

PROJECT MANUAL
for the
Ohio Street Resurfacing & Sidewalk Project

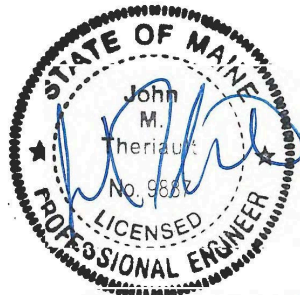
MeDOT MPI 26053.06



CITY OF BANGOR

CITY OF BANGOR, MAINE
Engineering Department

APRIL 3, 2024



4-3-2024

JOHN M. THERIAULT, PE

TABLE OF CONTENTS

SECTION	TITLE	PAGE
A	Notice to Contractors	A1
B	Information for Bidders	B1 - B4
C	Bid Form	C1 – C10
D	Contract Agreement	D1 - D18
E	Special Provisions	E1 - E3
F	Technical Specifications	F1 - F4
	MDOT Special Provisions and specifications	

SECTION A
NOTICE TO CONTRACTORS
Bids are requested for the

Ohio Street Resurfacing & Sidewalk Project
MeDOT MPI 26053.06

The project includes constructing approximately 2,600 linear feet of new sidewalk and 2,100 of new storm drain along with new catch basins and road cross culverts, rip rap and other incidental work to the project. The Ohio Street Resurfacing and Sidewalk Project is a Maine Department of Transportation MPI Project number 26053.06., located on Ohio Street from 18th Street to Crestwood Drive. For consideration, the attached bid form sealed in an envelope, distinctly marked: "**PROPOSAL NO. P24-47 OHIO STREET RESURFACING & SIDEWALK PROJECT**" must be received at the Office of the City of Bangor Purchasing Agent by **2:00 PM, Wednesday, May 1, 2024.**

Submissions of the documents can be completed by:

Hand Deliver to 262 Harlow Street Bangor, ME (back entrance of building at City of Bangor Entrance); or

US Post Office addressed to 73 Harlow Street, Purchasing Department, Bangor, Maine 04401; or

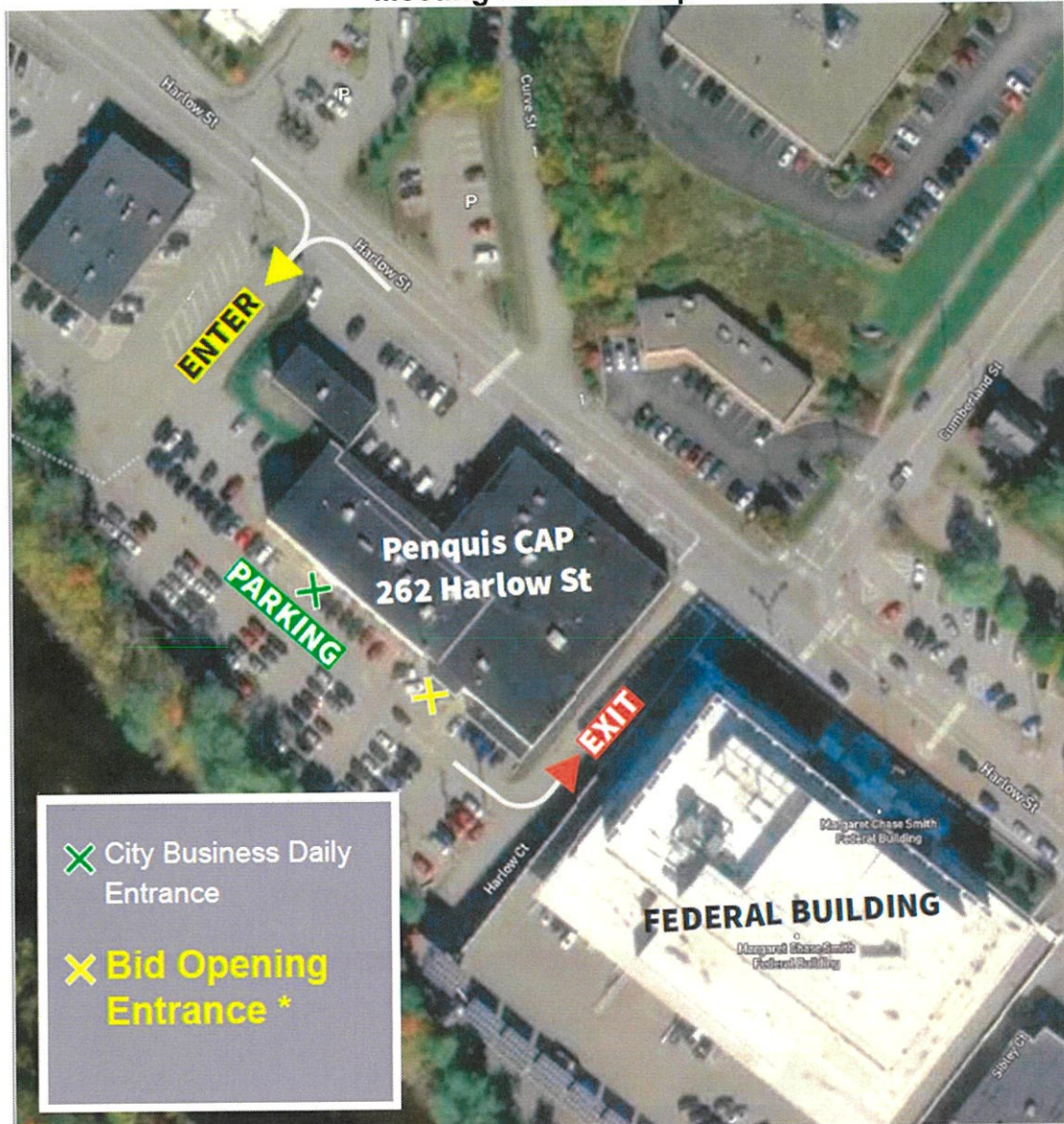
All Other Delivery Services addressed to 262 Harlow Street, City of Bangor, Bangor, ME 04401

Proposals will be publicly opened at the time stated above in the temporary Council Chambers, 262 Harlow Street, Bangor Maine (see Appendix A – Meeting Location Map). A tabulation of all received proposals will be posted on the City’s website by 4:30 PM on the opening date. Visit www.bangormaine.gov/bidtabs for results.

A **prebid meeting** will be held on April 23, 2024 at 1:30 p.m. at the City of Bangor’s Parks Recreation Department, 647 Main Street, Bangor, Maine. Bid security in the amount of 5% of the bid price will be required in the form of cash, a certified check or bid bond. All work shall be governed by State of Maine Department of Transportation, “Standard Specification”, revision of March 2020, and “Standard Details”, revision of March 2020. The right is reserved to reject any and all bids or to waive informalities or defects in bids if it is deemed to be in the best interest of the City of Bangor. Bases of award of Contract is determined by the lowest qualified bidder. **The lowest bidder must have successfully completed a Highway, or project specific prequalification for Bangor to be considered for the award of this contract.**

All questions regarding any of the above items are to be directed to the bids@bangormaine.gov email. Questions will be received until 4:30 PM on April 19, 2023. An addendum will be posted to the city website on April 26, 2023. Hardcopies of the Plans and Specifications may be obtained at the City of Bangor Engineering Department, 1 Dutton Street, Bangor, Maine 04401, for a one hundred dollar (**\$100.00**) charge. If plans need to mailed, an additional fee of \$40.00 will be charged. Electronic copies of plans and specifications are available on the City’s website.

APPENDIX A
Meeting Location Map



* From Harlow Street, drive around to the back of the Penquis building (one-way traffic in parking lot). To the right, enter through glass vestibule door (yellow “X” on map above) and once in there, to the right, there is another glass door marked “Meeting Entrance”. Go to the end of that hallway and take a slight left. The room marked “Penobscot Conference Room” is the temporary Council Chambers location where Bid Opening meetings are held.

“Meeting Entrance” door will be opened 10 minutes prior to the scheduled meeting time.

SECTION B

INFORMATION FOR BIDDERS

Ohio Street Resurfacing & Sidewalk Project**MeDOT MPI 26053.06**

The project includes constructing approximately 2,600 linear feet of new sidewalk and 2,100 of new storm drain along with new catch basins and road cross culverts, rip rap and other incidental work to the project. The City will be resurfacing the roadway after the sidewalk and storm drain work is completed. The contractor of award will have to coordinate work with the paving contractor for the roadway paving.

The Ohio Street Resurfacing and Sidewalk Project is a Maine Department of Transportation MPI Project number 26054.06., located on Ohio Street from 18th Street to Crestwood Drive.

Description of Work

The work contemplated under the terms of this contract consists of the following general items of work:

- Excavate existing material, place fill and new gravel where needed and pave with 2 inches of 9.5mm HMA pavement, as shown on the plans for sidewalk.
- Remove and place new curbing as shown on the plans.
- Install new storm drain and catch basins as shown on the plans.
- Place backfill material, gravel and pave with 3" of 19 mm HMA pavement for storm drain trench.
- Install rip rap as shown on the plans.
- Perform other work as shown on the plans, such as remove and reset exist. Signs and mail boxes, loam and seed, etc..

Definitions

The following terms or, in the case of Owner, Engineer, or Contractor, the singular, masculine pronouns used in their place, shall have the following meanings within the context of this Contract:

Owner - The City of Bangor, Maine acting through its duly authorized representatives

Engineer - The Bangor City Engineer or his duly authorized representatives

Contractor - The individual, firm, or corporation to whom the contract has been awarded whether acting on his own or through subcontractors or employees

Contract - The Contract shall be deemed to include the Notice to Contractor, Information for Bidders, the Bid Form, the Contract Agreement, the Performance and Payment Bond(s), the Specifications and Plans, any addenda which may be issued to any of the foregoing, and all other provisions which may be required by law to be included in this contract whether actually included or not.

Bid Security

Each bidder must submit with his bid a certified check, bid bond or cash in the amount of 5% of his total bid price as his guarantee that the bidder will enter into the Contract, if awarded. Said check, bid bond, or cash will be returned to all except the two (2) lowest bidders immediately following the opening of bids, and the remaining sureties will be returned after the Owner and Contractor have executed the Contract. If the Contract has not been awarded within thirty (30) days of the bid opening the surety will be returned at any time thereafter to any bidder who so requests, so long as he has not been notified of the acceptance of his bid.

Withdrawal of Bids

The Owner may consider informal any bid not in accordance with the provisions hereof and may waive any informalities in, or reject, any or all bids. Any bidder may withdraw his bid prior to opening of the bids. Any bid received after the time and date specified will not be considered. No bidder may withdraw his bid within 30 days after the actual bid opening.

Bid Submitted

Bids must be submitted on the prescribed form and all blank spaces must be filled in, in ink, in both words and figures. The price quoted in the bid shall be for the total project, complete and shall include all labor, tools, materials, supplies, equipment, and all else necessary for or incidental thereto.

Qualified Bidder

The Owner may make such investigations as he may deem necessary to determine the ability of any bidder or bidders to perform the work, and the bidder(s) shall furnish to the Owner all such information and data pertinent to this investigation as the Owner may request. The Owner reserves the right to reject any bid after evidence submitted or investigation of the bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. Conditional bids will not be accepted.

Basis of Award

The Contract will be awarded to the Contractor submitting the lowest bid. In the case where the Contractor submitting the low bid is found to not be properly qualified to carry out the work, then the Contract will be awarded to the lowest qualified bidder.

Bidder's Obligation

At the time of the opening of the bids it will be presumed that each bidder will have inspected the site and will have thoroughly familiarized himself with the Contract documents, including the plans, specifications, and any addenda which may have been issued thereto. Failure of the bidder to receive and examine any form, instrument, or document, or to visit and examine the site itself will not in any way relieve the successful bidder from any obligation in respect to his bid or to the terms of this contract.

