgrade, or does not meet these specifications.

D. On-Site Suitable Excess Excavated Material: Any suitable material from on-site excavation which, in the opinion of Engineer, is acceptable for roadway subgrade or embankment construction.

E. Inspection: The Engineer may inspect off-site sources of materials and order tests of these materials to verify compliance with these specifications.

F. Testing: All materials shall be tested for gradation analysis at the rate of one test per 1000 cubic yards or, in the opinion of the Engineer, if approved material appears to have significantly changed quality since last test.

2.02 MDOT Type C Gravel/Select Backfill: Well graded granular material free of organic material. Sieve analysis by weight:

Sieve size	% Passing By Weight
4"	100
3"	90 - 100
2"	75 - 100
1"	50 - 80
½"	30 - 60
No. 4	15 - 40
No. 200	0 - 6

2.03 Sand: Well graded durable particles free from organic matter. Sieve analysis by weight:

Sieve Size	% Passing by Weight
3/8"	85 - 100
No. 200	0 - 5

2.04 3/4" Crushed Stone: Durable, clean angular rock fragments obtained by breaking and crushing rock material. Sieve analysis by weight:

Sieve Size	% Passing by Weight
1"	100
¾"	75 - 100
½"	35 - 70
3/8"	0 - 25
No. 200	0 - 2

2.05 3" Crushed Stone: Durable, clean angular rock fragments obtained by breaking and crushing rock material. Sieve analysis by weight:

Sieve size	% Passing By Weight
4"	100
3"	90 - 100
2"	35 - 70
1"	0 - 25
¾"	0 - 5

2.06 Flowable Fill:

A. Type II Portland: Cement, 75 lbs per cubic yard.
B. Sand: 2350 lbs per cubic yard.
C. Air content: –25%.

2.07 MaineDOT Type A Gravel: Shall be screened or crushed gravel of hard durable particles free from organic material. Sieve analysis by weight:

Sieve Size	% Passing by Weight
3"	100
½"	45 - 70
¼"	30 - 55
No. 40	0 - 20
No. 200	0 - 6.0

2.08 MaineDOT Type D Gravel: Shall be screened or crushed gravel of hard durable particles free from organic material. Sieve analysis by weight:

Sieve Size	% Passing by Weight
3"	100
½"	35 - 80
¼"	25 - 65
No. 40	0 - 30
No. 200	0 - 7.0

2.09 Leveling course and untreated surface course: Shall be screened or crushed gravel of hard durable particles free from organic materials. Sieve analysis by weight:

Sieve Size	% Passing by Weight
1"	95 - 100
¾"	90 - 100
No. 4	40 - 65
No. 10	10 - 45
No. 200	0 - 5

2.10 Riprap for Drainage Swales: Sound, durable, angular rock which will not disintegrate by exposure to water or weather. Rough quarry stone or blasted ledge rock, with a mean diameter (d50) of 12" shall be provided. All stones shall be less than or equal to 18" in diameter, with a well graded mixture

composed primarily of larger sized stones, but with a sufficient mixture of smaller stones to fill void spaces.

2.11 Riprap for Slope Stabilization: Sound, durable, angular rock which will not disintegrate by exposure to water or weather. Rough quarry stone or blasted ledge rock, with a mean diameter (d50) of 6" shall be provided. All stones shall be less than or equal to 12" in diameter, with a well-graded mixture composed primarily of larger sized stones, but with a sufficient mixture of smaller stones to fill void spaces.

2.12 Common Borrow: Earth suitable for embankment or subgrade construction shall be free of frozen material, rubbish, debris, peat and other unsuitable material. Soils meeting Soil Classifications MH, CH, OH, and Pt will not be accepted. Moisture content shall be sufficient to provide required compaction and stable embankment. In no case shall the moisture content exceed 4 percent above optimum. The optimum moisture content shall be determined in accordance with ASTM 1557. All common borrow material shall be approved by Engineer. Sieve analysis by weight:

Sieve Size	% Passing by Weight
8"	100
No. 200	0 - 50

2.13 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum 3 inches wide and 5 mils thick minimum, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 2'-6" deep.

B. Tape Colors: Provide tape colors to utilities as follows:

1. Red: Electric.

2. Yellow: Gas, oil, steam, and dangerous materials.

3. Orange: Telephone and other communications.

4. Blue: Water systems.

5. Green: Sewer systems.

C. Filter Fabric for General Use, Roadway Underdrain Pipe Wrap, and Granite Steps: Manufacturer's standard nonwoven pervious geotextile fabric of polypropylene, nylon or polyester fibers, or a combination.

1. Provide filter fabrics that meets or exceeds the listed minimum physical properties determined according to ASTM D 4759 and the referenced standard test method in parenthesis:

a) Grab Tensile Strength (ASTM D 4632): 120 lb.

b) Apparent Opening Size (ASTM D 4751): #70 U.S. Standard sieve.

c) Permittivity (ASTM D 4491): 1.7 per second.

d) Flow rate (ASTM D 4491): 135 gallons per minute per square foot.

2. Fabric shall be equal to MIRAFI 140N manufactured by T.C. MIRAFI.

D. Filter Fabric for Culvert Rip-Rap Plunge Pool: Manufacturer's standard woven pervious geotextile fabric of polypropylene, nylon or polyester fibers, or a combination.

1. Provide filter fabrics that meets or exceeds the listed minimum physical properties determined according to ASTM D 4759 and the referenced standard test method in parenthesis:

a) Grab Tensile Strength (ASTM D 4632): 200 lb.

b) Apparent Opening Size (ASTM D 4751): #40 U.S. Standard sieve.

c) Permittivity (ASTM D 4491): 0.05 per second.

d) Flow rate (ASTM D 4491): 4 gallons per minute per square foot.

2. Fabric shall be equal to MIRAFI 500X manufactured by T.C. MIRAFI

E. Filter Fabric for Underdrain Pipe Wrap for Segmental Retaining Wall: Manufacturer's standard nonwoven pervious geotextile fabric of polypropylene, nylon or polyester fibers, or a combination.

1. Provide filter fabrics that meet or exceed the listed minimum physical properties determined according to ASTM D 4759 and the referenced standard test method in parenthesis:

   a) Grab Tensile Strength (ASTM D 4632): 105 lb.

   b) Apparent Opening Size (ASTM D 4751): #70 U.S. Standard sieve.

   c) Permittivity (ASTM D 4491): 2.0 per second.

   d) Flow rate (ASTM D 4491): 145 gallons per minute per square foot.

2. Fabric shall be equal to Thrace-LINQ Industrial Fabrics Non Woven Geotextile Drainage 130 EX or equal.

F. Filter Fabric for Utility Trench: Manufacturer's standard nonwoven pervious geotextile fabric of polypropylene fibers.

1. Provide filter fabric that meets or exceeds the listed minimum physical properties determined according to ASTM D 4759 and the referenced standard test method in parenthesis:

   a) Grab Tensile Strength (ASTM D 4632): 160 lb.

   b) Apparent Opening Size (ASTM D 4751): #70 U.S. Standard sieve.

   c) Permittivity (ASTM D 4491): 1.5 per second.

   d) Flow rate (ASTM 4491): 110 gallons per minute per square foot.

2. Fabric shall be equal to MIRAFI 160N.

PART 3 - EXECUTION

3.01 PREPARATION

A. Protect structure, utilities, sidewalks, pavements, tanks, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Protect subgrades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.

C. Provide erosion control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

D. Provide tree protection as required.

E. Obtain copies of all applicable permits governing excavation.

3.02 EXCAVATION CLASSIFICATIONS

A. Excavation is classified as follows and includes excavation to required subgrade elevations. Excavation will be classified as earth excavation or rock excavation.

1. Earth excavation includes roadway excavation of pavements, bases, subbases and subgrades, and other obstructions visible on surface; underground structures, utilities, and other items indicated to be demolished and removed; together with soil and other materials encountered that are not classified as rock or unauthorized excavation.

a) Intermittent drilling, blasting, or ripping to increase production and not necessary to permit excavation of material encountered will be classified as earth excavation.

2. Rock excavation includes removal and disposal of rock material and obstructions encountered that cannot be removed by heavy-duty rock excavating equipment without systematic drilling, blasting, or ripping.

a) Rock material includes boulders 2.0 cubic yards or more in volume and rock in beds, ledges, unstratified masses, and conglomerate deposits.

b) Rock excavation will be paid by unit prices included in the Contract Documents.

c) Do not excavate rock until it has been classified and cross-sectioned by Engineer.

3.03 STABILITY OF EXCAVATIONS

A. Comply with local codes, ordinances, and requirements of authorities having jurisdiction to maintain stable excavations.

3.04 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 0.10 foot. Extend excavations a sufficient distance from structures for installing services, other construction, and for inspections.

3.05 ROADWAY, SHOULDER, AND SIDEWALK EXCAVATION

A. Prior to beginning excavating, grading, and embankment operations in any areas, all necessary clearing in that area shall have been completed.

B. Suitable material taken from excavation shall be used in the construction of embankment, subgrade, and for backfilling as indicated on the plans, or as directed, except that if the volume of suitable excavated material exceeds that required to construct the embankments to the grades indicated, the excess shall be wasted as directed.

C. The Engineer may designate as unsuitable those soils which cannot be properly compacted in embankment or which contain undesirable materials or debris, and all such unsuitable material shall be disposed of in approved waste storage areas.

D. Unsuitable material shall be disposed of as directed and no material shall be wasted without permission.

E. Excavating operations shall be conducted so that material outside of the limits of slopes will not be disturbed.

F. No common excavation, rock excavation, unclassified excavation or borrow which is designated for use in embankments or backfill may be diverted for the Contractor's own use. Any unauthorized use of such material will be adjusted by deducting quantities, measured by the most appropriate method, as determined, and 115 percent of the quantity deducted from the total amount.

G. The Contractor shall give the Engineer sufficient time before beginning excavation to take necessary cross section elevations and measurements.

H. The Contractor shall not excavate beyond the dimensions, slopes and elevations established, and no material shall be removed prior to the staking out and cross sectioning of the site.

I. Unless otherwise authorized, borrow material shall not be placed until after all suitable excess excavation has been placed in the embankment or subgrade unless the use of granular borrow is called for on the plans or required for use under embankments or in conjunction with the use of excavated material or for the maintenance of traffic. If the Contractor places more borrow than is required and thereby causes a need to waste suitable excavation material, the amount of such waste will be measured by the method deemed most appropriate and 115 percent of the amount will be deducted from the borrow volume.

J. When it is necessary to temporarily remove fencing to remain, the fencing shall be replaced by the Contractor at his expense in as good a condition as it was originally.

K. Unstable slopes subject to sliding and slumping shall be excavated to the lines and grades shown or as directed. Immediately after each location is excavated, approved stone or granular slope blanket backfill material shall be placed and shaped to match the adjacent slopes.

L. Ledge slopes shall be cleaned of all loose material immediately as the excavation proceeds. Immediate steps shall be taken by the Contractor to insure the stability of the slope during construction.

M. Roadway and shoulder excavation shall be maintained in such condition that the excavation surface will be well drained. Temporary drains, drainage ditches and culverts shall be constructed to intercept and divert water which may adversely affect the condition of the excavation and the prosecution of the work.

N. Excavation shall proceed in a direction upgrade.

O. Subgrades shall be promptly graded and rolled to minimize absorption of water.

P. Adjacent ditches shall be graded to the extent that puddles will not form.

Q. Grubbing areas which cannot be drained shall be promptly filled with approved excavation or borrow to such an elevation that surface drainage will be effective.

R. Muck shall be removed in such a manner to insure its complete removal with no areas remaining or trapped below the embankment.

S. Excavation adjacent to roots of trees or shrubs which are to remain shall be removed by hand.

T. When excavating results in a subgrade of unsuitable soil, the Engineer may require the Contractor to remove the unsuitable material and backfill the area with approved material.

3.06 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated slopes, lines, depths, and invert elevations.

B. Excavate uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.

1. Clearance: 12 inches each side of pipe or conduit or as indicated on Drawings.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit or appropriate space for bedding where bedding is required as indicated on Drawings.

D. Remove all sharp items and objects from trench.

E. Where encountering rock or another unyielding bearing surface, carry trench excavation 6 inches below invert elevation to receive bedding course.

F. Maximum excavated length of utility trench that may be left open and not backfilled to grade shall at end of day be 200 LF.

3.07 EXCAVATION OF PAVED OR CONCRETE AREAS

A. Sawcut pavement or concrete prior to excavation and again prior to paving or restoring concrete surface to provide a clean, uniform edge.

B. Minimize disturbance of remaining pavement.

C. Cut and remove the minimum amount of pavement or concrete required to do the Work.

D. Use shoring and bracing where sides of excavation will not stand without undermining pavement.

3.08 ROCK EXCAVATION shall be performed in accordance with Section 02170, "Use of Explosives."

3.09 EXCESS EXCAVATION WASTE AREAS

A. If material is suitable as approved by Engineer, use excess excavated material for subgrade or embankment construction. Comply with all compaction requirements defined herein.

B. If material is deemed unsuitable for reuse by Engineer, or if excess suitable material exists, it shall be the responsibility of the Contractor to obtain necessary permits and approvals from all pertinent State and Federal agencies and from the local municipality prior to the establishment of waste areas off the project.

1. Written permission of the property owners shall be obtained by the Contractor, including permission to dispose of waste in the area.

2. Copies of all required permits shall be given to the Engineer.

3. Provisions shall be made for temporary and permanent erosion controls at waste areas which shall include, but not necessarily be limited to, grading the surface to drain, covering the surface with loam or other earthy material that will support growth and seeding and mulching.

C. No additional payment shall be made for disposal of either excess suitable fill or excess unsuitable fill on waste areas beyond payment made under roadway excavation pay item. No additional payment beyond excavation pay item shall be made for suitable material used as roadway subgrade.

3.10 TEST PITS

A. Excavate test pits in locations as directed by Engineer.

B. Utilize smallest equipment required for excavation and appropriately tracked or wheeled equipment to minimize damage to ground surfaces and vegetation in areas not otherwise to be disturbed by Contractor's activities.

C. To the extent possible, restore surface conditions to existing prior to excavation.

D. Only excavations specific and in search of specific buried feature shall be eligible for the Test Pit Bid Item.

3.11 APPROVAL OF SUBGRADE

A. Notify Engineer when excavations have reached required subgrade. Allow time for verification of subgrade elevations prior to proceeding with placement of subbase material.

B. When Engineer determines that unforeseen unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.

C. Unforeseen additional excavation and replacement material will be paid according to the Contract provisions for changes in Work.

D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by the Engineer.

3.12 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending indicated bottom elevation of concrete foundation or footing to excavation bottom, without altering required top elevation. Flowable concrete fill may be used to bring elevations to proper position when acceptable to the Engineer.

B. Fill unauthorized excavations under other construction as directed by Engineer.

C. Where indicated widths of utility trenches are exceeded, provide stronger pipe, or special installation procedures, as required by the Engineer.

3.13 STORAGE OF SOIL MATERIALS

A. Stockpile excavated materials acceptable for backfill and fill soil materials, including acceptable borrow materials. Stockpile soil materials without

intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent wind-blown dust.

B. Stockpile soil materials away from edge of excavation. Do not store within drip line of remaining trees.

C. Stockpiling excavated soils along roadway is prohibited.

3.14 DEWATERING

A. Prevent surface water and subsurface or groundwater from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.

B. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.

C. Do not allow water to accumulate in excavations. Provide and maintain pumps, dewatering system components necessary to convey water away from excavations.

D. Convey water removed from excavations and rain water to collection or run-off areas. Establish and maintain temporary drainage ditches and other diversions outside excavation limits for each structure. Do not use trench excavations as temporary drainage ditches.

3.15 BACKFILL AND FILL

A. Place acceptable soil material in layers to required elevations as shown on the Drawings and as listed below.

B. Fill, backfill, and compact to produce minimum subsequent settlement of the material and provide adequate support for the surface treatment or structure to be placed on the material.

C. Place material in approximately horizontal layers of beginning at lowest area to be filled. Do not impair drainage.

D. Remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Scarify surfaces so that fill material will bond with existing surface.

E. When existing ground surface has a density less than that specified under "Compaction" for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.

F. Place backfill and fill materials in layers not more than 12" in loose depth for material compacted by heavy compaction equipment, and not more than 6" in loose depth for material compacted by hand-operated tampers. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

G. Place backfill and fill materials evenly adjacent to structures, to required elevations. Prevent wedging action of backfill against structures by carrying material uniformly around structure to approximately same elevation in each lift. No backfill shall be placed around new concrete structures until concrete has reached 75% of its design strength.

H. Do not allow heavy machinery within five feet of structures during backfilling and compaction.

I. Backfill excavations as promptly as Work permits, but not until completion of the following:

1. Acceptance of construction below finish grade including, where applicable, dampproofing, waterproofing, and perimeter insulation.

2. Surveying locations of underground utilities for record documents.

3. Testing, inspecting, and approval of underground utilities.

4. Concrete formwork removal.

5. Removal of trash and debris from excavation.

6. Removal of temporary shoring and bracing, and sheeting.

J. Use care in backfilling to avoid damage or displacement of underground structures and pipe.

K. Backfill under all existing utility pipes crossed by sewer construction with 3/4" crushed stone or flowable fill. The crushed stone backfill will extend continuously from the bedding of the new sewer to the utility pipe crossed,

including a 6" thick envelope of crushed stone all around the existing utility pipes. The 3/4" crushed stone backfill shall stand at its own angle of repose. No "haunching" or "forming" with common fill will be allowed.

3.16 UTILITY TRENCH BACKFILL

A. Place and compact bedding course on rock and other unyielding bearing surfaces and to fill unauthorized excavations. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

B. Bed pipe in crushed stone, select backfill, or native materials as indicated on Drawings and to limits of bedding and requirements for remaining trench backfill.

C. Place and compact initial backfill of satisfactory soil material or subbase material, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit.

D. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.

E. Coordinate backfilling with utilities testing.

F. Place and compact final backfill of satisfactory soil material to final subgrade.

G. Install warning tape directly above utilities as indicated on Drawings.

3.17 MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within two percent of optimum moisture content.

B. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.

C. Remove and replace, or scarify and air-dry satisfactory soil material that is too wet to compact to specified density.

D. Stockpile or spread and dry removed wet satisfactory soil material.

3.18 COMPACTION

A. Place backfill and fill materials in layers not more than 12 inches in loose depth for material compacted by heavy compaction equipment, and not more than 6 inches in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill materials evenly on all sides of structures to required elevations. Place backfill and fill uniformly along the full length of each structure.

C. Compact to the following minimum densities:

FILL AND BACKFILL LOCATION	DENSITY
Top 2 feet under gravel roadway	95%
Top 2 feet under pavement	95%
Below top 2 feet under pavement	92%
Trenches through unpaved areas	90%
Pipe Bedding	92%
Around street manholes and catchbasins	92%

Maximum density: ASTM D1557, modified.
Field density tests: ASTM D2922 (nuclear methods).

D. Determine actual in place densities using field tests as directed by the Engineer. Tests will be made by an independent laboratory. Costs for initial tests will be paid by Owner or by testing allowance bid item. Subsequent retests will be paid by Contractor.

E. When field in-place density tests are performed using nuclear methods, make calibration checks of both density and moisture gages at beginning of work, on each different type of material encountered, and at intervals as directed by the Engineer.

F. At gravel roads and paved area subgrades and at each compacted fill and backfill layer, perform at least one field in-place density test for every 2,000 square feet or less of paved area or building slab, but in no case fewer than three tests.

G. In each compacted initial and final trench backfill layer, perform at least one field in-place density test for each 200 feet or less of trench, and at every 2' vertical layer, but no fewer than two tests.

H. When testing agency reports that subgrades, fills, or backfills are below specified density, scarify and moisten or aerate, or remove and replace soil to the depth required, recompact, and retest until required density is obtained.

3.19 GRADING

A. Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Provide a smooth transition between existing adjacent grades and new grades.

C. Cut out soft spots, fill low spots, and trim high spots to conform to required surface tolerances.

D. Slope grades to direct water away from buildings and to prevent ponding.

E. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 0.10 foot.

2. Walks: Plus or minus 3/8".

3. Pavements: Plus or minus 3/8" when tested with 10 foot straightedge.

F. After grading, compact subgrade surfaces to the percentage of maximum density for each area classification.

G. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

H. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.

I. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

3.20 SUBBASE AND BASE COURSES

A. Under pavements and walks, place subbase course material on prepared subgrades. Place base course material over subbases to pavements.

B. Compact subbase and base courses at optimum moisture content to required grades, lines, cross sections and thickness to not less than 95 percent of AASHTO T180, Method C or D.

C. Shape subbase and base to required crown elevations and cross-slope grades.

D. When thickness of compacted subbase or base course is 6 inches or less, place materials in a single layer.

E. When thickness of compacted subbase or base course exceeds 12 inches, place materials in equal layers, with no layer more than 12 inches thick or less than 6 inches thick when compacted.

F. Place shoulders along edges of subbase and base course to prevent lateral movement. Construct shoulders at least 12 inches wide of acceptable soil materials and compact simultaneously with each subbase and base layer.

3.21 FINAL DISPOSAL OF EXCESS MATERIALS

A. Remove excess excavated material not wanted by the Owner and dispose of it off Owner's property.

B. Grade material to the satisfaction of the Owner of the property on which the material is deposited. Keep roads free of debris. Use suitable watertight vehicles for hauling wet materials over roads and streets.

C. Clean up materials dropped from or spread by vehicles promptly or when directed by the Engineer.

D. Dispose of materials in accordance with all applicable regulations.

END OF SECTION

SECTION 02210

TEMPORARY EROSION CONTROL

SECTION 02210 - TEMPORARY EROSION CONTROL

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide and maintain devices to control erosion that occurs during construction operations, prior to completion of permanent erosion control.

B. Includes compliance with all applicable permits and NRPA Standards and Maine Erosion and Sediment Control Law (MRSA 420-C).

C. Provide measures to control dust caused by construction operations whether on or off the site.

1.02 RELATED SECTIONS

A. All Sections of Division 2, Site Construction.

1.03 QUALITY ASSURANCE

A. Conform with all requirements of applicable Federal, State, and Local Permits.

B. Meet with the Engineer to discuss erosion control requirements prior to the start of construction.

C. Standards: "Maine Erosion and Sediment Control on Commercial, Industrial, Residential, Recreation and Government Construction Sites; Environmental Quality Handbook" prepared by the Maine Soil and Water Conservation Commission, hereinafter referred to as Environmental Quality Handbook.

1.04 SUBMITTALS

A. Erosion Control Program: Prepare and submit to Engineer an Erosion Control Program approved by the local Soil and Water Conservation District Office prior to construction startup.

PART 2 - PRODUCTS

2.01 General: Use the following materials in construction of sediment traps and erosion control devices as specified on the Drawings. Other materials require approval of the Engineer.

2.02 Erosion Control Mat: Provide Tensar Erosion Mat TM3000, North American Green product or equal.

2.03 MATS AND NETTINGS

1. Twisted craft paper, yarn, jute, excelsior, wood fiber mats, glass fiber, and plastic film.

2. Type and use shall be as specified by the Environmental Quality Handbook.

2.04 MULCHES

1. Asphalt emulsion, straw, pine straw or needles, sawdust, wood chips, wood excelsior, or wood fiber cellulose.

2. Type and use as specified by the Environmental Quality Handbook.

2.05 SEED

1. Standard conservation mix of 100% annual rye grass or field bromegrass, or equivalent seed mixture based on its suitability for use in controlling erosion of the various soil types and slopes.

2.06 SOD

1. Grown from certified seed of adapted varieties to produce high quality sod free of any serious thatch, weeds, insects, diseases and other pest problems.

2. At least one year old and not older than three years. Cut with a 1/2 inch to 1 inch layer of soil.

2.07 Siltation Fence: MIRAFI Environfence, equivalent Diversified Geosynthetics Inc. product, or approved equal with the following properties:

A. Grab Tensile Strength: 552 lbs.

B. Grab Tensile Elongation: 15%.

C. Opening Size: 0.60 mm (30 U.S. sieve).

D. Permittivity: 0.1 sec^{-1}.

E. Flow Rate: 10 gpm/sf.

F. Weight: 3.02 oz./sy.

G. Thickness: 15 mils.

H. Roll Width: 36".

I. Roll Weight: 40 lb for 100 feet.

2.08 Hay Bale Barrier: Straw bale, minimum weight of 40 lbs, free of noxious weed seeds and rough or woody materials.

2.09 Erosion Control Mix: Shredder bark and stumps and fragmented work with a mineral content less than twenty percent by weight free of refuse, contaminants and construction debris.

PART 3 - EXECUTION

3.01 TEMPORARY EROSION DEVICES

A. General: Provide the following devices to control erosion. Other devices require approval of the Engineer.

B. All work shall be stabilized on a daily basis.

C. Hay Bale Barrier/Siltation Fence: Provide temporary hay bale barrier and siltation fence in compliance with applicable standards, NRPA permit conditions, and as designated by the Engineer. Hay bales shall be installed as follows:

1. Bales shall be placed in a row with ends tightly abutting the adjacent bales.

2. Each bale shall be embedded in the soil a minimum of 4".

3. Bales shall be securely anchored in place by stakes or re-bars driven through the bales. The first stake in each bale shall be angled toward previously laid bale to force bales together.

4. Inspection shall be frequent and repair or replacement shall be made promptly as needed.

5. Bales shall be removed when they have served their usefulness so as not to block or impede storm flow or drainage.

6. Siltation fence shall be installed as shown on Drawings. Additional erosion control may be required by Engineer in field.

D. Seeding: Provide approved seed. Cover with loose hay or straw at 2 tons per acre.

E. Sediment Traps: Construct sediment traps as required for flow diversion and trench dewatering using hay bale/filter fabric ponds, silt bags, etc.

F. Erosion control mix berms: Construct erosion control mix berms along downstream edge of construction area. Berms shall be a minimum of two feet high, trapezoidal in shape with a width of 1' at top and 5' at bottom.

G. Any signs of erosion shall be immediately investigated and repaired as needed.

3.02 REMOVAL OF TEMPORARY EROSION CONTROL

A. Remove temporary materials and devices when permanent soil stabilization has been achieved. Re-use materials in good condition if approved by the Engineer.

B. Remove unsuitable materials from site and dispose of in a legal manner.

C. Any sediment deposit trapped by silt fence or sediment trap shall be removed when deposits reach one-half the height of the barrier.

D. Prior to removal of silt fence or other sediment trap, any sediment deposits remaining in place should be dressed to conform to the existing grade, prepared, and seeded.

END OF SECTION

SECTION 02490

TREES, SHRUBS, AND GROUND COVERS

SECTION 02490 - TREES, SHRUBS, AND GROUND COVERS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Trees, plants, and ground covers includes the following:

1. Soil preparation.

2. Trees, plants, and ground covers including restoration of relocated plantings and replacement of plantings to be removed to accommodate construction.

3. Planting mixes.

4. Mulch and planting accessories.

5. Maintenance.

B. Removal and replanting and or replacing of existing trees, plants and ground covers as required to conduct new work.

1.02 RELATED SECTIONS

A. Section 02200 - Earthwork.

1.03 SUBMITTALS

A. Submit the following according to the Conditions of the Contract and Division 1 Specification Sections.

1. Product data including material test reports, for the following:

a. Topsoil source and pH value.
b. Peat moss.
c. Plant fertilizer.

2. Samples of the following:

   a. Mulch.
   b. Planting accessories.

1.04 QUALITY ASSURANCE

A. Stock furnished shall be at least the minimum size indicated. Larger stock is acceptable, at no additional cost, and providing that the larger plants will not be cut back to size indicated. Provide plants indicated by two measurements so that only a maximum of 25% are of the minimum size indicated and 75% are of the maximum size indicated.

B. Stock furnished shall be suitable for project locations plant hardiness zone. Certify stock origin and/or growing location prior to digging and delivery.

C. Plants may be inspected and approved at the place of growth, for compliance with specification requirements for quality, size, and variety.

   1. Such approval shall not impair the right of inspection and rejection upon delivery at the site or during the progress of the work.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original, unopened, and undamaged containers. Store in manner to prevent damage and deterioration.

B. Take all precautions customary in good trade practice in preparing plants for moving. Workmanship that fails to meet the highest standards will be rejected. Spray deciduous plants in foliage with an approved "Anti-Desiccant" immediately after digging to prevent dehydration. Dig, pack, transport, and handle plants with care to ensure protection against injury.

C. Inspection certificates required by law shall accompany each shipment invoice or order to stock and on arrival, the certificate shall be filed with the Engineer. Protect all plants from drying out. If plants cannot be planted immediately upon delivery, properly protect them with soil, wet peat moss, or in a manner acceptable to the Engineer. Water heeled-in plantings daily. No plant shall be bound with rope or wire in a manner that could damage or break the branches.

D. Provide dry, loose topsoil for planting bed mixes. Frozen or muddy topsoil is not acceptable.

1.06 PROJECT CONDITIONS

A. Work Notification: Notify Engineer at least seven (7) working days prior to installation of plant material.

B. Protect existing utilities, paving, and other facilities from damage caused by landscaping operation.

1.07 WARRANTY

A. Warrant plant material to remain alive and be in healthy, vigorous condition for a period of 1 year after completion and acceptance of entire project.

1. Inspection of plants will be made by the Engineer and Owner Representative at completion of planting.

B. Replace, in accordance with the drawings and specifications, all plants that are dead or, as determined by the Engineer, are in an unhealthy or unsightly condition, and have lost their natural shape due to dead branches, or other causes due to the Contractor's negligence. The cost of such replacement(s) is at Contractor's expense. Warrant all replacement plants for 1 year after installation.

1. Replacement: At any time during the guarantee period, if any tree is found either dead or not in satisfactory health as determined by a representative of the Owner, it shall upon request of the Owner be immediately removed from site and replaced as soon as conditions permit during the normal planting season. All replacement shall be of the same kind and size as specified in the plant list. Replacement costs shall be borne by the contractor. Any exception or substitution to the above must be approved in writing by a representative of the Owner.

C. Warranty shall not include damage or loss of trees, plants, or ground covers caused by fires, floods, freezing rains, lightning storms, or winds over 75 miles per hour, winter kill caused by extreme cold and severe winter conditions not typical of planting area; acts of vandalism or negligence on the part of the Owner.

D. Remove and immediately replace all plants, as determined by the Engineer, to be unsatisfactory during the initial planting installation.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Plants to match existing: Provide plants typical of their species or variety; with normal, densely-developed branches and vigorous, fibrous root systems. Provide only sound healthy, vigorous plants free from defect, disfiguring knots, sunscald injuries, frost cracks, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation. All plants shall have a fully developed form without voids and open spaces. Plants held in storage will be rejected if they show signs of growth during storage.

1. Dig balled and burlapped plants with firm, natural balls of earth of sufficient diameter and depth to encompass the fibrous and feeding root system necessary for full recovery of the plant. Provide ball sizes complying with the latest edition of the "American Standard for Nursery Stock". Cracked or mushroomed balls are not acceptable.

2. Bare-root Plants: Dug with adequate fibrous roots, covered with a uniformly thick coating of mud by being puddled immediately after they are dug, or packed in moist straw or peat moss.

3. Container-grown Stock: Grown in a container for sufficient length of time for the root system to have developed to hold its soil together, firm and whole.

    a. No plants shall be loose in the container.
    b. Container stock shall not be pot bound.

4. Plants planted in rows shall be matched in form.

5. Provide tree species that mature at heights over 25'-0" with a single straight main trunk. Trees that have the main trunk forming a "Y" shape are not acceptable, unless specified.

6. The height of the trees, measured from the crown of the roots to the top of the top branch, shall not be less than the minimum size designated in the plant list.

7. No pruning wounds shall be present with a diameter of more than 1" and such wounds must show vigorous bark on all edges.

8. Shrubs and small plants shall match existing for spread and height.

   a. The measurements for height shall be taken from the ground level to the average height of the top of the plant and not the longest branch.
   b. Single stemmed or thin plants will not be accepted.
   c. Side branches shall be generous, well-twigged, and the plant as a whole well-bushed to the ground.
   d. Plants shall be in a moist, vigorous condition, free from dead wood, bruises, or other root or branch injuries.

