

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

CONTRACT DOCUMENTS

CONTRACT 2026.05

BRIDGE REPAIRS

BROADTURN ROAD UNDERPASS (MM 39.90)

I-295 SOUTHBOUND UNDERPASS (MM 44.30)

MAINE MALL ROAD UNDERPASS (MM 44.91)

NOTICE TO CONTRACTORS

PROPOSAL

CONTRACT AGREEMENT

CONTRACT BOND

FINAL LIEN AND CLAIM WAIVER AND AFFIDAVIT

SPECIFICATIONS

MAINE TURNPIKE AUTHORITY
SPECIFICATIONS

The Specifications are divided into two parts:
Part I, Supplemental Specifications and Part II, Special
Provisions.

The Maine Turnpike Supplemental Specifications are additions
and alterations to the 2014 Maine Department of
Transportation Standard Specifications. See Subsection 100.1.

TABLE OF CONTENTS

	<u>PAGE</u>
NOTICE TO CONTRACTORS	N-1
PROPOSAL	P-1
CONTRACT AGREEMENT	C-1
CONTRACT BOND	CB-1
FINAL LIEN AND CLAIM WAIVER AND AFFIDAVIT	F-1
 <u>ARRANGEMENT OF SPECIFICATIONS</u>	
PART I – SUPPLEMENTAL SPECIFICATIONS	SS-1
PART II - SPECIAL PROVISIONS	SP-1

MAINE TURNPIKE AUTHORITY

NOTICE TO CONTRACTORS

Sealed Proposals will be received by the Maine Turnpike Authority for:

CONTRACT 2026.05

BRIDGE REPAIRS

BROADTURN ROAD UNDERPASS (MM 39.90)

I-295 SOUTHBOUND UNDERPASS (MM 44.30)

MAINE MALL ROAD UNDERPASS (MM 44.91)

at the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, ME, until 10:00 a.m., prevailing time as determined by the Authority on December 9, 2025 at which time and place the Proposals will be publicly opened and read. Bids will be accepted from Contractors **prequalified** by the Maine Department of Transportation for Bridge Construction Projects. All other bids may be rejected. This Project includes a wage determination developed by the State of Maine Department of Labor.

The work consists of bridge repairs at three locations. At the Broadturn Road Underpass in the town of Scarborough, the work generally consists of milling and paving the bridge and local road approaches, concrete haunch removal, pier repair, joint repairs, and concrete sealing. At the I-295 Southbound Underpass in the town of Scarborough, the work generally consists of concrete patch repair to the existing deck fascia and substructure, cleaning and painting of existing bearings, replacing abutment bearings at fascia girders, and miscellaneous superstructure and substructure repairs. At the Maine Mall Road Underpass in the city of South Portland, the work generally consists of milling and paving the bridge and local road approaches, joint repairs, and concrete sealing. The work also includes maintenance of traffic and all other work incidental thereto in accordance with the Plans and Specifications.

The half size Plans and Contract Documents may be obtained from the Authority upon payment of One Hundred (\$100.00) Dollars for each set, which payment will not be returned. Checks shall be made payable to: Maine Turnpike Authority. The Plans and Contract Documents may also be downloaded from a link on our website at <http://www.maineturnpike.com/project-and-planning/Construction-Contracts.aspx>.

For general information regarding Bidding and Contracting procedures, contact Nate Carll, Purchasing Manager, at (207)482-8115. For information regarding Schedule of Items, plan holders list and bid results, visit our website at <http://www.maineturnpike.com/project-and-planning/Construction-Contracts.aspx>. To submit project specific questions, use the electronic Request for Information (RFI) tab at <https://www.maineturnpike.com/projects/construction-contracts> for Contract 2026.05. Responses will not be prepared for questions received by telephone. Bidders shall not contact any other Authority staff or Consultants for clarification of Contract provisions, and the Authority will not be responsible for any interpretations so obtained.

All work shall be governed by the Specifications entitled "State of Maine, Department of Transportation, Standard Specifications, Revision of November 2014", "Standard Details, Revision of November 2014" and "Best Management Practices for Erosion and Sediment Control", latest issue. Copies and recent updates to these publications can be downloaded at: <http://www.maine.gov/mdot/contractors/publications/> .

Proposals must be accompanied by an original bid bond, certified or cashier's check payable to the Maine Turnpike Authority in an amount not less than Five (5%) Percent of the Total Amount in the Proposal, but not less than \$500.00. The Bidder to whom a Contract is awarded will be required to furnish a Surety Corporation Bond, satisfactory to the Authority, on the standard Contract Bond form of the Authority, for a sum not less than the Total Amount of the Proposal.