Bid Security Forfeited

Should the bidder to whom the Contract is awarded fail for any reason to execute the Contract and to furnish a satisfactory bond within the time specified, the Owner may determine that the bidder has abandoned the Contract, that his bid shall be considered null and void and that the surety accompanying the bid shall be forfeited to and be retained by the Owner as liquidated damages, and the Contract may be awarded to another bidder. After the execution of the Contract and acceptance of the bond by the Owner, the surety accompanying the successful bidder's bid shall be returned

Performance Bond and Labor and Materials Bond

Simultaneously with his delivery of the Contract to the Owner, the successful bidder shall deliver to the Owner an executed Performance Bond and an executed Labor and Materials Bond, each in the amount of 100% of the total bid price, as security for the faithful performance of the Contract and for the payment of all persons performing labor or furnishing materials in connection therewith. These bonds shall be on the prescribed forms and shall be furnished by a surety company or companies listed on the current Circular 570 of the U.S. Treasury Department which company or companies shall also have a record of service satisfactory to the Owner, shall be authorized to do business in the state of Maine and shall be independent of the contractor.

Work Under City Engineer

All work under this project shall be under the direct supervision of the City Engineer and all decisions by him pertaining to the new construction shall be final and binding. If initial line and grade are requested by the Contractor, the engineering staff of the City of Bangor will establish line or points with grades at no cost to the Contractor; however, it shall be the responsibility of the Contractor to establish and maintain such additional

layout, including batter boards if so directed by the Engineer, as may be required to properly complete the work.

No interpretation of the meaning of the plans, specifications or other Contract documents will be made to any bidder orally. Every request for such interpretation must be in writing and must be received at least five (5) working days prior to the bid opening date by:

Ted Trembley, CE2
73 Harlow Street
Bangor, Maine 04401.

Any and all such interpretations and any supplemental instructions will be written addenda to the specifications which, if issued, will be mailed by registered mail with return receipt requested to all prospective bidders at least three (3) working days prior to the bid opening date. Failure of any bidder to receive any addenda or interpretation thus mailed will not relieve the bidder of his obligation under the bid submitted. All addenda so issued will become an integral part of the Contract documents.

The bidder is hereby notified that the construction terms and conditions set forth in the Contract documents will be rigidly enforced, that it is the intention of the Owner to maintain full time inspection during the period of construction, and that only first quality materials and workmanship will be accepted. Neither the fact of such inspection, nor the omission thereof, will imply acceptance by the Owner of any or all of the work performed under this contract or relieve the Contractor of any responsibility for the successful

completion of all the terms of this Contract subject to final inspection and review by the Owner.

The City of Bangor is a municipal corporation duly organized under the laws of the State of Maine and therefore is not required to file proof of exemption to the Maine State sales tax.

Time of Completion

All work shall be completed by **August 3, 2024**. After which time **liquidated damages** will be assessed at **\$750.00** (dollars) a calender day.

BID DATE -- 2:00 PM, MAY 1, 2024

SECTION C

BID FORM

To the City of Bangor, Maine, herein called the Owner, acting through its City Manager for the construction of the **Ohio Street Resurfacing & Sidewalk Project**, together with all related work specified in the specifications, and any other work necessary or incidental thereto.

The undersigned, as Bidder, herein referred to as singular and masculine, declares that the only parties interested in the bid as principals are named herein; that this bid is made without collusion with any other person, firm, or corporation; that no officer or agent of the Owner is directly or indirectly interested in this bid; that he has carefully examined the location of the proposed work, the annexed form of contract, and the plans and specifications therein referred to and he proposes and agrees that if this bid is accepted he will contract with the Owner, in the form of the copy of the Contract Agreement deposited in the office of the Engineer and attached hereto, to provide all necessary machinery, tools, apparatus, and other means of construction and to do all the work and furnish all the materials specified in this contract in the manner and time therein prescribed, and according to the requirements of the Engineer as therein set forth and that he will take in full payment for the work thereof the following unit prices.

Item No.	Estimated Quantity	MDOT Pay Item No., Brief Description; Unit or Lump Sum Price Bid In Both Words and Figures	Total Price In Figures
1.	1 LS	201.12 Clearing/ Trimming Unit Price per Lump Sum of _____ Dollars per lump sum (\$ _____)/LS	\$ _____
2.	50 SY	202.203 Pavement Butt Joints Unit Price per Square Yard of _____ Dollars per square yard (\$ _____)/SY	\$ _____

BID DATE -- 2:00 PM, MAY 1, 2024

Item No.	Estimated Quantity	MDOT Pay Item No., Brief Description; Unit or Lump Sum Price Bid In Both Words and Figures	Total Price In Figures
3.	1 EA	202.150 Remove Exist. Catch Basin Unit Price per Each of _____ Dollars per each (\$_____) /EA	\$ _____
4.	375 CY	203.20 Common Excavation Unit Price per Cubic Yard of _____ Dollars per cubic yard (\$_____) /CY	\$ _____
5.	44 CY	203.210 Rock Excavation Unit Price per Cubic Yard of _____ Dollars per cubic yard (\$_____) /CY	\$ _____
6.	480 CY	203.250 Fill Unit Price per Cubic Yard of _____ Dollars per cubic yard (\$_____) /CY	\$ _____
7.	1830 CY	304.10 Aggregate Base Course - Gravel Unit Price per Cubic Yard of _____ Dollars per cubic yard (\$_____) /CY	\$ _____

BID DATE -- 2:00 PM, MAY 1, 2024

Item No.	Estimated Quantity	MDOT Pay Item No., Brief Description; Unit or Lump Sum Price Bid In Both Words and Figures	Total Price In Figures
8.	340 TON	403.207 3/4”(19mm) Hot Mix Asphalt Unit Price per Ton of _____ Dollars per ton (\$_____) /TON	\$ _____
9.	260 TON	403.209 3/8” (9.5mm) Hot Mix Asphalt (Sidewalks, Drives, Incidentals) Unit Price per Ton of _____ Dollars per ton (\$_____) /TON	\$ _____
10.	524 LF	603.73 Remove Exist. Culvert Unit Price per Linear Foot of _____ Dollars per linear foot (\$_____) /LF	\$ _____
11.	6 LF	603.15 12” Storm Drain Unit Price per Linear Foot of _____ Dollars per linear foot (\$_____) /LF	\$ _____
12.	164 LF	603.16 15” Storm Drain Unit Price per Linear Foot of _____ Dollars per linear foot (\$_____) /LF	\$ _____

BID DATE -- 2:00 PM, MAY 1, 2024

Item No.	Estimated Quantity	MDOT Pay Item No., Brief Description; Unit or Lump Sum Price Bid In Both Words and Figures	Total Price In Figures
13.	77 LF	603.19 24" Storm Drain Unit Price per Linear Foot of _____ Dollars per linear foot (\$_____) / LF	\$ _____
14.	126 LF	603.20 30" Storm Drain Unit Price per Linear Foot of _____ Dollars per linear foot (\$_____) / LF	\$ _____
15.	71 VF	604.092 4' Dia Catch Basin Unit Price per Vertical Foot of _____ Dollars per vertical foot (\$_____) / VF	\$ _____
16.	41 VF	604.096 5' Dia Catch Basin Unit Price per Vertical Foot of _____ Dollars per vertical foot (\$_____) / VF	\$ _____
17.	1 EA	604.242 Catch Basin Type F Unit Price per Each of _____ Dollars per each (\$_____) / EA	\$ _____

BID DATE -- 2:00 PM, MAY 1, 2024

Item No.	Estimated Quantity	MDOT Pay Item No., Brief Description; Unit or Lump Sum Price Bid In Both Words and Figures	Total Price In Figures
18.	2 EA	604.18 Adjusting CB to Grade Unit Price per Each of _____ Dollars per each (\$_____) /EA	\$ _____
19.	634 LF	605.09 6" Underdrain Unit Price per Linear Foot of _____ Dollars per linear foot (\$_____) /LF	\$ _____
20.	24 LF	605.11 12" Type C Underdrain Unit Price per Linear Foot of _____ Dollars per linear foot (\$_____) /LF	\$ _____
21.	252 LF	605.12 15" Type C Underdrain Unit Price per Linear Foot of _____ Dollars per linear foot (\$_____) /LF	\$ _____
22.	963 LF	605.13 18" Type C Underdrain Unit Price per Linear Foot of _____ Dollars per linear foot (\$_____) /LF	\$ _____

BID DATE -- 2:00 PM, MAY 1, 2024

Item No.	Estimated Quantity	MDOT Pay Item No., Brief Description; Unit or Lump Sum Price Bid In Both Words and Figures	Total Price In Figures
23.	170 LF	605.15 24" Type C Underdrain Unit Price per Linear Foot of _____ Dollars per linear foot (\$_____) / LF	\$ _____
24.	2529 LF	609.19 Slipform Curb – Conc. Unit Price per Linear Foot of _____ Dollars per linear foot (\$_____) / LF	\$ _____
25.	164 CY	610.08 Rip Rap Unit Price per Cubic Yard of _____ Dollars per cubic yard (\$_____) / CY	\$ _____
26.	260 CY	615.07 Loam Unit Price per Cubic Yard of _____ Dollars per cubic yard (\$_____) / CY	\$ _____
27.	32 UNIT	618.13 Seeding Method No. 1 Unit Price per Unit of _____ Dollars per unit (\$_____) / UNIT	\$ _____

BID DATE -- 2:00 PM, MAY 1, 2024

Item No.	Estimated Quantity	MDOT Pay Item No., Brief Description; Unit or Lump Sum Price Bid In Both Words and Figures	Total Price In Figures
28.	32 UNIT	619.12 Mulch Unit Price per Unit of _____ Dollars per unit (\$_____)UNIT	\$ _____
29.	10 MH	629.05 Hand Labor Unit Price per Man Hour of _____ Dollars per man hour (\$_____) /MH	\$ _____
30.	10 MH	631.12 All Purpose Excavator Unit Price per Man Hour of _____ Dollars per man hour (\$_____) /MH	\$ _____
31.	10 MH	631.172 Truck - Large Unit Price per Man Hour of _____ Dollars per man hour (\$_____) /MH	\$ _____
32.	5 EA	645.113 Remove & Reset Sign Unit Price per Each of _____ Dollars per each (\$_____) /EA	\$ _____

BID DATE -- 2:00 PM, MAY 1, 2024

Item No.	Estimated Quantity	MDOT Pay Item No., Brief Description; Unit or Lump Sum Price Bid In Both Words and Figures	Total Price In Figures
33.	11 EA	645.XX Remove & Reset Mailbox Unit Price per Each of _____ Dollars per each (\$_____) /EA	\$ _____
34.	1 LS	652.36 Maintenance of Traffic Lump Sum Price of _____ Dollars per lump sum (\$_____) /LS	\$ _____
35.	1 LS	656.75 Temp Soil Erosion & Water Pollution Control Lump Sum Price of _____ Dollars per lump sum (\$_____) /LS	\$ _____
TOTAL			\$ _____
36.	1 LS	659.10 Mobilization (Not to Exceed 5%) Lump Sum Price of _____ Dollars per lump sum (\$_____) /LS	\$ _____

BID DATE -- 2:00 PM, MAY 1, 2024

Amounts must be shown in both words and figures. In case of discrepancy, the amount in words will govern.

TOTAL PROJECT BID

	Dollars and	Cents
(\$ _____)		

*I hereby acknowledge by my signature receipt of each numbered addendum:

Addendum Number 1. _____
Contractor's Signature

Addendum Number 2. _____
Contractor's Signature

*(Signature required to acknowledge receipt of each addendum as may be issued. Sign only upon receipt of written addendum.)

The foregoing prices shall include all labor, materials, equipment, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for.