2.02 ACCESSORIES

A. Topsoil for Planting Beds: Fertile, friable, natural topsoil of loamy character, without admixture of subsoil material, obtained from a well-drained arable site, reasonable free from clay, lumps, coarse sands, stones, plants, roots, sticks, and other foreign materials, with acidity range of between pH 6.0 and 6.8.

   1. Identify source location of topsoil proposed for use on the project.

   2. Provide topsoil free of substances harmful to the plants which will be grown in the soil.

B. Peat Moss: Brown to black in color, weed and seed free granulated raw peat or baled peat, containing not more than 9% mineral on a dry basis.

C. Fertilizer:

   1. Plant fertilizer Type "A": Commercial type, slow release approved by the Engineer, containing 12% nitrogen, 12% phosphoric acid, and 12% potash by weight. 1/4 of nitrogen in the form of nitrates, 1/4 in form of ammonia salt, and 1/2 in form of organic nitrogen.

   2. Organic compost may be provided upon approval of the Engineer.

   3. Do not fertilize any tree roots the first year of planting unless approved by the Engineer, an approved root stimulant may be used.

D. Anti-Desiccant: Protective film emulsion providing a protective film over plant surfaces; permeable to permit transpiration. Mixed and applied in accordance with manufacturer's instructions.

E. Mulch: 6 month old well rotted shredded native hardwood bark mulch not larger than 4" in length and 1/2" in width, free of woodchips and sawdust.

F. Water: Free of substances harmful to plant growth. Hoses or other methods of transportation furnished by Contractor.

G. Stakes for Staking: Hardwood, 2" x 2" x 8'-0" long.

H. Stakes for Guying: Hardwood, 2" x 2" x 36" long.

I. Guying/Staking Wire: No. 10 or 12 gage galvanized wire or approved equal.

1. Turnbuckles: Galvanized steel of size and gage required to provide tensile strength equal to that of the wire. Turnbuckle openings shall be at least 3".

J. Tree Wrap: Standard waterproofed tree wrapping paper, 2-1/2" wide, made of 2 layers of crepe kraft paper weighing not less than 30 lbs. per ream, cemented together with asphalt.

K. Twine: Two-ply jute material.

L. Weed Control Barrier: Rot resistant polypropylene fabric, water and air permeable.

PART 3 - EXECUTION

3.01 INSPECTION

A. Examine existing and proposed planting areas for relocated plantings and conditions of installation. Do not start planting work until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Time of Planting:

1. Evergreen material: Plant evergreen materials between August 15 and November 1 or in spring before new growth begins. If project requirements require planting at other times, plants shall be sprayed with anti-desiccant prior to planting operations.

2. Deciduous material: Plant deciduous materials in a dormant condition. If deciduous trees are planted in-leaf, they shall be sprayed with an anti-desiccant prior to planting operation.

3. Planting times other than those indicated shall be acceptable upon approval of the Engineer.

B. Planting shall be performed only by experienced workmen familiar with planting procedures under the supervision of a qualified supervisor.

C. Provide pre-mixed planting mixture for use around the balls and roots of the plants consisting of 5 parts planting topsoil to 1 part pear moss and 1/2 lb. plant fertilizer Type "A" or for each cu. yd. of mixture.

3.03 INSTALLATION

A. Set plant material in the planting pit to proper grade and alignment. Set plants upright, plumb, and faced to give the best appearance or relationship to each other or adjacent structure. Set plant material 2" above the finish grade. No filling will be permitted around trunks or stems. Backfill the pit with planting mixture. Do not use frozen or muddy mixtures for backfilling. Form a ring of soil around the edge of each planting pit to retain water.

B. After balled and burlapped plants are set, muddle planting soil mixture around bases of balls and fill all voids. Remove all burlap, ropes, and wires from the tops of balls. Remove all synthetic, Non-Biodegradable materials.

C. Spread and arrange roots of bare-rooted plants in their natural position. Work-in planting mixture. Do not mat roots together. Prune all broken and frayed roots before installing planting mixture.

D. Wire Baskets: Trees or Shrubs that have their soil balls secured in a wire basket shall have the entire basket removed after the plant is placed and centered in the pit and before backfilling occurs. If removal will damage root ball, fold back 1/3 and cut remaining wire basket.

E. Mulching:

1. Mulch tree and shrub planting pits and shrub beds with required mulching material 2" deep immediately after planting. Thoroughly water mulched areas. After watering, rake mulch to provide a uniform finished surface.

    a. Install weed control barrier over grade prior to mulching tree and shrub planting pits and shrub beds. Secure on slopes with "T" pin anchors.

2. Mulch ground cover beds with mulch 1" to 1-1/2" deep immediately after planting.

F. Wrapping, guying, staking:

1. Inspect trees for injury to trunks, evidence of insect infestation, and improper pruning before wrapping.

2. Wrap trunks of all trees spirally from bottom to top with specified tree wrap and secure in place.

    a. Overlap 1/2 the width of the tree wrap strip and cover the trunk from the ground to the height of the second branch.

    b. Secure tree wrap in place with twine wound spirally downward in opposite direction, tied around the tree in at least 3 places in addition to the top and bottom.

3. Staking/Guying:

    a. Stake/guy all trees immediately after lawn seeding or sodding operations and prior to acceptance. When high winds or other conditions which may effect tree survival or appearance occur, the Engineer may require immediate staking/guying.

b. Stake deciduous trees under 3 1/2" caliper. Stake evergreen trees under 8'-0" tall.

c. Guy deciduous trees over 3 1/2" caliper. Guy evergreen trees over 8"-0" tall.

4. All work shall be acceptable to the Engineer.

G. Pruning:

1. Prune branches of deciduous stock, after planting, to balance the loss of roots and preserve the natural character appropriate to the particular plant requirements. In general, remove 1/4 to 1/3 of the leaf bearing buds, proportion shall in all cases be acceptable to the Engineer. Remove or cut back broken, damaged, and unsymmetrical growth of new wood. Follow current recommendations and guidelines manual of the International Society of Arborists.

2. Multiple leader plants: Preserve the leader which will best promote the symmetry of the plant. Cut branches flush with the trunk or main branch, at a point beyond a lateral shoot or bud a distance of not less than 1/2 the diameter of the supporting branch. Make cut on an angle.

3. Prune evergreens only to remove broken or damaged branches.

3.04 MAINTENANCE

A. Maintain planting for a period of at least 90 days after completion of planting operations or until all plants are sufficiently recovered from transplanting and in a healthy growing condition acceptable to the Engineer. Maintain plantings installed after August 15 until May 30 of the following year.

B. Maintenance shall include pruning, cultivating, weeding, watering, and application of appropriate insecticides and fungicides necessary to maintain plants free of insects and disease.

1. Re-set settled plants to proper grade and position. Restore planting saucer and adjacent material and remove dead material.

2. Tighten and repair guy wires and stakes as required. Remove after first year.

3. Correct defective work as soon as possible after deficiencies become apparent and weather and season permit.

4. Water trees, plants, and ground cover beds within the first 24 hours of initial planting, and not less than twice per week until final acceptance.

3.05 ACCEPTANCE

A. Planted areas will be inspected at completion of installation and accepted subject to compliance with specified materials and installation requirements.

B. Inspection to determine acceptance of planted areas will be made by the Engineer, upon Contractor's request. Provide notification at least 10 working days before requested inspection date.

1. Planted areas will be accepted provided all requirements, including maintenance, have been complied with and plant materials are alive and in a healthy, vigorous condition.

C. Upon acceptance, the Owner will assume plant maintenance, unless a maintenance contract is accepted at the owners option.

3.06 CLEANING

A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, soil, debris, and equipment. Repair damage resulting from planting operations.

3.07 ESTABLISHMENT

A. The establishment periods begins the day of acceptance as defined in 3.05 and shall expire at the end of the guarantee period. Establishment shall consist of work performed to assure survival and vigorous growth of all guaranteed trees. Plants shall be maintained as specified during this period.

END OF SECTION*

SECTION 02495

LANDSCAPE ACCESSORIES

SECTION 02495 - LANDSCAPE ACCESSORIES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Landscape accessories are as shown on the plans and as follows:

Granite Steps
Granite blocks for walls
Cedar Fence

1.02 RELATED SECTIONS

A. Section 02200 - Earthwork.

B. Section 02490 - Trees, Plants, and Ground Covers.

C. Section 02620 - Granite Curbs.

D. Section 03300 - Cast in Place Concrete.

1.03 SUBMITTALS

A. Submit manufacturer's product data for each granite product including finish indicated.

B. Samples: If requested, samples of materials shall be provided.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle landscape accessories to prevent damage and deterioration.

1.05 PROJECT CONDITIONS

A. Coordinate landscape accessory work with completion of final grading or surfacing.

PART 2 - PRODUCTS

2.01 GRANITE STEPS

A. Granite material used for steps must be approved granite from acceptable sources.

1. Granite steps to be provided to meet field slopes encountered with varying heights required.

2. Minimum width shall be 48 inches.

3. Maximum rise per step shall be seven inches.

4. Maximum depth per step shall be twelve inches.

5. Install steps with ¾" X 12" pins (two per step) or as recommended.

6. Finish shall be non-slip.

7. Style shall be split-face.

8. Provide all required support systems, bedding, or underlying substrate required for complete installation of steps as recommended.

9. Grade adjacent site areas around steps for smooth transition to top and bottom of stairs.

2.02 GRANITE BLOCKS FOR WALLS

A. Granite material used for walls must be approved granite from acceptable sources.

1. Granite blocks to be provided to match existing in color and texture.

2. Dimensions shall be as needed to construct wall and supplement existing blocks with additional blocks as shown on Drawings.

2.03 CEDAR STOCKADE FENCE AND ACCESSORIES

A. Fence Panels: Concave privacy stockade style cedar preassembled panels, 5' height by 8' width with no spaces between pickets. Products shall be from qualified manufacturers having a minimum of 5 years' experience manufacturing fencing.

B. Hardware: All hardware including brackets, screws, and nails shall be hot dipped galvanized.

C. Rails and Cross Braces: pressure treated lumber, applicable for the service condition and use category designations as determined by the AWPA U1 Standard, Table 2-1and Table 3-1, or as recommended by manufacturer.

D. Posts: 0.4 pressure treated lumber, suitable for contact with ground.

E. Accessories: Provide fence post caps to match panels.

PART 3 - EXECUTION

3.01 GRANITE STEPS

A. Provide crushed stone base, minimum 12" thick or as required by step manufacturer.

B. Support step system as required by step manufacturer.

C. Set steps on recommended support system.

D. Install steel pins as indicated on Drawings.

E. Level steps from all sides.

F. Grade surrounding site areas to create a smooth transition to top and bottom of steps.

3.02 GRANITE BLOCK WALLS

A. Stack and secure granite blocks to blend with existing reset wall and surrounding areas.

B. Grade surrounding site areas to create a smooth transition to top and bottom of steps.

C. Provide construction adhesive appropriate to adhere gravity blocks in a dry set appearance.

3.03 CEDAR STOCKADE FENCE AND ACCESSORIES

A. Installation:

a. Install fence in accordance with manufacturer's instructions.

b. Space posts uniformly at 8'5-1/2" on center unless otherwise indicated.

c. Bury pressure treated posts 5' deep minimum.

d. Check each post for vertical and top alignment, and maintain in position during placement and finishing operation.

e. Mount horizontal fence rails and cross braces to posts as recommended by manufacturer. Check each rail for horizontal alignment during placement and finishing operation.

f. Align fence panels between posts and attach firmly. Provide 3" clearance (typical) between bottom of panel and ground.

g. Install fence post caps.

3.04 CLEANING

A. Perform cleaning during installation of the work and upon completion of the work. Remove from site all excess materials, debris, and equipment. Repair damage resulting from landscape accessories work.

B. Clean up debris and unused material, and remove from site.

END OF SECTION

SECTION 02510

WATER DISTRIBUTION SYSTEMS

SECTION 02510 - WATER DISTRIBUTION SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. General: This section includes:

1. Water service relocation where encountered at-grade.
2. Materials required for repair of water services damaged in course of work.
3. Water line fittings and adapters.
4. Water services to buildings.
5. Water wedge valves.
6. Corporation stops.
7. Saddles for corporation stops.
8. Curb stops.
9. Valve boxes.
10. Hydrants.

1.02 RELATED SECTIONS

A. Section 02200 - Earthwork.

B. Section 03300 – Cast-in-Place Concrete

1.03 PERFORMANCE REQUIREMENTS

A. Water Main Pressure Ratings: Not less than 1.5 times the sustained working pressure of the lowest elevation of the test section.

1.04 SUBMITTALS

A. Product data for pipe, fittings, valves, and hydrant.

B. Conformance with AWWA and NSF 61/ANSI Drinking Water Standards for all products submitted.

C. Record drawings at project closeout of installed water service piping and products in accordance with requirements of Division 1, Section 'Project Closeout'.

D. American Iron & Steel Certifications are required.

1.05 QUALITY ASSURANCE

A. For water line work, comply with all requirements of the water utility owner. All materials and workmanship are subject to approval by the District.

C. Perform all water line relocation work in accordance with Department of Human Services standards, where more stringent than local requirements.

D. All work including temporary water service shall comply with American Water Works Association and NSF/ANSI Standards for Drinking Water.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Prepare hydrants for transport as follows:

1. Ensure that hydrants are dry and internally protected against rust and corrosion.

2. Protect against damage to threaded ends, flange faces, and weld ends.

3. Set in best position for handling.

B. Storage: Use the following precautions for hydrants during storage:

1. Do not remove end protectors unless necessary for inspection; then reinstall for storage.

2. Protect from weather. Store indoors and maintain temperature higher than the ambient dew point temperature. If outdoor storage is necessary, support off the ground or pavement in watertight enclosures.

C. Use the following precautions for pipes during storage:

1. All materials shall be kept safe from damage. Materials shall be kept free from dirt and foreign materials at all times.

2. Store gaskets in cool location out of direct sunlight. Gaskets should not come in contact with petroleum products.

3. Protect from moisture and dirt.

1.07 SEQUENCING AND SCHEDULING

A. Coordinate relocation of water main or connection of new work to existing with the Southwest Harbor Water and Sewer District.

B. Contractor shall be responsible for production and distribution of public notices regarding disruption of water services whether planned or unexpected. Notices shall be submitted to the Owner and Engineer for review in advance of distribution.

PART 2 - PRODUCTS

2.01 BURIED PIPES AND TUBES

A. All piping, fittings, valves, coating, gaskets and appurtenances that will come into contact with potable water shall have ANSI/NSF Standard 61 Certification.

B. General: Provide fittings and other required piping accessories of same type and class of material as conduit, or of material having equal or superior physical and chemical properties.

C. Ductile-Iron Pipe: AWWA C151, thickness Class 52.

1. Lining: AWWA C104, cement mortar, seal coated.

2. Gaskets, Glands, and Bolts and Nuts: AWWA C111.

3. Mechanical-Joint-Type or Push-On Type Pipe: AWWA C111, rubber gaskets, ductile iron glands, and stainless steel bolts and nuts.

4. Exterior Coating: Bituminous.

5. American Iron & Steel certified.

D. Copper Tube:

1. ASTM B 88 (ASTM B 88M), seamless water tube, Type K annealed temper.

2.02 PIPE AND TUBE FITTINGS

A. Ductile Iron Pipe Fittings: AWWA C110, ductile iron, 250 psig (1725 kPa) minimum pressure rating.

B. Copper Fittings: ASME B16.22; wrought-copper, compression pressure type.

C. Cast-Copper-Alloy Flanges: ASME B16.24, Class 150 or 300, as required for system operating pressure.

2.03 JOINING MATERIALS

A. Ductile Iron Pipe and Ductile Iron or Cast Iron Fittings: The following materials apply:

1. Mechanical Joints: AWWA C111 ductile iron or gray iron glands, high strength steel bolts and nuts, and rubber gaskets.

B. Gaskets: Rubber.

C. Bolts and Nuts: AWWA C111.

D. Equal to: Megalug or Romac Grip Ring.

E. Products with set screw grips not allowed.

F. American Iron & Steel certified.

2.04 VALVES

A. Corporation Stops:

1. CC x CPPJ for tapping into ductile iron water mains.

2. Ball valve with PTFE coated bronze ball.

3. Meeting AWWA C-800 and NSF 61.

4. 300 psi rating at maximum working pressure.

5. Body shall be heavy duty lead free brass.

6. Requires two O-ring seals in precision grooves.

7. Insert stiffeners of stainless steel construction required at all connections to flexible tubing.

8. Size to match water service lines shown on Drawings.

9. Equal to Mueller Series 2361.

10. American Iron & Steel certified.

B. Saddles:

1. Provide saddle for all services.

2. Corporation stop shall be threaded into saddle.

3. Saddle shall be double strap style. (Single strap saddles shall be unacceptable).

4. Body shall be ductile iron, Grade 65-45-12, meeting ASTM A-536.

5. Threads shall be FEP or CC (AWWA).

6. Finish shall be shop coat paint.

7. Fasteners shall be 304 stainless steel.

8. Gaskets shall be virgin NBR rated for water service.

9. Straps shall be 304 stainless steel.

10. American Iron & Steel certified.

C. Curb Stop, Service Box, and Rod:

1. CPPJ X CPPJ fittings.

2. Ball valve with PTFE coated ball.

3. Meeting AWWA C-800 and NSF 61.

4. 300 psi rating at maximum working pressure.

5. Body shall be heavy duty brass meeting 85-5-5-5 ASTM B62.

6. Requires two O-ring seals in precision grooves.

7. Insert stiffeners of stainless steel construction required at all connections to flexible tubing.

8. Size to match water service lines shown on Drawings with all components being lead free brass.

9. Equal to Bingham & Taylor.

10. Service box shall be 1" I.D. #40 black steel with top having N.P.I. threads for 1" screw-on cover, Erie Style with 5' to 6' slide-type riser.

11. Foot pieces shall be heavy duty, Ford style or equal cast iron design. Foot piece shall have arch to fit over 2" ball valve curb stops.

12. Service rod shall be 1/2" minimum diameter 304 stainless steel, and minimum 2 foot long.

13. The curb stop attachment point shall be a stainless steel cotter pin.

14. The rod yoke shall be an integral part of the rod and the wrench flat shall have a minimum thickness of 1/4" tapered to 1/10" and a width of 5/8" or 1/2".

15. Caps shall be 1" extra heavy with brass pentagon plug and coarse "rope" thread to fit 1" service box.

16. All caps shall have the word "WATER" clearly cast in top and be constructed of a magnetic material.

17. Provide 5 ¼" x 6" valve box cover and flanged riser ring over all service boxes equal to Bibby Slip Extension.

D. Resilient Wedge Valves:

1. Comply with AWWA C509.

2. Equal to American Flow Control Series 2500.

3. Working pressure 200 psi.

4. Test pressure 400 psi.

5. Wedge shall be ductile iron encapsulated in urethane rubber bonded permanently to meet ASTM D429.

6. Stems shall be cast bronze with integral thrust collar.

7. Two O-ring seals shall be provided above thrust collar and be replaceable with valve fully open under rated working pressure.

8. Two low torque Delvin Thrust Bearings shall be located above and below stem collar.

9. Actuator stem nut shall be bronze.

10. Actuator nut shall be held onto valve with removable nut. Stainless steel punchout pins or hex nuts shall not be acceptable.

11. All bolts shall be Type 18-8 stainless steel.

12. Valve type shall be MJ x MJ unless other connection type required in-field.

13. UL and FM approved.

14. Open right.

15. American Iron & Steel certified.

E. Valve Boxes:

1. Ductile iron, two piece sliding type with bell-type base.

2. Top flange and minimum 5 1/4" inside diameter.

3. Box cover shall be 2" drop-type cover to fit 5 1/4" opening.

4. Lettering "WATER".

5. Interior and exterior of all components shall be coated with bituminous.

6. American Iron & Steel certified.

2.05 HYDRANTS

1. Equal to Mueller Centurion.

2. Meeting AWWA C-502-85.

3. Body shall be cast iron with ductile iron cap nut.

4. Breakoff flange at bottom.

5. Compression type hydrant with main valve closing under water pressure.

6. Rising stem to indicate open/close.

7. Valve opening 5 1/4".

8. O-ring seals at stem.

9. Plugged drain required.

10. Two hose nozzles at 2 1/2" with NSF threads. Confirm nozzle size with local Fire Department and District.

11. One pumper nozzle with 4 NSF threads shall be provided in front of hydrant. Confirm nozzle size with local Fire Department and Water District.

12. Galvanized chain on nozzles.

13. Opens left.

14. Exterior finish: Red alkyd-gloss enamel paint.

15. Valves to comply with above wedge valve specification.

16. American Iron & Steel certified.

2.06 ANCHORAGES

A. Clamps, Straps, and Washers: ASTM A 506, steel.

B. Rods: ASTM A 575, steel.

C. Rod Couplings: ASTM A 197, malleable iron.

D. Bolts: ASTM A 307 steel.

E. Cast Iron Washers: ASTM A 126, gray iron.

F. Pipe Lubricant: Suitable for use in potable water supply.

PART 3 - EXECUTION

3.01 PIPE

A. Grade trench bottom to provide a smooth, firm, stable, and rock-free foundation for all buried pipes.

B. Remove unstable, soft, and unsuitable materials at trench bottom upon which pipes are to be laid and filled with compacted select backfill.

C. Bedding for ductile iron pipe shall be gravel or native material as approved by engineer from 6 inches below to 6 inches above pipe.

D. Ductile-Iron Pipe: Install with cement mortar lined mechanical joint and retainer glands or push on joint fittings and rubber gaskets in accordance with AWWA C600.

E. Clean interior of pipe thoroughly prior to installation. Utilize plugs to minimize entry of foreign materials into pipe.

F. Torque wrenches required to tighten all mechanical joint fittings with applied torque conforming to pipe and fitting manufacturer's requirements.

G. Piping shall be carefully lowered into the excavation. Suitable excavated material shall be placed to maintain equal depth on both sides of the pipe and to prevent movement of the pipe from its proper alignment.

H. All damage resulting from inadequate bracing or shoring will be the responsibility of the Contractor, who shall make all necessary repairs at his/her own expense.

I. The Contractor shall use extra caution to avoid disturbing any water service connections. Any disruption of water service shall be immediately reported to the Southwest Harbor Water and Sewer District and the property Owner.

J. Property owners whose driveways will be blocked shall be notified 24 hours in advance of the excavation. Driveways shall not be blocked at night without the expressed consent of the property owner.

K. Pipe shall be laid directly on the trench bottom. Prior to lowering pipe into trench, the trench bottom shall be made flat and cut true and even to grade so as to provide continuous contact of the trench bottom with the pipe.

L. No pipe shall be laid, in wet trench conditions, on frozen trench bottom, or when Engineer determines weather conditions are unsuitable for proper installation.

3.02 EXISTING WATER MAIN CONNECTION

A. Coordinate connection of new water main system with the Southwest Harbor Water and Sewer District.

3.03 PLACEMENT OF WATER LINE THRUST BLOCKS

A. Concrete shall be poured in place or precast:

1. Poured in place thrust blocks shall be constructed by pouring concrete between the fitting and the undisturbed wall of the trench. Care shall be exercised to ensure that the concrete is placed clear of joint accessories, bolts, nuts, and flanges.

B. Thrust blocks are required whenever the pipe:

1. Changes direction at tees, bends, crosses, and tapping sleeves.

2. Changes sizes as at reducers.

3. Stops as at dead ends and hydrants.

3.04 HYDRANTS

A. Install fire hydrants in locations indicated on drawings and to requirements of the Southwest Harbor Water and Sewer District.

B. Clean hydrants prior to installation.

C. Support hydrant to maintain vertical position while concrete restraints are curing.

3.05 FLUSHING AND DISINFECTION

A. General: At completion of water distribution line installation but prior to connection to existing water supply, flush and disinfect in conformance with AWWA C651-05, the Maine Department of Health and Human Services, and the Southwest Harbor Water and Sewer District requirements.

B. Initial flushing shall be conducted to remove dirt, sediment and debris from the line. Ductile iron pipe shall be flushed at a rate of 2.5 FPS and PVC pipe shall be flushed at a rate of 3.0 FPS in accordance with AWWA C605-94.

C. Disinfect the new piping, fittings, and components and flush all valves and hydrants to ensure adequate chlorine contact.

END OF SECTION

SECTION 02511

MaineDOT SECTION 400

PAVEMENTS

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), approved antistrip, warm mix additive, and/or mineral filler if required. HMA shall be designed and tested according to AASHTO R 35 and the volumetric criteria in Table 1. The Contractor shall size, uniformly grade, and combine the aggregate fractions in proportions that provide a mixture meeting the grading requirements of the Job Mix Formula (JMF). Unless otherwise noted in Special Provision 403 - Hot Mix Asphalt Pavement, the design, verification, Quality Control, and Acceptance tests for this mix will be performed at 65 gyrations. TABLE 1: VOLUMETRIC DESIGN CRITERIA

Design ESAL's (Millions)	**Required Density (Percent of G_{mm})**			**Voids in the Mineral Aggregate (VMA) (Minimum Percent)** Nominal Maximum Aggregate Size (mm)					**Voids Filled with Binder (VFB) (Minimum %)**	**Fines/Eff. Binder Ratio**
	$N_{initial}$	**N_{design}**	**N_{max}**	**25.0**	**19.0**	**12.5**	**9.5**	**4.75**		
< 3.0	≤90.5	96.0	≤98.0	13.0	14.0	15.0	16.0	16.0	65-80*	0.6-1.2
3 to <10	≤89.0									
≥ 10										

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

The Contractor shall submit a JMF to the Department for each mixture to be supplied. The JMF will be approved by the Department in accordance with the MaineDOT HMA Policies and Procedures for HMA Sampling and Testing Manual. At the time of JMF submittal, the Contractor shall identify and make available the stockpiles of all proposed aggregates at the plant site. There must be a minimum of 150 ton for coarse aggregate stockpiles and 75 ton for fine aggregate stockpiles before the JMF may be submitted. The Contractor shall provide aggregate samples to the Department unless otherwise required. The Contractor shall also make available to the Department the PGAB proposed for use in the mix in sufficient quantity to test the properties of the asphalt and to produce

samples for testing of the mixture. The first day's production shall be monitored, and the approval may be withdrawn if the mixture exhibits undesirable characteristics such as checking, shoving or displacement. The Contractor shall be allowed to submit aim changes for a JMF as outlined in the MaineDOT HMA Policies and Procedures for HMA Sampling and Testing Manual: Mix Design Approval Section.
The Contractor shall submit a new JMF for approval each time a change in material source or materials properties is proposed. The same approval process shall be followed. The cold feed percentage of any aggregate may be adjusted up to 10 percentage points from the amount listed on the JMF, however no aggregate listed on the JMF shall be eliminated. The cold feed percentage for RAP may be reduced up to 10 percentage points from the amount listed on the JMF and shall not exceed the percentage of RAP approved in the JMF or for the specific application under any circumstances.

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

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

TABLE 2: ALLOWABLE TEMPERATURE RANGES

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

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

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

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

TABLE 3: SEASONAL AND TEMPERATURE LIMITATIONS

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

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

401.07 Hot Mix Asphalt Plant

401.071 General Requirements HMA plants shall conform to AASHTO M 156, Standard Specification for Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures with exception of Section 4.2.1, 4.2.2, 4.3.4, 4.3.5, and 4.12.2.

All HMA plants will be inspected annually by the Department prior to producing HMA for Department projects. The Contractor shall provide the Department at least 72 hours' notice that the plant is ready for inspection. The Contractor shall equip the plant with ladders and platforms that are accessible and safe to obtain samples of PGAB, aggregate and mix from the relevant tanks, collector belts and haul units. Silo storage time of mixtures shall not exceed 36 hours.

401.072 Stockpiles The Contractor shall provide sufficient space for stockpiles and maintain a minimum of supply for 2 days production of all aggregate products used in MaineDOT approved mix designs currently under production. A minimum stockpile supply of 100 ton (70 yards) shall be maintained at all times. The Contractor shall construct stockpiles to prevent intermingling and to

minimize segregation. All stockpiles used in MaineDOT mixes shall be identified with weatherproof signs at least 12" high and 24" wide, with reflective lettering at least 2" high.

401.073 Cold Feeds Cold Feed Bins will have bin dividers to keep aggregate products separated. Adequate means must be provided for obtaining samples of the combined flow of all Cold feed bins.

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

401.075 Asphalt Binder The plant shall include a heating system and insulation to maintain the asphalt binder at a uniform temperature for proper mixing and compaction. A thermometer shall be provided in the asphalt binder line. No direct flame may come in contact with tank. A sampling valve shall be provided in the circulation line downstream of any binder additive used unless otherwise approved by the Department. The Contractor shall drain down the asphalt as low as safely possible in any tank that will be switched to a new source or grade prior to adding the new PGAB.

401.076 Additives Additives (WMA, anti-strip, etc.) introduced into the binder at the HMA plant shall be introduced per the supplier's recommendations and shall be approved by the Department. The system for introducing additives shall be interlocked with the aggregate feed or weigh system to maintain correct proportions for all production rates and batch sizes. Additive introduction systems shall be controlled by a proportioning device to the amount required on the JMF plus or minus 0.1% of the target. Additive introduction systems shall
be interlocked with the plant and the recordation (batch tickets or drum recordation) shall display the additive and the weight and percentage added. A means for sampling the PG binder with additive introduced will be provided. The sampling point shall be after the additive is mixed with the PGAB before entering the drum or mixer unit.

401.077 Batch Plants

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

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

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

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

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

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

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

401.078 Drum Plants

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

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

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

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

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

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

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

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

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

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

b. Where platform scales are not readily available, a check will be made to verify the accuracy and sensitivity of each scale within the normal weighing range and to assure that the interlocking devices and automatic printer system are functioning properly. If platform scales are not readily

available, a weight with a known mass-verified and sealed annually by a licensed scale company, may be used by hanging weight from silo or surge hopper, at lower middle and upper third levels upon request to verify scale accuracy.

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

401.09 Pavers The Contractor shall use pavers meeting the requirements of this section unless otherwise authorized by the Department. Pavers shall meet the requirements of Table 4: Paver Requirements.

TABLE 4: PAVER REQUIREMENTS

Use	Paver Requirement
Traveled Way & Auxiliary Lanes	Equipped with a 10 ft minimum main screed with activated extensions. The minimum tractor weight shall be 30,000 pounds.
	Equipped with automatic grade and slope controls that 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 interstate and divided highway projects.
All HMA Placement	Self-contained, self-propelled units of sufficient class and size to place Hot Mix Asphalt Pavement in full lane widths specified in the contract on the main line, shoulder, or similar construction.
	Equipped with a free-floating activated heated main screed with activated extensions. 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.
	Equipped with 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.
	Operated 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 screed assembly shall produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture.

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

401.10 Rollers Rollers shall be static steel, pneumatic tire, oscillatory, or approved vibrator type. Rollers shall be in good mechanical condition, capable of starting and stopping smoothly, and be free from backlash when reversing direction. Rollers shall be equipped and operated in such a way as to prevent the picking up of hot mixed material by the roller drums or tires. Crushing of the aggregate or displacement of the HMA during rolling will not be permitted. Any HMA Pavement that becomes loose, broken, contaminated, shows an excess or deficiency of PGAB, or is in any other way defective shall be removed and replaced at no additional cost with fresh material 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. The type of rollers to be used and their relative position in the compaction sequence shall generally be the Contractor's option unless otherwise specified in the contract, provided specified density is 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 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 5, unless otherwise noted by the Department in Section 403 - Hot Mix Asphalt Pavement.

TABLE 5: 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 shall place the specified course over the full width of the mainline traveled way being paved, regardless of use, depth, or longitudinal joint type prior to Memorial Day, July 4th, Labor Day, paving suspensions exceeding three days, or other dates as specified by special provision.

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

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

a. The minimum production and placement temperature for the Hot Mix Asphalt placed over membrane shall conform to the manufacturer's recommendations.
b. 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.
c. The top course shall not be placed until the bottom course has cooled sufficiently to provide stability.
d. The Contractor will not be required to cut sample cores from the compacted pavement on the bridge deck, unless otherwise directed by Special Provision.
e. 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. 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 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.