Proposals must be made upon the Proposal Forms furnished by the Authority separately with the Contract Documents, and must be enclosed in the sealed special addressed envelope provided therefore bearing the name and address of the Bidder, the name of the Contract, and the date and time of Proposal opening on the outside.

A pre-bid conference will be held on November 18, 2025 at 10:00 a.m. at the Maine Turnpike Authority, 2360 Congress Street, Portland, Maine.

The Authority reserves the unqualified right to reject any or all Proposals and to accept that Proposal which in its sole judgment will under all circumstances serve its best interest.

MAINE TURNPIKE AUTHORITY

Nate Carll
Purchasing Manager
Maine Turnpike Authority

Portland, Maine

Maine Turnpike Authority

MAINE TURNPIKE

PROPOSAL

CONTRACT 2026.05

BRIDGE REPAIRS

BROADTURN ROAD UNDERPASS (MM 39.90)

I-295 SOUTHBOUND UNDERPASS (MM 44.30)

MAINE MALL ROAD UNDERPASS (MM 44.91)

MAINE TURNPIKE AUTHORITY

PROPOSAL

CONTRACT 2026.05

BRIDGE REPAIRS

BROADTURN ROAD UNDERPASS (MM 39.90)

I-295 SOUTHBOUND UNDERPASS (MM 44.30)

MAINE MALL ROAD UNDERPASS (MM 44.91)

TO MAINE TURNPIKE AUTHORITY:

The work consists of bridge repairs at three locations. At the Broadturn Road Underpass in the town of Scarborough, the work generally consists of milling and paving the bridge and local road approaches, concrete haunch removal, pier repair, joint repairs, and concrete sealing. At the I-295 Southbound Underpass in the town of Scarborough, the work generally consists of concrete patch repair to the existing deck fascia and substructure, cleaning and painting of existing bearings, replacing abutment bearings at fascia girders, and miscellaneous superstructure and substructure repairs. At the Maine Mall Road Underpass in the city of South Portland, the work generally consists of milling and paving the bridge and local road approaches, joint repairs, and concrete sealing. The work also includes maintenance of traffic and all other work incidental thereto in accordance with the Plans and Specifications.

This Work will be done under a Contract known as Contract 2026.05 according to the Plans and Specifications which are on file in the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, Maine.

On the acceptance of this Proposal for said Work, the undersigned will give the required bond with good security conditioned for the faithful performance of said Work, according to said Plans and Specifications, and the doing of all other work required by said Specifications for the consideration herein named and with the further condition that the Maine Turnpike Authority shall be saved harmless from any and all damages that might accrue to any person, persons or property by reason of the carrying out of said Work, or any part thereof, or by reason of negligence of the undersigned, or any person or persons under his employment and engaged in said Work.

The undersigned hereby declares that he/she has carefully examined the Plans, Specifications and other Contract Documents, and that he/she will contract to carry out and complete the said Work as specified and delineated at the price per unit of measure for each scheduled item of Work stated in the Schedule of Prices as follows:

It is understood that the TOTAL AMOUNT stated by the undersigned in the following Schedule of Prices is based on approximate quantities and will be used solely for the comparison of bids, and that the quantities stated in the Schedule of Prices for the various items are estimates only and may be increased or decreased all as provided in the Specifications.

SCHEDULE OF BID PRICES
CONTRACT NO. 2026.05
BRIDGE REPAIRS
BROADTURN RIDGE ROAD UNDERPASS (MM 39.90)
I-295 SB UNDERPASS (MM 44.30)
MAINE MALL ROAD UNDERPASS (MM 44.91)

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
202.1211	Removing Existing Girder Haunches	Linear Foot	2050				
202.202	Removing Pavement Surface	Square Yard	5650				
403.2081	Hot Mix Asphalt, 12.5 mm (Polymer/Latex Modified)	Ton	476				
403.209	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (sidewalks, drives, islands & incidentals)	Ton	2				
403.211	Hot Mix Asphalt, Shimming	Ton	89				
409.15	Bituminous Tack Coat RS-1 or RS1h- Applied	Gallon	271				
502.7011	Weep Drain Extensions with Brace	Each	21				
506.14	Field Painting of Existing Structural Steel	Lump Sum	1				
515.201	Pigmented Protective Coating for Concrete Surfaces	Square Yard	660				
515.202	Clear Protective Coating for Concrete Surfaces	Square Yard	1120				
515.203	Broadcast Sealant for Concrete Surfaces	Square Yard	270				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
BROUGHT FORWARD:							
518.10	Abutment Repairs	Square Foot	35				
518.20	Pier Repairs	Square Foot	245				
518.4	Epoxy Injection Crack Repair	Linear Foot	231				
518.43	Parapet Joint Repair	Linear Foot	180				
518.70	Repair of Overhead Surfaces < 8 inches	Square Foot	5				
518.75	Fascia and Overhang Repairs	Square Foot	440				
518.865	Elastomeric Concrete	Cubic Foot	410				
518.866	Concrete Header Repair	Cubic Foot	20				
520.234	Expansion Device - Silicone Coated and Pre-Compressed Seal	Linear Foot	200				
523.521	Bearing Removal and Installation	Each	4				
523.5304	Steel Bearings, Expansion, Rocker	Each	4				
524.40	Protective Shielding - Steel Girders	Square Yard	380				