BID DATE -- 2:00 PM, MAY 1, 2024

If this Bid is accepted by the Owner and the undersigned fails to contract as aforesaid and to give a bond in the sum of the full amount of the Bid, with surety satisfactory to the Owner, within 10 days (not including Sundays or legal holidays) to an address given herewith that the Contract is ready for signature, then the Owner may by option determine that the Bidder has abandoned the Contract and therefore the Bid and Acceptance shall be null and void, and the bid bond shall be forfeited to the Owner.

Business Name

Street Address

City, State, Zip Code Telephone

By: _____
Name (Printed or typed) Title

Residence Address

Signature Date

SECTION D

CONTRACT AGREEMENT

CITY OF BANGOR

This agreement made this _____ day of _____, **2024** by and between _____,

hereinafter referred to as the Contractor,

and the City of Bangor, hereinafter referred to as the Owner,

WITNESSETH, that the Contractor and the Owner, for consideration stated herein mutually agree as follows:

ARTICLE 1 - Statement of the Work

The Contractor shall furnish the materials and perform the work for the Owner for the consideration set forth in the Bid and in strict accordance with the Contract, as the word "Contract" is hereinafter defined.

ARTICLE 2 - The Contract

The following shall be deemed to be part of this Contract:

- A. Notice to Contractor
- B. Information for Bidders
- C. Bid Form
- D. Contract Agreement
- E. Performance and Payment Bonds
- F. Specifications and Plans
- G. Addenda, if any, issued to any of the foregoing
- H. Any and all other provisions required by law to be included in this Contract, whether actually included or not.

All of the foregoing, taken as a whole, shall constitute the Contract document.

In case of conflict, the Articles of Section D will prevail.

ARTICLE 3 - Definitions

The following terms and/or the singular, masculine pronouns used in their place, shall have the following meanings within the context of this Contract:

- Owner - The City of Bangor, Maine acting through its duly authorized representatives.
- Engineer - The Bangor City Engineer or his duly authorized representatives.
- Contractor - The individual, firm, or corporation to whom the contract has been awarded whether acting on his own or through subcontractors or employees.

ARTICLE 4 - Obligations and Liability of the Contractor

The Contractor shall furnish all labor, materials, tools and appliances, except as may be otherwise specified herein, and all else necessary for or incidental to the proper performance and completion of all work required by this Contract in the manner and within the time herein specified. He shall complete the entire work subject to the direction of the Engineer and to the Engineer's complete satisfaction in accordance with the specifications and plans which are a part hereof, at the prices herein agreed upon and fixed therefore.

The Contractor shall conduct his work in such manner as to interfere as little as possible with private business and/or public travel and to protect both life and property. He shall, at his own expense, provide all necessary fences, barricades, lights, watchmen, flagmen, traffic directors, etc. and shall take any and all such other precautionary measures as common sense might dictate or as may be required by the Engineer. The Contractor will be held solely liable for any and all damages occasioned in any way by his act or failure to act, or by any such action or negligence on the part of his agents, employees, suppliers, or workmen.

The Contractor shall take full responsibility for the work done under this Contract, for the protection of all such work, and for the prevention of injuries to persons and/or damage to property, including utilities, on or about the work site. He shall under no circumstances be relieved of his responsibility by any right of the Engineer to give permission or issue orders relating to any part of the work, or by any such permission given, or by the failure of the Engineer to issue any such orders. The Contractor shall bear any and all losses resulting to him or to the Owner on account of the amount or character of the work, or because the nature of the land in or on which the work is done is different from what was estimated or expected, or on account of the weather, elements, acts of God, or any other causes whatsoever. The Contractor shall assume the defense of any and all claims of any nature whatsoever against the Contractor or the Owner, and shall indemnify, save harmless, and insure the Owner and Owner's officers and/or agents against all claims arising out of injury or damage to persons, corporations, or property whether such claims arise out of negligence or not, or whether said claims are for unavoidable damage or not, and from all claims relating to labor and /or materials furnished for the work. The Contractor will not be required to indemnify the Owner against damage or claims occasioned by acts of the Owner.

ARTICLE 5 - Engineer's Authority

The Engineer will in all cases determine the amount, quality, acceptability and fitness of the several kinds of work and materials which are to be paid for under this contract. He will determine all questions in relation to said work and the construction thereof, and will in all cases decide every question of fact which may arise relative to the fulfillment of this contract on the part of the Owner and on the part of the Contractor. His estimate and decision will be final and conclusive upon both parties to this Contract.

Any differences or conflicts which may arise between the Contractor and other contractors of the Owner in regard to their work will be adjusted and determined by the Engineer.

The Engineer will make all necessary explanations as to the meaning and intent of the plans and specifications and will give all necessary orders and directions.

The order or sequence of execution of the work and the general conduct of the work will be subject to the approval of the Engineer and, should public necessity or welfare so require, to his direction. No such approval or direction will, however, in any way affect the responsibility of the Contractor in the conduct of the work.

ARTICLE 6 - Superintendence

The Contractor shall keep competent supervisory personnel at the site at all times during which work is in progress. He shall designate in writing, before commencement of work under this Contract, a project superintendent who shall be an employee of the Contractor and who shall have complete authority to represent and to act on behalf of the Contractor. The Engineer shall be notified in writing prior to any change in superintendent assignment.

The superintendent shall receive on behalf of the Contractor all communications from the Engineer. Communications of major importance will be confirmed in writing upon request from the Contractor.

ARTICLE 7 - Discrepancies, Errors and Omissions

The plans and specifications are intended to be explanatory of each other, but should any discrepancy appear or any misunderstanding arise as to the import of anything contained in either, the interpretation and decision of the Engineer will be final and binding on both parties to this contract.

Any correction of errors or omissions in plans and/or specifications may be made by the Engineer when such correction is necessary for the proper fulfillment of their intention as construed by him. Where said correction of errors or omissions, except as provided in the next two (2) paragraphs, adds to the amount of work to be done by the Contractor, compensation for said

additional work will be made in accordance with ARTICLE 28 hereof regarding Extra Work except where the additional work may be classed under some item of work for which a unit price is included in the bid, in which case compensation will be made accordingly.

The fact that specific mention of a fixture, or of any part of the work, is omitted in the specifications, whether intentionally or otherwise, when the same is clearly shown or indicated on the plans or is usually and customarily required to fully complete such work as is specified herein, will not entitle the Contractor to consideration in the matter of any claim for extra compensation, but the said fixtures and/or work shall be installed or done the same as if called for by both the plans and specifications.

All work indicated on the plans and not mentioned in the specifications, or vice versa, and all work and material usual and necessary to make the work complete in all its parts, whether or not they are indicated on the plans or mentioned in the specifications shall be furnished and executed the same as if they were called for by both the plans and specifications and no extra compensation will be made therefore.

ARTICLE 8 - Insurance

The Contractor shall arrange insurance for the minimum limits indicated and shall maintain the below listed coverages throughout the period of performance.

- | | | |
|----|--|--|
| a. | Workers' Compensation Insurance | Statutory |
| | Employer's Liability Insurance | \$100,000. each accident
\$500,000. disease - policy unit
\$100,000. disease - each employee |
| b. | Comprehensive General Liability (Public Liability) Insurance including: | |
| | General Liability | \$2,000,000. aggregate |
| | Products, Completed Operations | \$2,000,000. aggregate |
| | Personal & Advertising Injury | \$1,000,000 |
| | Each Occurrence | \$1,000,000 |
| | Fire Damage | \$ 50,000. any one fire |
| | Medical Expense | \$ 5,000. any one person |
| c. | Automobile Liability Insurance (owned, hired & non-owned): | |
| | Bodily Injury & | \$1,000,000 combined |
| | Property Damage | single limit |
| d. | The Contractor shall provide a waiver of any rights of subrogation which the Contractor may have against the Owner, its agents or its employees. | |

- e. Before any of the work is started under the contract, the Contractor shall file with the Purchasing Department a certificate of insurance containing the following information in respect to all insurance carried:
- (1) Name of insurance company, policy number and expiration date;
 - (2) The coverages required and the limits on each, including the amount of deductible or self-insured retentions (which shall be for the account of the Contractor);
 - (3) A statement indicating that the Owner shall receive thirty (30) days notice of cancellation or significant modification of any of the policies which may affect the Owner's interest; and
 - (4) The Owner as an additional insured (except Workers' Compensation Insurance).
- f. If any of the work performed under the contract includes blasting, excavating, pile driving or caisson work; moving, shoring, underpinning, razing or demolition of any structure or removal or rebuilding of any structural support thereof, or any subsurface or underground work, the Comprehensive General Liability Insurance policy shall include coverage for the explosion, collapse and underground hazards.

ARTICLE 9 - Patents

The Contractor shall indemnify and save harmless the Owner, and all persons acting for or on behalf of the Owner, from all claims and liability of any nature or kind including costs and expenses arising from or occasioned by any infringement or alleged infringement of patent rights on any invention, process, article or apparatus, or any part thereof, furnished and installed by said Contractor or arising from or occasioned by the use or manufacture thereof, including their use by the Owner.

ARTICLE 10 - Compliance with Laws

The Contractor shall keep himself fully informed of all existing and future state and national laws and municipal ordinances and all regulations in any manner affecting those engaged or employed in the work, or the materials used in the work, or in any way affecting the conduct of the work, and of all such orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. If any discrepancy or inconsistency is discovered in the plans, specifications, or elsewhere in this Contract in relation to any such law, ordinance, regulation, order or decree, he shall forthwith report the same to the Engineer in writing. He shall at all times himself observe and comply with, and cause all his agents and employees to observe and comply with, all such existing and future laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all officers and agents of the Owner against any claim arising from or based upon violation of any such laws, ordinances, regulations, orders or decrees, whether by himself or his employees.

ARTICLE 11 - Permits

The Contractor shall, at his own expense, obtain all necessary permits from the county, municipal, and/or other public authorities; he shall give all notices required by law or ordinances; and he shall post all bonds and pay all fees and charges incident to the due and lawful prosecution of the work covered by this Contract.

ARTICLE 12 - Contractor Not to Sublet or Assign

The Contractor shall give his personal attention constantly to the faithful prosecution of the work, shall keep the same under his personal control, and shall not assign by power of attorney or otherwise, nor sublet the work or any part thereof without the previous written consent of the Owner, and shall not either legally or equitably assign any of the moneys payable under this agreement, or his claim thereto, unless by and with the like consent of the Owner and the surety on the bond(s).

ARTICLE 13 - Time of Beginning Work

Except as herein provided, the Contractor shall commence work at such points as the Engineer may direct or approve, within ten (10) days after the date of the notice to proceed from the Owner. Such time of starting may be postponed but only by written agreement between the Owner and Contractor and then only because of expected delays in receipt of materials and equipment, or if the season be unsuitable for commencement of the work, or because of other contingency clearly beyond the control or responsibility of the Contractor.

ARTICLE 14 - Delay by Owner

The Owner may delay the beginning of the work or any part thereof if the necessary lands or rights-of-way for such work shall not have been obtained by the Owner or if necessary materials or equipment to be furnished by the Owner are not delivered. The Contractor shall have no claim for damages on account of such delay, but shall be entitled to so much additional time wherein to perform and complete this contract as the Engineer shall certify in writing to be just.

ARTICLE 15 - Time of Completion

The rate of progress shall be such that the whole work shall be performed in accordance with the terms of this Contract within the number of calendar days stipulated in the bid unless and except as any part may be delayed under the provisions of this Contract. All work shall in any case be complete on or before any specific date of completion which may be specified elsewhere herein.

It is agreed that the rate of progress herein required has been purposely made low enough to allow for ordinary delays incident to construction work of this character. No extension of time will be made for ordinary delays, inclement weather and/or accidents and the occurrence of such will not relieve the Contractor from the necessity of maintaining this rate of progress.