For all items requiring pavement density testing, the Contractor shall cut 6-inch diameter cores at no additional cost to the Department by the end of the working day following paving. Cores shall be cut such that the nearest edge at least 9 inches from any joint. Pre-testing of the cores will not be allowed. If the Contractor and the Department mutually determine that a core is damaged, the Contractor shall cut new core(s) at the same offset and within 3 ft of the initial sample. The Contractor and the Department will mutually determine if underlying material is adhered to the core and if so will mark the core at the point where sawing is needed. The Department will place the cores in a secure container and the Contractor shall transport the cores to the designated MaineDOT lab. The cores will be saw cut by the Department to remove underlying layers. No recuts are allowed at a test location after the core has been tested.
On all sections of overlay with wearing courses designed to be 1 in or less in thickness, there shall be no pay adjustment for density otherwise noted in Section 403 - Hot Mix Asphalt Pavement. For overlays designed to be 1 in or less in thickness, density shall be obtained by the same rolling train and methods as used on mainline travelway surface courses with a pay adjustment 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.

401.16 Joints The Contractor shall construct wearing course transverse and longitudinal joints in such a manner that minimum tolerances shown in Section 401.11 - Surface Tolerances are met when measured with a straightedge. The paver screed shall maintain a uniform head of HMA during transverse and longitudinal joint construction. The HMA shall be free of segregation and meet temperature requirements outlined in Section 401.04. Transverse joints of the wearing course shall

be straight and neatly trimmed. The Contractor may form a vertical face exposing the full depth of the course by inserting a header, by breaking the bond with the underlying course, or by cutting back with hand tools. The Contractor shall apply a coating of emulsified asphalt immediately before paving all joints to the vertical face and 3 in of the adjacent portion of any pavement being overlaid except those formed by pavers operating in echelon. The Contractor shall use an approved spray apparatus designed for covering a narrow surface. The Department may approve application by a brush for small surfaces, or in the event of a malfunction of the spray apparatus, but for a period of not more than one working day.

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

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

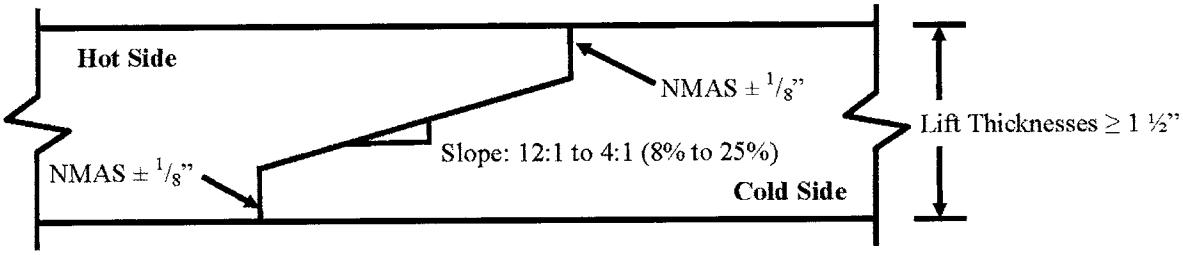


FIGURE 1: Notched Wedge Joint

Notes

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

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

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

The Contractor shall apply a coating of emulsified asphalt on the vertical and tapered surface of the longitudinal centerline joint immediately before paving if the notched wedge joint device is used.

The total rate of application shall be 0.050 G/SY plus the normal specified tack coat rate. The Contractor shall use an approved spray apparatus designed for covering a narrow surface. The Department may approve application by a brush for small surfaces.

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

401.18 Prepave Meeting Prior to placing any mix, the Department and the Contractor shall hold a Pre-paving conference to discuss the paving schedule, source of mix, type and amount of equipment to be used, sequence of paving pattern, rate of mix supply, random sampling, project lots and sublots and traffic control. A copy of the density QC random numbers to be used on the project shall be provided to the Resident. The Departments' random numbers for Acceptance testing shall be generated and on file with the Resident and the Project Manager. All personnel of the Department and the Contractor who have significant information relevant to the paving items shall attend, including the responsible onsite paving supervisor for the Contractor. The Resident will prepare minutes of the conference and distribute them to all attendees. Any requests to revise the minutes must be made to the Resident within 7 Days of Receipt. These minutes will constitute the final record of the Pre-paving conference. On the first day of paving and whenever there is a change in the onsite paving foreman or paving inspector, the Department and the Contractor shall hold an informal onsite meeting to review the minutes of the Pre-paving conference, Project Specific QCP, Plans, Typicals, Special Provisions and communication process. This meeting shall be held prior to placing any mix. The onsite paving supervisor, QCT, Superintendent, Resident and/or paving inspector shall attend.

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

401.191 Quality Control The QCP shall meet the requirements of Section 106.6 - Acceptance and this Section. The QCP shall address any items that affect the quality of the Hot Mix Asphalt Pavement, and shall include the following personnel meeting these minimum requirements:

a. QCP Administrator - 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 their designee in the QCP Administrator's absence) shall be available to communicate with the Department at all times.

- For items accepted under Methods A and B, the QCP Administrator shall be certified as a Quality Assurance Technologist (QAT) by NETTCP.
- For items accepted under Methods C and D, the QCP Administrator shall be certified by NETTCP as a Quality Assurance Technologist (QAT), Plant Technician, or Paving Inspector.

b. Process Control Technician(s) (PCT) shall utilize test results and other quality control practices to assure the quality of aggregates and other mix components and control proportioning to meet the JMF(s). The PCT shall inspect all equipment used in mixing to assure it is operating

properly and that mixing conforms to the mix design(s) and other Contract requirements, and that delivery slips and plant recordation accurately reflects the mix being produced with all the required information. The QCP shall detail how these duties and responsibilities are to be accomplished and documented, and whether more than one PCT is required. The Plan shall include the criteria to be utilized by the PCT to correct or reject unsatisfactory materials. The PCT shall be certified as a Plant Technician by the NETTCP.

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

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

The QCP shall address any items that affect the quality of the Hot Mix Asphalt Pavement including, but not limited to, the following:

a. General Requirements:
    - Job Mix Formulas (JMFs)
    - Name of QCP Administrator, and certification number
    - Description of corrective action process
    - Disposition of defective material
    - A procedure to take immediate possession of acceptance samples once released by MaineDOT and deliver said samples to the designated acceptance laboratory.

b. Process Control Requirements: Each Hot Mix Asphalt plant shall have a Plant Specific Process Control Plan. At minimum the plan shall include:
    - Name of Plant Specific Process Control Technician(s) and certification number(s)
    - Hot mix asphalt plant details
    - Stockpile Management
    - Mixing & transportation
    - Silo management and details
    - A detailed description of RAP processing, stockpiling and introduction into the plant
    - PG Binder management:
        - Tanks and storage (including polymer modified binders if applicable)
        - Binder temperature
        - Sample points
        - Method to ensure mixture contains the specified binder grade
        - Additive introduction details if introduced at the plant
    - Testing and inspection plan for control of aggregates and RAP
    - Mix Testing and inspection plan

c. Quality Control Requirements – Method A & B
   - Name of Quality Control Technicians(s) and certification number(s)
   - Laydown operations
   - Longitudinal joint construction including the tacking of all joints.
   - Procedures for avoiding paving in inclement weather
   - Compaction of shoulders
   - Methods to ensure that segregation is minimized
   - Procedures to determine the maximum rolling and paving speeds based on best engineering practices and past experience in achieving acceptable pavement smoothness.
   - Sequence for paving around drainage structures, under guard rail, around curb, at bridges, intersections, drives and minor approaches to ensure proper compaction, finish, and drainage.
   - Type of release agent to be used on haul units, tools and rollers.

d. Quality Control Requirements – Method C and D
   - Name of QCP Administrator and certification number(s) as specified in Section 401.19.
   - Name of Process Control Technicians(s) and certification number(s).
   - Name of Quality Control Technicians(s) and certification number(s).
   - Anticipated Compaction Temperature Zones for each roller pass during placement.
   - Mix TMD to be used for density gauge setting for method spec density work
   - Procedures for avoiding paving in inclement weather.
   - Type of release agent to be used on haul units, tools and rollers.
   - A note stating that the use of petroleum-based fuel oils, such as diesel or kerosene, or asphalt stripping solvents will not be permitted.
   -

The Contractor shall also supply a Laydown Operation Plan that addresses sequence of work, layout of work, longitudinal joint construction, compaction of shoulders, methods to minimize segregation, and procedures to achieve acceptable pavement smoothness.

For each production day, a summary of each day's results, including a daily paving report, summarizing the mixture type, mixture temperature, equipment used, environmental conditions, and the number of roller passes, shall be recorded and signed by the QCT and presented to the Department's representative by 1 PM the following working day.

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 the Plan. All mix designs (JMF) shall be approved and verified by MaineDOT prior to use.
A QCP, certified QC personnel, and a Prepave Meeting shall not be required for Item 403.209 - Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (sidewalks, drives, islands & incidentals) accepted under visual or Method D. An approved JMF shall be provided to the Resident prior to placement.

The Contractor shall certify the mix and the test results for each item by a Certificate of Compliance.

The Contractor shall have a testing lab at the plant site, equipped with all testing equipment necessary to complete the tests in Table 6. 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 minimum frequencies per each approved mix design:

TABLE 6: MINIMUM QUALITY CONTROL FREQUENCIES

Test or Action	Frequency	Test Method
Temperature of mix	6 per day at street and plant	-
Temperature of mat	4 per day	-
%TMD (In-Place Density - Surface)	1 per 125 ton	AASHTO T 355 or AASHTO T 343
%TMD (In-Place Density - Base)	1 per 250 ton	AASHTO T 355 or AASHTO T 343
Fines / Effective Binder	1 per 500 ton	AASHTO T 312*
Gradation	1 per 500 ton	AASHTO T 30
PGAB Content	1 per 500 ton	AASHTO T 164 or AASHTO T 308
Voids at N_{design}	1 per 500 ton	AASHTO T 312*
VMA at N_{design}	1 per 500 ton	AASHTO T 312*
Rice Specific Gravity	1 per 500 ton	AASHTO T 209
Percent Fractured Particles	1 per 5,000 ton	AASHTO T 335
Flat and Elongated Particles	1 Per 5,000 ton	ASTM D4791
Fine Aggregate Angularity	1 Per 5,000 ton	AASHTO T 304

*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 7 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 7: CONTROL LIMITS

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

The Contractor shall submit all QC test and inspection reports and updated control charts to the Resident and QC.mainedot@maine.gov by email. The 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. Test results of splits that do not meet the Dispute Resolution

Variance Limits in Table 18 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 401.50 - Process for Dispute Resolution].

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 summarizing the mixture type, mixture temperature, equipment used, environmental conditions, and the number of roller passes, 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 7: 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 7 control chart control limits.

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

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

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

The Contractor shall notify the Resident in writing as to the reason for shutdown, as well as the corrective action, by the end of the workday. Failure to do so will be treated as a second incident under 106.4.6 QCP Non-compliance. The Department will only allow the continuation of paving operations when it is satisfied the corrective action will result in an improvement in results. The Department may require the submittal of a passing verification sample to allow further production. The Department

retains the exclusive right, with the exception of the first day's production of a new JMF, to determine whether the resumption of production involves a significant change to the production process. If the Department so determines, then the current lot will be terminated, a pay factor established, and a new lot will begin.

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

401.192 Quality Control for Method D, (sidewalks, drives, islands & incidentals) and visual acceptance items
A QCP, certified QC personnel, or Prepave Meeting shall not be required for Item 403.209 - Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (sidewalks, drives, islands & incidentals) accepted under visual or Method D. An approved JMF shall be provided to the Resident prior to placement.

401.20 Acceptance Method A & C These methods utilize Quality Level Analysis and pay factor specifications. For Hot Mix Asphalt Pavement designated for acceptance under Quality Assurance provisions, the Department will sample once per sublot on a statistically random basis, test, and evaluate in accordance with the Acceptance Properties as outlined in Table 8:

TABLE 8: ACCEPTANCE PROPERTIES – METHOD A & C

Properties	Point of Sampling	Test Method
Gradation	Paver Hopper	AASHTO T 30
PGAB Content	Paver Hopper	AASHTO T 308
% TMD (In-Place Density)	Mat behind all Rollers	AASHTO T 269
Voids at N_{design}	Paver Hopper	AASHTO T 312
VMA at N_{design}	Paver Hopper	AASHTO T 312
Fines to Effective Binder	Paver Hopper	AASHTO T 312
VFB	Paver Hopper	AASHTO T 312

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

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

Lot sizes and sublot sizes shall be determined as outlined in Table 9.

TABLE 9: LOT AND SUBLOT SIZES – METHOD A & C

Lot Size*	Entire production per item per contract up to 6000 ton
Maximum Sublot Size – Mix	750 ton
Maximum Sublot Size – Density	Surface Layers – 250 ton Base / Intermediate Layers – 500 ton
Minimum Number of Samples – Mix	Four
Minimum Number of Samples – Density	Five

*Unless otherwise agreed upon at the Prepave Meeting

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

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

Isolated Areas During the course of inspection, should it appear that there is an isolated area that is not representative of the lot based on a lack of observed compactive effort, excessive segregation, a change in process or any other questionable practice, that area may be isolated and tested separately. An area so isolated that has a calculated pay factor below 0.80 for Method A, 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.

TABLE 10: ACCEPTANCE LIMITS – METHOD A & C

Property	**USL and LSL**	
	Method A	**Method C**
Percent Passing 4.75 mm and larger sieves	Target +/- 7%	Target +/- 7%
Percent Passing 2.36 mm to 1.18 mm sieves	Target +/- 4%	Target +/- 5%
Percent Passing 0.60 mm sieve	Target +/- 3%	Target +/- 4%
Percent Passing 0.30 mm to 0.075 mm sieve	Target +/- 2%	Target +/- 2%
PGAB Content	Target +/- 0.4%	Target +/- 0.4%
Voids at N_{design}	4.0% +/- 1.5%	N/A
Fines to Effective Binder	0.9 +/- 0.3	N/A
VMA at N_{design}	LSL from Table 1	N/A
VFB	Table 1 plus a 4% production tolerance for USL	N/A
% TMD (In-place Density)	94.5% +/- 2.5%	94.5% +/- 2.5%

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

TABLE 11: CEASE PRODUCTION – METHOD A & C

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

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

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

401.201 Pay Adjustment - Method A & C The Department will use the following criteria for pay adjustment at the completion of the Lot using the pay adjustment factors under Section 106.7 - Quality Level Analysis:

Density Upon conclusion of each lot, density results shall be examined for statistical outliers as stated in Section 106.7.2. If the pay factor for Density falls below 0.80, 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 , the entire Lot shall be removed and replaced with material meeting the specifications at no additional cost to the Department, except that the Department may, when it appears that there is a distinct pattern of defective material, isolate any defective material by investigating each mix sample sublot and require removal of defective mix sample sublots only, leaving any acceptable material in place if it is found to be free of defective material. Pay factors equal to or greater than the reject level will be paid accordingly.
Mix Properties The Department will determine a pay factor (PF) using the applicable Acceptance Limits. If all three pay factors for PGAB Content, VMA at N_{design}, and Voids at N_{design} fall below 0.80 for Method A, then the composite pay factor for PGAB Content, VMA at N_{design}, and Voids at N_{design} shall be 0.50.

The following variables will be used for pay adjustment:

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

The Department will determine a pay adjustment using Table 12: Pay Adjustment Calculations as follows:

TABLE 12: PAY ADJUSTMENT CALCULATIONS – METHOD A & C

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

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 13 below shall apply in addition to the other pay adjustments for the given method of testing.

TABLE 13: 0.075 MM SIEVE PAY ADJUSTMENT

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

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

401.21 Acceptance Method B & D Unless otherwise stated in the 403 special provision, the Lot shall be the entire mix quantity per item per contract. The Department will sample once per sublot per pay item on a statistically random basis, test, and evaluate in accordance with the Acceptance Properties in Table 14. The Department will obtain samples of Hot Mix Asphalt Pavement in conformance with AASHTO R 97, Sampling Asphalt Mixtures, and the MaineDOT Policies and Procedures for HMA Sampling and Testing. The Contractor shall transport the samples in containers provided by the Department to the designated MaineDOT Laboratory within 48 hours except when otherwise noted in the project specific QCP or as directed by the Resident. Failure to deliver an acceptance sample to the designated acceptance laboratory will be considered the second incident under 106.4.6–QCP Non-Compliance. Target values shall be as specified in the JMF. The Department will withhold reporting of the test results for the Acceptance sample until 7:00 AM, on the second working day of receipt of the sample, or after receipt of the Contractors results of the Acceptance sample split.

TABLE 14: ACCEPTANCE PROPERTIES – METHOD B & D

Properties	Point of Sampling		Test Method
	Method B	Method D	
Gradation	Paver Hopper	Paver Hopper or Truck	AASHTO T 30
PGAB Content	Paver Hopper	Paver Hopper or Truck	AASHTO T 308
% TMD (In-Place Density)	Mat behind all Rollers	Mat behind all Rollers	AASHTO T 269
Voids at N_{design}	Paver Hopper	N/A	AASHTO T 312
VMA at N_{design}	Paver Hopper	N/A	AASHTO T 312
Fines to Effective Binder	Paver Hopper	N/A	AASHTO T 312
VFB	Paver Hopper	N/A	AASHTO T 312

TABLE 15: LOT AND SUBLOT SIZES – METHOD B & D

Lot Size*	Entire mix quantity per item per contract	
Maximum Sublot Size – Mix	(Lot size ≤ 1000 tons)	(Lot size > 1000 tons)
	250 ton	750 ton
Sublot Size – Density	125 ton (Max 5 Sublots)	250 ton

*General – Lot and Sublot size may be adjusted to accommodate the work scope and schedule, or as otherwise agreed upon at the Prepave Meeting

TABLE 16: ACCEPTANCE LIMITS – METHOD B & D

Property	USL and LSL	
	Method B	Method D
Percent Passing 4.75 mm and larger	Target +/- 7%	Target +/- 7%
Percent Passing 2.36 mm sieve	Target +/- 5%	Target +/- 7%
Percent Passing 1.18 mm sieve	Target +/- 5%	Target +/- 5%
Percent Passing 0.60 mm sieve	Target +/- 4%	Target +/- 4%
Percent Passing 0.30 mm sieve	Target +/- 3%	Target +/- 3%
Percent Passing 0.075 mm sieve	Target +/- 3%	Target +/- 3%
PGAB Content	Target +/- 0.5%	Target +/- 0.5%
Voids at N_{design}	4.0% +/- 2.0%	N/A
Fines to Effective Binder	0.9 +/- 0.3	N/A
VMA at N_{design}	LSL from Table 1	N/A
VFB	Table 1 plus a 4% production tolerance for USL	N/A
% TMD (In-place Density)	94.5% +/- 2.5%	LSL of 92.0%

The Contractor shall cease paving operations whenever two consecutive Method B or D tests fall outside specification limits on the same property. 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.

401.211 Pay Adjustment - Method B & D For items accepted under Method B or D, if the mix is within the tolerances listed in Table 16, the Department will pay the contract unit price, otherwise pay adjustments as shown in Table 17 shall be applied to the quantity of mix represented by the test. The Contractor shall cut one 6 in core per sublot unless otherwise noted in Section 403 - Hot Mix Asphalt Pavement. If the density result is not within the specified limits the disincentive shall apply. If the sublot density is less than 88.5 percent or greater than 99.0 percent of the sublot TMD, two additional cores shall be cut at random locations determined by the Department. If either of the additional cores has a density less than 88.5 percent or greater than 99.0 percent of the sublot TMD, the sublot shall be removed and replaced at no cost to the Department; otherwise, the average of the three cores will be used to determine the sublot pay adjustment.

TABLE 17: PAY ADJUSTMENTS – METHOD B & D

Property	Method B		Method D	
Percent Passing 2.36 mm sieve	N/A		-2.0%	
Percent Passing 0.30 mm sieve	N/A		-1.0%	
Percent Passing 0.075 mm sieve	-2.0%		-2.0%	
PGAB Content	-5.0%		-5.0%	
Voids at N_{design}	-3.0%		N/A	
% TMD (In-place Density)	91.5% - 91.9% or 97.1% - 97.5%	-5.0%	91.5% - 91.9%	-5.0%
	90.5% - 91.4% or 97.6% - 98.5%	-10.0%	90.5% - 91.4%	-10.0%
	89.5% - 90.4% or 98.6% - 99.0%	-20.0%	89.5% - 90.4%	-20.0%
	88.5% - 89.4%	-30.0%	88.5% - 89.4%	-30.0%
	<88.5% or >99.0%	Reject	<88.5% or >99.0%	Reject

401.30 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.

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

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

401.50 Process for Dispute Resolution 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 in accordance with applicable AASHTO procedure and accepted supplemental practice as described in the Department's HMA Sampling and Testing Policies and Procedures manual. The Contractor shall report their results to the Resident, with a copy to Contractor.mainedot@maine.gov by 7:00 AM, on the second working day from time of QA sampling, otherwise dispute resolution will not be initiated. The Department's dispute resolution split sample will be properly labeled and stored for a period of at least two weeks after it has been reported, or until the sample is tested. The properties eligible for dispute and the respective variances are shown in Table 18.

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

- Acceptance sample reference number
- The specific test result(s) or property(ies) being disputed, and
- The complete, signed report of the Contractor's testing (In a lab certified by the NETTCP and MaineDOT) of their split of the Acceptance sample indicating that the variances in Table 18 for the specific test result(s) or property(ies) were exceeded.

TABLE 18: DISPUTE RESOLUTION VARIANCE LIMITS

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

*Disputes will not be allowed on Item 403.209

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

SECTION 402 - PAVEMENT SMOOTHNESS

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

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

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

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

Bridge decks and joints (no smoothness measurements will be taken within 100 ft of bridge joints)
Acceleration and deceleration lanes
Shoulders and ramps
Side streets and roads
Within 100 ft of transverse joints at the beginning and end of the project
Within 100 ft of railroad crossings
Urban areas with speed limits of 30 mph or lower

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

TABLE 1: ACCEPTANCE LIMITS

Level	USL
I	55 in/mile
II	65 in/mile
III	75 in/mile

Computation of Smoothness Pay Adjustment:

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

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

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

Payment will be made under:

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

SECTION 403 - HOT MIX ASPHALT PAVEMENT

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

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

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

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

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

Payment will be made under:

Pay Item		Pay Unit
403.102	Hot Mix Asphalt Pavement for Special Areas	Ton
403.206	Hot Mix Asphalt, 25 mm Nominal Maximum Size	Ton
403.207	Hot Mix Asphalt, 19.0 mm Nominal Maximum Size	Ton
403.2071	Hot Mix Asphalt, 19.0 mm Nominal Maximum Size (Polymer Modified)	Ton
403.2072	Asphalt Rich Hot Mix Asphalt, 19.0 mm Nominal Maximum Size (Asphalt Rich Base and Intermediate course)	Ton
403.208	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size	Ton
403.2081	Hot Mix Asphalt - 12.5 mm Nominal Maximum Size (Polymer Modified)	Ton
403.209	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Sidewalks, Drives, Islands & Incidentals)	Ton
403.210	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size	Ton
403.2101	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (Polymer Modified)	Ton
403.2104	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

SECTION 02620

MaineDOT SECTION 609

CURB

SECTION 609 - CURB

609.01 Description Construct or reset curb, gutter, or combination curb and gutter, paved ditch, and paved flume. The types of curb are designated as follows :

Type 1 - Stone curbing of quarried granite stone
Type 3 - Bituminous curbing
Type 5 - Stone edging of quarried granite stone

609.02 Materials Except as provided below, the materials used shall meet the requirements of the following Sections of Division 700 - Materials:

Joint Mortar	705.02
Reinforcing Steel	709.01
Concrete Curb	712.061
Stone Curbing and Edging	712.04
Epoxy Resin	712.35
Bituminous Curbing	712.36
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 4000 psi Class A concrete.

Circular curb, terminal sections and transition sections shall be in reasonably close conformity with the shape and dimensions shown on the plans and to the applicable material requirements herein for the type of curb specified.

Dowels shall be reinforcing steel deformed bars.

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

a. Installation The curb stone shall be set on a compacted foundation so that the front top arris line conforms to the lines and grades required. The foundation shall be prepared in advance of setting the stone by grading the proper elevation and shaping to conform as closely as possible to the shape of the bottom of the stone. The required spacing between stones shall be assured by the use of an approved spacing device to provide an open joint between stones of at least ¼ inch and no greater than 1/s inch.

b. Backfilling All remaining spaces under the curb shall be filled with approved material and thoroughly hand tamped so the stones will have a firm uniform bearing on the foundation for the entire length and width. Any remaining excavated areas surrounding the curb shall be filled to the required grade with approved materials. This material shall be placed in layers not exceeding 8 inches in depth, loose measure and thoroughly tamped.

When backfill material infiltrates through the joints between the stones, small

amounts of joint mortar or other approved material shall be placed in the back portion of the joint to prevent such infiltrating.

c. Protection The curb shall be protected and kept in good condition. All exposed surfaces smeared or discolored shall be cleaned and restored to a satisfactory condition or the curb stone removed and replaced.

d. Curb Inlets Curb placed adjacent to curb inlets shall be installed with steel dowels cemented into each stone with epoxy grout as shown in the Standard Details.

The epoxy grout shall be used in accordance with the manufacturer's instructions. The grout shall be forced into the hole, after which the dowel shall be coated with grout for one-half its length and inserted into the grout filled hole. The hole shall be completely filled with grout around the dowel. All tools and containers must be clean before using.

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

609.04 Bituminous Curb

a. Preparation of Base Before placing the curb, the foundation course shall be thoroughly cleaned of all foreign and objectionable material. String or chalk lines shall be positioned on the prepared base to provide guide lines. The foundation shall be uniformly painted with tack coat at a rate of 0.04 to 0.14 gal/yd^2.

b. Placing The curb shall be placed by an approved power operated extruding type machine using the shape mold called for. A tight bond shall be obtained between the base and the curb. The Resident may permit the placing of curbing by other than mechanical curb placing machines when short sections or sections with short radii are required. The resulting curbing shall conform in all respects to the curbing produced by the machine.

c. When required, the curb shall be painted and coated with glass beads in accordance with Section 627 - Pavement Marking. Curb designated to be painted shall not be sealed with bituminous sealing compound.

d. Acceptance Curb may be accepted or rejected based on appearance concerning texture, alignment, or both. All damaged curb shall be removed and replaced at the Contractor's expense.

e. Polyester fibers shall be uniformly incorporated into the dry mix at a rate of 0.25 percent of the total batch weight. Certification shall be provided from the supplier with each shipment meeting the following requirements:

Average Length	0.25 inches± 0.005
Average Diameter	0.0008 inches± 0.0001
Specific Gravity	1.32-1.40
Melting Temperature	480 °F Minimum

609.06 Stone Edging The curb shall be installed, backfilled and protected in accordance with Section 609.03, except as follows:

a. Slope The edging shall be set on a slope as shown on the plans or as directed.

b. Joints Joints shall be open and not greater than I½ inch in width.

609.07 Stone Bridge Curb

a. Installation Each stone and the bed upon which it is to be placed shall be cleaned and thoroughly wetted with water before placing the mortar for bedding and setting the stone. The stone shall be set on a fresh bed of joint mortar and well bedded before the mortar has set so that the front top arris line conforms to the line and grade required.

Whenever temporary supporting wedges or other devices are used in setting the stones, they shall be removed before the mortar in the bed has become set, and the holes left by them shall be filled with mortar. Concrete behind the stones shall not be placed until the stones have been in place at least two days. Bedding and pointing mortar for joints shall be cured as required under Section 502 - Structural Concrete.

b. Joints Vertical joints shall be ½ inch in width plus or minus ½ inch. Whenever possible, the face and top of the joint shall be pointed with joint mortar to a depth of 1½ inch, before the bedding mortar has set. Joints which cannot be so pointed, shall be prepared for pointing by raking them to a depth of 1½ inch before the mortar has set. Joints not pointed at the time the stone is laid shall be thoroughly wetted with clean water and filled with mortar. The mortar shall be well driven into the joint and finished with an approved pointing tool, flush with the pitch line of the stones.

609.08 Resetting Stone or Portland Cement Concrete Curb, Including Terminal Sections and Transitions

The curb shall be installed, backfilled and protected in accordance with Section 609.03, except as follows:

a. Removal of Curbing The Contractor shall carefully remove and store curb specified on the plans or designated for resetting. Curb damaged or destroyed, because of the Contractor's operations or because of their failure to store and protect it in a manner that would prevent its loss or damage, shall be replaced with curbing of equal quality at the Contractor's expense.

b. Cutting and Fitting Cutting or fitting necessary in order to install the curbing at the locations directed shall be done by the Contractor.

609.09 Method of Measurement Curb, both new and reset, will be measured by the linear foot along the front face of the curb at the elevation of the finished pavement, complete in place and accepted. Curb inlets at catch basins, including doweling, will not be measured for payment but shall be considered included in the cost of the catch basin. New transition sections and tenninal curb will be measured by the unit. Reset transition sections and terminal curb will be included in the measurement for resetting curb.

609.10 Basis of Payment The accepted quantities of curbing will be paid for at the contract unit price per linear foot for each kind and type of curbing as specified.

Payment for terminal curb shall include only that portion of the curbing modified for installation at ends of curb runs shown in the Standard Details. Curb adjacent to terminal ends shall be paid for at the contract unit price per linear foot for the type of curb installed.

Vertical Curb Type 1 is required to have a radius of 60 feet or less, will be paid for as Vertical Curb Type 1 - Circular.

Curb, Type 5 required to have a radius of 30 feet or less will be paid for as Curb Type 5 - Circular.

There will be no separate payment for concrete fill, mortar, reinforcing steel, anchors, tack coat, drilling for and grouting anchors, pointing and bedding of curbing, and for cutting and fitting, but these will be considered included in the work of the related curb.

Removal of existing curb and necessary excavation for installing new or reset curbing will not be paid for directly, but shall be considered to be included in the appropriate new or reset curb pay item. Base and Subbase material will be paid for under Section 304 - Aggregate Base and Subbase Course. Backing up bituminous curb is incidental to the curb items. Loam, as directed, will be paid under 615 - Loam.

Payment will be made under:

	Pay Item	Pay Unit
609.11	Vertical Curb Type 1	Linear Foot
609.12	Vertical Curb Type 1 - Circular	Linear Foot
609.13	Vertical Bridge Curb Type 1	Linear Foot
609.131	Vertical Bridge Curb Type IA	Linear Foot
609.132	Vertical Bridge Curb Type IB	Linear Foot
609.142	Vertical Bridge Curb Type lB - Circular	Linear Foot
609.15	Sloped Curb Type 1	Linear Foot
609.151	Sloped Curb Type 1 - Circular	Linear Foot
609.23	Terminal Curb Type 1	Each
609.234	Terminal Curb Type 1 - 4 foot	Each
609.237	Terminal Curb Type 1 - 7 foot	Each
609.2371	Terminal Curb Type 1 - 7 foot - Circular	Each
609.238	Terminal Curb Type l - 8 foot	Each
609.26	Curb Transition Section B Type I	Each
609.31	Curb Type 3	Linear Foot
609.34	Curb Type 5	Linear Foot
609.35	Curb-Type 5 - Circular	Linear Foot
609.38	Reset Curb Type 1	Linear Foot
609.39	Reset Curb Type 2	Linear Foot
609.40	Reset Curb Type 5	Linear Foot

SECTION 02700

SEWERAGE AND DRAINAGE

SECTION 02700 - SEWERAGE AND DRAINAGE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide exterior sanitary and storm sewer systems as shown on the Drawings. This section includes:

Smooth interior polyethylene (SICPE) storm drainage pipe and culvert (MaineDOT OPTION III)
Fernco couplings
Abandoning sewerage and drainage systems
Outlet bars on drainage culverts
PVC gravity sewers
PVC gravity building sewers
SICPE perforated underdrain pipe (MaineDOT TYPE B)
Sewer line cleanouts
Fittings and couplings between pipe types
Inserta tee cored connection fittings
Maximum allowable open trench limitations

1.02 RELATED SECTIONS

A. Section 02160 - Excavation Support Systems.

B. Section 02170 - Use of Explosives.

C. Section 02200 - Earthwork (includes excavation, bedding, backfill, compaction).

D. Section 02720 - Precast Concrete Sewerage/Drainage Structures.

E. Section 03300 - Cast-in-Place Concrete.

F. Section 07200 – Insulation.

1.03 DEFINITIONS

A. Drainage Piping: System of sewer pipe, fittings, and appurtenances for gravity flow of storm drainage.

B. Sewerage Piping: System of sewer pipe, fittings, and appurtenances for gravity flow of sanitary sewage.

1.04 PERFORMANCE REQUIREMENTS

A. Gravity Flow, Non-pressure Piping Pressure Ratings: At least equal to system test pressure.

1.05 SUBMITTALS

A. Submit each item in this Article according to the Conditions of the Contract and Division 1 Specifications Sections:

1. Manufacturer's product data and installation instructions.

2. Shop Drawings or Catalog Cuts of adapters for joining pipes of different materials.

3. Construction Records: Record depth and location of the following:

a) House service connection points, bends in house service connection points to sewer main;
b) Bends
c) Repairs to existing pipes
d) Thrust blocks
e) All utilities encountered during excavation

4. Record neatly in a permanently bound notebook and submit at substantial completion. Provide access to records for Engineer at all times. Submit copies to Engineer on a weekly basis.