CARRIED FORWARD:

CONTRACT NO. E029.00

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
BROUGHT FORWARD:							
524.7212	Jacking Existing Superstructure (I-295 Southbound Underpass)	Lump Sum	1				
627.712	White or Yellow Pavement Marking Line	Linear Foot	5350				
627.73	Temporary 6 Inch Pavement Marking Tape	Linear Foot	690				
627.75	White or Yellow Pavement & Curb Marking	Square Foot	71				
627.77	Removing Existing Pavement Marking	Square Foot	620				
627.78	Temporary Pavement Marking Line, White or Yellow	Linear Foot	6050				
627.812	Temporary Raised Pavement Markers	Each	219				
629.05	Hand Labor, Straight Time	Hour	120				
631.10	Air Compressor (including operator)	Hour	120				
631.11	Air Tool (including operator)	Hour	120				
631.112	Welding Machine (including operator)	Hour	80				
631.36	Foreman	Hour	120				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
BROUGHT FORWARD:							
643.72	Temporary Traffic Signal: Broadturn Road	Lump Sum	1				
652.3611	Maintenance of Traffic Control Devices (Broadturn Road)	Lump Sum	1				
652.3612	Maintenance of Traffic Control Devices (I-295 Southbound)	Lump Sum	1				
652.3613	Maintenance of Traffic Control Devices (Maine Mall Road)	Lump Sum	1				
656.75	Temporary Soil Erosion and Water Pollution Control	Lump Sum	1				
659.10	Mobilization	Lump Sum	1				

TOTAL:

Acknowledgment is hereby made of the following Addenda received since issuance of the Plans and Specifications: _____

Accompanying this Proposal is an original bid bond, cashiers or certified check on _____ Bank, for _____, payable to the Maine Turnpike Authority. In case this Proposal shall be accepted by the Maine Turnpike Authority and the undersigned should fail to execute a Contract with, and furnish the security required by the Maine Turnpike Authority as set forth in the Specifications, within the time fixed therein, an amount of money equal to Five (5%) Percent of the Total Amount of the Proposal for the Contract awarded to the undersigned, but not less than \$500.00, obtained out of the original bid bond, cashier's or certified check, shall become the property of the Maine Turnpike Authority; otherwise the check will be returned to the undersigned.

The performance of said Work under this Contract will be completed during the time specified in Subsection 107.1.

It is agreed that time is of the essence of this Contract and that I (we) will, in the event of my (our) failure to complete the Work within the time limit named above, pay to Maine Turnpike Authority liquidated damages in the amount or amounts stated in the Specifications.

The undersigned is an Individual/Partnership/Corporation under the laws of the State of _____, having principal office at _____, thereunto duly authorized.

*Affix Corporate Seal
or Power of Attorney
Where Applicable*

_____ (SEAL)

_____ (SEAL)

_____ (SEAL)

By: _____

Its: _____

Information below to be typed or printed where applicable:

INDIVIDUAL:

_____	_____
(Name)	(Address)

PARTNERSHIP - Name and Address of General Partners:

_____	_____
(Name)	(Address)

_____	_____
(Name)	(Address)

_____	_____
(Name)	(Address)

_____	_____
(Name)	(Address)

INCORPORATED COMPANY:

_____	_____
(President)	(Address)

_____	_____
(Vice-President)	(Address)

_____	_____
(Secretary)	(Address)

_____	_____
(Treasurer)	(Address)

MAINE TURNPIKE AUTHORITY
MAINE TURNPIKE
YORK TO AUGUSTA
CONTRACT AGREEMENT

This Agreement made and entered into between the Maine Turnpike Authority, and sometimes termed the “Authority”, and _____