If delays are caused by acts of God, acts of Government or State, strikes, extra work, floods or other contingencies clearly beyond the control or responsibility of the Contractor, the Contractor will be entitled to so much additional time wherein to complete this Contract as the Engineer shall certify in writing to be just.

The time in which work under this Contract is to be performed and completed is of the essence.

ARTICLE 16 - Liquidated Damages

In case the Contractor fails satisfactorily to complete the entire work, or any phase of the work, contemplated and provided for under this Contract on or before the date of completion determined as described elsewhere herein, the Owner shall deduct from the payments otherwise due the Contractor each month the sum of seven hundred and fifty dollars (\$750.00) for each calendar day of delay, which sum is agreed upon not as a penalty but as fixed and liquidated damages for each day of such delay to be paid in full and subject to no deduction. If the payments otherwise due the Contractor are less than the amount of such liquidated damages, said damages shall be deducted from any other moneys due or to become due the Contractor, and in case such damages shall exceed the amount of all moneys due or to become due the Contractor then the Contractor or his surety shall pay the balance to the Owner.

ARTICLE 17 - Night and Sunday Work

No night work requiring the presence of the Engineer or inspector will be permitted except in the case of emergency and then only to such an extent as is absolutely necessary and with written permission of the Engineer. In the case of a regular gang organized specifically for regular and continuous night work this clause may be waived but only when so specified elsewhere herein or when such work shall be deemed necessary and/or beneficial to the Owner by the Engineer, provision for night time inspection and payment therefore has been made and agreed upon by the Contractor and the Engineer, and the foregoing has been certified in writing by the Engineer.

No Sunday work will be permitted except in the case of emergency and then only with the written consent of the Engineer and only to such an extent as he may judge necessary. **See Section E, Special Provisions for special night-time work hours.**

ARTICLE 18 - Contractor to Employ Competent Workers

The Contractor shall employ only competent workers and whenever the Engineer shall notify the Contractor in writing that any person or persons employed under this Contract are, in his opinion, incompetent, unfaithful, disorderly, or in any other way unsatisfactory or not employed in accordance with the provisions of this Contract, then such person or persons shall be discharged from work under this Contract and shall not again be employed under this Contract except by written consent of the Engineer.

ARTICLE 19 - Contractor to Employ Sufficient Labor and Equipment

If, in the opinion of the Engineer, the Contractor is not employing sufficient labor or equipment to complete this Contract satisfactorily and within the time specified, the Engineer will so notify the Contractor in writing and the Contractor shall, immediately upon receipt of such notice, employ such additional labor and/or equipment as may be deemed necessary by the Engineer.

ARTICLE 20 - Intoxicating Substances

The Contractor shall neither permit on site nor suffer the introduction or use on site of alcoholic beverages, drugs, or other controlled substances which might in any way impair the judgment, alertness, or efficiency of any person or persons employed under this Contract or which might be used in violation of any State or Federal law or local ordinance.

ARTICLE 21 - Access to Work

The Owner, the Engineer, and their agents and employees shall be permitted access to all parts of the work site at all times throughout the duration of this Contract, and the Contractor shall at all times provide safe and proper facilities therefore.

ARTICLE 22 - Examination of Work

The Engineer shall be furnished with every reasonable facility for ascertaining that all work is in accordance with the requirements and intent of this Contract, even to the extent of uncovering or taking down portions of finished work.

Should the work thus exposed or examined prove satisfactory, the uncovering or taking down and the replacement material and rebuilding of the work shall be considered as extra work, as defined and provided for elsewhere herein, unless the original work was done in the absence of the Engineer or his inspector without the Engineer's written authorization. In the latter case, and/or if unsatisfactory work should be so uncovered, then all such uncovering, taking down, replacement, and rebuilding, together with the repair or replacement of any and all such unsatisfactory work as may have been so uncovered, will be at the Contractor's sole cost and expense.

ARTICLE 23 - Defective Work

Inspection of the work by the Engineer and/or his agents shall neither imply that all such work will prove acceptable to the Owner nor will it relieve the Contractor from any obligations or responsibility whatsoever under the terms of this Contract. Any and all defective work and/or materials shall be replaced by the Contractor, at his sole expense, at any time prior to final acceptance of the work as such may be discovered, regardless of whether such work has previously been inspected and/or included in estimates for partial payment. Any material furnished by the Contractor which shall be judged by the Engineer, at any time, to be defective

and/or not in conformance with the specifications shall be immediately removed from the site and replaced at the Contractor's sole cost and expense, as shall any materials or goods furnished by the owner which have been, in the opinion of the Engineer, damaged by the Contractor, his agents or employees.

ARTICLE 24 - Protection Against Water and Storm

The Contractor shall take all necessary precautions to prevent damage to the work by storms or by water entering the work site directly or through the ground. In case of damage by storms or water, the Contractor shall make such repairs and/or replacements or rebuild such parts of the work as the Engineer may require in order that the finished work shall be completed in full accord with the plans and specifications.

The Engineer may prohibit the carrying out of any work at any time that, in his judgment, the conditions are not suitable or the proper precautions are not being taken, whatever the whether or season may be.

ARTICLE 25 - Mistakes of the Contractor

The Contractor shall pay to the Owner all expenses, losses, and/or damages, as determined by the Engineer, incurred in consequence of any defect, omission, or mistake of the Contractor, his agents or employees, or the making good thereof.

ARTICLE 26 - Right to Materials

Nothing in this Contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or the soil, but all such materials shall, upon being so attached or affixed, become the property of the Owner.

ARTICLE 27 - Alterations

The Engineer may make alterations in the line, grade, plan, form, dimensions or materials of the work or any part thereof, either before or after the commencement of construction. If such alterations increase or diminish the quantity of work to be done, adjustment for such increase or decrease shall be made at the unit prices stipulated for such work under this contract, except that if unit prices are not stipulated for such work, compensation for increased work will be made under the provisions for Extra Work made elsewhere herein, and for decreased work the Contractor shall allow the Owner a reasonable credit as determined by the Engineer. If such alterations diminish the quantity of work to be done, they shall not warrant any claim for damages or for anticipated profits on the work that is dispensed with.

ARTICLE 28 - Extra Work

The Contractor shall do any work incidental to the proper completion of the Contract not otherwise provided for when and as so ordered, in writing, by the Engineer, either (a) at a price agreed upon before the work is commenced and named in the written order for the work, or (b) if the Engineer so elects, for the reasonable cost of said work, as determined by the Engineer, plus fifteen (15) percent of such cost. No extra work will be paid for unless specifically ordered as such by the Engineer in writing.

The Contractor shall, when so requested by the Engineer, furnish itemized statements of the cost of the work ordered, and shall give the Engineer access to the accounts, bills, and vouchers relating thereto.

The Engineer shall include in the cost of extra work under (b) above the reasonable cost to the Contractor of all materials used, of all labor common and skilled and of foremen, and the fair rental of all machinery used upon the extra work for the period of such use.

The fair rental for all machinery shall be based upon the most recent edition of "Compilation of Rental Rates for Construction Equipment" as published by the Associated Equipment Distributors, rental rates established by the Maine State Department of Transportation, or similar publication approved by the Engineer. Rental for machinery which was upon the work site immediately before, or which will be required by or used upon the work after the extra work is done, shall be based upon an appropriate fraction of the approved monthly rate schedule. If said work requires the use of machinery not upon the work site or otherwise to be used upon the work, then the cost of transportation, not exceeding a total round trip distance of 150 miles, of such machinery to and from the work shall be added to the fair rental as accepted by the Engineer.

The Engineer shall include in the cost of extra work the cost to the Contractor of additional premiums paid on the required insurance on account of such extra work, and the cost of Social Security and/or other direct assessment upon the Contractor's payroll by Federal or other properly authorized public agencies. The Engineer shall not include in the cost of extra work any cost or rental of small tools, buildings, or any portion of the time of the Contractor or his superintendent, or any allowance for use of capital or the premium on the bond as assessed upon the amount of extra work, these items being considered as being covered by the fifteen (15) percent added to the reasonable cost.

ARTICLE 29 - Extension of Time on Account of Extra Work

When extra work ordered at any time during the progress of the work is such as to require, in the opinion of the Engineer, an unavoidable increase in the amount of time necessary for completion of the Contract, then a suitable extension of time will be added to the completion date.

ARTICLE 30 - Changes not to Affect Bond

It is distinctly agreed and understood that any changes made in or to the plans and/or specifications, whether the amount of work do be done under this Contract should thereby be affected or not, or any change or changes in the manner or time of payments made by the Owner to the Contractor, shall in nowise annul, release, or affect the liability and/or surety on the bond or bonds provided by the Contractor.

ARTICLE 31 - Claims for Damages

If the Contractor claims compensation for any damages sustained by breach of Contract or otherwise, be the same based on claims that due and full credit has not been given the Contractor for work performed or materials furnished in accordance with the terms of the Contract or for any other cause, he shall, promptly after the sustaining of any such damage, make a written statement to the Engineer of the nature of the damage sustained and shall, on or before the fifteenth day of the month following that in which the damage shall have been sustained, file with the Engineer an itemized statement of the details and amount of such damage. Unless such statement is made in such time and manner as thus required his claim for compensation will be forfeited and invalidated and he will not be entitled to payment on account of any such damage.

ARTICLE 32 - Abandonment of Work

If the work to be done under this Contract shall be abandoned, or if this Contract or any part thereof shall be sublet without the previous written consent of the Owner, or if the Contract or any claim thereunder shall be assigned by the Contractor otherwise than as herein specified, or if at any time the Engineer shall be of the opinion, and shall so certify in writing, that the conditions herein specified as to the rate of progress of work under this Contract are not fulfilled, or that the work or any part thereof is unnecessarily or unreasonably delayed, or that the Contractor has violated any of the provisions of this Contract, the Owner may notify the Contractor by a written order with a copy to the home office of the surety to discontinue all work or any part thereof, and thereupon the Contractor shall discontinue such work or such part thereof as the Owner may designate, and the Owner may thereupon, by contract or otherwise, as the Owner may determine, complete the work or any part thereof, and charge the entire expense of completing such work or part thereof to the Contractor; and for such completion the Owner, or such contractors as the owner may employ, may take possession of and use or cause to be used in the completion of the work or part thereof, any of such materials, equipment, machinery, implements and tools of every description as may be found at the location of said work.

Any and all costs or expenses, including liquidated damages as specified elsewhere herein, incurred by the Owner under this article shall be deducted and paid out of any moneys then due or to become due the Contractor under this Contract, or any part thereof; and in such accounting the Owner shall not be held to obtain the lowest figures for the work of completing the Contract or any part thereof, or for insuring its proper completion, but all sums actually paid therefor shall

be charged to the Contractor. If the aforementioned costs and expenses so incurred, coupled with payments already made to the Contractor, shall exceed the amount which would have been payable under this Contract if the same had been completed by the Contractor, then the Contractor or the Contractor's surety shall pay the full amount of any such excess to the Owner.

ARTICLE 33 - Prices for Work

The Owner will pay and the Contractor shall accept the prices stipulated in the bid as full and just compensation for everything furnished and done by the Contractor, and for any and all expenses of any nature incurred by the Contractor in completing properly and to the entire satisfaction of the Owner all work under this Contract, including any losses or damages incurred by the Contractor as a result of work under this Contract and excepting only such expenses, losses, etc. for which other provisions are specifically made elsewhere herein.

ARTICLE 34 - Money may be Retained

The Owner may keep any moneys which would otherwise be payable at any time hereunder, and may apply the same, or so much as may be necessary therefor, to the payment of expenses, losses or damages incurred by the Owner and determined as herein provided, and may retain, until all claims are settled, so much of such money as, in the Owner's opinion, will be required to settle all claims filed with the Owner relating to this Contract.