1.06 QUALITY ASSURANCE

A. Environmental Agency Compliance: Comply with regulations pertaining to sanitary sewerage and storm drainage systems as promulgated by Maine DEP and U.S. EPA.

B. Utility Compliance: Comply with regulations pertaining to sanitary sewerage and storm drainage systems. Include standards of water and other utilities where appropriate and Maine DOT utility location and road opening permits.

C. Product Options: Drawings indicate sizes, profiles, connections, and dimensional requirements of system components and are based on specific manufacturer types indicated.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Do not store plastic structures in direct sunlight.

B. Do not store plastic pipe or fittings in direct sunlight.

C. Protect pipe, pipe fittings, and seals from dirt and damage.

1.08 PROJECT CONDITIONS

A. Site Information: Perform site survey, research public utility records, and verify existing utility locations prior to excavation.

B. Locate existing structures and piping to be closed and abandoned or to remain.

C. Existing Utilities: Do not interrupt existing utilities serving facilities occupied by the Owner or others except when permitted under the following conditions and then only after arranging to provide acceptable temporary utility services.

1. Notify Engineer not less than 72 hours in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without receiving Engineer's written permission.

1.09 SEQUENCING AND SCHEDULING

A. Coordinate sanitary sewerage system connections to Owner's sanitary sewer.

B. Coordinate storm drainage system connections to Owner's storm sewer.

C. Coordinate sanitary sewerage system connections to existing on-site sanitary sewer.

D. Coordinate storm drainage system connections to existing on-site storm sewer.

E. Coordinate with other utility work.

F. Maximum allowable open trench that is not backfilled to grade at any one time shall be 200 LF.

PART 2 - PRODUCTS

2.01 PIPE AND FITTINGS

A. Plastic Polyvinyl Chloride (PVC) Gravity Sewer:

1. ASTM D3034 strength requirement SDR 35 with push on gasketed joints meeting ASTM D3212.

2. Gaskets elastomeric seal meeting ASTM F477.

3. Fittings of identical joint and gasket design.

B. Plastic Polyvinyl Chloride (PVC) Pressure Force Main (For Cleanout Riser):

1. ASTM D2241, SDR 21, Class 200 pressure pipe.

2. Fittings to be pressure rated equal to pipe.

3. Gaskets to conform with ASTM D1869 and F477.

C. Smooth Interior Corrugated Polyethylene Pipe (SICPE) Solid Drain Pipe (MDOT OPTION III):

1. ASTM D3350 Annular Smooth Interior pipe meeting 'Standard Specifications for Polyethylene Plastic Pipe and Fitting Materials'.

2. Polyethylene pipe fittings of identical joint design.

3. Solid as defined in project plans.

D. Perforated SICPE Underdrain Pipe (MDOT TYPE B):

1. ASTM D3350 Annular Smooth Interior pipe meeting "Standard Specifications for Polyethylene Plastic Pipe and Fitting Materials.

2. Slotted openings.

3. Pipe fittings meeting above pipe specifications.

4. Equal to Hi-Q Sure-Lok by E.J. Prescott.

2.02 BURIED PIPE JOINTS

A. Gravity shall be push on pipe joint.

2.03 PIPE COUPLINGS

A. Non-pressure PVC shall be Fernco flexible coupling for appropriate pipe or solid sleeve PVC push on type coupling.

B. SICPE pipe shall be fittings provided by pipe manufacturer.

C. Cored connection shall be PVC Inserta Tee or equal, consisting of PVC hub, stainless steel band and rubber sleeve. These shall only be allowed in special circumstances as determined by Engineer.

2.04 MARKING TAPE

A. Metal detector compatible for future location.

B. Width of three inches minimum.

C. Green color required.

D. Equal to Liveguard III by Tri-Sales Inc.

2.05 OUTLET BARS FOR DRAINAGE PIPES

A. Number 4 rebar inserted vertically spaced at 6" O.C.

2.06 CLEANOUTS

A. Cover: Neenah # R-1978-A2 Frame and 9" ID, 7 5/8" x 7 5/8" cover, or equal.

B. Pipe: SDR 21 PVC or cast iron.

PART 3 - EXECUTION

3.01 INSTALLATION OF GRAVITY SEWERS AND FITTINGS

A. General Locations and Arrangements: Drawings (plans and details) indicate the general location and arrangement of underground sewerage systems piping, Contractor shall conduct video inspection survey as noted on Drawings to verify location of existing sewer system components. Install piping as indicated, to extent practical.

B. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's recommendations for use of lubricants, and other installation requirements.

C. Bedding for each pipe length shall be completed before next pipe length installed.

D. Lay pipe to line and grade shown on the Drawings. If grade is not shown, determine elevations of start and finish points for each run of pipe. Lay pipe to a uniform grade between these points.

E. Use fittings for changes in direction. Use fittings for branch connections, except where direct tap into existing sewer is indicated.

F. Use proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reduction of the size of piping in the direction of flow is prohibited.

G. Extend sewerage piping and connect to building's sanitary sewer, of sizes and in locations indicated. Terminate piping as indicated.

H. Lay pipe in the dry. Do not use installed pipe to remove water from Work area.

I. Flush all pipe and remove debris. Flushing method must be approved by Engineer.

J. Size of house service leads: 4" or 6" unless otherwise indicated. Depth and location of service to be determined by Engineer in field.

K. Provide 2"x4" witness stakes at end of all new capped sewer stubs.

3.02 CORED INSERTA TEE CONNECTORS

A. Core the proper size hole. Use a hole saw for PVC, Ribbed and Polyethylene Pipe. Use a diamond core bit for Concrete, Clay, DI and Fiberglass pipe.

B. Insert the rubber sleeve into the cored hole with the gold vertical line on the rubber sleeve facing the side of the mainline. The upper segment should be on top of the wall or rib and the lower segment (PVC, Ribbed & Polyethylene pipe only) should be on the inside of the pipe.

C. Apply the Inserta Tee solution supplied to the inside of the rubber sleeve and to the outside of the PVC hub adaptor. DO NOT use an oil based lubricant.

D. Place the PVC hub adaptor into the rubber sleeve. Ensure that the red vertical line on the PVC hub adaptor is in line with the gold vertical line on the rubber sleeve.

E. Place a 2" x 4" board onto the top of the PVC hub adaptor (used with hammer to drive the hub adaptor into sleeve).

F. The red horizontal line at the top of the hub adaptor is a depth mark. This tells the installer how far to drive the adaptor into the rubber sleeve. Drive the PVC hub adaptor into the rubber sleeve to where the horizontal red line on the PVC hub adaptor meets the top of the rubber sleeve.

G. Place the stainless band around the top of the rubber sleeve and tighten down.

H. Install side-service pipe in normal manner.

I. It is the intent of these specifications to allow use of this type of connection only where approved by Engineer due to unique circumstances. Most, if not all, service connections will be made with tees or wyes.

3.03 CLEANOUT INSTALLATION

A. Install cleanouts and riser extension from sewer pipe to cleanout at grade. Use cast-iron soil pipe or SDR 21 PVC fittings in sewer pipes at branches for

cleanouts and cast-iron soil pipe or SDR 21 PVC for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in sewer pipe.

B. Set cleanout frames and covers in earth in a cast-in-place concrete block, 18 by 18 by 12 inches deep. Set with tops 1 inch below surrounding earth grade.

C. Set cleanout frames and covers in paving with tops flush with surface of paving.

D. Set cleanout frames and covers in gravel or lawns 12" below grade and provide sealed cap.

3.04 SUBSURFACE DRAINAGE AND UNDERDRAIN BACKFILL

A. Subsurface Drain: Place a layer of filter fabric around perimeter of drainage trench, as indicated. Place compacted course of crushed stone on filter fabric to support drainage pipe. After installing, encase drainage pipe in crushed stone and wrap in filter fabric, overlapping edges at least 6 inches.

3.05 INSTALLATION OF STORM DRAIN AND FITTINGS

A. General Locations and Arrangements: Drawings (plans and details) indicate the general location and arrangement of underground sewerage, drainage, and other known utility systems piping. Install piping as indicated, to extent practical.

B. Install piping beginning at low point of systems, true to grades and alignment indicated with unbroken continuity of invert. Install fittings and couplings according to manufacturer's recommendations for use of lubricants, cements, or other installation requirements. Maintain swab or drag in line and pull past each joint as it is completed.

C. Laser beam required for establishing pipe invert grades in field.

D. Bedding for each pipe length shall be completed before next pipe length installed.

E. Lay pipe to line and grade shown on the Drawings. If grade is not shown, determine elevations of start and finish points for each run of pipe. Lay pipe to a uniform grade between these points.

F. Use catch basins or storm manholes for changes in direction, except where fittings are indicated. Use fittings for branch connections.

G. Use proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reduction of the size of piping in the direction of flow is prohibited.

H. Lay pipe in the dry. Do not use installed pipe to remove water from Work area.

I. Flush all pipe and remove debris. Flushing method must be approved by Engineer. Gravity flushing is not acceptable.

3.06 ABANDONING SEWERAGE AND DRAINAGE PIPES

A. Close open ends of abandoned underground piping that is indicated to remain in place. Include closures strong enough to withstand hydrostatic and earth pressures that may result after ends of abandoned piping have been closed. Use either of the following procedures:

1. Close open ends of piping with at least 8 inch thick brick masonry bulkheads or equivalent.

3.07 OUTLET BAR FOR DRAINAGE PIPES

A. Drill 1/4" diameter holes in top and bottom of pipe outlet 6 inches in from end of pipe.

B. Thread No. 4 rebar into pipe top hole and insert through bottom hole, imbedding into ground minimum 12".

C. In corrugated pipe, install bars in corrugation groove such that protrusion from top does not extend beyond outer corrugation.

3.08 EXISTING UTILITIES

A. If, either for the convenience of the contractor, or accidentally, existing utilities or structures of any kind are disrupted, damaged, or proposed temporarily disconnected, contractor shall repair, reconnect, or reinstall the utility to the complete satisfaction of the Utility Owner, Engineer, and Owner. This may require replacement of existing facilities with new materials.

END OF SECTION

SECTION 02717

MANHOLE RIM ADJUSTMENT

SECTION 02717 – MANHOLE RIM ADJUSTMENT

PART 1 – GENERAL

1.01 SUMMARY OF WORK

A. This specification defines the Work required to adjust existing manhole rims to-grade including, but not limited to:

1. Removal and replacement of adjacent pavement surfaces.

2. Removal and adjustment to new grades of manhole rims indicated by drawings or by Engineer as requiring adjustment.

3. Earthwork as required to locate existing manhole covers and to repair excavated areas adjacent to manhole.

4. Traffic control as required to perform work.

1.02 RELATED SECTIONS

A. Section 01570 – Traffic Control

B. Section 02200 – Earthwork

C. Section 02720 – Precast Concrete Sewerage/Drainage Structure

1.03 QUALITY ASSURANCE

A. Provide precast structures and risers capable of supporting AASHTO H-20 loading.

B. All precast concrete shall comply with ASTM C913 "Standard Specification for Precast Concrete Water and Wastewater Structures".

C. Field confirm finished grade elevation prior to ordering precast concrete structures.

D. Confirm precast concrete structure joint configuration with structure manufacturer prior to ordering structure.

PART 2 – PRODUCTS

2.01 MANHOLE FRAMES AND COVERS

A. Provide new manhole frames and covers. Coordinate with Specification Section 02720.

2.02 RISER RINGS TO GRADE

A. Provide reinforced riser rings to grade.

B. Use number of rings required to achieve grade elevation.

C. Seal all joints with bitumastic sealant and stiff packed mortar.

D. Ring inside diameter shall be twenty four inches.

2.03 PRECAST CONCRETE STRUCTURES

A. Coordinate with Specification Section 02720 – Precast Concrete Sewage/Drainage Structures.

PART 3 – EXECUTION

3.01 PREPARATION/INSTALLATION

A. Field locate existing manhole covers using metal detectors and test pits where buried as required.

B. Clearly mark all manhole locations to be adjusted using fluorescent marking paint.

C. Verify existing precast concrete lap joint configuration with structure manufacturer prior to ordering riser sections.

D. Provide riser barrel sections, cone section, or riser rings as required to adjust existing structure frame and cover on frame and grate to new rise elevations as shown on plans.

E. Coordinate excavation, installation, backfill, compaction and paving with related sections as noted in Section 1.02.

END OF SECTION

SECTION 02720

PRECAST CONCRETE SEWERAGE/DRAINAGE STRUCTURES

SECTION 02720 - PRECAST CONCRETE SEWERAGE/DRAINAGE STRUCTURES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide precast concrete structures as shown on the Drawings and as specified. This section includes:

Precast standard sanitary manhole sections as required for adjusting MH rims
Precast drain manholes and all accessories
Precast Type "F" catch basins
Precast catch basins
Precast concrete riser rings
Frames, covers, and grates
Masonry materials
Installing boots for new pipes in existing manholes
Manhole and catch basin accessories
Abandoning existing manholes and catchbasins

1.02 RELATED SECTIONS

A. Section 02200 - Earthwork.

B. Section 02700 - Sewerage and Drainage.

1.03 QUALITY ASSURANCE

A. Provide precast structures, risers, and covers capable of supporting AASHTO H-20 loading.

B. All precast concrete shall comply with ASTM C913 "Standard Specification for Precast Concrete Water and Wastewater Structures."

1.04 SUBMITTALS

A. Submit shop drawings for precast structures. Show components to be used, elevations of top and base of precast sections, base and pipe inverts, location of pipe penetrations and steps for each precast concrete item.

B. Provide manufacturers' product data and installation instructions for frames, covers, grates, precast items, sleeves, joint sealants, and frost barrier.

C. Field confirm finished grade elevation prior to ordering precast concrete structures.

PART 2 – PRODUCTS

2.01 PRECAST CONCRETE REQUIREMENTS

A. General: Cast-in-place concrete according to ACI 318, ACI 350R, and the following

1. Cement: ASTM C 150, Type II.

2. Fine Aggregate: ASTM C 33, sand.

3. Coarse Aggregate: ASTM C 33, crushed gravel.

4. Water: Potable.

B. Structures: Portland-cement design mix, 3000 psi minimum at 28 days, with 0.45 maximum water-cement ratio.

1. Reinforced Fabric: ASTM A 185, steel, welded wire fabric, plain.

2. Reinforcement Bars: ASTM A 615, Grade 60 (ASTM A 615M, Grade 400), deformed steel.

C. Structure Channels and Benches: Factory or field formed from concrete. Portland-cement design mix, 3000 psi minimum, with 0.45 maximum water-cement ratio.

D. Include channels and benches in both sanitary sewer and drain manholes.

E. Manhole Channels: Concrete invert, formed to same width as connected piping, with height of the vertical sides to 3/4 of the pipe diameter. Form curved channels with smooth, uniform longest possible radius and slope.

1. Invert Slope: 1.2 inches through manhole, unless otherwise indicated on Drawings.

F. Manhole Benches: Concrete, sloped to drain into channel.

1. Slope: 1 inch per foot.

2.02 MANHOLES

A. Precast Concrete Manholes: ASTM C 478, precast, reinforced concrete, of depth indicated, with provision for rubber gasket joints meeting AASHTO H-20 loading.

B. Ballast: Increase thickness of precast concrete sections or add concrete to base section, as required to prevent flotation.

C. Base Section: Minimum thickness for floor slab, as shown on plans, and minimum thickness for walls and base riser section, as shown on plans, and having a separate base slab or base section with integral floor.

D. Riser Sections: Minimum thickness, as shown on plans, 48 inch minimum diameter, or as shown on plans, and lengths to provide depth indicated.

E. Top Section: Eccentric cone type, unless concentric cone or flat-slab-top type is indicated. Top of cone of size that matches grade rings.

F. Sealants: ASTM C 443 butyl rubber, two rings sealant around each joint for watertight connection.

G. Steps: Provide steps for manholes greater than four feet deep.

1. ASTM C 478 individual steps or ladder.

2. Aluminum alloy 6061-T6 or copolymer polypropylene plastic with 1/2" Grade 60 reinforcing bar meeting ASTM D4101 Type II and ASTM A 615.

3. Meet all OSHA requirements.

4. Minimum width 14".

5. Maximum spacing 12" on center.

6. Coat with bitumastic paint where cast in concrete.

H. Pipe Connections:

1. Pipe sizes 6" or larger: Flexible manhole sleeves equal to CP series manufactured by Interpace Corp. size to fit diameter and type of pipe without use of gaskets.

2. Pipe sizes less than 6": Flexible Manhole sleeves as above or, thermoplastic pipe sleeve equal to "Link-Seal Century Line" model CS100 by Thunderline Corp. with sleeve seal equal to "Link-Seal" by Thunderline Corp.

3. As specified on drawings if in conflict with above.

2.03 CATCH BASINS

A. Precast Concrete Catch Basins: ASTM C 478 precast, reinforced concrete, of depth indicated, with provisions for rubber gasket joints meeting AASHTO H-20 loading.

B. Base Section: Six inch minimum thickness for floor slab and 5 inch minimum thickness for walls and base riser section, and having a separate base slab or base section with integral floor. Provide two foot deep sump below all invert pipes.

C. Riser Sections: Five inch minimum thickness, minimum 48 inch diameter, and lengths to provide depth indicated.

D. Top Section: Eccentric cone type, unless concentric cone or flat-slab top type is indicated. Top of cone of size that matches grade rings.

E. Sealant: ASTM C 443 (ASTM C 443M), butyl rubber, two rings sealant around each joint for watertight connection.

F. Risers: Includes layers of brick and mortar as required for height.

G. Pipe Connectors: ASTM C 923 resilient, of size required, for each pipe connecting to structure.

H. Concrete: 3000 psi compressive strength at 28 days.

I. Standard Frame and Grates: ASTM A 48, H-20 loading, heavy-duty cast iron:

1. Include 24 by 24 inch minimum flat grate with small square Cascade style slotted drainage openings.

2. Frame: 24 inch by 24 inch, 4 flange for asphalt curb or 3 flange for granite curb, with heights equal to 4", 6", or 8" to achieve grade.

J. Beehive: Grass ditch area.

1. 24"Ø beehive grate with slotted drainage openings.

2. Frame: 36" Ø nominal.

3. Equal to Neenah Foundry frame and grate Catalog No. R-2560-E1.

K. Round Catch Basin Grate: Outside pavement or Grass Ditch.

1. 24"Ø Round grate with small square cascade style slotted drainage openings.

2. Frame: 24"Ø.

3. Equal to East Jordan Iron Works frame and grate Product No. 00131111 and 00131034.

2.04 TYPE F CATCH BASINS

A. Precast Concrete Catch Basins: ASTM C 478 precast, reinforced concrete, of depth indicated, meeting AASHTO H-20 loading.

B. Base Section: Minimum thickness for floor slab and minimum thickness for walls and base riser section, as shown on Drawings and having base section with integral floor. Provide one foot deep sump below all invert pipes.

C. Risers: Includes layers of brick and mortar as required for height.

D. Pipe Connectors: ASTM C 923 resilient, of size required, for each pipe connecting to base section.

E. Concrete: 3000 psi compressive strength at 28 days.

2.05 PROTECTIVE COATINGS

A. Include factory or field applied protective coatings to structures and appurtenances according to the following:

1. Coating: Two coats, coal-tar epoxy, bitumastic, or Conseal coating, each coat 15 mil minimum thickness, except where otherwise indicated.

2. Manhole Sections: On exterior surface, bitumastic, PPS 922 superseal or equal.

2.06 RISER RINGS TO GRADE

A. Provide reinforced riser rings to grade unless otherwise noted.

B. Use number of rings required to achieve grade elevation.

C. Seal all joints with bitumastic sealant.

D. Ring inside diameter shall be twenty four inches.

2.07 MANHOLE FRAMES AND COVERS

A. Fully machined frame and cover.

B. Gray cast iron construction meeting ASTM A48 Class 30.

C. Rated for H-20 wheel loading.

D. Diamond pattern on cover.

E. Lettering on cover should be 3" high and marked as "SEWER" or "DRAIN" as appropriate.

F. Minimum weight shall be 330 pounds.

G. Minimum flange width: 4" with reinforcing webs and 4 anchoring holes.

H. Minimum frame height: 6".

I. Minimum inside frame diameter: 26 1/4 inches.

J. Minimum cover diameter: 26".

K. Minimum clear frame opening diameter: 24".

L. Equal to East Jordan Iron Work frame and covers.

1. Frame E.J. Prescott No. 65058.

2. Sewer E.J. Prescott cover No. 65305.

3. Drain E.J. Prescott cover No. 65306.

2.08 FROST BARRIERS

A. Frost Barrier: U.V. Resistant, high grade polyethylene, minimum thickness 6 mils.

2.09 MORTAR MATERIALS

A. For mortar mix: Conform to requirements of ASTM C 270, Type S using Portland cement.

B. Portland Cement: Natural color ASTM C 150, Type I, except Type III may be used for cold weather construction.

C. Hydrated Lime: ASTM C270, Type S.

D. Aggregate for Mortar: ASTM C 144, except for joints less than 1/4" use aggregate graded with 100% passing the No. 16 sieve.

E. Aggregate for Grout: ASTM C 404.

F. Water: Clean potable.

G. Cold Weather Admixture: Nonchloride, noncorrosive accelerating admixture complying with ASTM C 494 Type C.

H. Premixed mortars shall be as recommended by premix manufacturer as approved by Engineer.

PART 3 - EXECUTION

3.01 INSTALLATION OF PRECAST STRUCTURES

A. Place bases on compacted bedding material so precast structure is plumb and pipe inverts are at proper elevations.

B. Place riser and top sections in the appropriate height combinations.

C. Plug all lifting holes inside and out with non-shrink grout.

D. Follow manufacturer's instructions for sealing joints between precast sections. Provide two rings of 1-inch diameter butyl rubber sealant.

E. Point joints inside and out with butyl caulk.

F. Set frames and covers to 1/2" below final pavement grade or as shown on the Drawings in paved areas.

G. Provide adequate temporary covers to prevent accidental entry until final placement of frame and cover is made.

H. Use two rings of 1-inch diameter butyl rubber sealant between frame and riser rings.

I. Provide downward force to frame so as to compress the joint and provide a watertight seal and prevent future settlement.

J. Point compressed joint with butyl rubber caulk sealant.

K. Set frames and covers to final grade only after pavement base course has been applied, or after final grading of gravel roads.

3.02 FROST BARRIERS

A. Wrap each installed precast structure to the maximum excavation depth or not less than 7 feet below grade, with a minimum of four layers of 6 mils each of polyethylene plastic.

1. Clean manhole exterior of all dirt and remove any protrusions.

2. Apply a 6 inch wide vertical strip of bituminous waterproofing adhesive from the top of manhole to the bottom of the plastic wrap depth.

3. Start poly wrap at adhesive strip and proceed around manhole continuously, overlapping adhesive strip a minimum of 24 inches on the final layer.

4. Tuck and pleat poly at top in a continuous manner, minimizing size of folds. Extend poly past top of manhole frame and temporarily tuck remainder inside frame, until final backfill and paving.

5. Paved areas: Cut poly flush with manhole rim after pavement is in place.

6. Unpaved areas: Pull loose ends of poly together, remove excess air and tie off end with galvanized wire. Bury with manhole below grade.

3.03 ABANDONING PRECAST SEWERAGE AND DRAINAGE STRUCTURES

A. Excavate around abandoned structure such as manholes, catch basins, or wet wells as required and use either of the following procedures:

1. Remove structure and close open ends of remaining piping in accordance with requirements of Section 02700 for pipe abandonment.

2. Remove top of structure down to at least 36 inches below final grade. Fill to within 12 inches of top with crushed stone, gravel, flowable fill or compacted fill approved by Engineer.

3. Backfill to grade according to Division 2 Section "Earthwork", and typical trench detail for either lawn or paved roadway area soils and resurfacing.

END OF SECTION

SECTION 02832

MaineDOT SECTION 673- WET CAST SMALL LANDSCAPE BLOCK WALL

SECTION 673 - WET CAST SMALL LANDSCAPE BLOCK WALL

673.01 Description The work under this item shall consist of the design, fabrication, furnishing and construction of a Wet Cast Small Landscape Block Wall in accordance with these specifications and in conformance with the lines and grades shown on the Plans, or established by the Resident. The Wet Cast Small Landscape Block Wall shall consist of blocks made of Structural Precast concrete made from Portland cement, water, chemical admixtures, and aggregates, supported on concrete leveling pads, and if required, geosynthetic reinforced backfill. The concrete blocks used in this system should have dimensions 18 inches or less wide and 6.125 inches high at the face, with a pattern to simulate small stones or cobbles.

Included in the scope of the wall construction are; geotechnical design of any wall with an exposed height greater than 2.5 feet or as specified on the Plans, all grading necessary for wall construction, compaction of the wall foundation soil, backfill, piped drainage, construction of leveling pads, and concrete wall unit installation. The top of the upper row of concrete wall units shall be at or above the top of the face elevation shown on the Plans.

673.02 Quality Assurance The wall system shall be one of the approved combinations of facing block and soil reinforcement systems noted in the Plans or on the Department's Qualified Products List (QPL). Alternate wall systems will not be considered for this item.

All design calculations and Shop Drawings shall be signed, checked, and sealed by a Professional Engineer licensed in the State of Maine.

The Contractor shall require the wall design-supplier to provide an on-site, qualified experienced technical representative to advise the Contractor concerning proper installation procedures. The technical representative shall be on-site during initial stages of installation and thereafter shall remain available for consultation as necessary for the Contractor or as required by the Resident.

673.03 Materials Materials for walls shall meet the requirements of the following sections of Division 700:

Gravel Borrow	703.20
Crushed Stone, ¾ -Inch	703.13
Underdrain Pipe	706.06 or 706.09
Reinforcing Steel	709.01
Structural Precast Concrete Units	712.061
Reinforcement Geotextile	722.01
Drainage Geosynthetic	722.02

The Contractor is cautioned that all of the materials listed are not required for every Wet Cast Small Landscape Block Wall. The Contractor shall furnish the Resident a

Materials Certification Letter certifying that the applicable materials comply with this section of the specifications. Materials shall meet the following additional requirements:

673.031 Concrete Units The Materials Certification Letter described above shall contain the date of concrete casting, a lot identification number, compressive strength results, and entrained air results. All prefabricated concrete units shall conform to the requirements of 712.061 Structural Precast Concrete with the following exceptions:

Materials. Materials are modified as follows:

The maximum water cement ratio shall be 0.42, use of calcium nitrite is not required, and the minimum 28 day compressive strength shall be 4600 psi.

The third paragraph of Materials is not applicable to this Section.

Quality Control and Quality Assurance. Quality Control and Quality Assurance is modified as follows: delete the paragraph which begins with "The contractor shall provide a private office..."

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.

Add the following paragraph at the end of the Curing 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.

Concrete Testing. Concrete testing requirements are modified as follows:

Replace the paragraph which begins "A minimum of 8 ...." With the following:
The Contractor shall make and test at least one set of cylinders for every 50 yd^3 of production concrete used to cast the concrete units.

Replace the paragraph which begins "At least once ..." with the following:
The Contractor shall make four cylinders for use by the Department for every 200 yd^3.

Tolerances. Maximum dimensional deviation of formed unit dimensions shall not vary more than 1/2-inch or 2 percent or the manufacturer's published tolerances, whichever is less. Units not meeting the specified tolerances will be rejected.

673.032 Geosynthetic Reinforcement Geosynthetic Reinforcement shall be as required by the proprietary wall system manufacturer or wall designer. Geosynthetic reinforcement shall consist of a geotextile or geogrid approved by the Geotechnical Engineer. Substitution of a geosynthetic other than that required by the proprietary wall system manufacturer shall not be allowed unless approved by the Geotechnical Engineer after submittal of shop drawings and pullout and interface friction test data.

A. Geotextiles and Thread for Sewing. Woven or nonwoven geotextiles shall consist of long chain polymeric filaments or yarns formed into a stable network such that the filaments or yarns retain their position relative to each other during handling, placement, and design life. At least 95 percent by weight of the long chain polymer shall be polyolefin or polyester. The material shall be free of defects and tears. Geotextiles used for reinforcement shall conform as a minimum to the properties indicated for 722.01, Stabilization/Reinforcement Geotextile and shall meet the requirements of part D and E below. Geotextiles shall have a minimum permeability greater or equal to that shown on the Shop Drawings and the reinforced soil permeability.

B. Geogrids. The geogrid shall be a regular network of integrally formed polymeric tensile elements with aperture geometry sufficient to permit significant mechanical interlock with the surrounding soil or rock. The geogrid structure shall be dimensionally stable and able to retain its geometry under manufacture, transport and installation. Geogrids shall conform as a minimum to the criteria specified in part D and E below.

C. Required Properties. The specific geosynthetic materials shall be preapproved and shall the have the ultimate tensile strength (T_{ult}) shown on the approved Shop Drawings for the geosynthetic specified and for the fill type shown. T_{ult} shall be determined from wide width tests specified in ASTM D 4595 for geotextiles and ASTM D 6637 or GRI:GG1 for geogrids. The ultimate tensile strength value is based on the minimum average roll values (MARV) for the product.

D. The geosynthetic shall conform to the following criteria:
   1. PP and HDPE: Min. retained strength of 70 percent after 150 hours, per ASTM D-4355.
   2. HDPE: Grade = E-4, E-5, E-8, E-9, E-10, E-11, J-3, J-4, or J-5, per ASTM D-1248.
   3. PET: Molecular weight (Mn) > 25,000, per GRI:GG8 and ASTM D-4603.
   4. PET: Carboxyl end group (CEG) <30 mmol/kg, GRI:GG7.
   5. All polymers: Minimum Weight per Unit Area of 8 oz/yd^2, per ASTM D-5261.
   6. All Polymers: Maximum 0 percent post consumer recycled material by weight.
   7. A default total reduction factor for creep, durability, and installation damage of RF = 7 may be used in design, provided the criteria of 2 through 6 are satisfied and 1 is adjusted to 70 percent after 500 hours is satisfied.

E. Manufacturer Quality Control. The geosynthetic reinforcements shall be manufactured with a high degree of quality control. The Manufacturer is responsible for establishing and maintaining a quality control program to ensure compliance with the requirements of the specification. The purpose of the QC testing program is to verify that the reinforcement geosynthetic being supplied to the project is representative of the material used for performance testing and approval. Conformance testing shall be performed as part of the manufacturing process and may vary for each type of product. As a minimum the following index tests shall be considered as applicable for an acceptable QA/QC program:

Property	Test Procedure
1. Specific Gravity (HDPE only)	ASTM D-1505
2. Ultimate Tensile Strength GRI:GG1	ASTM D-4595
3. Melt Flow (HDPE and PP only)	ASTM D-1238
4. Intrinsic Viscosity (PET only)	ASTM D-4603
5. Carboxyl End Group (PET only)	ASTM D-2455

F. Sampling Testing and Acceptance. Sampling and conformance testing shall be in accordance with ASTM D-4354. Conformance testing procedures are established above. Geosynthetic product acceptance shall be based on ASTM D-4759. The quality control certificate shall include:

1. Roll numbers and identification

2. Sampling procedures

3. Results of quality control tests, including a description of test methods used.

G. Certification. The Contractor shall submit a manufacturer's certification that the geosynthetics supplied meet the respective index criteria set when the geosynthetic was approved, measured in full accordance with all test methods and standards specified, or referenced, in this specification.