_____ herein termed the “Contractor”:

WITNESSETH: That the Authority and the Contractor, in consideration of the premises and of the mutual covenants, considerations and agreements herein contained, agree as follows:

FIRST: The parties hereto mutually agree that the documents attached hereto and herein incorporated and made a part hereof collectively evidencing and constituting the entire Contract to the same extent as if herein written in full, are the Notice to Contractors, the Accepted Proposal, the Specifications, the Plans, this Agreement, the Contract Bond and all Addenda to the Contract Documents duly issued and herewith enumerated:

SECOND: The Contractor for and in consideration of certain payments to be made as hereafter specified, hereby covenants and agrees to perform and execute all of the provisions of this Contract and of all documents and parts attached hereto and made a part thereof, and at his own cost and expense to furnish and perform everything necessary and required to construct and complete, ready for its intended purpose, in accordance with the Contract and such instructions as the Engineer may give, acceptable to the Authority, in the times provided, all of the Work covered and included under Contract No. _____ covering _____ as herein described.

THIRD: In consideration of the performance by the Contractor of his covenants and agreements as herein set forth, the Authority hereby covenants and agrees to pay the Contractor according to the Schedule of Prices set forth in the Proposal with additions and deductions as elsewhere herein provided in the times and in the manner stated in the Specifications. This Agreement shall insure to the benefit of, and shall be binding upon the parties hereto, and upon their respective successors and assigns; but neither party hereto shall assign or transfer his interest herein in whole or in part without the consent of the other, except as herein provided.

IN WITNESS WHEREOF the parties to this Agreement have executed the same in quintuplicate.

AUTHORITY -

MAINE TURNPIKE AUTHORITY

By: _____

Title: CHAIRMAN

Date of Signature: _____

ATTEST:

Secretary

CONTRACTOR -

CONTRACTOR

By: _____

Title: _____

Date of Signature: _____

WITNESS:

CONTRACT BOND

KNOW ALL MEN BY THESE PRESENTS that _____
of _____ in the County of _____ and State of _____
as Principal, and _____ a Corporation duly organized under the
laws of the State of _____ and having a usual place of business in _____

As Surety, are held and firmly bound unto the Maine Turnpike Authority in the sum of _____ Dollars (\$_____.____),
to be paid to said Maine Turnpike Authority, or its successors, for which payment, well and truly
to be made, we bind ourselves, our heirs, executors, successors and assigns jointly and severally
by these presents.

The condition of this obligation is such that the Principal, designated as Contractor in the
foregoing Contract No. _____ shall faithfully perform the Contract on his part and
satisfy all claims and demands incurred for the same and shall pay all bills for labor, material,
equipment and all other items contracted for, or used by him, in connection with the Work
contemplated by said Contract, and shall fully reimburse the Obligee for all outlay and expense
which the Obligee may incur in making good any default of said Principal, then this Obligation
shall be null and void; otherwise it shall remain in full force and effect.

Signed and sealed this _____ day of _____, A.D., 201____

Witnesses:

CONTRACTOR

_____	_____ (SEAL)
_____	_____ (SEAL)
_____	_____ (SEAL)

SURETY

_____	_____ (SEAL)
_____	_____ (SEAL)
_____	_____ (SEAL)

(Surety must attach copy of Power of Attorney showing authority of Office or Agent to execute bonds)

FINAL LIEN AND CLAIM WAIVER AND AFFIDAVIT

Upon receipt of the sum of _____, which sum represents the total amount paid, including the current payment for work done and materials supplied for Project No. _____, in _____, Maine, under the undersigned's Contract with the Maine Turnpike Authority.

The undersigned, on oath, states that the Final Payment of _____ is the final payment for all work, labor, materials, services and miscellaneous (all of which are hereinafter referred to as "Work Items") supplied to the said Project through _____ and that no additional sum is claimed by the undersigned respecting said Project.

The undersigned, on oath, states that all persons and firms who supplied Work Items to the undersigned in connection with said Project have been fully paid by the undersigned for such Work Items or that such payment will be fully effected immediately upon receipt of this payment.

In consideration of the payment herewith made, the undersigned does fully and finally release and hold harmless the Maine Turnpike Authority, and its Surety, if any, from any and all claims, liens or right to claim or lien, arising out of this Project under any applicable bond, law or statute.

It is understood that this Affidavit is submitted to assure the Owner and others that all liens and claims relating to the Work Items furnished by the undersigned are paid.