ARTICLE 35 - Progress Estimates

Except as hereinafter provided, the Engineer shall, once in each month, make an estimate in writing of the total amount of the work done to the first of the month, and the amount earned by the Contractor. The Owner will retain ten (10) percent of such estimated value as part security for fulfillment of this Contract by the Contractor and shall deduct from the balance all previous payments and all sums to be retained under this and/or other provisions of this Contract. The Owner shall pay to the Contractor each month the balance not retained as aforesaid, except that such monthly payment may be withheld at any time if the work, in the opinion of the Engineer, is not proceeding expeditiously and in accordance with the Contract. The Owner may, if it is deemed expedient to do so, cause estimates and payments to be made more frequently than once a month.

Estimates of lump sum items will be based on the Engineer's estimate of the percentage of each such item completed, each such percentage to be applied to the appropriate lump sum price as set forth on the Bid Form.

Payment for materials will not be made unless and until such materials have been satisfactorily installed or otherwise incorporated into the work.

ARTICLE 36 - Final Estimate and Payment

The Engineer shall, as soon as practicable following the completion of work under this Contract, make a final estimate in writing of the total amounts of such work done under the various items contained in the bid and of the total amount of money due the Contractor for said work, and he shall also fix the date of substantial completion of such work and incorporate same into said final estimate.

The Owner will pay to the Contractor the entire sum so found to be due hereunder, including the ten (10) percent interim retainage withheld from previous payments, after deducting from said entire sum all previous payments, a retainage of three (3) percent or an amount as deemed necessary by the Engineer as guaranty for a period of one year following the certified date of substantial completion unless said guaranty is specifically waived in writing by the Owner, and any and all other amounts as may be retained under the various provisions of this Contract. Such payment shall be made not later than fifteen (15) days after, but in no event before, the expiration of the time within which claims for labor performed and materials used or employed must be entered under the Lien Law, or if such time is not specified by law, the expiration of 30 days after the aforementioned date of substantial completion.

All prior progress estimates and payments shall be subject to correction in the final estimate and payment.

ARTICLE 37 - Liens

If, at any time before the expiration of the period within which claims must be entered under the Lien Law or, if not otherwise specified by law, within thirty (30) days after the certified date of substantial completion of all work under this Contract, any person, corporation, firm or other legal entity shall claim to have performed any of the work or to have furnished any of the materials under this Contract and shall file with the Owner suitable notice, the Owner will retain until discharge of such notice sufficient money to satisfy and discharge the amount claimed to be due in such notice together with the cost of any action or actions brought to enforce such lien created by the filing of such notice.

ARTICLE 38 - Waivers

Neither inspection by the Owner or any agents thereof, nor any orders, measurement or certificate by the Engineer, nor any order by the Owner for the payment of money, nor any payment for or acceptance of the whole or any part of the work performed under this Contract by the Owner, nor any extension of time nor any possession taken by Owner or agents thereof shall operate as a waiver of any provision of this Contract, or of any power herein reserved to the Owner, or any right to damages herein provided, nor shall any waiver of any breach of this Contract be held to be a waiver of any other or subsequent breach. Any remedy provided in this Contract shall be taken and construed as cumulative, that is, in addition to each and every other remedy herein

provided, and in addition to all other suits, actions, or legal proceedings. The Owner shall also be entitled as of right to a writ of injunction against any breach of any of the provisions of this Contract.

ARTICLE 39 - Indemnification

The Contractor shall indemnify, defend and hold harmless the Owner from and against all claims and actions, and all expenses incidental to such claims or actions, based upon or arising out of damage to property or injuries to persons or other tortious acts caused or contributed to by the Contractor or anyone acting under his direction or control or in his behalf in the course of his performance under this Contract, provided the Contractor's aforesaid indemnity and hold harmless agreement shall not be applicable to any liability based upon the sole negligence of the Owner.

The Contractor hereby expressly agrees that he will defend, indemnify and hold the Owner harmless from any and all claims made or asserted by the Contractor's agents, servants or employees arising out of the Contractor's activities under this Contract. For this purpose, the Contractor hereby expressly waives any and all immunity he may have under Maine's Workers Compensation Act in regard to such claims made or asserted by the Contractor's agents, servants or employees. The indemnification provided under this paragraph shall extend to and include any and all costs incurred by the Owner to answer, investigate, defend and settle all such claims, including but not limited to the Owner's costs for attorneys fees, expert and other witness fees, the cost of investigators, and payment in full of any and all judgments rendered in favor of the Contractor's agents, servants or employees against the Owner in regard to claims made or asserted by such agents, servants or employees.

ARTICLE 40 - Liability of Owner

No person, firm, corporation or other legal entity other than the Contractor now has any interest hereunder, and no claim shall be made or be valid, and neither the Owner nor any agent of the Owner shall be liable for or be held to pay any money except as herein provided. The acceptance by the Contractor of the payment of the final estimate shall operate as and shall be a release to the Owner, and every agent of the Owner, from all claim and liability to the Contractor for anything done or furnished for, or relating to the work performed under this Contract, or for any act or neglect of the Owner or of any person relating to or affecting said work except the claim against the Owner for the remainder, if any there be, of the amounts kept or retained as provided elsewhere herein.

ARTICLE 41 - Guaranty

The Contractor guarantees that the work to be done under this Contract and the materials to be furnished by him for use in the construction of same will be free from defects or flaws. This guaranty shall remain in effect for a period of one year from the certified date of substantial completion of all work under this Contract. It is agreed and understood, however, that this

guaranty shall not include any repairs made necessary by any cause or causes other than defective work or materials furnished by the Contractor.

As surety of this guaranty the Owner will retain, at the time of payment of the final estimate, an amount equal to three (3) percent or an amount as deemed necessary by the Engineer of the total final Contract amount. If at any time within said period of guaranty any part of the work constructed under this Contract shall require repairs because of, in the opinion of the Engineer, defective workmanship and/or materials, then the Owner may notify the Contractor in writing by certified mail, return receipt requested, of his obligation to make such repairs. Should the Contractor fail to make such repairs to the complete satisfaction of the Owner within ten (10) calendar days of receipt of such notice, then the Owner may elect to employ others to make said repairs and to pay for same out of the sum retained hereby for that purpose. Upon the expiration of the period of guaranty the Engineer will inspect the work, or cause same to be inspected, and upon his determination that the work is in good order the retainage, less any amount which may have been expended in the making of repairs, will be released upon receipt of invoice from the Contractor.

It is agreed and understood, however, that the Owner may keep the whole or any portion of the sum retained for settlement of any and all claims which may have arisen out of this Contract against the Owner or agents thereof, and for any and all expenses, losses, or damages incurred by the Owner by reason of said claims.

ARTICLE 42 - Legal Address of Contractor

Both the address given in the bid and the Contractor's temporary field office are hereby designated as places to which letters, notices and other communications to the Contractor may be mailed or delivered. The first named address may be changed at any time, in writing, by the Contractor.

ARTICLE 43 - Progress Schedule

The Contractor shall, within five (5) days of commencement of Work, prepare and submit to the Engineer for approval a practicable schedule showing the order in which the Contractor proposes to carry on the work, the date on which he will start the several salient features thereof, and the contemplated dates for completing the same. The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion at any time and shall be acceptable to the Engineer. If, in the opinion of the Engineer, the Contractor falls behind such schedule, the Contractor shall take any and all such steps as may be deemed necessary by the Engineer to improve his progress toward completion of the work and shall submit and maintain such supplemental schedules as the Engineer may deem necessary to demonstrate that all work under this Contract will be completed within the time and/or by such completion date as may be specified elsewhere herein. None of the foregoing shall result in any additional cost to the Owner.

ARTICLE 44 - Site Investigation

The Contractor acknowledges that he has satisfied himself as to the nature and location of the work, the general and local conditions including but not restricted to those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, river stages, tides or similar physical conditions at the site, the conformation and condition of the ground, and the character of equipment and facilities needed preliminary to and during prosecution of the work. The Contractor further acknowledges that he has satisfied himself as to the character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Owner as well as from information presented by the plans and specifications hereof. Any failure by the Contractor to acquaint himself with the available information will not relieve him from responsibility for estimating properly the difficulty or cost of successfully completing the work. The Owner assumes no responsibility for any conclusions or interpretations made by the Contractor on the basis of the information made available to him.

ARTICLE 45 - Protection of Existing Utilities

Existing utilities, structures, or other works that may be shown on the plans, reasonably located or anticipated by a site investigation, or marked on the ground or in any other way by the Owner or by the respective utility companies shall be protected from damage by the Contractor during construction operations and, if damaged, shall be repaired by the Contractor at his sole expense. It will be the Contractor's sole responsibility to contact the Dig Safe Center at 1-800-225-4977 and to assure that any and all utility companies in the project area have been notified, furnished with sufficient information, and have located on the ground their respective underground utilities in any area(s) where excavation will occur, all prior to commencement of any such excavation.

Materials below existing utilities which are removed or disturbed during excavation shall be replaced and thoroughly compacted to prevent future settlement and damage to the utility. Utilities damaged due to subsequent settlement of the backfill or of any materials disturbed by the Contractor shall be repaired by the Contractor, or as otherwise required by the utility company, at the Contractor's sole expense.

The locations of certain existing subsurface pipes and utilities are indicated on the plans to the best of the Owner's knowledge but they are approximate only and no guarantee is made either to the accuracy or completeness thereof. It is the Contractor's absolute responsibility to determine to his best ability the existence and location of any and all underground utilities prior to commencement of excavation and to exercise such precautions during excavation as may be necessary to compensate for any incompleteness or inaccuracy of such determination. Should the scope of work under this contract be substantially altered because of the existence of subsurface utilities not shown on the plans or reasonably anticipated by the Contractor at the time of bidding hereon, then the contract price may be adjusted accordingly by the Owner but the mere fact of damage by the Contractor to an existing utility, whether shown on the plans or not, shall under no

circumstances result in extra compensation to the Contractor by the Owner, and all necessary repairs together with any and all related costs, damages, and/or claims related thereto or arising therefrom will be the Contractor's sole responsibility and shall be made and/or otherwise satisfied at the Contractor's sole expense.

ARTICLE 46 - Temporary Power and Water

The Contractor shall make all necessary applications and arrangements and shall pay all fees and charges for electrical power, light and water necessary for proper completion of this Contract during its entire progress. The Contractor shall provide and pay for all temporary wiring, switches, piping, connections, meters and all else that may be required in this regard.

ARTICLE 47 - Temporary Field Office and Storage Facilities

The Contractor shall provide and maintain a suitable temporary field office at the project site for his own use and the use of the Engineer. It shall be provided with adequate heat, electric lighting, telephone, and desk for plan references. It shall be located at a site acceptable to the Engineer, shall be relocated at any time during the course of construction under this Contract if and as deemed necessary by the Engineer, and shall be removed from the site immediately upon completion of said construction.

The Contractor shall provide and maintain such additional offices, storage sheds, and/or other temporary buildings and/or trailers at the site as may be required for his own use, all subject to the Engineer's direction and approval.

ARTICLE 48 - Time of Completion

All work shall be completed by **August 3, 2024**.

IN WITNESS WHEREOF, the City of Bangor has caused this instrument to be signed by its Purchasing Agent or its City Manager, hereunto duly authorized, and the Contractor has hereunto set his hand and has caused this instrument to be signed by his (Officer) _____ hereunto duly authorized to execute this instrument this _____ day of _____, A.D. 2024.