The manufacturer's certificate shall state that the furnished geosynthetic meets the requirements of these specifications as evaluated by the manufacturer's quality control program. The values submitted shall be certified by a person having legal authority to bond the manufacturer. In case of dispute over validity of values, the Resident can require the Contractor to supply test data from an agency approved laboratory to support the values submitted, at the Contractor's cost.

673.033 Concrete Leveling Pad Concrete for leveling pads shall be Fill Concrete conforming to the requirements of Section 502 Structural Concrete. Leveling pad shall have

a minimum thickness of 4 inches. Unless otherwise specified, concrete for leveling pads shall be accepted under Method "C" requirements.

673.034 Drainage Stone Fill Concrete wall unit voids shall be filled with material that conforms to the requirements of Standard Specification Crushed Stone, ¾ -Inch, meeting the requirements of Section 703.13. Compaction of the stone fill will be required before the block surfaces are cleaned to ensure good interface connection strength between geogrids and blocks.

673.035 Backfill Material Backfill material placed behind the concrete wall units shall meet the requirements of Section 703.20 Gravel Borrow, except that the backfill material shall only contain particles that will pass the 3-inch square mesh sieve. The contractor is required to submit a grain size distribution curve (ASTM D 422) and a moisture-density relationship curve (AASHTO T-180) for acceptance of the proposed backfill material and determination of the appropriate installation damage reduction factor (RF_{ID}).

Walls with reinforced backfill also require that the backfill material be subjected to pH testing to determine the appropriate durability reduction factor (RF_D). Backfill materials shall meet the criteria in the following table:

Base Polymer	Property	Criteria	Test Method
Polyester (PET)	pH	$3 < pH < 9$	AASHTO T-289
Polyolefin (PP & HDPE)	pH	$pH > 3$	AASHTO T-289

673.036 Materials Certificate Letter The Contractor, or the supplier as their agent, shall furnish the Resident a Materials Certificate Letter for the above materials, including the backfill material, in accordance with Section 700 of the Standard Specifications. A copy of all test results performed by the Contractor or their supplier necessary to assure contract compliance shall also be furnished to the Resident. The Resident will base acceptance upon the materials Certificate Letter, accompanying test reports, and visual inspection.

673.04 Design Requirements The wall shall be designed with a service life of not less than 75 years. The Wet Cast Small Landscape Block Wall shall be designed and sealed by a Professional Engineer licensed in the State of Maine. The wall shall be designed in accordance with the following:

1. AASHTO LRFD Bridge Design Specifications, current edition, herein referred to as LRFD

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

4. The Contract Plans

5. The requirements specified herein

6. The manufacturer's requirements

Where conflicting requirements occur, the more stringent requirements shall govern.

Forty-five days prior to beginning construction of the wall, the design computations shall be submitted to the Resident for review by the Geotechnical Engineer. Any additional design or costs arising as a result of rejection of a wall design by the Geotechnical Engineer shall be borne by the Contractor.

Design calculations that consist of computer program generated output shall be supplemented with at least one hand calculation and graphic demonstrating the design methodology used. Design calculations shall provide thorough documentation of the sources of equations used and material properties. The design by the wall system supplier shall consider the stability of the wall as outlined below and in the Contract Documents:

A. Failure Plane The theoretical failure plane within the reinforced soil mass shall be determined in accordance with LRFD Article 11 and be analyzed so that the soil stabilizing components extend sufficiently beyond the failure plane within the reinforced soil mass to stabilize the material.

B. External Loads External loads which affect the internal and external stability such as those applied through traffic loadings, impact on traffic barrier posts, slope surcharge, hydrostatic, and seismic loads shall be accounted for in the design. Traffic surcharge and traffic impact loads shall be calculated and applied in compliance with LRFD Section 11.

C. External Stability Loads and load combinations selected for design shall be consistent with LRFD. Application of load factors shall be taken as specified in LRFD Section 11. Sliding resistance factors and bearing resistance factors shall be consistent with LRFD. Overturning and sliding provisions of LRFD shall apply.

D. Internal Stability Evaluation of reinforcement pullout, reinforcement rupture and reinforcement/block connection pullout or rupture shall be consistent with LRFD Section 11, and checked at each level. Loads, load combinations and load factors shall be as specified in LRFD Section 11. Resistance factors for internal design are specified in LRFD Section 11. Maximum reinforcement loads shall be calculated using the Simplified Method approach. Calculations for factored stresses and resistances shall be based upon assumed conditions at the end of the design life.

a. Geosynthetic Reinforcement Design Tensile Resistance The nominal long term reinforcement design strength (T_{al}) shall be determined by reducing T_{ult} by reduction factors (RF) in accordance with the documents referenced above. The designer shall procure and use the manufacturers tested and certified geosynthetic reinforcement reduction factors for creep (RF_{CR}), durability (RF_D), and installation damage (RF_{ID}) to determine T_{al}. In absence of manufacturers tested and certified reduction factors, a combined default reduction factor RF = 7 shall be used in accordance with the referenced documents. For RF_{ID}, the installation damage reduction factor shall be checked in accordance with LRFD and FHWA-NHI-09-087.

b. Reinforcement/Facing Connection Design Strength The nominal long-term connection strength between the geosynthetic reinforcement and the concrete blocks shall be checked in accordance with LRFD and FHWA-NHI-10-024 and FHWA-NHI-10-025, Volumes 1 and 2.

c. Reinforcement Pullout The pullout resistance factor, (F*), and scale effect correction factor (α) used in pullout design, shall be determined from project specific pullout tests using the proposed geosynthetic in the specified project backfill material or equivalent soil. The pullout resistance factors shall be determined in accordance with LRFD and FHWA-NHI-10-024 and FHWA-NHI-10-025, Volumes 1 and 2. In the absence of test data, empirical relationships may be used to determine the pullout resistance factors, any empirical relationships used in design shall be referenced in the design calculations.

E. Backfill and Foundation Soils Parameters The friction angle of the backfill used in the reinforced fill zone for internal stability design shall be assumed have a friction angle of 34 degrees unless specific project select backfill is tested for frictional strength. The friction angle of the foundation soils and random backfill shall be assumed to be 30 degrees unless otherwise shown on the plans.

F. Reinforcement Length The soil reinforcement shall be the same length from the bottom to the top of each wall section. The reinforcement length defining the width of the entire reinforced soil mass may vary with wall height. The minimum length of the soil reinforcement shall be 5 ft, but shall not be less than 70 percent of the wall height, H, for walls with level surcharges, or 70 percent of H1 for walls with a sloped surcharge. Reinforcement length will be determined by the geotechnical wall designer. The mechanical wall height, H or H1, shall be the vertical difference between the top of the leveling footing and the elevation at which the failure surface, as described above, intercepts the ground surface supported by the wall.

G. Bearing Resistance The factored bearing pressures under the Wet Cast Small Landscape Block Wall shall be clearly indicated on the Shop Drawings. Walls shall be dimensioned so that the factored bearing resistance of the foundation soils, as noted on the Plans, is not exceeded.

H. Facing Stability Stability calculations for the concrete facing blocks shall be in accordance with LRFD, and shall include an evaluation of the maximum vertical spacing between reinforcement layers.

I. Stability During Construction Walls shall be designed to resist failure by instability of temporary construction slope. Passive pressure in front of the wall mass shall be assumed to be zero for design purposes.

J. Design Life The wall design life shall be a minimum of 75 years.

K. Depth of Embedment The depth of embedment for frost protection and stability shall be at or below the elevation shown on the Plans and the approved Shop Drawings.

L. Drainage System Piped drainage shall be designed to collect and dispose of water from the base of the reinforced soil zone and backfill soil. This shall outlet into surrounding drainage systems or ditches.

673.05 Submittals. The Contractor shall supply wall design computations, wall details, dimensions, quantities, and cross sections necessary to construct the wall. A sample hand calculation including all equations, parameter values used, units, theory, free-body diagram, comparison to design requirements, etc. shall be provided. Spreadsheet calculations alone are not acceptable.

Forty-five (45) days prior to beginning construction of the wall, four (4) sets of the wall design computations and Shop Drawings shall be submitted to the Resident for review by the Geotechnical Engineer. Mix design information shall be submitted at the same time, including aggregate source, current gradation, aggregate quality information and concrete unit weight.

The contractor shall also submit backfill material test results as part of the wall submittal package. Backfill material test results shall include grain size distribution curve, moisture-density relationship curve, and pH test results required for reinforced backfill only.

If geotechnical design is required, the fully detailed plans shall be prepared in conformance with Section 105 and shall include, but not be limited to the following items:

A. A plan and elevation sheet or sheets for each wall, containing the following: elevations at the top of leveling pads, the distance along the face of the wall to all steps in the leveling pads, the location of the original and final ground line.

B. All details for foundations and leveling pads, including details for steps in the leveling pads, as well as allowable and actual maximum bearing pressures shall be provided.

C. Details for the barriers, posts, curbs, steps and facing as required by the project conditions.

D. Design computations prepared, checked, and sealed by a licensed Professional Engineer.

E. Prior to the beginning of construction, the contractor shall supply the Resident with two copies of the design-supplier's Installation Manual. In addition, the Contractor shall have two copies of the Installation Manual on the project site.

673.06 Construction Requirements The Wet Cast Small Landscape Block Wall shall have the following construction requirements:

A. Excavation The excavation and use as fill of all excavated material shall meet the requirements of Section 203 -- Excavation and Embankment, except as modified herein.

B. Foundation The area upon which the Wet Cast Small Landscape Block Wall structure is to rest, and within the limits shown on the submitted plans, shall be graded for a width equal to, or exceeding, the length of the blocks. Prior to wall and leveling pad construction, this foundation material shall be compacted to at least 95 percent of maximum laboratory dry density (AASHTO T-180 Method C or D). Frozen and unsuitable soil shall be removed and replaced with gravel borrow compacted to 95 percent of AASHTO T-180, or as shown on the plans.

A concrete leveling pad shall have a minimum thickness of 4 inches and shall be constructed a minimum width of 6 inches beyond the front and back of the concrete wall units, or as indicated on the plans. Dimensions may be modified per the wall supplier's recommendations, with written approval of the Geotechnical Engineer. The leveling pad shall be cast to the design elevations as shown on the plans, or as required by the wall supplier upon written approval of the Geotechnical Engineer.

The allowable elevation tolerances from the design elevations are +0.01 ft and -0.02 ft. Leveling pads which do not meet this requirement shall be repaired or replaced as directed by the Resident at no additional cost to the Department. Placement of wall units may begin after the strength of the concrete leveling pad reaches 1000 psi or is adequate to support the proposed loads. Contractor may begin placement of concrete block units after 12 hours at their own risk.

C. Method and Equipment Prior to erection of the wall, the Contractor shall furnish the Resident with detailed information concerning the proposed construction method and equipment to be used. The erection procedure shall be in accordance with the manufacturer's instructions. Any units that are damaged due to handling will be replaced at the Contractor's expense.

D. Installation of Concrete Wall Units A field representative from the wall system being used shall be available, as needed, during the erection of the wall. The services of the representative shall be at no additional cost to the project.

The contractor shall place the first course of wall units directly on the leveling pad and check for level and alignment. Adjacent units should be in contact. The prefabricated concrete wall units shall be installed to a tolerance of plus or minus 3/4 inch in 10 ft in vertical and horizontal alignment.

Fill all voids between and within the wall units with drainage stone as described in this specification. Stone infill shall be compacted by hand tamping with a rod. The drainage stone fill shall extend a minimum of 6 in behind the tails of the wall units unless a geotextile filter is placed over the inside joint at the back of adjacent wall units. If used, the drainage geotextile shall conform to the requirements of Section 722.02.

Geogrid reinforcement, if required, shall be placed at the locations and elevations shown on the Plans on level fill compacted to the requirements of this Specification. Geogrid reinforcement shall not be visible at the finished face of the wall.

The top course of blocks and all coping units shall be installed using adhesive or other method of permanent attachment as recommended by the manufacturer.

E. Backfill Placement Backfill placement shall closely follow the erection of each row of prefabricated wall units. The maximum lift thickness shall be 8 inches loose. The Contractor shall decrease the lift thickness if necessary to obtain the specified density. The backfill shall be compacted in accordance with Section 203.12 except that the minimum required compaction shall be at least 92 percent of maximum density as determined by AASHTO T-180 Method C or D. Backfill compaction shall be accomplished without disturbance or displacement of the concrete wall units. Sheepsfoot rollers will not be allowed. Whenever a compaction test fails, no additional backfill shall be placed over the area until the lift is recompacted and a passing test achieved.

The moisture content of the backfill material prior to and during compaction shall be uniform throughout each layer. Backfill material shall have a placement moisture content less than or equal to the optimum moisture content. Backfill material with placement moisture content in excess of the optimum moisture content shall be removed and reworked until the moisture content is uniform and acceptable throughout the entire lift. The optimum moisture content shall be determined in accordance with AASHTO T-180, Method C or D. At the end of the day's operations, the Contractor shall shape the last level of backfill so as to direct runoff of rainwater away from the wall face.

F. Construction Certification Letter The Contractor shall furnish the Resident a Construction Certification Letter describing how adequate compaction of the block infill material was accomplished and what QA/QC procedures were followed to ensure that this effort was continued throughout construction of the wall.

673.07 Method of Measurement Wet Cast Small Landscape Block Wall will be measured by the square foot of front surface not to exceed the dimensions shown on the Contract Plans unless authorized by the Resident. Vertical and horizontal dimensions will be from the edges of the blocks. No field measurements for computations will be made unless the Resident specifies, in writing, a change in the limits indicated on the Plans.

673.08 Basis of Payment The accepted quantity of Wet Cast Small Landscape Block Wall will be paid for at the contract unit price per square foot complete in place. Payment shall be full compensation for furnishing geotechnical design as required, all labor, equipment and materials including all precast concrete units, aggregate fill, hardware, joint fillers, geosynthetic, drainage pipe, and technical field representative. Excavation, foundation material and backfill material will all be incidental to the Wet Cast Small Landscape Block Wall.

Cost of cast-in-place concrete for leveling pad will not be paid for separately, but will be considered incidental to the Wet Cast Small Landscape Block Wall.

There will be no allowance for excavating and backfilling for the Wet Cast Small Landscape Block Wall beyond the limits shown on the approved submitted plans, except for excavation required to remove unsuitable subsoil in preparation for the foundation. Payment for excavating unsuitable subsoil shall be full compensation for all costs of pumping, drainage, sheeting, bracing and incidentals for proper execution of the work, and will be paid as common excavation in accordance with Section 203.

Payment will be made under:

Pay Item	Pay Unit
673.10 Wet Cast Small Landscape Block Wall	Square Foot

SECTION 02930

LAWNS AND GRASSES

SECTION 02930 - LAWNS AND GRASSES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide landscape development work as shown on drawings, or as needed to restore disturbed areas, including:

Repairing disturbed grassed areas.
Planting new grass on project areas
Mulching of all revegetated areas

B. Repair all grassed areas disturbed during performance of the Work. Where existing topsoil remains, provide seed, lime and fertilizer to re-establish lawn. Provide additional topsoil where necessary. Sodding may be substituted at the Contractor's discretion.

C. Earthwork: See Section 02200.

D. Work must meet all requirements of MaineDOT Standard Specifications 2020 for Item 615.07 Loam and Item 618.13 Seed.

1.02 SUBMITTALS

A. Certification:

1. Submit manufacturer's or vendors certified analysis for soil amendments and fertilizer materials. Submit other data substantiating that materials comply with specified requirements.

2. Submit seed vendor's certified statement for each grass seed mixture required, stating botanical and common name, percentage by weight, and percentages of purity, germination, and weed seed for each grass seed species.

B. Samples: Submit sample of topsoil material to be used, for approval by Owner.

1.03 DELIVERY, STORAGE AND HANDLING

A. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

B. Sod: Time delivery so that sod will be placed within 24 hours after stripping. Protect sod against drying and breaking of rolled strips.

1.04 JOB CONDITIONS

A. Proceed with and complete landscape work as rapidly as portions of site become available, working within seasonal limitations for each kind of landscape work required. When conditions detrimental to plant growth are encountered, notify Owner before planting.

PART 2 - PRODUCTS

2.01 TOPSOIL

A. Provide topsoil as required to complete repair of lawn areas.

B. Provide topsoil which is fertile, friable, natural loam surface soil found at a depth of not less than 4" from the original ground surface, reasonably free of subsoil, clay lumps, brush, weeds and other litter, and free of roots, stumps, stones larger than ½" in any dimension, and debris.

C. Obtain topsoil from local sources or from areas having similar soil characteristics to that found at project site. Obtain topsoil only from naturally, well-drained sites where topsoil occurs in a depth of not less than 4"; do not obtain from bogs or marshes.

2.02 SOIL AMENDMENTS

A. Lime: Natural limestone containing not less than 90% total carbonates, ground so that not less than 90% passes a 10-mesh sieve and not less than 50% passes a 100-mesh sieve.

B. Fertilizer: 20-20-10 grade commercial type with 50% of the elements derived from organic sources.

2.03 GRASS MATERIALS

A. Sod:

1. Provide strongly rooted sod, not less than 2 years old, free of weeds and undesirable native grasses and machine cut to pad thickness of ¾" (+/- ¼"), excluding top growth and thatch.

2. Provide only sod capable of vigorous growth and development when planted (viable, not dormant).

3. Provide sod of uniform pad sizes with maximum 5% deviation in either length or width. Broken pads or pads with uneven ends will not be acceptable.

4. Sod pads incapable of supporting their own weight when suspended vertically with a firm grasp on upper 10% of pad will be rejected.

B. Grass Seed: Provide fresh, clean, new-crop seed.

Germination: Not less than 80%
Purity: Not less than 85%
Weed content: Not more than 1%
Do not use seed which has become wet, moldy or damaged.

C. Seed Mixture: 40% Creeping Red Fescue, 40% Kentucky Bluegrass, 20% Perennial Rye grass.

2.04 MULCH

A. Hay or straw mulch shall consist of long fibered hay or straw, free from noxious weeds and other undesirable material.

1. No material which is wet, decayed, or compacted shall be used.

2. No chopped hay, grass clippings, or other short fibered material shall be used unless directed.

PART 3 - EXECUTION

3.01 RESTORATION SEQUENCING

A. Restore all vegetated surfaces immediately upon completion of construction work with reasonable delays for weather conditions excluded.

B. Follow erosion control requirements defined in Contract Documents during all periods up to full establishment of vegetation as accepted by Owner.

C. No more than 3000 SF of disturbed surface area may remain unvegetated at any time. Owner or Engineer may require Contractor to suspend all other work to complete surface restoration should the 3000 SF limit be exceeded. Such suspension shall not be cause for claim of damages by Contractor.

D. Owner views prompt surface restoration as very high priority on this project and Contractor shall make every effort to comply with this requirement including adding additional project personnel as required to perform site restoration work.

3.02 PREPARATION

A. Protect existing underground improvements from damage.

B. Remove foreign materials, plants, roots, stones, and debris, from site. Do not bury foreign material.

C. Mix soil amendments and fertilizers with topsoil. Mix lime with dry soil prior to mixing of fertilizer. Delay mixing of fertilizer if planting will not follow placing of planting soil within a few days.

D. Spread top soil to minimum depth of 4 inches (or to depth indicated on Drawings) after light rolling and natural settlement. Add specified soil amendments and mix thoroughly into upper 2" of topsoil.

E. Dispose of subsoil removed from landscape excavations. Do not mix with planting soil or use as backfill.

3.03 PLANTING

A. Apply grass seed with hydroseed at rate of 5 lbs/1000 SF.

B. Mulch all areas with hay.

C. Repair areas damaged by Contractor's operations as directed by the Owner.

D. Water newly planted areas and keep moist until new grass is established.

3.04 MULCHING

A. Hay or straw mulch for both seeded and unseeded areas shall be spread evenly and uniformly over the designated areas.

B. Unless otherwise directed, mulch shall be applied at the rate of 1.5 to 2 tons per acre. Too heavy an application of mulch shall be avoided. Lumps and thick mulch material shall be thinned.

C. Temporary mulching shall be spread immediately to protect wetlands and surface waters from erosion during all stages of construction throughout all seasons of the year.

3.05 MAINTENANCE

A. Begin maintenance immediately after planting.

B. Maintain until final acceptance but in no case less than 60 days after substantial completion of planting.

C. Maintain lawns by watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, regrading and replanting as required to establish a smooth, acceptable lawn, free of eroded or bare areas.

3.06 CLEANUP AND PROTECTION

A. Restore pavement, grassed areas and planted areas damaged during execution of work of this Section.

3.07 INSPECTION AND ACCEPTANCE

A. General: Landscape work may be inspected for acceptance in parts agreeable to Owner, provided work offered for inspection is complete, including maintenance.

B. Replace rejected work and continue specified maintenance until reinspected by Owner and found to be acceptable. Remove rejected plants and materials promptly from project site.

3.08 EROSION REPAIRS

A. Repair all erosion that occurs in vegetated area and sideslopes as the result of the grass root structure not being fully established and all erosion that occurs during the warranty period. Such repairs shall be at no cost to Owner.

END OF SECTION

SECTION 02960

HIGHWAY SIGNING AND POSTS

SECTION 02960 - HIGHWAY SIGNING AND POSTS

PART 1 - GENERAL

1.01 SCOPE OF WORK

A. Work defined in this section includes, but is not limited to:

1. Provide advance pedestrian warning crosswalk signs and posts.

1.02 RELATED SECTIONS

A. Section 02200 - Earthwork.

1.03 SUBMITTALS

A. Complete fabrication drawings including all dimensions and material specifications.

B. Certification of compliance with US DOT/FHA standards as published in "Part IV, Manual on Uniform Traffic Control Devices (MUTCD)."

C. Sign Layout Drawings showing configuration, layout, and proposed depiction for each sign required.

1.04 QUALITY ASSURANCE

A. Comply with all requirements of MaineDOT "Standard Specifications for Highways and Bridges", Section 645.

PART 2 - PRODUCTS

2.01 HIGHWAY SIGNS

A. Provide highway signs of types specified and at locations as shown on the Drawings including appropriately labeled and depicted sign plates, support posts, and fasteners.

B. Reflective sheeting shall consist of retroflective lens system having smooth outer surface. Sheeting shall have precoated adhesive on the backside protected by an easily removable liner.

C. Sheeting shall be constructed of 6061-T6 aluminum free of buckles, warps, dents, cockles, burrs, and fabrication defects.

D. Sheeting thickness shall be 2.00 mm.

E. Proper degreasing and etching shall be conducted during fabrication of sheeting.

F. Degreasing shall be required on sheet aluminum by either of the following methods:

1. Vapor Degreasing: Sign blanks shall be totally immersed in a saturated vapor of trichlorethylene or perchloroethylene. Trademark printing shall be removed with lacquer thinner or controlled alkaline cleaning system.

2. Alkaline Degreasing: Sign blanks shall be totally immersed in a tank containing alkaline solutions, controlled and titrated to the solution manufacturer's specifications. Immersion time shall depend upon the amount of soil present and the gauge of the metal.

G. Etching shall be required on sheet aluminum as follows:

1. Alkaline Etch: Pre-cleaned aluminum surface shall be well etched in an alkaline etching material that is controlled by titration, use time, temperature and concentration specified by the solution manufacturer, and rinsed thoroughly. Smut shall be removed with an acidic, chromium compound type solution as specified by the solution manufacturer and then thoroughly rinsed.

H. Drying:

1. Material may be air dried or over dried. Metal shall not be handled except by device or clean gloves between all cleaning and etching operation and packaging.

2. There shall be no opportunity for metal to come in contact with grease, oils, or other contaminants prior to application of sign labels.

I. Fabrication: All fabrication, including shearing, cutting, and punching of holes shall be completed prior to metal degreasing. Fabrication of all metal parts shall be accomplished in a uniform and workmanlike manner. The surface of all sign panels shall be flat.

J. The reflective sheeting shall be applied to properly treated base panels with mechanical equipment in a manner specified by the sheeting manufacturer.

K. The finished delineators shall show careful workmanship, be free of burrs, scratches, or damaged reflective surface.

L. Delineators shall be packaged in such a manner as to insure their arrival at destination in undamaged condition. Delineators shall not become wet in storage or shipment.

2.02 WOODEN SIGN POSTS

A. The posts for post mounted signs shall be of the size, material, and shape designated on the design drawings. The Contractor shall be fully responsible for the adequacy and design of any structural details not shown on the design drawings, and each drawing shall contain a reference to the design criteria and a certification by a Registered Professional Engineer, over this official stamp, that said design criteria have been met by all parts of the structure designed and/or detailed by the Contractor.

B. Wood sign posts shall be rectangular, straight and sound timber, cut from live growing native spruce, hemlock, cedar or Douglas Fir trees, free from loose knots or other structurally weakening defects of importance, such as shake or holes and heart rot.

C. Nominal dimensions of rectangular posts shall be as given on the drawings.

D. The top shall be cut on a 22 degree bevel plus or minus 2 degrees.

E. When pressure treated wood sign posts are called for on the drawings, the wood shall be Yellow Pine, Number 2 or better, .40 CCA, D4 S. The pressure treated wood shall meet AWPA Standard P-5 or Federal Standard TT-W-550. The treating process shall meet Federal Specifications TT-W-571, or AWPA Commodity Standards as applicable.

PART 3 - EXECUTION

3.01 SUPPORT POSTS

A. Support posts for signs shall be 4" x 4" wood posts for signs of area 4.00 to 8.99 square feet, wood posts for signs of area 9.00 to 15.99 square feet, and 6" by 6" wood posts for signs of area over 16.00 square feet. All signs 60 inches wide or wider shall be mounted on two wood posts.

B. Wood posts shall be set to a depth of 5 feet or as shown on the Drawings.

C. 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 drawings. The excavated material will be satisfactorily disposed of, and the posts set to the required depth.

D. When installing pressure treated sign posts, the cut end of the posts shall not be buried in the ground.

E. Backfilling around the posts shall be with excavated material unless the excavated material is considered unsatisfactory, in which case the gravel shall be granular material conforming to the requirements of Section 02200. Backfill shall be thoroughly tamped in layers not exceeding 8 inches in depth.

F. The area around the posts shall be loamed and seeded where required.

G. The Contractor shall be responsible for and shall repair all damage to underground drainage structures, utilities, or lighting conduits encountered during placing the posts.

3.02 ASSEMBLY HARDWARE

A. Nuts, bolts, and washers for assembling metal sign components shall be stainless steel, ASTM F 593, alloy group 1.

B. All nuts shall be of the self-locking type.

C. Signs mounted on wood posts shall be attached with 5/16" by 1 1/2" stainless steel lag screws.

END OF SECTION

DIVISION 3

CONCRETE

SECTION 03300

CAST-IN-PLACE CONCRETE

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide all cast-in-place concrete work, including:

Concrete thrust blocks at all pressure pipe bends
Concrete pipe encasement where required
Manhole inverts
Blocks for cleanout covers
Setting concrete for granite curb

1.02 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of following codes, Specifications and standards, except where more stringent requirements are shown or specified:

ACI "Manual of Concrete Practice".
MaineDOT Section 502 of Standard Specifications, most recent edition.

B. Testing by Owner: Field tests will be by the Engineer's representative or by an independent testing laboratory.

1. Tests will be done for slump, air content and concrete temperature.

2. Compression test specimens will be taken and tested for compression.

C. Testing and Services by Contractor: Performed by an approved testing laboratory at the Contractor's expense:

1. Retesting of rejected materials and installed work.

2. Any additional testing conducted for early detection of strength to accommodate Contractor's work schedule.

3. Contractor to furnish equipment including buckets, shovels, and wheelbarrows for proper sampling of concrete mix, facilities for storing and curing specimens at the job site, and labor to assist technician performing field tests.

D. Materials and installed work may require testing and retesting at any time during the progress of the Work as directed by the Engineer. Allow free access to material stockpiles and facilities. These tests will be done by an independent approved laboratory at the Contractor's expense.

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's product data with application and installation instructions for proprietary materials and items, including:

1. Admixtures.

2. Patching compounds.

3. Joint systems.

4. Curing compounds.

5. Detectable warning plate.

6. Others as requested by Engineer.

B. Material Certificates:

1. Provide materials certificates in lieu of materials laboratory test reports when permitted by Engineer.

2. Material certificates shall be signed by manufacturer and Contractor certifying that each material item complies with, or exceeds, specified requirements.

C. Samples: Submit samples of materials as specified and as otherwise requested by Engineer, including names, sources and descriptions.

D. Laboratory Test Reports and Mix Designs:

1. Submit laboratory test reports for concrete materials for all products to be incorporated into work and mix design tests as specified.

2. Testing shall be conducted within twelve months of material use.

PART 2 - PRODUCTS

2.01 CONCRETE MATERIALS

A. Portland Cement: ANSI/ASTM C 150, Type II. Use one brand of cement throughout project, unless otherwise acceptable to Engineer.

B. Normal Weight Aggregates:

1. ANSI/ASTM C 33, and as herein specified.

2. Provide aggregates from a single source for exposed concrete.

3. Local aggregates not complying with ANSI/ASTM C 33, but which have shown by special test or actual service to produce concrete of adequate strength and durability, may be used when acceptable to the Engineer.

C. Water: Potable.

D. Air-Entraining Admixture: ANSI/ASTM C 260.

E. Water-Reducing Admixture: ANSI/ASTM C 494, Type A, and containing not more than 1% chloride ions.

F. High Range Water Reducing Admixture (Super Plasticizer): ASTM C 494, Type F or Type G and containing not more than 1% chloride ions.

G. Calcium chloride not permitted.

2.02 RELATED MATERIALS

A. Non-Shrink Grout:

1. CRD-C 621 (ASTM C1107), factory pre-mixed grout with minimum 1000 psi compressive strength in 1 day and 5000 psi compressive strength in 28 days as tested per ASTM C109.

2. Equal to Sikagrout 212, or Masterflow 928,

B. Epoxy Grout: 2 component 100 percent solids, non-sag paste epoxy adhesive complying with ASTM C881 OF Type listed below, Grade 3, Class B & C unless

otherwise acceptable to Engineer. Equal to Concresive Paste by Master Builders. Type of epoxy grout shall be as follows:

a. Type I – Use to bond hardened concrete to hardened concrete in non-load bearing applications.

b. Type II – Use to bond fresh concrete to hardened concrete in non-load bearing applications.

c. Type IV – Use to bond hardened concrete to hardened concrete in loading bearing applications.

d. Type V – Use to bond fresh concrete to hardened concrete in load bearing applications.

C. Bonding Agent: 2-component, solvent-free, moisture insensitive structural epoxy adhesive complying with ASTM C-881, Type II, Grade 2, Class C, unless otherwise acceptable to Engineer. Equal to "Sikadur 32, Hi-Mod", by Sika Corp., or Concresive Liquid LPL by Master Builders.

2.03 PROPORTIONING AND DESIGN OF MIXES

A. Prepare design mixes by either laboratory trial batch or field experience methods as specified in ACI 301.

1. If trial batch method used, use an independent testing facility acceptable to Engineer for preparing and reporting proposed mix design.

2. Test data provided shall be no more than one year old and shall be conducted on materials to be incorporated into work.

B. Submit written reports to Engineer of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Engineer. Include the following in mix design submittals:

- Identification of aggregate source.
- Results of compliance tests for aggregates.
- Scale weights of each aggregate.
- Absorbed water in each aggregate.
- Brand, type, and amount of each cement and each admixture.
- Proportions of each material required per cubic yard.

C. Design mixes to provide normal weight concrete with the following properties.

1. General Use Concrete:

- Type II Portland Cement.
- Min. 28 day compressive strength: 4000 psi.
- Max. water/cement ratio: 0.45.
- Min. cement content: 564 lbs per cubic yard.
- Slump: Concrete for general use: not less than 1", not more than 4".
- Sloping surfaces: slump not more than 3".
- Concrete with high range water reducer (HRWR) admixture: not more than 8".
- Max. aggregate size: 3/4".
- Air Content: 6% +/- 1% by volume for 3/4" aggregate.
- Flyash shall be Class F and shall not exceed 10% cement content, meeting ASTM C618.

D. Adjustment of Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Engineer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Engineer before using in work.

E. Concrete for cast-in-place thrust block shall have a minimum 28 day compressive strength of 2000 psi.

2.04 CONCRETE MIXING

A. Job-Site Mixing:

1. Mix materials for concrete in appropriate drum type batch machine mixer.

2. For mixers of one cu. yd., or smaller capacity, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.

3. For mixers of capacity larger than one cu. yd., increase minimum 1-1/2 minutes of mixing time by 15 seconds for each additional cu. yds., or fraction thereof.

B. Ready-Mix Concrete:

1. Comply with requirements of ANSI/ASTM C 94, and as herein specified.

2. Water may be added for retempering provided maximum permissible slump and maximum water cement ratio is not exceeded. Do not make additions without notifying the Engineer.

3. Additional field tests and compressive test specimens may be required.

4. Provide batch ticket for each batch discharged and used in work, indicating project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.

C. Maximum Delivery Time:

1. 1 1/2 hours below 85°F, or

2. When air temperature is between 85° F and 90° F, reduce mixing and delivery time from 1 1/2 hours to 75 minutes, or

3. When air temperature is above 90° F, reduce mixing and delivery time to 60 minutes.

4. Calculation of delivery time shall start at the point that water is first added to the mix.

PART 3 - EXECUTION

3.01 INSTALLATION OF EMBEDDED ITEMS

A. General:

1. Set and build into work cast iron detectable warning devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete.

2. Use setting drawings, diagrams, instructions and directions provided by suppliers of these items.

3.02 ADMIXTURES

A. General: Comply strictly with manufacturer's instructions for use of admixtures.

B. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) meeting ASTM C-494 in concrete, as required, for placement and workability.

C. Use air-entraining admixture meeting ASTM C-260 in all concrete. Add air-entraining admixture at six percent or manufacturer's prescribed rate to result in concrete at point of placement having air content within limits stated above.

3.03 CONCRETE PLACEMENT

A. General:

1. Comply with ACI 301, and these specifications.

2. Before placing concrete, inspect and complete formwork installation.

B. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness.

C. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI 301 recommended practices.

D. Maintain reinforcing in proper position during concrete placement operations.

E. Cold Weather Placing:

1. Comply with ACI 306 Cold Weather Concreting. When air temperature has fallen to or is expected to fall below 40°F (4°C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50°F (10°C), and not more than 80°F (27°C) at point of placement.

2. Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures.

3. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

4. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators.

F. Hot Weather Placing:

1. Comply with ACI 305R when hot weather conditions exist that would impair quality and strength of concrete.

2. Maintain concrete temperature at time of placement below 90°F (32°C).

3. Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing.

4. Use water-reducing retarding admixture (Type D) when required by high temperatures, low humidity, or other adverse placing conditions.

G. Wet Weather Placing:

1. Do not place concrete in any wet weather event with the exception of light mist or drizzle where, in the opinion of the Engineer, vibration of the concrete might incorporate falling rain into the concrete mixture.

2. Contractor is responsible to assure weather is appropriate prior to concrete pour.

3. Cover and protect placed concrete from precipitation and flooding.

4. Remove all concrete placed in wet weather as directed by Engineer.

3.04 CONCRETE CURING AND PROTECTION

A. General:

1. Comply with ACI 301.

2. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

3. Start curing as soon as free water has disappeared from concrete surface after placing and finishing.

4. Where water cure is utilized, keep continuously moist for not less than 7 days or until 70% of design strength is attained.

5. Where curing compounds are utilized, begin curing procedures immediately following final finishing procedures and before concrete has dried.

B. Curing Methods: Perform curing of concrete by one of the following methods or by combinations thereof:

1. Provide moisture curing with added water by following methods.

a) Keep concrete surface continuously wet by covering with water.

b) Continuous water-fog spray.

c) Provide absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.

2. Provide moisture retaining cover curing as follows:

a) Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive.

b) Immediately repair any holes or tears during curing period using cover material and waterproof tape.

3. Provide curing compound as follows:

a) Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions.

b) Recoat areas subjected to heavy rainfall within 3 hours after initial application.

c) Maintain continuity of coating and repair damage during curing period.

3.05 CONCRETE SURFACE REPAIRS

A. Repair finished surfaces that contain small defects which affect durability of concrete.

1. Correct high areas in surfaces by grinding, after concrete has cured at least 14 days.

2. Correct low areas in surfaces during, or immediately after completion of surface finishing operations, by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Engineer.

B. Perform all structural repairs with prior approval of Engineer for method and procedure.

C. Remove and replace defective work which cannot be repaired to satisfaction of Engineer.

3.06 PLACEMENT OF PRESSURE PIPE THRUST BLOCKS

A. Concrete shall be poured in place or precast.

1. Poured in place thrust blocks shall be constructed by pouring concrete between the fitting and the undisturbed wall of the trench. Care shall be exercised to ensure that the concrete is clear of joint accessories, bolts, nuts, and flanges.

B. Thrust blocks are required wherever the pipe:

1. Changes direction at tees, bends, crosses, and tapping sleeves.

2. Changes sizes, as at reducers.

3. Stops, as at dead ends and hydrants.

END OF SECTION

SECTION 03400

MISCELLANEOUS CONCRETE ITEMS

SECTION 03400 - MISCELLANEOUS CONCRETE ITEMS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Provide concrete items as shown on the drawings and as specified. This section includes:

Detectable warning plates

1.02 RELATED SECTIONS

A. Section 02200 – Earthwork.

B. Section 02511 – MaineDOT Section 400 – Pavements.

C. MaineDOT Special Provisions 502 (Structural Concrete).

1.03 QUALITY ASSURANCE

A. Provide products from an experienced, reputable manufacturer with at least ten years of experience in providing similar products.

1.04 SUBMITTALS

A. Provide shop drawings for each miscellaneous concrete item including dimensions, concrete mix and strength, and installation requirements.

PART 2 - PRODUCTS

2.01 DETECTABLE WARNING PLATES

A. Provide cast iron detectable warning plates as shown on Drawings.

B. Detectable warning plates shall be designed to fully comply with the ADAAG.

C. Slip resistance: 1.10 (Dry)/1.06 (Wet) per ASTM C-1028.

D. Abrasion wear resistance: 73333 per ASTM C-501-84.

E. Impact resistance: >238 Newtons per ASTM D-1709.

F. Adhesion to concrete (Bond Strength): >5000 lbs per ASTM D-482.

G. Tensile strength: 35,000 psi per ASTM A-48.

H. Provide natural finish.

I. Equal to DURALAST Detectable Warning Plates as manufactured by East Jordan Iron Works, East Jordan, MI.

PART 3 - EXECUTION

3.01 DETECTABLE WARNING PLATES

A. Coordinate installation of detectable warning plates within existing and new bituminous sidewalks.

B. Assemble plates together with stainless steel bolts as recommended by manufacturer.

C. Set plates into wet concrete base as recommended by manufacturer and in accordance with ADAAG.

D. Tamp plate thoroughly with rubber mallet until concrete seeps through vent holes.

E. Clean off excess concrete from the plate and finish concrete around the plate.

F. Protect plate and concrete setting base from traffic and disruption for a minimum of 72 hours.

END OF SECTION

DIVISION 6

WOODS AND PLASTICS

SECTION 06130

WOOD TIMBER CONSTRUCTION

SECTION 06130 - WOOD TIMBER CONSTRUCTION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. This project includes the following wood work:

1. Installation of wooden guardrail.

1.02 SUBMITTALS

A. Product Data: For heavy timber and accessories. Include installation instructions and data on fabrication and treatment processes.

B. Certificates of Inspection: Issued by lumber grading agency for exposed heavy timber not marked with grade stamp.

1.03 DELIVERY, STORAGE, AND HANDLING

A. Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces. Provide for air circulation within and around stacks and under temporary coverings.

PART 2 - PRODUCTS

2.01 GENERAL

A. Comply with DOC PS 20, "American Softwood Lumber Standard," and with applicable grading rules of inspection agencies certified by ALSC's Board of Review.

B. Grade Stamps: Provide heavy timber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, species, grade, moisture content at time of surfacing, and mill.

C. Preservative Treatment:

1. Pressure treat timber with preservative solution for exterior use.

2.02 TIMBER FRAMING

A. Timber: Hemlock.

B. Moisture Content: Provide timber with 19 percent maximum moisture content at time of dressing.

C. Dressing: Provide dressed timber (S4S), unless otherwise indicated.

D. Dimensions as shown on Drawings.

2.03 FASTENERS

A. Use galvanized nails, bolts, washers, and nuts as noted in the Drawings.

PART 3 - EXECUTION

3.01 INSTALLATION

A. General: Erect timber framing true and plumb. Provide temporary bracing to maintain lines and levels until permanent supporting members are in place.

B. Orient members such that untreated ends of boards are not installed below ground in buried applications.

END OF SECTION

DIVISION 7

THERMAL AND MOISTURE PROTECTION

SECTION 07200

INSULATION

SECTION 07200 - INSULATION

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Install insulation as shown on Drawings and indicated by provisions of this section. Insulation specified in this section includes the following:

Rigid foam insulation for pipe trenches

1.02 QUALITY ASSURANCE

A. Thermal Conductivity: Thicknesses indicated for board insulation are for thermal conductivity (k-value at 75°F or 24°C) specified for each material. Provide adjusted thicknesses as directed for equivalent use of material having different thermal conductivity.

1.03 PRODUCT HANDLING

A. General Protection: Protect insulations from physical damage and from becoming wet, soiled, or covered with ice or snow. Comply with manufacturer's recommendations for handling, storage and protection during installation.

1.04 SUBMITTALS

A. Product data for each type of insulation proposed.

B. Technical data showing thermal properties of product.

PART 2 - PRODUCTS

2.01 INSULATION

A. Rigid Board-Type Insulation for Trenches and Pipe Insulation: Closed-cell rigid foamed polystyrene, equal to Dupont Styrofoam Brand Highload XPS or Owens Corning Foamular NGX. Thickness as shown.

1. Thermal resistance: Aged R-value = 5 per inch of 75°F mean temperature.

2. Compressive strength ≥ 60 psi.

3. Flexural strength ≥ 75 psi.

4. Minimum density 1.60 PCF.

5. Water adsorption ≤ 0.1 percent by volume.

6. Coefficient of linear thermal expansion: maximum 3.5×10^{-5} in/ °F.

7. Complies with ASTM C578 Type VII.

PART 3 - EXECUTION

3.01 INSTALLATION OF RIGID BOARD INSULATION

A. General:

1. Comply with manufacturer's instructions for particular conditions of installation in each case. If printed instructions are not available or do not apply to project conditions, consult manufacturer's mechanical representative for specific recommendations before proceeding with work.

2. Extend board insulation full thickness as shown over entire area to be insulated. Cut and fit tightly around obstructions, and fill voids with insulation. Remove projections which interfere with placement.

3. Apply a single layer of board insulation of required thickness, unless otherwise shown or required to make up total thickness.

4. For pipe trench insulation, provide to the extent practical, full sheets of insulation over trench width to minimize the number of openings between sheets. Add 2' long piece of insulation over each joint. Use four foot minimum width sheets centered on pipe(s), and add additional width to fill trench as necessary, or as directed by Engineer.

END OF SECTION

APPENDIX A

MaineDOT STANDARD DETAIL UPDATES AND MaineDOT SUPPLEMENTAL SPECIFICATIONS: CORRECTIONS, ADDITIONS, AND REVISIONS

February 22, 2022
Supersedes December 08, 2021

2020 STANDARD DETAIL UPDATES

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

Detail #	Description	Revision Date
502(19)	Bridge Drains	12/08/2021
507(20)	Steel Approach Railing 3-Bar	2/11/2021
507(21)	Steel Approach Railing 3-Bar	2/11/2021
507(22)	Steel Approach Railing 3-Bar	2/11/2021
507(23)	Steel Approach Railing 3-Bar	2/11/2021
507(27)	Steel Approach Railing	2/11/2021
526(01)	Portable Concrete Barrier	1/14/2021
526(01A)	Portable Concrete Barrier	1/14/2021
526(01B)	Portable Concrete Barrier	1/14/2021
526(02)	Portable Concrete Barrier	1/14/2021
526(02A)	Portable Concrete Barrier	1/14/2021
526(03)	Portable Concrete Barrier	1/14/2021
526(04)	Portable Concrete Barrier	1/14/2021
526(04A)	Portable Concrete Barrier	1/14/2021
526(04B)	Portable Concrete Barrier	1/14/2021
603(10)	Concrete Pipe Ties	6/10/2021
605(01)	Underdrain	8/13/2021
606(23)	Standard Bridge Transition – Type "1"	2/11/2021
606(24)	Standard Bridge Transition – Type "1A"	2/11/2021
608(02)	Detectable Warnings	6/10/2021
609(09)	Precast Concrete Vertical Curb	2/11/2021
627(07)	Crosswalk	2/22/2022
627(08)	Crosswalk	2/22/2022
643(11)	ATCC Cabinet	12/14/2020
801(11)	Pedestrian Ramp Notes	6/10/2021
801(12)	Pedestrian Ramp Requirements	8/13/2021
801(13)	Ramp Length Table	6/10/2021
801(14)	Parallel Pedestrian Ramp	6/10/2021
801(15)	Perpendicular Pedestrian Ramp – Option 1	6/10/2021

801(16)	Parallel Pedestrian Ramp – Option 2A	6/10/2021
801(17)	Perpendicular Pedestrian Ramp – Option 2A	6/10/2021
801(18)	Parallel Pedestrian Ramp – Option 2B	6/10/2021
801(19)	Perpendicular Pedestrian Ramp – Option 2B	6/10/2021
801(20)	Parallel Pedestrian Ramp – Option 3	6/10/2021
801(21)	Perpendicular Pedestrian Ramp – Option 3	6/10/2021
801(22)	Side Street Pedestrian Ramp	6/10/2021
801(23)	Parallel Pedestrian Ramp – Esplanade	6/10/2021
801(24)	Perpendicular Pedestrian Ramp – Esplanade	6/10/2021
801(25)	Island Crossings	6/10/2021
801(26)	Blended Transition	6/10/2021
801(27)	Pedestrian Ramp Adjacent to Driveway or Entrance	6/10/2021
802(05)	Roadway Culvert End Slope Treatment	1/03/2017

SUPPLEMENTAL SPECIFICATIONS
(Corrections, Additions, & Revisions to Standard Specifications – March 2020)

SECTION 101
CONTRACT INTERPRETATION

101.2 Definitions

Holidays Amend this paragraph by adding "**Juneteenth**" between 'Memorial Day' and 'Independence Day'.

SECTION 102
BIDDING

102.11 Bid Responsiveness Revise the paragraph that states "The Bid is not signed by a duly authorized representative of the Bidder." So that it reads:

"**The Bid is not signed by a duly authorized representative of the Bidder.**

- **Properly submitted electronic bids meet this requirement.**
- **Paper bids must include at least one signed copy of the Contract Agreement Offer & Award form.**"

SECTION 104
GENERAL RIGHTS AND RESPONSIBILITIES

104.2.1 Furnishing of Right-of-Way Revise the last sentence in the first paragraph by removing "105.4.5 – Special Detours" and replacing it with "**105.4.5 – Maintenance of Existing Structures.**".

SECTION 105
GENERAL SCOPE OF WORK

105.10.2 Requirements Applicable to All Contracts Under section A, number 2, in the first sentence of the first paragraph, revise this Section by replacing the word "handicap" in two places with the word "disability" so it now reads:

"2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, State that all qualified applicants will receive consideration for employment without regard to race, color, sexual orientation, religious creed, sex, national origin, ancestry, age, physical disability, or mental disability."

SECTION 106
QUALITY

106.6 Acceptance Revise this Subsection by replacing the paragraph beginning with "Acceptance of Hot Mix Asphalt Pavement will be based" with:

"Acceptance of Hot Mix Asphalt Pavement will be based on Method A or C Statistical Acceptance, or Method B or D Acceptance as specified. The method of acceptance for each item is defined in Special Provision, Section 403, Hot Mix Asphalt Pavement. When items of Hot Mix Asphalt Pavement are not so designated, Method A will be utilized whenever there are more than 1000 tons per Hot Mix Asphalt Pavement item, and Method B will be utilized when there are less than or equal to 1000 tons per Hot Mix Asphalt Pavement item."

Revise Subsection "B" by removing it and replacing it with:

"B. Items not designated for Statistical Acceptance will utilize Method B or D Acceptance testing to validate the quality of the material incorporated into the Project. For material paid under Item 403.209 – Method D, or designated to be visually accepted, the Contractor shall provide the Department with a Certification Letter that indicates that the material supplied complies with the Specifications. Test results representative of the certified material shall be attached to the letter.

The Department will randomly sample and test the certified Material for properties noted in Table 1 of Section 502 - Structural Concrete or Table 14 of Section –401.21 Acceptance Method B & D. Material will be subject to rejection as noted in Structural Concrete Section 502.195 - Quality Assurance Method C Concrete or Hot Mix Asphalt, Section 401.2022 Pay Adjustment – Method B & D."

106.7.1 Standard Deviation Method Revise 106.7.1, subsection H by removing the following from the first paragraph:

"Method B: PF = [70 + (Quality Level * 0.33)] * 0.01"

SECTION 107
TIME

107.3.1 General Amend this paragraph by adding "**Juneteenth**" between 'Patriot's Day' and 'the Friday after Thanksgiving'.

SECTION 110
INDEMNIFICATION, BONDING, AND INSURANCE

110.3.9 Administrative & General Provisions Amend this subsection by adding "**Automobile Liability**" under letter A) Additional Insured to the list of exceptions.

SECTION 206
STRUCTURAL EXCAVATION

206.01 Description – *Structural Earth Excavation, Below Grade* delete the entire sentence and replace with "**shall consist of the removal of excavation required for unknown or unanticipated subsurface condition. See 206.04 – Method of Measurement for pay limits.**"

206.04 Method of Measurement – Drainage and Minor Structures Paragraph 1, sentence 2, delete the remainder of the sentence beginning with "….provided the maximum allowable…"

And replace with: **"….in accordance with the following limits:"**

- **Vertical pay limits:**
  - **Below a plane parallel with and 12 inches below the bottom of the drainage or minor structure or**
  - **Below the excavation limits shown in the Bid Documents; whichever is greater.**

- **Horizontal pay limits – The maximum allowable horizontal dimensions shall not exceed those bounded by vertical surfaces 18 inches outside the base, or extreme limits of, the structure, and to the vertical neat lines of underdrain trenches, as shown in the Contract Documents.**

SECTION 401
HOT MIX ASPHALT PAVEMENT

401.19 Contractor Quality Control Amend this Section by adding the following to the end: **"Failure to comply with the approved QCP will result in work suspension and pay reductions as outlined in Section 106.4.6. The Quality Control Plan Value shall be the total bid value for all items covered by the QCP as identified in Special Provision 403."**

SECTION 502
STRUCTURAL CONCRETE

502.09 Forms and Falsework Amend this subsection by adding the subsection title "**502.10 Placing Concrete**" after section "D" Removal of Forms and False work" and after the paragraph beginning with "2. Forms and False work, including blocking…". So that a new subsection starts and reads:

"**502.10 Placing Concrete**

A. **General Concrete shall not be placed until forms** …."

502.1701 Quality Control, Method A and B Revise this Section so that the first paragraph and the first sentence of the second paragraph read:

"**502.17 Quality Control The Contractor shall control the quality of the concrete through testing, inspection, and practices which shall be described in the QCP, sufficient to assure a product meeting the Contract requirements. The QCP shall meet the requirements of Section 106, Quality, and this specification. No work under this item shall proceed until the QCP is submitted to and approved by the Department. Failure to comply with the approved QCP will result in work suspension and pay reductions as outlined in Section 106.4.6. The Quality Control Plan Value shall be the total bid value for all cast-in-place items covered by the QCP, using the P value listed in Special Provision 502. If no P value is listed, a value of $350, or bid value per cubic yard, whichever is less, shall be used.**

502.1701 Quality Control, Method A and B The QCP shall address all elements that affect the quality of the structural concrete including, but not limited to, the following: "

502.18, Method of Measurement, Revise Subsection 'F' by removing the word 'transverse' so that it reads: "**Saw cut grooving of concrete wearing surfaces, complete and accepted, will be measured for payment as one lump sum.**"

502.19, Basis of Payment, Revise the third paragraph by removing the word 'transverse' so that it reads: "**Saw cut grooving of concrete wearing surfaces will be paid for at the Contract Lump Sum Price, which shall be payment for furnishing all materials, labor, and equipment, including depth gauges and all incidentals, to satisfactorily complete the work.**"

(Also see 535.24 and 535.25 for related changes)

SECTION 503
REINFORCING STEEL

Section 503.07 Splicing Revise this section by removing the table and following footnote and replacing them with:

Minimum Lap Splice Length (inches)									
	Bar Size								
Bar Type	#3	#4	#5	#6	#7	#8	#9	#10	#11
Plain or Galvanized	16	20	24	29	38	47	59	72	85
Epoxy or Dual Coated	17	24	36	43	56	71	88	107	128
Stainless	19	24	30	36	47	59	73	89	107
Low-carbon Chromium	24	32	39	47	63	78	97	119	142

"**The minimum lap splice lengths in the table above are based on the parameters below. When any of these parameters are altered, appropriate minimum lap splice lengths will be as shown on the Plans.**

- **Normal weight concrete**
- **Minimum 28-day concrete compressive strength from 4,000 psi to 10,000 psi**

- **Class B tension lap splice**
- **Minimum center-to-center spacing between bars of 6 inches**
- **Minimum clear cover of 2 inches**
- **Nominal reinforcing steel yield strengths**
  - **Low-carbon Chromium = 100 ksi**
  - **Stainless = 75 ksi**
  - **All others = 60 ksi**
- **Reinforcement with yield strengths greater than 75 ksi shall have beam transverse reinforcement and column ties provided over the required lap splice length in accordancewith the current edition of the AASHTO LRFD Bridge Design Specifications**

When lap splices are placed horizontally in an element where the concrete depth below the splice will be 12 inches, or more, the indicated lap splice lengths shall be multiplied by a factor of 1.3."

SECTION 506
SHOP APPLIED PROTECTIVE COATING – STEEL

506.13 Surface Preparation Amend this section by adding this paragraph to the end:

"Steel shall meet the requirements of SSPC SP8 Pickling prior to being immersed in the zinc tanks. Verification of the surface preparation shall be included in the QC documentation."

SECTION 523
BEARINGS

523.051 Protective Coating Revise this subsection by removing the paragraph beginning with "Anchor rods shall be galvanized..." and replacing with:

"Anchor rods shall be galvanized. When anchor rods are designated to secure bare unpainted steel or painted steel, a dielectric coating (epoxy or bituminous type coatings are acceptable) shall be applied to the anchor rod and/or adjacent steel to prevent contact between galvanized surfaces and painted or unpainted steel."

523.22 Fabrication Amend this subsection by adding the following: **"Elastomeric Bearings shall be fabricated in accordance with AASHTO M251."**

SECTION 526
CONCRETE BARRIER

Amend this section by deleting it in its entirety and replacing it with:

"526.01 Description This work shall consist of the furnishing, constructing, erecting, setting, resetting, and removal of concrete barrier and associated elements in accordance with these specifications, the Standard Details, and the lines and grades shown on the Plans or established by the Resident.

The types of concrete barrier are designated as follows:

Portable Concrete Barrier Type I Double faced removable barrier in accordance with the Standard Details.

Permanent Concrete Barrier Type II Double faced barrier as shown on the Plans.

Permanent Concrete Barrier Type IIIa Single faced barrier 32 inches high in accordance with the Standard Details or as shown on the Plans.

Permanent Concrete Barrier Type IIIb Single faced barrier 42 inches high in accordance with the Standard Details or as shown on the Plans.

Permanent Concrete Transition Barrier Barrier of various heights joining steel bridge rail to steel guardrail in accordance with the Standard Details or as shown on the Plans.

Permanent Texas Classic Rail Barrier Traffic rail or sidewalk rail, in accordance with the Standard Details or as shown on the Plans.

526.02 Materials

a. Concrete Concrete for barriers, both permanent and portable, shall have a design strength of 5,000 psi.

For cast-in-place barrier: The concrete shall be Class LP, in accordance with Standard Specification Section 502, Structural Concrete.

For precast barrier: The concrete shall meet the requirements of Standard Specification 712.061, Structural Precast Concrete Units, except that the stripping strength for precast barriers is 4,000 psi.

b. Reinforcing Steel Reinforcing steel shall meet the requirements of Section 503, Reinforcing Steel.

c. Structural Steel Plates and barrier connections shall meet the requirements specified in Standard Specification 504 - Structural Steel and shall be hot dip galvanized after fabrication in accordance with Standard Specification 506, Shop Applied Protective Coating – Steel

d. Bolts Bolts shall meet the requirements specified in Section 713.02, High Strength Bolts.

e. Connecting Pins for Portable Concrete Barrier Portable concrete barriers must be connected using a 1- inch diameter pin. The connecting pin must be smooth, not deformed, i.e., reinforcing bar may not be used, and shall meet the strength requirements of ASTM A449 steel. Materials with greater strength may be used with the approval of the Department.

f. Anchor Pins for Portable Concrete Barrier Anchoring to concrete or asphalt will be required when specified on the Plans. When required, portable concrete barriers must be anchored using a 1 ½ - inch diameter anchor pin. The anchor pin must be smooth, not deformed, i.e., reinforcing bar may not be used, and shall meet the strength requirements of ASTM A36 steel. Materials with greater strength may be used with the approval of the Department.

g. Device Crashworthiness MaineDOT is transitioning to MASH2016 criteria for Portable Concrete Barrier on the following schedule:

New Portable Concrete Barrier shall be crash tested and/or evaluated to MASH2016 criteria.

Current Portable Concrete Barrier in useful serviceable condition that is successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029.

Other current Portable Concrete Barrier that is deemed acceptable by the Department may be utilized on projects off the National Highway System through December 31, 2024.

526.03 Construction Requirements

Cast-in-place barriers shall be fabricated in accordance with Standard Specification Section 502, Structural Concrete. Precast barriers shall be fabricated in accordance with Standard Specification 534, Precast Structural Concrete.

Concrete finish for permanent barrier shall be rubbed as defined in Standard Specification Section 502, Structural Concrete, 502.13 D2 or an approved equal.

Portable concrete barrier shall be generally free from fins and porous areas and shall present a neat and uniform appearance.

Permanent barrier shall have a protective coating applied in accordance with Standard Specification Section 515, Protective Coating for Concrete Surfaces.

Reflective delineators for concrete median barrier shall meet the requirements of Special Provision 645, Highway Signing.

Preformed Joint Filler shall meet the requirements specified in Subsection 705.01, Preformed Expansion Joint Filler.

Permissible dimensional tolerances for all concrete barriers shall be as follows:

a. Cross-sectional dimensions shall not vary from design dimensions by more than ¼ inch. The vertical centerline shall not be out of plumb by more than ¼ inch.

b. Longitudinal dimensions shall not vary from the design dimensions by more than ¼ inch per 10 feet of barrier section and shall not exceed ¾ inches per section.

c. Location of anchoring holes shall not vary by more than ½ inch from the dimensions shown in the concrete barrier details on the Plans.

d. Surface straightness shall not vary more than ¼ inch under a 10-foot straightedge.

e. The barrier shall have no significant cracking. Significant cracking is defined as fractures or cracks passing through the section, or any continuous crack extending for a length of 12 inches or more, regardless of position in the section.526.04 Method of Measurement Permanent Concrete Barrier Type II, IIIa, IIIb, Texas Classic Rail, and Precast Median Barrier will be measured for payment by lump sum, complete in place.

Portable concrete barrier, both anchored and unanchored will be measured for payment by lump sum. Lump sum measurement will include verification of the installation and removal of all portable concrete at the completion of the Contractor's operations.

The Contractor shall replace sections of portable concrete barrier, including anchored barrier damaged by the traveling public when directed by the Resident. Replacement sections will be measured for payment in accordance with Standard Specification 109.7, Equitable Adjustments to Compensation and Time.

Transition barrier will be measured by each, complete in place.

526.05 Basis of Payment The accepted quantities of Concrete Barrier Type II, IIIa, IIIb, Texas Classic Rail, and Precast Median Barrier will be paid for at the Contract lump sum price for the type specified, complete in place.

The accepted quantities of Portable Concrete Barrier Type I, both anchored and unanchored will be paid for at the Contract lump sum price. Such payment shall be full compensation for furnishing all materials, assembling, moving, resetting, transporting, temporarily storing, removing barrier, furnishing new parts as necessary, and all incidentals necessary to complete the work.

Portable barrier shall become the property of the Contractor upon completion of the use of the barrier on the project and shall be removed from the project site by the Contractor.

Transition barrier will be paid for at the Contract price each, complete in place.

The accepted quantity of all types of concrete barrier, whether portable or permanent, will be paid for at the lump sum or per each price, as applicable, which payment shall be full compensation for all materials, including reinforcing steel, protective coating, reflective delineators, steel plates and hardware, equipment, labor and incidentals required, as necessary, to complete the work.

Payment will be made under:

	Pay Item	Pay Unit
526.301	**Portable Concrete Barrier, Type I**	**Lump Sum**
526.304	**Portable Concrete Barrier, Anchored Type I**	**Lump Sum**
526.312	**Permanent Concrete Barrier Type II**	**Lump Sum**
526.321	**Permanent Concrete Barrier Type IIIa**	**Lump Sum**
526.323	**Texas Classic Rail**	**Lump Sum**
526.331	**Permanent Concrete Barrier Type IIIb**	**Lump Sum**
526.34	**Permanent Concrete Transition Barrier**	**Each**
526.502	**Precast Concrete Median Barrier**	**Lump Sum"**

SECTION 527
ENERGY ABSORBING UNIT

527.02 Materials Amend this section by deleting it in its entirety and replacing it with:

"MaineDOT is transitioning to MASH2016 criteria for Work Zone Traffic Control Devices on the following schedule:

Portable Crash Cushions will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2030. Current Category 3 devices in useful serviceable condition that are successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029.

Work Zone Crash Cushions shall be selected from the Department's Qualified Products List of Crash Cushions/Impact Attenuators or approved equal."

SECTION 535
PRECAST, PRESTRESSED CONCRETE SUPESTRUCTURE

535.24, Installation of Slabs, Beams, and Girders Revise the 5th paragraph by replacing "6.0 and 9.0" to "5.0 and 8.0" so it reads: **"Ready mixed grout shall achieve a design compressive strength of 6,000 psi at 28 days, have an entrained air content of between 5.0 and 8.0 percent, be non-shrink, flowable, and contain a non-shrink additive listed on the Department QPL for expansive cements."**

535.25, Installation of Precast/Prestressed Deck Panels Revise the 2nd paragraph by replacing "6.0 and 9.0" to "5.0 and 8.0" so it reads: **"Ready mixed grout shall achieve a design compressive strength of 6,000 psi at 28 days, have an entrained air content of between 5.0 and 8.0 percent, be non-shrink, flowable, and contain a non-shrink additive listed on the Department QPL for expansive cements."**

SECTION 606
GUARDRAIL

Amend this section by replacing it with the following:

606.01 Description This work shall consist of furnishing and installing guardrail components in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans or as established. Guardrail is designated as:

31" W-Beam Guardrail - Mid-Way Splice
Galvanized steel w-beam, 8" wood or composite offset blocks, galvanized steel posts

Thrie Beam
Galvanized steel thrie beam, 8" wood or composite offset blocks, galvanized steel posts

Median guardrail shall consist of two beams of the above types, mounted on single posts.