WITNESS:

CITY OF BANGOR

By: _____
Debbie A. Laurie
City Manager

Or by : _____

(Owner and Party of the First Part)

WITNESS:

Name of Individual, Firm or Corporation

By: _____

Name: _____
Printed or Typed

Title: _____
Printed or Typed

(Contractor and Party of the Second Part)

SECTION E

SPECIAL PROVISIONS

Customer, Driveway, and Street Access

The Contractor shall maintain customer access to adjacent property at all times. The Contractor shall make every effort to plan his work so that adjacent property owners shall have driveway access to their properties at all times during non-working hours, and as much as possible during working hours. The Contractor shall use every effort to cooperate with adjacent property owners on their need to access their property. The Contractor shall notify the Bangor Police and Fire Departments at least four hours in advance of any necessary cutting off of access by emergency vehicles. Every effort shall be made to keep streets open to emergency vehicles at all times.

Disposal of Excavated Material

Unless otherwise directed by the Engineer, all suitable excess excavated material will remain the property of the City and shall be hauled by the Contractor to a site designated by the Engineer within a five-mile radius of the project. If no disposal site is designated by the Engineer than the Contractor shall be responsible for disposing of all excess fill material. Haul and disposal of surplus excavated material is considered necessary and incidental to the work and no separate payment will be made therefor. The contractor shall notify the Resident Engineer of the location of all off site disposal areas and shall provide a copy of the property owner's grading and fill permit to the Engineer before placing any fill on private property.

Working Hours

Normal working hours shall be from 7:00 A.M. until sunset. The Contractor shall cease all activity within 1/2 hour of sunset unless otherwise directed. It is intended that the Contractor stop work promptly at sunset; however, it is recognized that occasionally work may proceed a few minutes after sunset. If work proceeds later than 1/2 hour after sunset without permission of the Resident Engineer, then the Contractor shall be notified in writing that any additional violation of the working hours provision of the Contract shall be grounds for dismissing the Contractor and / or revoking his privilege to bid future projects.

Section 105, Limitations of Operations

- The contractor shall not close more than 1 lane to perform work on Ohio Street.
- Contractor to maintain two way traffic at all times during working hours.
- Lane closure shall be limited to 1000 feet in length
- The Contractor shall maintain lane widths no less than 11 feet in width
- Lane closures in excess of 1000 feet will only be permitted for paving operations and shall be allowed between the hours of 7 p.m. and 5 a.m.
- Work requiring a lane closure in excess of 1000 feet shall be approved by the Resident, a minimum of 48 hours prior to commencement of the work.

Utility Coordination

The contractor has primary responsibility for coordinating their work with utilities after contract award. The contractor shall communicate directly with the utilities regarding any utility work

necessary to maintain the contractor's schedule and prevent project construction delays. The contractor shall notify the resident of any issues. The Contractor shall plan and conduct his work accordingly.

Traffic Control

The Contractor shall provide all traffic control signs, barricades, cones drum, lights, etc. in conformance of the latest edition of the Manual on "Uniform Traffic Control Devices" by the U. S. Department of Transportation and Federal Highway Administration. Traffic control shall be paid for under item 652.36 Maintenance of Traffic.

Time and Material Payment

If, at any time during the construction of the project, a situation occurs where payment for work performed cannot be paid for under pay items in the Contract, then the Contractor may request payment on a time and materials basis. All labor and equipment rates, crew sizes, equipment and materials used, and other factors affecting the work shall be approved by the Resident Engineer before work commences. The Contractor and Engineer shall agree to and record hours worked, crew and equipment used, and all materials used at the end of each working day. Requests for time and materials payment after the fact may not be considered for payment if the Resident Engineer was not properly notified.

Notification of Property Owners

Every effort shall be made to keep adjacent property owners fully informed of pending interruptions to access or service. The Contractor shall be responsible for notifying the Resident Engineer in advance of any pending operations which may affect adjacent property, including but not limited to the cutting off of driveway access, the disconnection of sewer service laterals, or blasting operations. It will be the Resident Engineer's responsibility to communicate with the property owner or tenants; if such interruptions are to take place during the absence of the Resident Engineer, then the Contractor shall communicate directly with the property owner.

References

The apparent low Bidder shall furnish, if required by the City Engineer, references from at least three projects of similar scope, within three working days of the bid opening date. References must be for projects in neighborhoods similar in dollar value and scope of work to the project proposed herein. If, in the opinion of the City Engineer, the Contractor does not have prior work experience in successfully completing projects of this scope, then the City Engineer may recommend rejection of the bid and recommend award of the contract to the next qualified Bidder.

City of Bangor Consent Decree Notification

“All contractors and subcontractors are hereby notified that the City of Bangor has entered into a Consent Decree with the United States and the State of Maine. For the purposes of the Consent Decree, contractors and subcontractors are deemed agents of the City. Any and all work performed by contractors and subcontractors must conform with the terms of the Consent Decree. Contractors must familiarize themselves with the contents of the document and must make the document available to all subcontractors. This document is available electronically at http://www.bangormaine.gov/filestorage/318/350/7758/ENV_ENFORCEMENT.PDF or in hard-copy in the City of Bangor’s Engineering Department.”

SECTION F

All work shall be governed by the following documents:

These documents may be purchased from:

MDOT
16 State House Station
Augusta, ME 04333-0016
Attn: Mailroom

Or by phone
(207) 624-3220

State of Maine Department of Transportation
Standard Specifications
Highways and Bridges
Revision of MARCH 2020

(price \$10, \$13 by mail)

State of Maine Department of Transportation
Standard Details
Highways and Bridges
Revision of 2020

(price \$20, \$25 by mail)

Disclaimer: In case of conflict between the bid documents and the above-mentioned documents on this page, then the bid documents shall prevail.

Construction Notes

1. Utilities involved in this contract are: Versant Maine, Consolidated Communications, Charter Communications, Bangor Public Works Dept., Bangor Sewer Division, Bangor Water District, and Bangor Gas.
2. All utilities shall be adjusted by the respective utility company unless otherwise noted. Overhead utility adjustments are anticipated as part of this project. Underground utility structures will be adjusted to new finished grade by the appropriate utilities or contractor.
3. All underground utilities shown on plans are approximate only. It is the contractor's responsibility to field verify and maintain these utilities during construction.
4. All construction activities contemplated under this contract shall be governed by and be in conformity with the Standard Specifications (MARCH 2020), the Standard Details (March 2020), the Supplemental Specifications and Supplemental Standard Details for Construction (Latest revision) thereto, except as modified by the plans or Specification Special Provisions.
5. No existing drainage shall be abandoned, removed or plugged without prior approval of the Engineer.
6. The Contractor is responsible for raising existing Catch Basin frames and covers to grade.
7. Where deemed necessary by the Engineer, winter sand shall be removed from the edges of shoulders and placed in designated areas or disposed of. Payment will be made under the appropriate contract items.
8. Excavation accomplished as part of this project shall be constructed in accordance with OSHA subpart P of 20 CFR Part 126.50-52 (Construction Standard for Excavations).
9. Any damage to the side slopes or areas outside the work limits caused by the contractor during construction shall be repaired to the satisfaction of the Engineer and shall be performed at the contractor's expense.
10. Temporary and permanent erosion control measures shall be installed and maintained in accordance with the current Maine Department of Transportation Manual, Best Management Practices for Erosion and Sediment Control, February 2008, and shall be considered incidental to the contract.

11. Loam and seed to be placed on all the disturbed slope areas, or as directed by the Engineer.
12. Unless otherwise noted, seeding method No. 1 shall be utilized on all lawn and developed areas. Mulch shall be applied in areas seeded by methods No. 1. Mulch shall be fiber mulch or straw mulch.
13. Loam shall be placed to a nominal depth of 3" on all lawn and side slope areas or as directed by the Engineer.
14. Grind transition tapers at Catch Basins as directed by the Engineer. Shall be considered incidental to item 403.208 paving as preparatory work.
15. All existing paved shoulders and widenings to be resurfaced as directed by the Engineer.
16. All joints between existing and proposed hot bituminous pavement at driveways and sidewalks shall be butted. Payment shall be made under Item 202.203 Pavement Butt Joint. Locations of butt joints shall be determined in the field by the Engineer after the roadway has been cold planned or before surface pavement is placed.
17. Bituminous Tack Coat, shall be applied to all existing pavement butt joints prior to placing new pavement and shall be incidental to the item 403.209 HMA for sidewalks, drives and incidentals.
18. All waste material not used on the project shall be disposed of off the project in waste areas approved by the Engineer.
19. The Contractor shall place suitable existing material, or other material acceptable to the Engineer, on all pavement edges to allow no greater than a 1.5 inch drop-off and be graded to 3:1 or flatter. Payment to be incidental to the contract.
20. Any necessary cleaning of existing pavement prior to paving shall be considered incidental to the related paving items.
21. All existing pavement shall be saw cut prior to any excavation in order to provide for a clean joint to match the new pavement to.
22. Backfill material behind the new curbing is incidental to the curb. The backfill material behind the curb shall be granular base material. The bedding material for the granite curb shall be concrete and shall be considered incidental to the installation of the granite curb. In areas where curb is designated to be replaced, the removal of the old curbing shall be incidental to the new curbing or as determined by the Engineer.

23. Where new curb is to be installed or existing curb is to be removed or reset the Contractor shall saw cut the existing pavement prior to removal of the existing curb.
24. Where existing bituminous curbing is to be removed and replaced with slipform concrete curbing, the contractor shall remove the existing curbing as part of remove pavement surface pay item 202.202 or by excavation pay item 203.20.
25. All pavement markings to conform to the current Manual on Uniform Traffic Control Devices, MDOT specifications and or City of Bangor Standards. Replace existing pavement markings as per plans. All crosswalks to be 24" wide with 36" center to center spacing. Roadway shall have temporary markings, such as "tommies" or temporary pavement markings after pavement grind is completed as directed by the Engineer and until such time the permanent marking shall be completed. This work shall be considered incidental to the pay item for Maintenance of Traffic.
26. All traffic control items, such as cones, barrels, signs, notices and the traffic control plan, etc., shall conform to the Manual on Uniform Traffic Control Devices, MEDOT specifications and or the City of Bangor Standards. Payment shall be considered incidental to the pay item for Maintenance of Traffic.

Project No. MPI-26053.06
Ohio Street, Bangor

SPECIAL PROVISION
CONSTRUCTION AREA

A Construction Area located in the **City of Bangor** has been established by the Maine Department of Transportation in accordance with provisions of Title 29, Section 1703, Maine Revised Statutes Annotated.

The section of highway under construction in Penobscot county

Ohio Street beginning at Eighteenth Street and extending westerly 0.59 miles to Crestwood Drive, Bangor, Maine.

The State Department of Transportation or the State's Engineer may issue permits for stated periods of time for moving construction equipment without loads, low-bed trailers with overloads, over-height, over-width or over-length equipment or materials over all State maintained sections described in the "Construction Area" above and in addition may issue permits for stated periods of time for moving overweight vehicles and loads over the section described in (a) above. The right to revoke such a permit at any time is reserved by the State Department of Transportation and the issuance of such permits shall be subject to any Special Provisions or Supplemental Specifications written for this project.

A Temporary Permit for each move may be issued by the State Department of Transportation or the State's Engineer for moving Contractor's construction equipment used on the project which exceeds the legal limits (shovels, bulldozers, etc.) to sources of construction material over highways maintained by the State reasonably within the area of the project.

The Municipal Officers for the **City of Bangor** agreed that a permit will be issued to the Contractor for the purpose of hauling loads in excess of the limits as specified in Title 29, Maine Revised Statutes Annotated, on the town ways as described in the "Construction Area" and that single move permits will be issued for moving Contractor's construction equipment used on the project which exceeds the legal limits (shovels, bulldozers, etc.) to sources of construction material over town ways reasonably within the area of the project.

In the event it is necessary to transport gravel, borrow, or other construction material in legally registered vehicles carrying legal loads over town ways, a Contractor's Bond of not more than Nine Thousand (\$9,000.00) per kilometer of traveled length may be required by the town, the exact amount of said bond to be determined prior to use of any town way.