Bridge mounted guardrail shall consist of furnishing all labor, materials, and equipment necessary to install guardrail as shown on the plans. This work shall also include drilling for and installation of offset blocks if specified, and incidental hardware necessary for satisfactory completion of the work.

Remove and Reset and Remove, Modify, and Reset guardrail shall consist of removing the existing designated guardrail and resetting in a new location as shown on the plans or directed by the Resident. Remove, Modify, and Reset guardrail and Modify guardrail include the following guardrail modifications: Removing plate washers at all posts, except at anchorage assemblies as noted on the Standard Details, adding offset blocks, and other modifications as listed in the Construction Notes or General Notes. Modifications shall conform to the guardrail Standard Details.

Bridge Connection shall consist of the installation and attachment of beam guardrail to the existing bridge. This work shall consist of constructing a concrete end post or modifying an existing end post as required, furnishing, and installing a terminal connector, necessary hardware, and incidentals required to complete the work as shown on the plans. Bridge Transition shall consist of a bridge connection and furnishing and installing guardrail components as shown in the Standard Details.

606.02 Materials Materials shall meet the requirements specified in the following Sections of Division 700 - Materials:

Timber Preservative	708.05
Metal Beam Rail	710.04
Guardrail Posts	710.07
Guardrail Hardware	710.08

Guardrail components shall meet the applicable standards of "A Guide to Standardized Highway Barrier Hardware" prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Task Force 13 Report.

Posts for underdrain delineators shall be "U" channel steel, 8 ft long, 2 ½ lb/ft minimum and have 3/8-inch round holes, 1-inch center to center for a minimum distance of 2 ft from the top of the post.

Reflectorized Flexible Guardrail Markers shall be mounted on all guardrails. A marker shall be mounted onto guardrail posts at the flared guardrail terminal end point and tangent point, both at the leading and trailing ends of each run of guardrail. The marker's flexible posts shall be gray with either silver-white or yellow reflectors (to match the edge line striping) at the tangents, red at leading ends, and green at trailing ends. Whenever the guardrail terminal is not flared, markers will only be required at the terminal end point. These shall be red or green as appropriate. Markers shall be installed on the protected side of guardrail posts unless otherwise approved by the Resident. Reflectorized flexible guardrail markers shall be from the Department's Qualified Products List of Delineators. The marker shall be gray, flexible, durable, and of a non-discoloring material to which 3-inch by 9-inch reflectors shall be applied, and capable of recovering from repeated impacts and meeting MASH 16 requirements. Reflective material shall meet the requirements of Section 719.01 for ASTM D 4956 Type III reflective sheeting. The marker shall be secured to the guardrail post with two fasteners, as shown in the Standard Details.

Reflectorized beam guardrail ("butterfly"-type) delineators shall be mounted on all "w"-beam guardrail. The delineators shall be mounted within the guardrail beam at guardrail posts. Delineators shall be fabricated from high-impact, ultraviolet & weather resistant thermoplastic. Reflectorized beam guardrail delineators shall be placed at approximately 62.5 ft intervals or every tenth post on tangents and at approximately 31.25 ft intervals or every fifth post on curves. Exact locations of the delineators shall be as directed by the Resident. On divided highways, the left-hand delineators shall be yellow, and the right-hand delineators shall be silver/white. On two directional highways, the right-hand side shall be silver/white, and no reflectorized delineator used on the left. All reflectors shall have reflective sheeting applied to only one side of the delineator facing the direction of traffic as shown in the Standard Details. Reflectorized sheeting for guardrail delineators shall meet the requirements of Section 719.01.

Single wood post shall be of cedar, white oak, or tamarack, well-seasoned, straight, and sound and have been cut from live trees. The outer and inner bark shall be removed, and all knots trimmed flush with the surface of the post. Posts shall be uniform taper and free of kinks and bends.

Single steel post shall conform to the requirements of Section 710.07 b.

Single steel pipe post shall be galvanized, seamless steel pipe conforming to the requirements of ASTM A120, Schedule No. 40, Standard Weight.

Acceptable multiple mailbox assemblies shall be listed on the Department's Qualified Products List and shall be MASH 16 tested and approved.

Flared and Tangent w-beam guardrail terminals and guardrail offset blocks shall be from the Department's Qualified Products List. Flared terminals shall be installed with a 4 ft offset as shown in the Manufacturer's installation instructions.

Anchorage assemblies used to anchor trailing ends, radius guardrail, or other ends not exposed to traffic shall meet the applicable standards of "A Guide to Standardized Highway Barrier Hardware" prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Task Force 13 Report, Drawing SEW02a.

Existing materials damaged or lost during adjusting, removing and resetting, or removing, modifying, and resetting, shall be replaced by the Contractor without additional compensation. Existing guardrail posts and guardrail beams found to be unfit for reuse shall be replaced when directed by the Resident.

606.03 Posts Posts for guardrail shall be set plumb in holes or they may be driven if suitable driving equipment is used to prevent battering and distorting the post. When posts are driven through pavement, the damaged area around the post shall be repaired with approved bituminous patching. Damage to lighting and signal conduit and conductors shall be repaired by the Contractor.

When set in holes, posts shall be on a stable foundation and the space around the posts, backfilled in layers with suitable material, thoroughly tamped.

The reflectorized flexible guardrail markers shall be set plumb with the reflective surface facing the oncoming traffic. Markers shall be installed on the protected side of guardrail posts. Markers, which become bent or otherwise damaged, shall be removed and replaced with new markers.

Single wood posts shall be set plumb in holes and backfilled in layers with suitable material, thoroughly tamped. The Resident will designate the elevation and shape of the top. The posts, that are not pressure treated, shall be painted two coats of good quality oil base exterior house paint.

Single steel posts shall be set plumb in holes as specified for single wood posts or they may be driven if suitable driving equipment is used to prevent battering and distorting the post.

Additional bolt holes required in existing posts shall be drilled or punched, but the size of the holes shall not exceed the dimensions given in the Standard Details. Metal around the holes shall be thoroughly cleaned and painted with two coats of approved aluminum rust resistant paint. Holes shall not be burned.

606.04 Rails Brackets and fittings shall be placed and fastened as shown on the plans. Rail beams shall be erected and aligned to provide a smooth, continuous barrier. Beams shall be lapped with the exposed end away from approaching traffic.

End assemblies shall be installed as shown on the plans and shall be securely attached to the rail section and end post.

All bolts shall be of sufficient length to extend beyond the nuts but not more than ½ inch. Nuts shall be drawn tight.

Additional bolt holes required in existing beams shall be drilled or punched, but the size of the holes shall not exceed the dimensions given in the Standard Details. Metal around the holes shall be thoroughly cleaned and painted with two coats of approved aluminum rust resistant paint. Holes shall not be burned.

606.045 Offset Blocks The same offset block material is to be provided for the entire project unless otherwise specified.

606.05 Shoulder Widening At designated locations the existing shoulder of the roadway shall be widened as shown on the plans. All grading, paving, seeding, and other necessary work shall be in accordance with the Specifications for the type work being done.

606.06 Mail Box Post Single wood post shall be installed at the designated location for the support of the mailbox. The multiple mailbox assemblies shall be installed at the designated location in accordance with the Standard Details and as recommended by the Manufacturer. Attachment of the mailbox to the post will be the responsibility of the home or business owner.

606.07 Abraded Surfaces All galvanized surfaces of new guardrail and posts, which have been abraded so that the base metal is exposed, and the threaded portions of all fittings and fasteners and cut ends of bolts shall be cleaned and painted with two coats of approved rust resistant paint.

606.08 Method of Measurement Guardrail will be measured by the linear foot from center to center of end posts along the gradient of the rail except where end connections are made to masonry or steel structures, in which case measurement will be as shown on the plans. When connected to radius rail, measurement will be to the end of the last tangent beam.

Guardrail terminal, reflectorized flexible guardrail marker, terminal end, anchorage assembly, bridge transition, bridge connection, multiple mailbox post, and single post will be measured by each unit of the kind specified and installed.

Widened shoulder will be measured as a unit of grading within the limits shown on the plans.

Excavation in solid rock for placement of posts will be paid under force account unless otherwise indicated in the Bid Documents.

606.09 Basis of Payment The accepted quantities of guardrail will be paid for at the contract unit price per linear foot for the type specified, complete in place. Reflectorized beam guardrail ("butterfly"-type) delineators will not be paid for directly but will be considered incidental to guardrail items. Reflectorized flexible guardrail marker, terminal end, anchorage assembly, bridge transition, bridge connection, multiple mailbox post, and single post will be paid for at the contract unit price each for the kind specified complete in place.

Guardrail terminals will be paid for at the contract price each, complete in place which price shall be full payment for furnishing and installing all components including the terminal section, posts, offset blocks, "w" beam, cable foundation posts, plates and for all incidentals necessary to complete the installation within the limits as shown on the Standard Details or the Manufacturer's installation instructions. Pay limits for a flared terminal will be 37.5 feet. Pay limits for a tangent terminal will be 50 feet. Each guardrail terminal will be clearly marked with the Manufacturer's name and model number to facilitate any future needed repair. Such payment shall also be full compensation for furnishing all material, excavating, backfilling holes, assembling, and all incidentals necessary to complete the work, except that for excavation for posts or anchorages in solid ledge rock, payment will be made under 109.7.5 – Force Account. Type III Retroreflective Adhesive Sheeting shall be applied to the approach buffer end sections and sized to substantially cover the end section. On all roadways, the ends shall be marked with alternating black and retroreflective yellow stripes. The stripes shall be 3 in wide and sloped down at an angle of 45 degrees toward the side on which traffic is to pass the end section. Guardrail terminals shall also include a set of installation drawings supplied to the Resident.

Anchorages to bridge end posts will be part of the bridge work. Connections thereto will be considered included in the unit bid price for guardrail.

Guardrail to be placed on a radius of curvature of 150 ft or less will be paid for under the designated radius pay item for the type guardrail being placed.

Widened shoulder will be paid for at the contract unit price each complete in place and will be full compensation for furnishing and placing, grading and compaction of aggregate subbase and any required fill material.

Adjust guardrail will be paid for at the contract unit price per linear foot and will be full compensation for adjusting to grade. Payment shall also include adjusting guardrail terminals where required.

Modify guardrail will be paid for at the contract unit price per linear foot and will be full compensation for furnishing and installing offset blocks, additional posts, and other specified modifications; removing, modifying, installing, and adjusting to grade existing posts and beams; removing plate washers and backup plates, and all incidentals necessary to complete the work. Payment shall also include removing and resetting guardrail terminals where required.

Remove and Reset guardrail will be paid for at the contract unit price per linear foot and will be full compensation for removing, transporting, storing, reassembling all parts, necessary cutting, furnishing new parts when necessary, reinstalling at the new location, and all other incidentals necessary to complete the work. Payment shall also include removing and resetting guardrail terminals when required.

Remove, Modify, and Reset guardrail will be paid for at the contract unit price per foot and will be full compensation for the requirements listed in Modify guardrail and Remove and Reset guardrail.

Bridge Connections will be paid for at the contract unit price each. Payment shall include, attaching the connection to the endpost including furnishing and placing concrete and reinforcing steel

necessary to construct new endposts if required, furnishing and installing the terminal connector, and all miscellaneous hardware, labor, equipment, and incidentals necessary to complete the work.

Bridge Transitions will be paid for at the contract unit price each. Payment shall include furnishing and installing the thrie beam or "w"-beam terminal connector, doubled beam section, and transition section, where called for, posts, hardware, precast concrete transition curb, and any other necessary materials and labor, including the bridge connection as stated in the previous paragraph.

No payment will be made for guardrail removed, but not reset and all costs for such removal shall be considered incidental to the various contract pay items.

Payment will be made under:

Pay Item		Pay Unit
606.1301	31" W-Beam Guardrail - Mid-Way Splice – Single Faced	Linear Foot
606.1302	31" W-Beam Guardrail - Mid-Way Splice – Double Faced	Linear Foot
606.1303	31" W-Beam Guardrail - Mid-Way Splice, 15' Radius and Less	Linear Foot
606.1304	31" W-Beam Guardrail - Mid-Way Splice, Over 15' Radius	Linear Foot
606.1305	31" W-Beam Guardrail - Mid-Way Splice Flared Terminal	Each
606.1306	31" W-Beam Guardrail - Mid-Way Splice Tangent Terminal	Each
606.1307	Bridge Transition (Asymmetrical) – Type IA	Each
606.1721	Bridge Transition - Type I	Each
606.1722	Bridge Transition - Type II	Each
606.1731	Bridge Connection - Type I	Each
606.1732	Bridge Connection - Type II	Each
606.178	Guardrail Beam	Linear Foot
606.25	Terminal Connector	Each
606.257	Terminal Connector - Thrie Beam	Each
606.259	Anchorage Assembly	Each
606.265	Terminal End-Single Rail - Galvanized Steel	Each
606.266	Terminal End-Single Rail - Corrosion Resistant Steel	Each
606.275	Terminal End-Double Rail - Galvanized Steel	Each
606.276	Terminal End-Double Rail - Corrosion Resistant Steel	Each
606.353	Reflectorized Flexible Guardrail Marker	Each
606.354	Remove and Reset Reflectorized Flexible Guardrail Marker	Each
606.356	Underdrain Delineator Post	Each
606.358	Guardrail, Modify	Linear Foot
606.362	Guardrail, Adjust	Linear Foot
606.365	Guardrail, Remove, Modify, and Reset	Linear Foot
606.366	Guardrail, Remove and Reset	Linear Foot
606.367	Replace Unusable Existing Guardrail Posts	Each
606.47	Single Wood Post	Each
606.48	Single Galvanized Steel Post	Each

606.50	Single Steel Pipe Post	Each
606.51	Multiple Mailbox Support	Each
606.568	Guardrail, Modify - Double Rail	Linear Foot
606.63	Thrie Beam Rail Beam	Linear Foot
606.64	Guardrail Thrie Beam - Double Rail	Linear Foot
606.65	Guardrail Thrie Beam - Single Rail	Linear Foot
606.66	Terminal End Thrie Beam	Each
606.70	Transition Section - Thrie Beam	Each
606.71	Guardrail Thrie Beam - 15 ft radius and less	Linear Foot
606.72	Guardrail Thrie Beam - over 15 ft radius	Linear Foot
606.73	Guardrail Thrie Beam - Single Rail Bridge Mounted	Linear Foot
606.74	Guardrail - Single Rail Bridge Mounted	Linear Foot
606.753	Widen Shoulder for Low Volume Guardrail End	Each
606.754	Widen Shoulder for Flared Guardrail Terminal	Each
606.78	Low Volume Guardrail End	Each
606.80	Buried-in-Slope Guardrail End	Each

SECTION 608
SIDEWALKS

Section 608.022Detectable Warning Materials Standard Revise this section by removing the last sentence of this section beginning with "Concrete…" and replacing it with "**Concrete shall meet the requirements of Section 608.021, Sidewalk Materials, of this specification or may be a prepackaged concrete mix from the Department's Qualified Products List (QPL).**"

SECTION 609
CURB

609.02 Materials Revise the paragraph beginning "The Contractor shall submit a concrete mix…" so that it reads:

"**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 concrete fill.**"

609.03 Vertical Stone Curb, Terminal Section and Transition Sections and Portland Cement Concrete Curb, Terminal Sections and Transition Sections Revise this section by underlining the section number and title so that it reads in the spec book as:

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

Revise the last paragraph beginning with "The Contractor may elect…" so that it reads:

"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 Concrete Fill shall **meet the requirements of 609.02. The Contractor shall submit a concrete design for the Portland Cement Concrete, with a minimum designated compressive strength of 3000 PSI meeting the requirements of Class S or Class Fill Concrete. The Contractor may elect to choose a Prepackaged Concrete Mix from the Department's Qualified Products list (QPL). Concrete backfill shall be completed in conformance with a Department supplied concrete backfill detail."**

SECTION 610
STONE FILL, RIPRAP, STONE BLANKET, AND STONE DITCH PROTECTION

610.02 Materials Amend this subsection by adding the following to the end of the material list:
"Stone Ditch Protection 703.29"

SECTION 618
SEEDING

618.08 Mulching Revise this Section so that the third sentence reads: "Mulch for Seeding Method Number 1 shall only be cellulous fiber mulch Section 619.04 **(b)** or straw mulch Section 619.04 **(a)**."

SECTION 619
MULCH

619.03 General Amend this Section by adding the following sentence to the end: **"Straw mulch shall be used in all wetland areas."**

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

Section 626.021 Miscellaneous Materials Revise this section by removing the fourth paragraph beginning with " All Concrete for concrete encasement..." and replace it with **"All concrete for concrete encasement of conduit shall be Class S or Class Fill concrete in accordance with the applicable requirements of Section 502 – Structural Concrete, or a Prepackaged Concrete Mix from the Department's Qualified Products List (QPL)."**

Section 626.031Conduit Revise the fifth paragraph beginning with "After the trench has been..." by removing the last sentence beginning with "Where concrete encasement..." and replacing it with **"Where concrete encasement is required around the conduit, the concrete shall meet Class S, Class Fill in accordance with the applicable requirements of Section 502 – Structural Concrete, or a Prepackaged Concrete Mix from the Department's Qualified Products List (QPL)."**

626.034 Concrete Foundations Revise this Section by changing '626.037' to '**626.036**' in the Second Paragraph which begins with "Foundations shall consist of cast-in-place…".

Revise the 10th paragraph beginning with "Before placing concrete, the required elbows…" by removing "…**in accordance with Standard Specification 633.**"

626.036 Precast Foundations Revise the last sentence of paragraph one so that it reads: "**Construction of precast foundations shall conform to the Standard Details and all requirements of 712.061.**"

SECTION 627
PAVEMENT MARKINGS

627.06 Application Revise this subsection by replacing the paragraph beginning with " On other final pavement markings…" with the following:
"On other final pavement markings and on curb, where the paint is applied by hand painting or spraying, application shall be one uniform covering coat at least 16 mils thick. Before the 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.

Painted lines and markings shall be applied in accordance with the manufacturer's published recommendations. These recommendations will be supplied to the Resident prior to installation."

SECTION 643
TRAFFIC SIGNALS

643.021 Materials Amend this subsection by adding the following at the end:

"**MaineDOT is transitioning to MASH2016 criteria for Work Zone Traffic Control Devices on the following schedule:**

Temporary Traffic Control Signals will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2030. Current Category 4 devices in useful serviceable condition that are successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029."

643.09 Service Connection Revise this subsection by removing the paragraph that begins with "Traffic signal services shall have…".

And by removing the paragraphs beginning with " A service ground rod shall be installed…" and "A total of 4, 10' service…" and replace them with "**A total of 4, 10' service ground rods shall be installed and properly connected together on the outside of the cabinet foundation. One ground rod shall be located at each corner and shall be either flush or slightly below finished grade. The connection between the ground rod and the ground wire shall be an**

exothermic connection such as a Cadweld. The ground wire from the interconnected ground rods shall be routed through a conduit in the foundation and into the base of the cabinet".

SECTION 645
HIGHWAY SIGNING

Section 645.023 Sign Support Structures. Under letter "c.", revise the fifth paragraph beginning with "In addition to the required details..." by removing the words "**and foundation**" from the 5th sentence.

Section 645.08 Method of Measurement. Revise the second paragraph beginning with "Bridge-type, cantilever and..." by removing the words "**including the foundation**" .

Section 645.09 Basis of Payment. Revise the third paragraph beginning with "The accepted bridge-type, cantilever and..." by removing the word "**foundation**" from the second sentence. Add the following sentence to the end of the paragraph "**Conduits, Junction Boxes, and Foundations will be paid for under Section 626.**"

SECTION 652
MAINTENANCE OF TRAFFIC

Amend this Section by adding the following new subsection:

"652.2.6 Device Crashworthiness MaineDOT is transitioning to MASH2016 criteria for Work Zone Traffic Control Devices on the following schedule:

Category 1 (Cones, Drums, Tubular Markers, Flexible Delineators, and similar devices that have little chance if causing windshield penetration, tire damage, or other significant effect on the control or trajectory of a vehicle) – All Category 1 devices will be manufacturer self-certified as MASH2016 by January 1, 2025. Current Category 1 devices in useful serviceable condition that are not self-certified as MASH2016 compliant may be utilized through December 31, 2024.

Category 2 (Barricades, Portable Sign Supports, Category 1 devices with attachments, and similar devices that are not expected to produce significant vehicular velocity change but may be otherwise hazardous) – All Category 2 devices will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2025. Current Category 2 devices in useful serviceable condition that are successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2024.

Category 3 (Portable Concrete Barrier, Portable Crash Cushions, Truck Mounted Attenuators, Category 2 devices weighing more than 100 pounds, and similar devices that are expected to produce significant vehicular velocity change or other harmful reactions) – All Category 3 devices will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2030. Current Category 3 devices in useful serviceable condition that are successfully tested to

NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029. (See Standard Specification 526 for additional Portable Concrete Barrier information).

Category 4 (Trailer Mounted Devices: Arrow Boards, Temporary Traffic Control Signals, Area Lighting, Portable Changeable Message Sign, and other similar devices.) – All Category 4 devices will be crash tested and/or evaluated to MASH2016 criteria by January 1, 2030. Current Category 4 devices in useful serviceable condition that are successfully tested to NCHRP Report 350 or MASH2009 criteria may be utilized through December 31, 2029."

652.4 Flaggers Revise the first paragraph of this section so that it reads:

"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 who is employing that flagger. All flaggers must carry an official certification card with them while flagging that has been issued by their employer."

SECTION 681
PRECAST AGGREGATE-FILLED, CONCRETE BLOCK GRAVITY WALL

681.08 Basis of Payment Amend this section by adding the Item Number "**681.10**' in front of the item "Precast Aggregate-Filled Concrete Block Gravity Wall" at the end of the section.

SECTION 703
AGGREGATES

Add the following to Section 703 - Aggregates

703.01 Fine Aggregate for Concrete Fine aggregate for concrete shall consist of natural sand or, when approved by the Resident, other inert materials with similar characteristics or combinations thereof, having strong, durable particles. Fine aggregate from different sources of supply shall not be mixed or stored in the same pile nor used alternately in the same class of construction or mix without permission of the Resident.

All fine aggregate shall be free from injurious amounts of organic impurities. Should the fine aggregate, when subjected to the colorimetric test for organic impurities, AASHTO T 21, produce a color darker than the reference standard color solution (laboratory designation Plate III), the fine aggregate shall be rejected.

Fine aggregate shall have a sand equivalent value of not less than 75 when tested in accordance with AASHTO T 176.
Fine aggregate sources shall meet the Alkali Silica Reactivity (ASR) requirements of Section 703.0201.

The fineness modulus shall not be less than 2.26 or more than 3.14. If this value is exceeded, the fine aggregate will be rejected unless suitable adjustments are made in proportions of coarse and fine

aggregate. The fineness modulus of fine aggregate shall be determined by adding the cumulative percentages of material by weight retained on the following sieves: Nos. 4, 8, 16, 30, 50, 100 and dividing by 100.

Fine aggregate, from an individual source when tested for absorption as specified in AASHTO T 84, shall show an absorption of not more than 2.3 percent.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
⅜ inch	100
No. 4	95-100
No. 8	80-100
No. 16	50-85
No. 30	25-60
No. 50	10-30
No. 100	2-10
No. 200	0-5.0

703.02 Coarse Aggregate for Concrete Coarse aggregate for concrete shall consist of crushed stone or gravel having hard, strong, durable pieces, free from adherent coatings and of which the composite blend retained on the ⅜ inch sieve shall contain no more than 15 percent, by weight of flat and elongated particles when performed in accordance with test method ASTM D 4791, Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate, using a dimensional ratio of 1:5.

The coarse aggregate from an individual source shall have an absorption no greater than 2.0 percent by weight determined in accordance with AASHTO T 85 modified for weight of sample.

The composite blend shall have a Micro-Deval value of 18.0 percent or less as determined by AASHTO T 327 or not exceed 40 percent loss as determined by AASHTO T 96.

Coarse aggregate sources shall meet the Alkali Silica Reactivity (ASR) requirements of Section 703.0201.

Coarse aggregate shall conform to the requirements of the following table for the size or sizes designated and shall be well graded between the limits specified.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves			
Grading	A	AA	S	LATEX
Aggregate Size	1 inch	¾ inch	1½ inch	½ inch
2 inch			100	
1½ inch	100		95-100	
1 inch	95-100	100	-	
¾ inch	-	90-100	35-70	100
½ inch	25-60	-	-	90-100
⅜ inch	-	20-55	10-30	40-70
No. 4	0-10	0-10	0-5	0-15
No. 8	0-5	0-5	-	0-5
No. 16	-	-	-	-
No. 50	-	-	-	-
No. 200	0 - 1.5	0 - 1.5	0 - 1.5	0 - 1.5

703.0201 Alkali Silica Reactive Aggregates All coarse and fine aggregates proposed for use in concrete shall be tested for Alkali Silica Reactivity (ASR) potential under AASHTO T 303 (ASTM C 1260), Accelerated Detection of Potentially Deleterious Expansion of Mortar Bars Due to Alkali-Silica Reaction, prior to being accepted for use. Acceptance will be based on testing performed by 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:

a. Class F Coal Fly Ash meeting the requirements of AASHTO M 295
b. Ground Granulated Blast Furnace Slag (Grade 100 or 120) meeting the requirements of AASHTO M 302
c. Densified Silica Fume meeting the requirements of AASHTO M 307
d. Lithium-based admixtures
e. 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.

703.05 Aggregate for Sand Leveling Aggregate for sand leveling shall be sand of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The aggregate shall meet the grading requirements of the following table.

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
⅜ inch	85-100
No. 200	0-5.0

703.06 Aggregate for Base and Subbase The following shall apply to Sections (a.) and (c.) below. The material shall have a Micro-Deval 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.

Recycled Asphalt Pavement (RAP) shall not be used for or blended with aggregate base or subbase.

a. Aggregate for base, Type A and B shall be crushed ledge or crushed gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation of the part that passes a 3 inch sieve shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	Type A	Type B
½ inch	45-70	35-75
¼ inch	30-55	25-60
No. 40	0-20	0-25
No. 200	0-6.0	0-6.0

At least 50 percent by weight of the material retained on the No. 4 sieve shall have at least one fractured face as tested by AASHTO T 335.

Type A aggregate for base shall only contain particles of rock that will pass the 2 inch square mesh sieve.

Type B aggregate for base shall only contain particles of rock that will pass the 4 inch square mesh sieve.

b. Aggregate for base, Type C shall be crushed ledge or crushed gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The material shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves
	Type C
4 inches	100
3 inches	90-100
2 inches	75-100
1 inch	50-80
½ inch	30-60
No. 4	15-40
No. 200	0-6.0

At least 50 percent by weight of the material coarser than the No. 4 sieve shall have at least one fractured face as tested by AASHTO T 335.

c. Aggregate for subbase shall be sand or gravel of hard durable particles free from vegetable matter, lumps or balls of clay and other deleterious substances. The gradation of the part that passes a 3 inch sieve shall meet the grading requirements of the following table:

Sieve Designation	Percentage by Weight Passing Square Mesh Sieves	
	Type D	Type E
½ in	35-80	
¼ inch	25-65	25-100
No. 40	0-30	0-50
No. 200	0-7.0	0-7.0

Type D aggregate for subbase gravel may contain up to 50 percent by weight Recycled Concrete Aggregate (RCA). When RCA is used, the portion of the resulting blend of gravel and RCA retained on a ½" square mesh sieve shall contain a total of no more than 5 percent by weight of other recycled materials such as brick, concrete masonry block, or asphalt pavement as determined by visual inspection.

RCA shall be substantially free of wood, metal, plaster, and gypsum board as defined in Note 9 in Section 7.4 of AASHTO M 319. RCA shall also be free of all substances that fall under the category of solid waste or hazardous materials.

Aggregate for subbase shall not contain particles of rock which will not pass the 6 inch square mesh sieve.

703.08 Recycled Asphalt Pavement Recycled asphalt pavement shall consist of salvaged asphalt materials from milled pavements or production waste that has been processed before use to meet the requirements of the job mix formula. It shall be free of winter sand, granular fill, construction debris, or other materials not generally considered asphalt pavement.

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:

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**	

Table 4: Maximum Percent RAP According to Test Results

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.

SECTION 710
FENCE AND GUARDRAIL

710.06 Fence Posts and Braces Revise the first Paragraph so that it reads:

"Wood posts shall be of cedar, white oak, or tamarack or other AWPA approved species, of the diameter or section and length shown on the plans."

Remove the fourth paragraph which starts " That portion of wood posts…".

Revise the paragraph beginning with "Braces shall be of spruce, eastern hemlock … so that it now reads:

"Braces shall be of spruce, eastern hemlock, Norway pine, pitch pine, or tamarack timbers or other AWPA approved species, or spruce, cedar, tamarack or other AWPA approved species round posts of sufficient length to make a diagonal brace between adjacent posts. All wood posts and braces shall be pressure-treated in accordance with AASHTO M 133 and AWPA U1, UC4A Commodity Specification B: Posts. "

710.07 Guardrail Posts Revise this section so that the first sentence of section a. reads:

"a. Wood posts shall be of Norway pine, southern yellow pine, pitch pine, Douglas fir, red pine, white pine, or eastern hemlock or other AWPA approved species."

Revise the next paragraph so that it reads:

Wood posts and offset brackets shall be preservative treated in accordance with the requirements of AASHTO M 133 and AWPA U1, UC4A Commodity Specification B: Posts.

710.08 Guardrail Hardware Revise this subsection by replacing "**AASHTO M 298**" with "**ASTM B965**"

SECTION 712
MISCELLANEOUS HIGHWAY MATERIAL

712.061 Structural Precast Units Amend this section by adding the following sentence to the end of the first paragraph of the Construction subsection:

"Facilities certified by NPCA or PCI shall provide to the Fabrication Engineer a copy of their annual audit to include deficiency reports and corrective actions."

Revise this section by changing the letter "b" of ASTM C1611 of the Concrete Testing subsection so that it reads:

"b. Air content shall be 5.0% to 8.0%."

SECTION 713
STRUCTURAL STEEL AND RELATED MATERIAL

Section 713.02 High Strength Bolts
Revise the second sentence of this subsection so that it reads "**Nuts shall meet the requirement ofASTM A563**". Revise the third sentence of this subsection so that it reads "**Circular and beveled washers shall conform to the requirement of ASTM F436**".

SECTION 718
TRAFFIC SIGNALS MATERIAL

718.03 Signal Mounting Amend the paragraph beginning with "All trunions, brackets and..." by adding "**For polycarbonate signal heads with more than 3 sections or requiring mounting extensions greater than 12 inches in length, reinforcing plates shall be used to reinforce the housings at the point of attachment.**" to the end of the paragraph.

718.08 Controller Cabinet Revise this subsection by replacing the paragraph beginning with "The cabinet shall be supplied with LED light panels..." on or about page 7-66 with "**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.**"

Revise this subsection by replacing the paragraph beginning with "The cabinet shall be supplied with a generator panel ..." on or about page 7-68 with:

"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 stainless steel enclosure with a separate lockable door accessed with a Corbin #2 key. The unit shall be mounted on the left, exterior of the control side wall of the ground mount cabinet a minimum of 36" above the surrounding grade and on the lower left side of the pole mounted cabinet. The generator transfer switch shall be a Reliance C30A1N Signa Series or approved equal. "

Revise this subsection by removing the following from the paragraph beginning with "The ground mounted cabinet shall be supplied and installed with an electric service meter socket trim and electrical service disconnect switch ..." on or about page 7-69: **"(removed: thus preventing that space from being used either by equipment supplied as part of the project, or future equipment that would be installed in the rack system. Joe indicated that he would add this language to the detail so it is covered.)".**

Revise this subsection by replacing the following in the paragraph beginning with "The Contractor shall reconfigure the default user name..." on or around page 7-70; "MaineDOT IT" with "**MaineDOT Traffic Division**".

In the paragraph beginning with "Tests shall be conducted by the contractor..." on or around page 7-73, amend this subsection by removing **"in the state of Maine and"** after "The facility shall be".

Amend this Section by adding the following subsection:

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.