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

February 27, 2017

SPECIAL PROVISION
SECTION 609 – CURB
STRUCTURAL CONCRETE
(Slipform Concrete Curb)

609.01-Description

This work shall consist of furnishing and placing Slipform Concrete Curb as a replacement or substitute for bituminous curb in close conformity with the plans, or as authorized by the Resident.

609.02 Materials

Except as provided below, the materials used shall meet the requirements specified in Section 700 – Materials:

Portland Cement and Portland Pozzolan Cement	701.01
Water	701.02
Fine Aggregate for Concrete	703.01
Coarse Aggregate for Concrete	703.02
Air Entraining Admixtures	703.03

The aggregate shall conform to the requirements of Subsections 703.01 and 703.02.

A mix design for the Portland Cement Concrete shall be submitted to the Resident meeting the requirements of Class A or Class LP with the exception that permeability requirements shall be waived.

609.03-General

a. Preparation of Base

Before placing the curb, the foundation course shall be thoroughly cleaned of all foreign and objectionable material. The Contractor shall not place Slipform Concrete Curb on a wet or frozen base. String or chalk lines shall be positioned on the prepared base to provide guide lines. For HMA or PCC base the foundation shall be uniformly painted with an epoxy resin adhesive that meets AASHTO 235, Type II

b. Placing:

Concrete shall be placed with an approved Slipform machine that will produce a finished product according to the design specified in the plans, and will meet the same standards set for cast-in-place curb. For cold weather Slipforming, the outside temperature must be at least 36°F (2.2°C) and rising. The curb shall be placed on a firm, uniform bearing surface, shall conform to the section profile specified in the plans, and shall match the appropriate grade. Expansion joints will be provided at ends of curve radii, or wherever the curb meets rigid structures such as building foundations or fire hydrants. Contraction joints will be placed at 10 foot (3 m) intervals using sawing methods, which shall cut 1-3" into the concrete. Joints shall be constructed perpendicular to the subgrade and match other joints in roadways, sidewalks or other structures when applicable.

c. Curing and Sealing

Proper curing shall be insured through the use of either a combination curing/sealing compound spray that meets ASTM 1315 Type 1-Class A, or a curing compound spray that meets ASTM 309 type 1-D – Class A. Curing may also be accomplished by the methods specified in Section 502.15 of the Specifications.

If a combination curing/sealing compound spray is not used, a separate sealing compound from the MDOT Approved Products List for a Type 2 sealer shall be applied after the concrete has cured.

d. Protection:

Slipform curb must be adequately protected after placement. The concrete shall be allowed to cure for at least 72 hours. During cold weather conditions, when temperatures drop below the required temperature of 36°F (2.2°C) after placement, curbing shall be protected by concrete blankets or a combination of plastic sheeting and straw. After any placement of Slipform curb, regardless of weather conditions, the placed curb shall be adequately protected by traffic control devices as necessary.

e. Marking

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 unless a combination curing/sealing compound is used.

f. Acceptance

Curb shall be accepted or rejected based on finish, alignment, entrained air content, and compressive strength. All damaged curb shall be removed and replaced at the Contractor's expense.

609.04-Method of Measurement

Concrete Slipform curb 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.

609.05 Basis of Payment

The accepted quantities of curb will be paid for at the contract unit price per linear foot as specified.

There will be no separate payment for concrete, sealing, incidental materials, or labor needed to install the curb, but these will be considered included in the work of the related curb.

Removal of existing curb and necessary excavation for installing curb will not be paid for directly, but shall be considered to be included in the curb pay item. Base and Subbase material will be paid for under Section 304 - Aggregate Base and Subbase Course. Backing up machine laid curb is incidental to the curb items. Loam, as directed, will be paid under 615 – Loam.

Section 609.06-Basis of Payment

Pay Item	Pay Unit
609.19 Vertical Curb - Type 2 – Slipform Concrete	Linear Foot

SUPPLEMENTAL SPECIFICATIONS
(Corrections, Additions, & Revisions to Standard Specifications – March 2020)

SECTION 101
CONTRACT INTERPRETATION

101.2 Definitions

Construction Easement revise this definition by removing it in its entirety and replace with; **“A right acquired by the Department for a specific use of private property outside of the established Right-of-Way. Examples include but are not limited to Drainage Easements, Construction and Maintenance Easements, and Slope Easements. Construction Easement areas, including Temporary Construction Limits and Temporary Road Limits, outside of the Right-of-Way remain private property. No use other than to access and perform the specified work activity is permitted without written permission of the owner.”**

Construction Limit Line Remove this definition in its entirety.

Holidays Amend this paragraph by adding **“Juneteenth”** between ‘Memorial Day’ and ‘Independence Day’.

Plans Revise this paragraph by removing **“Standard Details, Supplemental Standard Details”** from the first sentence.

Project Limits Revise this definition by removing it in its entirety and replacing it with: **“Areas within the Right-of-Way, Construction Easements, or Temporary Construction Limits shown on the Plans or otherwise indicated in the Contract. If no Project Limits are indicated in the Contract, the Project Limits shall be determined by the Department. For a related Maine statute, see 23 MRSA § 653. “**

Right-Of-Way Revise this definition by removing it in its entirety and replacing it with: **“The area of land, property, or interest therein, acquired for or devoted to the Project or other purposes. Portions of the Right-of-Way may be used for storage of materials and equipment and the location of engineering facilities, subject to written approval by the Department.”**

Amend this Section by adding the following two definitions (that replace Construction Limit Line);

Temporary Construction Limits **The area within which the Contractor may access and perform the Physical Work and outside of which Work may not be performed without written authorization by the property owner.**

Temporary Road Limits **The area within which the Contractor may construct and maintain a temporary detour for maintenance of traffic.**

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 103
AWARD AND CONTRACTING

103.3.1 Qualification Requirement for Award Revise this subsection so that it reads:

“**103.3.1 Qualification Requirement for Award If the Notice to Contractors lists a Prequalification requirement, the Apparent Successful Bidder must successfully complete the Prequalification process as a condition of Award. The Apparent Successful Bidder who does not already hold an Annual Prequalification shall have 21 days to provide the Department with their Prequal documents or the Department may move on to the next low bidder.”**

SECTION 104
GENERAL RIGHTS AND RESPONSIBILITIES

104.2.1 Furnishing of Right-of-Way Revise this subsection by removing it in its entirety and replace with the new subsection:

“**104.2.1 Furnishing of Property Rights The Department will secure all necessary rights to real property within the Project Limits shown on the Right-of-Way Plans that are provided with the Bid Documents. For related provisions, see Sections 104.3.2 – Furnishing of Other Property Rights, Licenses and Permits and 105.4.5 - Maintenance of Existing Structures. For related definitions, see Construction Easements and Right-of-Way.”**

104.3.2 Furnishing of Other Property Rights, Licenses and Permits Revise this subsection by replacing “104.2.1 Furnishing of Right-of-Way” with “**104.2.1 Furnishing of Property Rights**”.

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: $PF = [70 + (Quality\ Level * 0.33)] * 0.01$ ”

106.9.1 Warranty by Contractor Revise the third paragraph of this section so that it reads:

“For a related provision regarding obligations regarding plantings, see section 621.36 – Maintenance Period. “

SECTION 107
TIME

107.3.1 General Amend this paragraph by adding **“Juneteenth”** between ‘Patriot’s Day’ and ‘the Friday after Thanksgiving’.

SECTION 108
PAYMENT

108.2.3 Mobilization Payments Replace Standard Specification 108.2.3 – Mobilization Payments with the following:

“108.2.3 Mobilization Payments “Mobilization” includes the mobilization and demobilization of all resources as many times as necessary during the Work.

Percent Mobilization Bid will be determined by taking the amount Bid for Mobilization and dividing by the Total Contract Amount less Mobilization. Mob/(Total Contract – Mob).

Payment will be made at the following intervals:

% Mobilization Bid	% Mobilization Paid at Contract Award	% Mobilization Paid after the Department determines 50% of the work is Complete	% Mobilization Paid at Final Acceptance
10% or less	50%	50%	
More than 10% to 15%	33%	33%	34%
More than 15% to 20%	25%	25%	50%
More than 20% to 30%	15%	15%	70%
Greater than 30%	10%	10%	80%

108.3 Retainage Revise the third paragraph of this section so that it reads:

“Upon Final Acceptance, and determination by the department that there are no claims either by or on the Contractor or Subcontractors; no over payments by the department; no LDs due; and no disincentives due, the Department will reduce Retent to 1% of the original Contract Award amount, or \$100,000, whichever is less, as it deems desirable and prudent.”

108.4.1 Price Adjustment for Hot Mix Asphalt Revise this section by removing it in its entirety and replacing it with the following:

“108.4.1 Price Adjustment for Hot Mix Asphalt: For each Contract, a price adjustment for performance graded binder will be made for the following pay items, when the total quantity of Hot Mix Asphalt included in these items is in excess of 500 tons, based on the estimated quantities of these items at the time of bid.

Item 403.102	Hot Mix Asphalt – Special Areas
Item 403.207	Hot Mix Asphalt - 19 mm
Item 403.2071	Hot Mix Asphalt - 19 mm (Polymer Modified)
Item 403.2072	Hot Mix Asphalt - 19 mm (Asphalt Rich Base)
Item 403.208	Hot Mix Asphalt - 12.5 mm
Item 403.2081	Hot Mix Asphalt - 12.5 mm (Polymer Modified)
Item 403.2084	Hot Mix Asphalt - 12.5 mm (Highly Modified HiMAP)
Item 403.209	Hot Mix Asphalt - 9.5 mm (sidewalks, drives, & incidentals)
Item 403.210	Hot Mix Asphalt - 9.5 mm
Item 403.2101	Hot Mix Asphalt - 9.5 mm (Polymer Modified)
Item 403.2104	Hot Mix Asphalt - 9.5 mm (Thin Lift Surface Treatment)
Item 403.21041	Hot Mix Asphalt - 9.5 mm (Polymer Modified Thin Lift Surface Treatment)
Item 403.211	Hot Mix Asphalt – Shim
Item 403.2111	Hot Mix Asphalt – Shim (Polymer Modified)
Item 403.212	Hot Mix Asphalt - 4.75 mm (Shim)
Item 403.213	Hot Mix Asphalt - 12.5 mm (base and intermediate course)
Item 403.2131	Hot Mix Asphalt - 12.5 mm (base and intermediate course Polymer Modified)
Item 403.2132	Hot Mix Asphalt - 12.5 mm (Asphalt Rich Base and intermediate course)
Item 403.301	Hot Mix Asphalt (Asphalt Rubber Gap-Graded)
Item 461.13	Light Capital Pavement
Item 461.210	9.5 mm HMA - Paver Placed Surface
Item 461.2101	Hot Mix Asphalt - 9.5 mm (Polymer Modified)
Item 461.216	Hot Mix Asphalt (Shim)
Item 462.30	Ultra-Thin Bonded Wearing Course
Item 462.301	Polymer Modified Ultra-Thin Bonded Wearing Course

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

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

- Item 403.102–6.2%
- Item 403.207–5.2%
- Item 403.2071–5.2%
- Item 403.2072–5.8%
- Item 403.208–5.6%
- Item 403.2081–5.6%
- Item 403.2084 – 6.2%
- Item 403.209–6.2%
- Item 403.210–6.2%
- Item 403.2101–6.2%
- Item 403.2104–6.2%
- Item 403.21041–6.2%
- Item 403.211–6.2%
- Item 403.2111–6.2%
- Item 403.212–6.8%
- Item 403.213–5.6%
- Item 403.2131–5.6%
- Item 403.2132–6.2%
- Item 403.301–6.2%
- Item 461.13–6.7%
- Item 461.210 – 6.4%
- Item 461.2101 – 6.4%
- Item 461.216 – 6.7%
- Item 462.30–0.0021 tons/SY
- Item 462.301–0.0021 tons/SY”

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:**
 - o **Below a plane parallel with and 12 inches below the bottom of the drainage or minor structure or**
 - o **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 501 FOUNDATION PILES

501.05 Method of Measurement
c. Piles in Place Revise the third paragraph by replacing the “10” with “20” so that it reads:

Unused pile cutoffs **20** feet or more in length, except those required to accommodate the Contractor’s construction method, as discussed herein, will remain the property of the Department and will be stored at a bridge maintenance yard nearest the project. Hauling and unloading of piles will be done by the Contractor or by the Department, depending upon availability of services.