Where applicable, communications from MaineDOT's cloud-based Central Management System (CMS) to the on-street traffic signal controllers shall be made through fiber optic interconnect cable connected back to existing internet connections and/or the Field Monitoring Unit (FMU). The Contractor shall furnish and install all materials necessary for a complete and operational fiber optic interconnection to all project intersections as shown on the plans. All connections to the CMS cloud-based system shall be via a secure VPN network.

The FMU shall be the only remote connection device used by isolated intersections to connect to the cloud-based system. All connections shall be encrypted VPN tunnels. The Contractor shall coordinate all configuration settings with MaineDOT IT and the Engineer.

The FMU central web based interface shall be a separate element from the CMS.

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 FMU shall be provided with appropriately rated connectors that allows the FMU to be exchanged by unplugging connectors, without tools.

2.3 The FMU shall monitor and log all ATC Controller and ATC cabinet faults and or alarms.

2.4 The FMU shall be wired directly to the ATC cabinet.

2.5 The FMU shall have an internal cellular modem running at 4G LTE.

2.5.1 The Cellular modem shall be designed to be replaced / upgraded to 5G service when available.

2.6 The FMU shall incorporate an integrated GPS and cell modem.

2.7 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.

2.8 The FMU shall be powered via a standard 120V input power.

2.9 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.

2.10 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.

2.11 The FMU shall incorporate an integrated GPS which will allow the FMU to geo-locate itself on the FMU management software map, without configuration.

2.12 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.

2.13 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.

2.14 The FMU shall utilize HTTP and 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.

2.15 The FMU shall include Ethernet communications via an Ethernet Port with RJ45 connector.

2.16 The FMU shall include weather proof antennas.

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 No cellular overage charges

8.1.3 Extended warranty on the hardware for the period of the Connectivity and Service Agreement

8.1.4 Over-the-air software updates

8.1.5 Over-the-air security updates

8.1.6 Future Connected Vehicles Service

SECTION 720
STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS

720.12 Wood Sign Posts Revise the first sentence so that it reads:

Wood sign posts shall be rectangular, straight and sound timber, cut from live growing native spruce, red pine, hemlock, cedar trees or other AWPA approved species, free from loose knots or other structurally weakening defects of importance, such as shake or holes or heart rot.

Revise the third paragraph that starts with "When pressure treated..." so that it reads:

All sign posts shall be pressure-treated in accordance with AASHTO M 133 and AWPA Standard U1, UC4A, Commodity Specification A: Sawn Products.

APPENDIX B

MaineDOT ENVIRONMENTAL SUMMARY SHEET

MaineDOT

LAP Environmental Summary Sheet

WIN: 22204.00 **Date Submitted: 10/22/2021**
Town: Southwest Harbor
ENV Team Leader: Danielle Tetreau
ENV Field Contact: Locally Administered

NEPA Complete: 12/12/2018 **Letter 11 Submitted: 9/12/2017**
Programmatic CE - CFR 771.117.c.3
Re-evaluated CE September 22, 2021

☐ **Section 106**
SHPO Concurrence No Effect, no eligible properties
Special Conditions: none

☐ **Section 4(f) and 6(f)**

Section 4(f)	Section 6(f)
Review Complete No use	Not Applicable

☐ **Maine Department of Inland Fisheries and Wildlife Essential Habitat**
Not Applicable Timing Window: Not Applicable

☒ **Section 7**
Species of Concern: Atlantic salmon DPS: No effect
Northern long-eared bat: May affect 4(d) approved

☐ **Essential Fish Habitat**
Review Complete – No effect

☐ **Stormwater Review**
Review Complete – Not Applicable

☐ **Hazardous Waste Review**
Complete Review suggests no issues

☒ **State and Federal Permits**
Letter 12 submitted 10/22/2021
Copies of approvals submitted n/a

NOTE: Local Town/Municipality is responsible for obtaining and providing copies of Maine Department of Environmental Protection and Army Corps of Engineers Permits.

☒ **Special Provisions Required**

	N/A	Applicable
Standard Specification 656-Erosion Control Plan	☐	☒
General Note for Hazardous Waste	☒	☐
Special Provision 105-Timing of Work Restriction	☒	☐
Special Provision 656-Minor Soil Disturbance	☒	☐
Special Provision 203-Dredge Spec	☒	☐
Special Provision 203-Hazardous Waste	☒	☐

Comments:

**All approvals based on plans/scope as of: 10/3/2018*

APPENDIX C

MaineDOT PERMIT

State of Maine
Department of Transportation, Augusta, Maine

LOCATION PERMIT

November 15, 2021 **(STATUTORY APPLICATION)** Permit No.: **136722**

Pursuant to Title 35 A, M.S.R.A. Sec. 2503, **Southwest Harbor,Town of**, successors and assigns is hearby granted a Location Permit to construct, maintain and operate facilities in **Southwest Harbor**, as described below. All work shall be accomplished in accordance with the conditions specified herein, and attached hereto. Any requested modification to this permit must be appoved by the undersigned MaineDOT representative.

Route/Road/SA: / Main Street / State Aid not coded

Type of Work and Location: Installation Of New Sewer And Water Mains On Main Street, Beginning At The Intersection Of Village At Ocean'S End, And Extending In A Northerly Direction For A Distance Of 1400 Feet

	Latitude	Longitude		Latitude	Longitude
Beginning	44.272167	-68.32623	**Ending**	44.276447	-68.325274

Applicant's Description: See attached application received by MaineDOT on **10/20/2021**

Public Notice in Publication: (None)

Date Permit Issued: 11/15/2021

BUREAU OF MAINTENANCE &
OPERATIONS

John Devin

John Devin, P.E.
Region Engineer, Region 4

Attachments: Location Permit - Standard Conditions and Regulations and Application

SPECIAL CONDITIONS:

LOCATION PERMIT

STANDARD CONDITIONS AND REGULATIONS

LOCATION, COMPLIANCE AND TOLERANCE: Locations shall be as permitted and shall comply with the Department's current utility accomodation and highway opening standards unless specifically noted otherwise. Minimum location standards shall be maintained unless specifically permitted above. Pipes and conduit may be moved three feet horizontally, unless specific limitations are required, and may cross, but shall not run directly over or under installations of other parties, without requiring an alteration of this permit. Unapproved alterations may void the permit. Alterations must be approved by the individual who issued the original permit. The Commissioner or his Designee will take such action , as they consider necessary to obtain compliance with the applicable laws, conditions and regulations.

DESIGN AND CONSTRUCTION: Design and construction must comply with all applicable laws, codes and regulations.

PERMIT LIMITED: This permit is for the approved installation at the approved location only within State of Maine highway right-of-way limits, with such variations as may be permitted by Title 35A, M.R.S.A. Section 2503. It is not authorization to provide service. It is not authorization to occupy or use jointly the plant of another utility without its consent. It is not authorization to locate on private property.

RESPONSIBILITY: The Utility shall be fully responsible for the design, construction, maintenance and operation of all facilities, appurtenances and services located within the highway right-of-way limits, including any damages that may result therefrom. The Utility shall obtain any and all other permits or licences which may be required. Aboveground utility plant not required for continued service shall be promptly removed.

COST OBLIGATION: Unless otherwise provided by agreement or law, all costs applicable to the proposed installation are to be borne by the Utility, including all costs of any further relocation, adjustment or removal, which may be necessary to accomodate highway needs.

ACCESS: Unless otherwise provided, access for construction, inspection, maintenance and operation of the facility may be made from the public way.

PROTECTION OF TRAFFIC: The Utility shall provide such protective services, including flaggers and police, as may be necessary to safeguard traffic during construction, inspection, maintenance and operation; and shall remove all equipment and material not in actual use for construction, inspection, maintenance and operation from the highway as expeditiously as possible. "The Manual on Uniform Traffic Control Devices, Part VI", shall be complied with.

UTILITY COORDINATION: Work must be coordinated with existing utilities in the area of this permit.

HIGHWAY OPENINGS: All permitted underground facilities must be constructed only after receiving a Highway Opening Permit from the MaineDOT region office.

TIME LIMIT: If construction of the applicant's facility is not commenced within 12 months after the date of the permit, this permit is void, and the application is resubmitted for review.

RECEIVED
OCT 20 2021
MDOT Region 4

11/12/21

Maine Department of Transportation

Utility Location Permit Application

Utility Job/W.O. No.

☐ 14 Day Permit by Rule (PBR) ☐ 30 Day Permit by Rule (PBR) ☒ Statutory Application ☐ MaineDOT Project

Applicant Information: Date: October 1, 2021

Utility Name: Town of Southwest Harbor PBR #:

Joint Utility: N/A Joint PBR #:

Primary Contact Information:

Name: Annaleis Hafford, P.E., Olver Associates Inc. Phone: (207) 223-2232 Cell: N/A

Address: P.O. Box 679 Email: annaleis@olverassociatesinc.com

Town: Winterport State: Maine ZIP 04496

Proposed Installation: ***Please attach a Location Map and Sketch Plan***

Town: Southwest Harbor, Maine MaineDOT PIN (if applicable): 022204.00

Type of Installation Proposed: ~~New Storm Drain and Underdrain (12" Ø SICPE and perf. drain, 18" Ø SICPE),~~ sewer (8" Ø), and water main (8" Ø) Permitting Sewer & Water mains only.

Minimum Depth of Cover: 4.5 ft. *(if applicable)* Maximum PSI: N/A

GPS Coordinates:

Decimal Degrees	Latitude *(ex: 44.3074199)*	Longitude *(ex. -69.7775613)*
Starting Point:	44.272167	-68.32623
Ending Point:	44.276447	-68.325274

Comments: New storm drain and underdrain is planned throughout the project area, and new sewer and water main stubs are being extended out of the Main Street right-of-way to Wood Street.

Location Description:

On Main Street *(Route #, I.R. # or Name shown on Location Map)*, *beginning at a point approximately* at the *(Distance (including units – feet, meters))*

intersection *(Direction (North, South, etc...))* *of* Village at Ocean's End *(Ref. Point (Intersection of major road, Route Number, Town Line, Bridge))* *and extending in a*

Northerly *(Direction (i.e. Northerly, Southerly, Easterly or Westerly))* *direction for a distance of* 1,400 feet *(Distance (including units – i.e. feet, meters, etc...))*

Expected Construction Schedule: Start: Summer 2022 Completion: Summer 2023

Do you intend to provide public notice?* ☒ Yes ☐ No: * Reference *Public Notice Supplement*

Date Published: Name of Newspaper:

By signing this Application for Utility Location Permit, the undersigned hereby certifies: a) that he/she is a duly authorized employee and representative of the utility/entity identified above ("Applicant"); b) that the information provided herein is true and accurate; c) that the Application is understood to be for a limited period and that the Applicant, at its sole expense, may have to adjust, remove, or relocate its facilities in the future; and d) that the Applicant will maintain its facilities in accordance with MaineDOT's Utility Accommodation Rules (17-229 C.M.R. Chapter 205) and all other applicable laws.

Signature: Dana J. Reed **Joint Utility:**

Printed Name: Dana J. Reed **Signature:**

Title: Town Manager **Printed Name:**

Title:

***** A copy of this application shall be sent to the applicable municipality in which the facility is proposed to be installed *****

Ver. 0806

SCANNED
DATE:
DOCUMENT # 1919823

OLVER ASSOCIATES INC.

ENVIRONMENTAL ENGINEERS

October 15, 2021

Mr. John Craig
Maine Department of Transportation
219 Hogan Road
Bangor, Maine 04402

RE: Southwest Harbor Main Street Sidewalk, Drainage, Water, and Sewer Improvements Project
Utility Location Permit

Dear John:

Enclosed for your review is a Utility Location Permit Application for the Main Street project planned in the Town of Southwest Harbor. This project will include improvements to the roadway, water main replacement, and storm drain and sewer improvement work. A sketch plan, location map, and highway attributes map is included along with half-sized and full-sized base sheets.

As always, thank you for your assistance. Please advise us if you need anything further or have any questions.

Very truly yours,

OLVER ASSOCIATES INC.

Annaleis Hafford

Annaleis Hafford P.E., Vice-President
Senior Process Engineer

AH/as
1356/350
CC: Mr. Dana Reed, Town Manager

TEL. (207) 223-2232
FAX (207) 223-5448

290 MAIN STREET
P.O. BOX 679
WINTERPORT, MAINE 04496

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
BUREAU OF MAINTENANCE AND OPERATIONS

2006

ADDITIONAL PROCESS FOR SIGNIFICANT UTILITY INSTALLATIONS

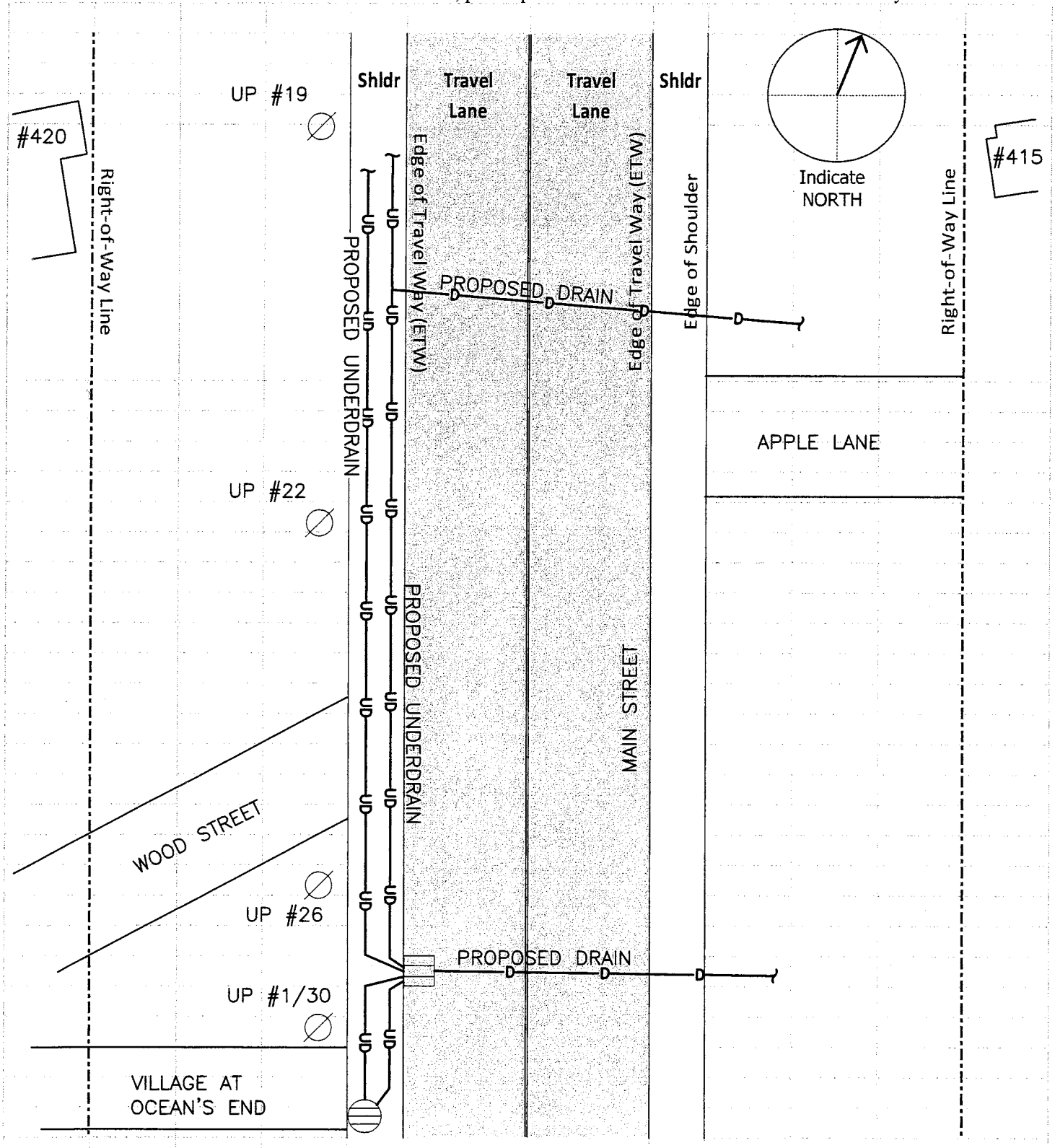
Proposed installations involving **underground facilities of at least 492 feet in length or the installation of 25 or more utility poles** require evidence of coordination with at least one representative for every Utility have existing or proposed installations within the general location. See Section 5 – MaineDOT Utility Accommodation Policy.

UTILITY AND NAME OF UTILITY CONTACT	**DATE OF MEETING OR CONVERSATION**	**PHONE NUMBER**	**IDENTIFICATION OF ANY MAJOR CONCERNS AND HOW EACH CONCERN WILL BE ADDRESSED.**
Versant Power David Perkins	June, 2018	(207) 947-2414	No concerns.
Consolidated Communications Steve Polyot	June, 2018	(207) 745-4130	No concerns.
SWH Water and Sewer District Steve Kenney	June, 2018	(207)244-3948	Some infrastructure within the right of way is being replaced in conjunction with this project. No concerns.

Highway Opening Application Sketch Plan

Applicant Name: TOWN OF SOUTHWEST HARBOR Town: SOUTHWEST HARBOR, MAINE

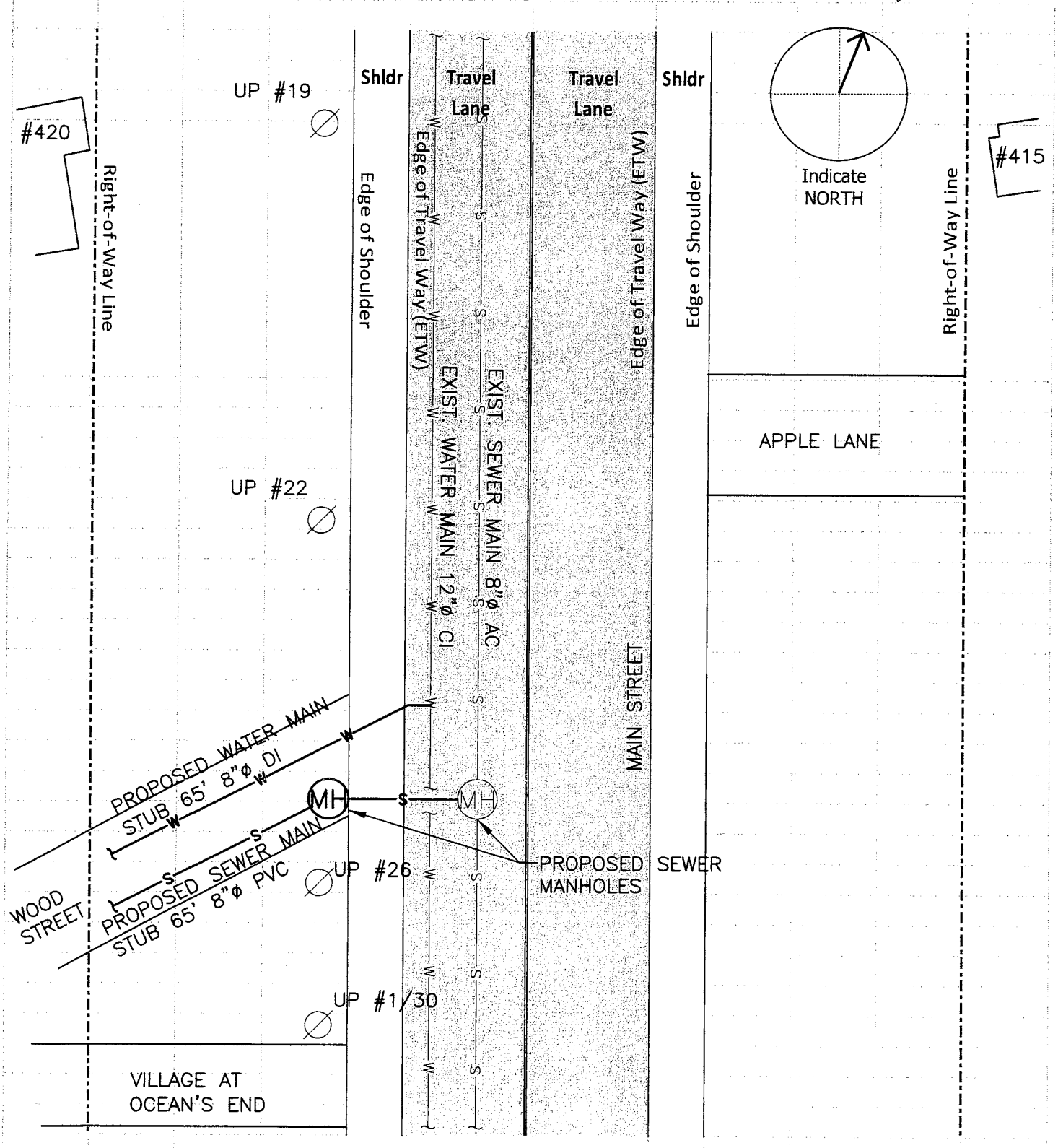
The purpose of this "Sketch Plan" is to show the location of the proposed opening in relation to the highway. This plan is not intended to be drawn to scale, however, you must accurately reference the proposed facility and excavation with offset distances from one of the lines on the road. In addition, please provide other accurate dimensions as necessary.

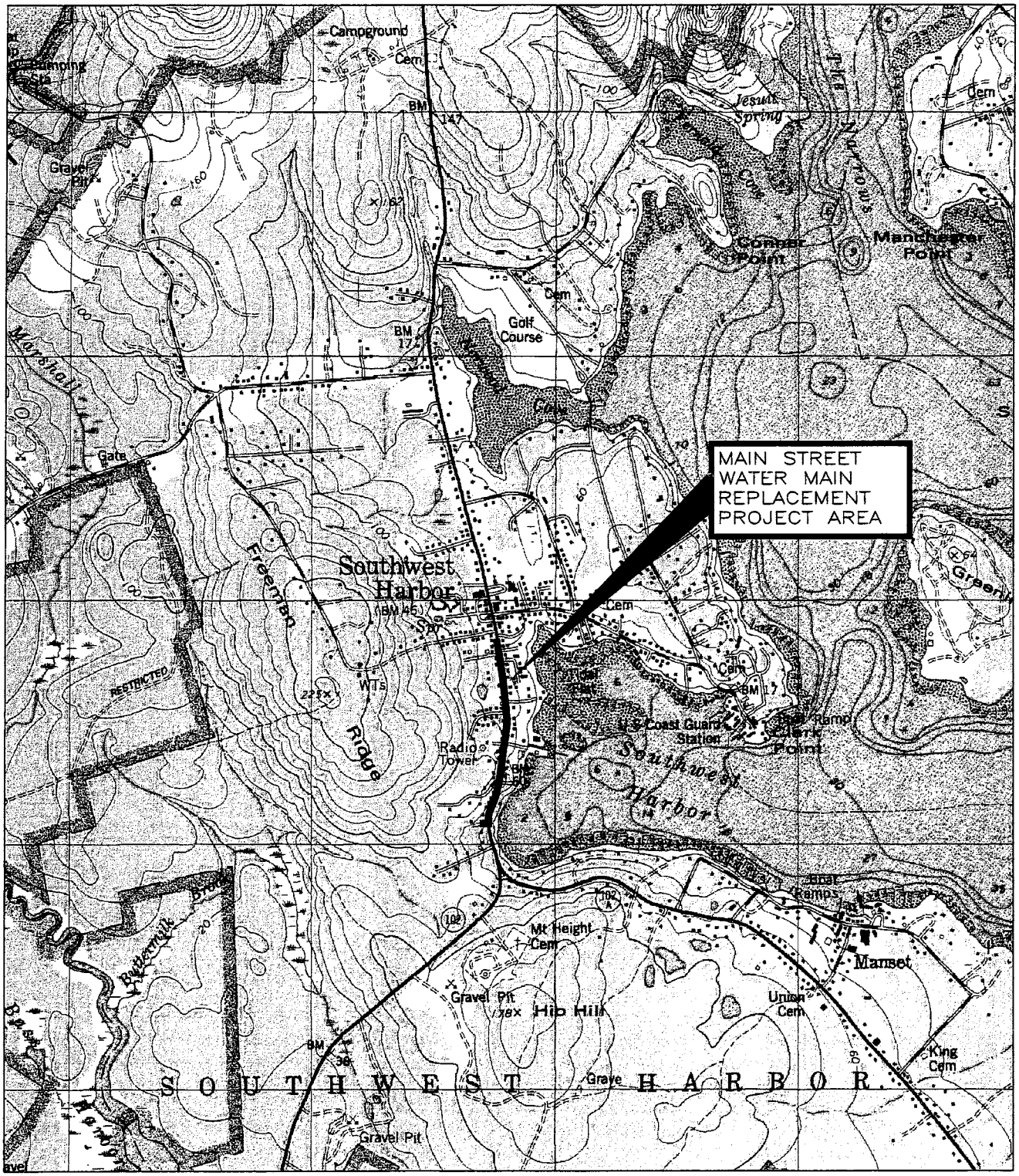


Highway Opening Application Sketch Plan

Applicant Name: TOWN OF SOUTHWEST HARBOR Town: SOUTHWEST HARBOR, MAINE

The purpose of this "Sketch Plan" is to show the location of the proposed opening in relation to the highway. This plan is not intended to be drawn to scale, however, you must accurately reference the proposed facility and excavation with offset distances from one of the lines on the road. In addition, please provide other accurate dimensions as necessary.





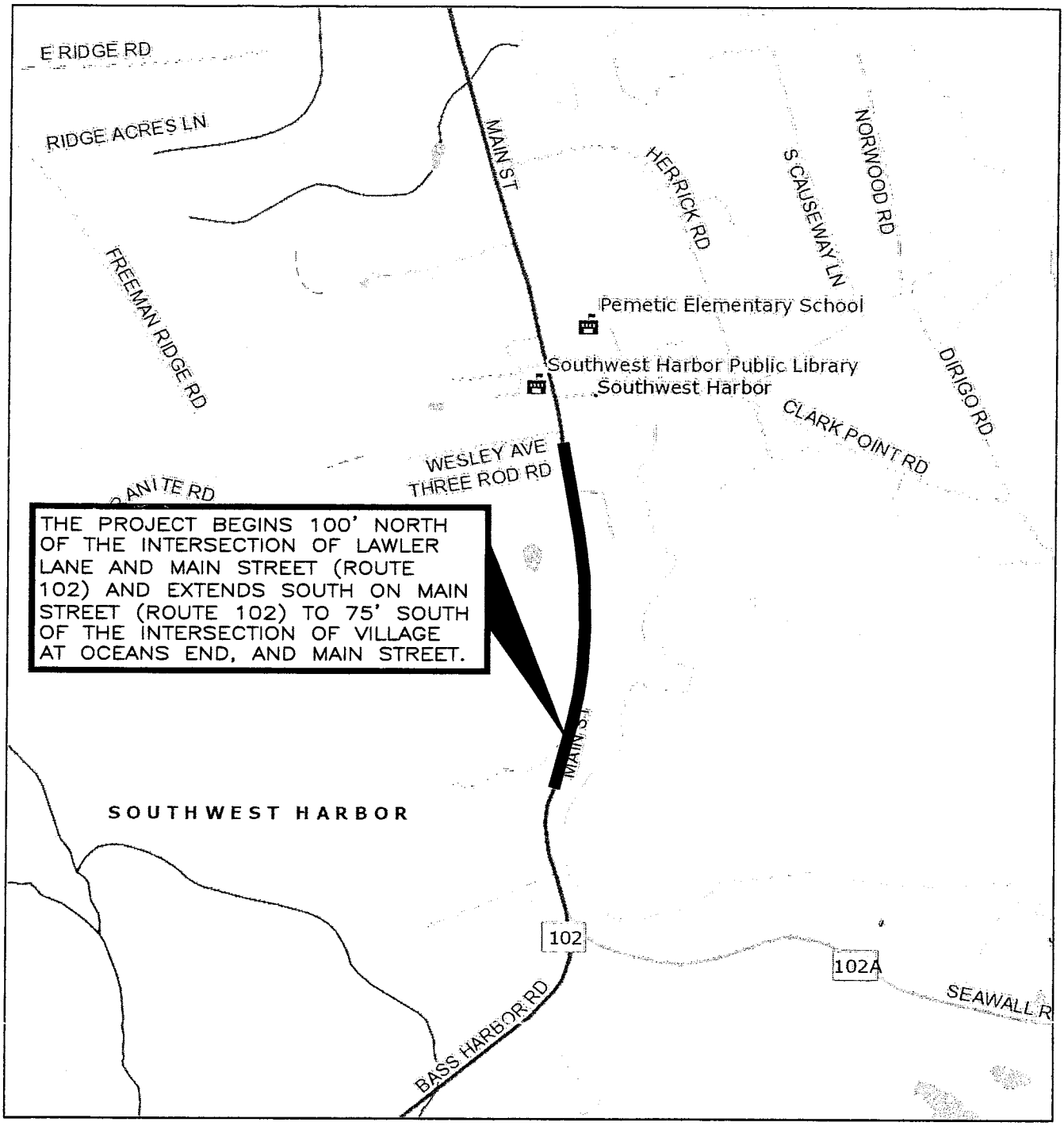
TOWN OF SOUTHWEST HARBOR, MAINE
MAIN STREET SIDEWALK, DRAINAGE, WATER, AND SEWER IMPROVEMENTS

LOCATION MAP

FIGURE 1

SOURCE:
USGS SOUTHWEST HARBOR
QUADRANGLE, MAINE
7.5 MINUTE SERIES, 1983
SCALE: 1:24,000

OLVER ASSOCIATES INC.
ENVIRONMENTAL ENGINEERS
290 MAIN STREET WINTERPORT, MAINE



TOWN OF SOUTHWEST HARBOR, MAINE
MAIN STREET SIDEWALK, DRAINAGE, WATER, AND SEWER IMPROVEMENTS

HIGHWAY ATTRIBUTES MAP

FIGURE 2

SOURCE:
MAINE DEPARTMENT OF TRANSPORTATION
HIGHWAY ATTRIBUTES WEBSITE
SCALE: 1:12,000

OLVER ASSOCIATES INC.
ENVIRONMENTAL ENGINEERS
290 MAIN STREET WINTERPORT, MAINE

Town Of Southwest Harbor
Office of the Town Manager
P.O. Box 745
Southwest Harbor, ME 04679
Tel. 207-244-5104 Fax 207-244-1483
Marilyn J Lowell, Town Manager www.southwestharbormaine.org manager@southwestharbor.org

May 17, 2022

Aurele Gorneau II, Project Manager
Maine Department of Transportation
Bureau of Project Development, Multimodal Program
16 State House Station
Augusta, ME 04333-0016

Subject: Utility Certification, MaineDOT WIN 022204.00

Dear Aurele:

The Municipality of Southwest Harbor hereby certifies that all utility work necessitated by the subject project has been identified and coordinated with the respective parties. All arrangements have been made for utility work to be undertaken and completed as required for proper coordination with the construction schedule, in accordance with Title 23 in the Code of Federal Regulations, Part 645, "Utilities," Subpart A and Subpart B.

Based on 23 CFR 635.309(b), the Municipality further certifies that either all work has been completed or that all arrangements have been made for such work to be undertaken and completed as required for proper coordination with the construction schedule, in accordance with 23 CFR 140 Subpart I and 23 CFR 646 Subpart B.

The utilities listed below have been identified as having facilities within the project limits:

Utility	Impacted facilities? (yes/no)
Versant Power	Yes
Consolidated Communications	Yes
Southwest Harbor Water and Sewer District	Yes

All of the entities listed above were first informed of the project around June, 2018, were involved as necessary throughout design, and received the latest plans on February 10, 2022. Furthermore, the above entities have been informed of the proposed advertising date: February 26, 2022. There are no direct payments anticipated to utilities as a part of this project.

The primary utility contacts involved in the coordination of this project are as follows:

Utility	Contact Name	Telephone #
Versant Power	David Perkins	207-947-2414
Consolidated Communications	Steve Polyot	207-745-4130
SWH Water & Sewer District	Steve Kenney	207-244-3948

Sincerely,

Marilyn Lowell

Marilyn Lowell, Local Project Administrator