SECTION 502 STRUCTURAL CONCRETE

502.09 Forms and Falsework Amend this subsection by adding the subsection title “**502.10 Placing Concrete**” after section “D” Removal of Forms and False work” and after the paragraph beginning with “2. Forms and False work, including blocking...”. So that a new subsection starts and reads:

“502.10 Placing Concrete

A. **General Concrete shall not be placed until forms”**

502.1701 Quality Control, Method A and B Revise this Section so that the first paragraph and the first sentence of the second paragraph read:

“502.17 Quality Control The Contractor shall control the quality of the concrete through testing, inspection, and practices which shall be described in the QCP, sufficient to assure a product meeting the Contract requirements. The QCP shall meet the requirements of Section 106, Quality, and this specification. No work under this item shall proceed until the QCP is submitted to and approved by the Department. Failure to comply with the approved QCP will result in work suspension and pay reductions as outlined in Section 106.4.6. The Quality Control Plan Value shall be the total bid value for all cast-in-place items covered by the QCP, using the P value listed in Special Provision 502. If no P value is listed, a value of \$350, or bid value per cubic yard, whichever is less, shall be used.

502.1701 Quality Control, Method A and B The QCP shall address all elements that affect the quality of the structural concrete including, but not limited to, the following: “

Section 502.1701, Quality Control, Revise Table 4 of this Subsection by removing it in its entirety and replacing it with:

TABLE 4
METHOD A & B MINIMUM QUALITY CONTROL TESTING REQUIREMENTS *

TEST	TEST METHOD	SAMPLING LOCATION	FREQUENCY
Gradation	AASHTO T-27 & T-11	Stockpile	One set per proposed grading before production. One set every 100 yd ³ (Min. 1 set per month)
Organic Impurities	AASHTO T-21	Stockpile	Once per fine aggregate per year **
% Absorption	AASHTO T-84 & T-85	Stockpile	Once per aggregate per year
Specific Gravity	AASHTO T-84 & T-85	Stockpile	Once per aggregate per year
Total Moisture in Aggregate	AASHTO T-255	Stockpile	One set per day’s production
Free Water and Aggregate Wt.	N/A		One per day’s production
% Entrained Air	AASHTO T-152	On Project	On first two loads and every third load thereafter

			provided consistent results are achieved
Compressive Strength	AASHTO T-22	On Project	One set per subplot
Compressive Strength	AASHTO T-22 @ 7days	On Project	One set per subplot

* Additional QC testing will be required any time a process change occurs during a placement, including changes in type or dosage of admixture. Additional testing shall include, but is not limited to, entrained air testing.

**** If the color produced is a laboratory designation Plate III, then the fine aggregate shall be tested once per month.**

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 Type	Bar Size								
	#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 accordance with 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:

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

535.22 Tolerances Amend this section by deleting it in its entirety and replacing it with:

“Product dimensional tolerances shall be in conformance with the latest edition of PCI MNL-135, Tolerance Manual for Precast and Prestressed Concrete Construction, as applicable to the particular product (e.g., slab, I-girder, box beam), the Plans, and this Specification. Use Box Beam fabrication tolerances for voided or solid slab beams and use Double Tee tolerances for NEXT beams. In case of dispute, the Fabrication Engineer shall determine the allowable tolerance.”

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 reflectors shall be mounted on all "w" beam guardrail and shall be either the "butterfly" type or linear delineation system panels. "Butterfly" or linear delineation panels shall be installed at approximately 62.5 foot intervals on tangents (after every tenth post) and 31.25 feet on curves (after every fifth post), and shall be centered on the guardrail beam. On Divided highways, the left-hand delineators shall be yellow and the right-hand delineators shall be silver/ white. On two-way directional highways, the right-hand side will have silver / white reflectors and no reflectorized delineator used on the left. Delineators shall have reflective sheeting that meets or exceeds the requirements of Section 719.01.

"Butterfly" reflectors shall be fabricated from high-impact, ultraviolet & weather resistant thermoplastic. Aluminum, galvanized metal or other materials shall not be used. Reflective sheeting will be applied to only one side of the delineator facing the direction of traffic and shall be centered vertically on the guardrail beam as shown in the Standard Detail 606(7).

Linear delineation system panels shall be 1.5 inches wide by approximately 11 inches nominal length, with a minimum of 5 raised lateral ridges spaced at approximately 2.25 inches. The height of each ridge shall be 0.34 inches with a 45 degree profile and a 0.28 inches radius at the top. Sheeting shall be laminated to thin gauge aluminum with a pre-applied adhesive tape on the back. Panels shall not be installed over seams or bolt heads and shall be centered horizontally on the guardrail beam; linear delineation panels shall be attached to only one guardrail beam. The guardrail beam surface shall be cleaned and prepared according to the manufacturer's instructions. Air temperature and guardrail surface temperature must be a minimum of 50 degrees F (10 C) with rising temperature at the time of installation.

Exact locations of the either the “butterfly” type or the linear delineation panels shall be approved by the Resident prior to installation.

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.

Reflectorized beam guardrail reflectors (“butterfly” type or linear delineation system panels) when identified by pay item, will be measured for payment by each.

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.

Anchorage 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.

Reflectorized beam guardrail reflectors (“butterfly” type and the linear delineation panels) will not be paid for directly but will be considered incidental to all new guardrail items. The Contractor shall furnish and install either the “butterfly” type or linear delineation panels, at its discretion, for new guardrail items.

Reflectorized beam guardrail reflectors (either “butterfly” type or linear delineation system panels) will be paid for under the applicable pay items for installation in conjunction with Adjust, Modify, Remove and Reset, Remove Modify and Reset guardrail items. The accepted quantity of “butterfly” type or linear delineation system panels will be paid for at the contract unit price each for all work and materials furnished to install, complete in place, including all incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
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
606.352	Reflectorized Beam Guardrail Delineators (“Butterfly” type)	Each
606.3521	Linear Delineation System Panel	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
606.3671	Replace Unusable Offset Blocks	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 608.022 Detectable 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 cellulosic 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 626.031 Conduit 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

627.02 Materials Amend this section by adding the following to the existing Specification:

“When pavement marking paint must be applied on pavement with an air temperature between 35 °F and 50 °F, a low temperature waterborne paint may be used upon the Department’s approval as noted below.

The Contractor shall submit the following information for Department review and approval at least 10 calendar days prior to application:

The manufacturer and product name of the low temperature waterborne paint

The manufacturer’s technical product data sheets

The product’s SDS sheets

All required and recommended application specifications for the product

The manufacturer’s requirements for temperature, surface preparation, paint thickness and the bead application shall be followed. No additional payment will be made for the use of low temperature waterborne paint. “

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.”

Revise this subsection by replacing the paragraph beginning with “ If the final reflectivity values are less...” with the following:

The final reflectivity will be acceptable if 90 percent or more of the painted pavement lines and markings meet the specified minimum value. If less than 90 percent of the painted pavement lines and markings meet the specified minimum final reflectivity values, the Contractor shall repaint those areas not meeting required reflectivity at no cost to the Department.

If, after repainting, analysis of the final reflectivity values results in the need for a second repainting, the Contractor will submit in writing a plan of action to meet the reflectivity

minimums prior to continuing any work. Once the plan has been reviewed and approved by the Department, the Contractor shall reapply at no cost to the Department.

SECTION 637
DUST CONTROL

Revise this section by removing it in its entirety.

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.”

643.023 Traffic Signal Structures Remove the third paragraph and replace it with the following:

“Traffic signal support structures shall be classified as Fatigue Category III if they are located on roads with a speed limit of 35 mph or less, Fatigue Category II if they are located on roads with a speed limit of greater than 35 mph, and Fatigue Category I if noted on the Contract Plans. Fatigue Importance Factors shall be as specified in Table 11.6-1 (Fatigue Importance Factors). Fatigue analyses are not required for span-wire (strain) pole traffic signal support structures with heights of 55 feet or less unless required by the current edition of AASHTO “LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals”.

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

652.2.5 Portable Changeable Message Sign Revise the fifth paragraph so it reads:

“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. Messages must be changeable with either a portable electronic device like 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. The cabinet shall be locked at all times that the Contractor is not actively changing the message. The Contractor shall change the password for the controller prior to stationing the PCMS and shall provide the password to the Resident. The password shall be unique per PCMS and secure and shall not be written anywhere in, on, around, or stored in the PCMS.”

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 of 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.”

652.3.3 Submittal of Traffic Control Plan Amend this section by adding:

“n. A security plan for any PCMS shall be included. The Contractor shall provide a plan for secure access to the PCMS and protection from unauthorized users. The plan shall have details on securing the cabinets via a lock and password from unauthorized users, password changing protocols, and where the access information will be kept so it can be used in the event of emergency. The Contractor shall not Identify or store passwords in the TCP.”

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 701

STRUCTURAL CONCRETE RELATED MATERIAL

701.01 Portland Cement and Portland Pozzolan Cement Amend the first sentence of Paragraph 3 by adding “**or Type 1L Portland Limestone cement**” so that it reads:

“A Type IP (MS) Portland-pozzolan cement (blended hydraulic cement with moderate sulfate resistance) or Type 1L Portland Limestone cement meeting the requirements of AASHTO M 240, may be used instead of Type II or where Type I Portland cement, meeting the requirements of AASHTO M 85, is allowed.”

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
3/8 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 3/8 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	3/4 inch	1 1/2 inch	1/2 inch
2 inch			100	
1 1/2 inch	100		95-100	
1 inch	95-100	100	-	
3/4 inch	-	90-100	35-70	100
1/2 inch	25-60	-	-	90-100
3/8 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
$\frac{3}{8}$ 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 $\frac{1}{2}$ inch 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 709 REINFORCING STEEL AND WELDED STEEL WIRE FABRIC

709.01 Reinforcing Steel Remove the second paragraph of Section 709.01 of the standard specification beginning with “Low-Carbon, Chromium,...” and replace with the following:

“ Low-carbon, chromium, reinforcing steel shall be deformed bars conforming to the requirements of ASTM A1035. Bars shall be Grade 100 and alloy Type CS unless otherwise specified on the Plans. “

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 AWPAs 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 AWPAs approved species, or spruce, cedar, tamarack or other AWPAs 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 AWWA 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 AWWA 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 AWWA U1, UC4A Commodity Specification B: Posts.

710.08 Guardrail Hardware Revise this subsection by replacing “AASHTO M 298” with “ASTM B695”

SECTION 711 MISCELLANEOUS BRIDGE MATERIAL

711.06 Stud Shear Connector Anchors and Fasteners Amend this section by deleting it in its entirety and replacing it with:

“Shear connectors shall meet the dimensional tolerances of Figure 9.1 of the ANSI/AASHTO/AWS D1.5 Bridge Welding Code (D1.5 Code). Shear connectors, anchors and fasteners shall meet the material requirements of Section 9 of the D1.5 Code. Shear connectors shall meet the mechanical property requirements of Table 9.1, Type B of the D1.5 Code. Anchors and fasteners shall meet the mechanical property requirements of Table 9.1 of the D1.5 Code, Type A.”

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 of ASTM 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 AWPAs 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 AWPAs Standard U1, UC4A, Commodity Specification A: Sawn Products.