(Contractor)

By: _____

Title: _____

State of MAINE
County of _____

I, _____, hereby certify on behalf of _____
(Company Officer) *(Company Name)*
its _____, being first duly sworn and stated that the foregoing representations are
(Title)
are true and correct upon his own knowledge and that the foregoing is his free act and deed in said capacity
and the free act and deed of the above-named

(Company Name)

The above-named, _____, personally appeared before me this ____ day of _____ and swears that this is his free act and deed.

(SEAL)

Notary Public
My Commission Expires: _____

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART I – SUPPLEMENTAL SPECIFICATIONS

(Rev. November 10, 2016)

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART II – SPECIAL PROVISIONS

PART II - SPECIAL PROVISIONS

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
—	GENERAL DESCRIPTION OF WORK	SP-1
—	PLANS	SP-1
101.2	DEFINITION	SP-1
102.6	BID GUARANTY	SP-2
103.4	NOTICE OF AWARD	SP-2
104.3.8	WAGE RATES AND LABOR LAWS	SP-2
104.4.6	UTILITY COORDINATION	SP-5
104.4.7	COOPERATION WITH OTHER CONTRACTORS	SP-5
105.2.4.2	LEAD PAINT	SP-5
105.8.2	PERMIT REQUIREMENTS	SP-8
105.11	AS-BUILT PLANS	SP-9
105.11.1	AS-BUILT PLAN SUBMITTALS	SP-9
105.11.2	AS-BUILT PLAN REQUIREMENTS	SP-9
107.1	CONTRACT TIME AND CONTRACT COMPLETION DATE	SP-9
107.1.1	SUBSTANTIAL COMPLETION	SP-10
107.4.6	PROSECUTION OF WORK	SP-10
107.4.7	LIMITATIONS OF OPERATIONS	SP-10
108.2.1	GENERATION OF PROGRESS PAYMENTS	SP-11
108.2.3	MOBILIZATION PAYMENT	SP-11
108.3	RETAINAGE	SP-11
202.	REMOVING STRUCTURES AND OBSTRUCTIONS (Removing Existing Girder Haunches)	SP-12

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
202.	REMOVING STRUCTURES AND OBSTRUCTIONS (Removing Pavement Surface) (Removing Existing Pavement Surface)	SP-14
203.	EXCAVATION AND EMBANKMENT	SP-18
206.	STRUCTURAL EXCAVATION	SP-20
401.	HOT MIX ASPHALT PAVEMENT	SP-21
403.	HOT MIX ASPHALT PAVEMENT	SP-46
403.	HOT MIX ASPHALT PAVEMENT	SP-48
409.	BITUMINOUS TACK COAT	SP-50
502.	STRUCTURAL CONCRETE (Weep Drain Extensions with Brace)	SP-52
506.	SHOP APPLIED PROTECTIVE COATING - STEEL (Field Painting of Existing Structural Steel)	SP-54
515.	PROTECTIVE COATING FOR CONCRETE SURFACES (Pigmented Concrete Protective Coating)	SP-58
515.	PROTECTIVE COATING FOR CONCRETE SURFACES (Clear Concrete Protective Coating)	SP-62
515.	PROTECTIVE COATING FOR CONCRETE SURFACES (Broadcast Sealant for Concrete Surfaces)	SP-65
518.	STRUCTURAL CONCRETE REPAIR (Epoxy Injection Crack Repair)	SP-68
518.	STRUCTURAL CONCRETE REPAIR (Parapet Joint Repair)	SP-70
518.	STRUCTURAL CONCRETE REPAIR (Elastomeric Concrete)	SP-71
518.	STRUCTURAL CONCRETE REPAIR (Concrete Header Repair)	SP-73
520.	EXPANSION DEVICES – NON MODULAR (Silicone Coated and Pre-Compressed Seal)	SP-75

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE</u>
523.	BEARINGS (Bearing Removal and Installation)	SP-79
524.	TEMPORARY STRUCTURAL SUPPORTS (Protective Shield – Steel Girders) (Protective Shield – Prestressed Structural Concrete I-Girders) (Protective Shield – Prestressed Structural Concrete Slabs)	SP-81
524.	TEMPORARY STRUCTURAL SUPPORTS (Jacking Existing Superstructure)	SP-84
526.	CONCRETE BARRIER (Temporary Barrier Markers)	SP-87
526.	CONCRETE BARRIER (Temporary Concrete Barrier Type I – Supplied by Authority)	SP-89
527.	ENERGY ABSORBING UNIT (Work Zone Crash Cushion) (Resetting Existing Work Zone Crash Cushion)	SP-92
627.	PAVEMENT MARKINGS (White or Yellow Pavement Marking Line)	SP-94
627.	PAVEMENT MARKINGS (Temporary 6 Inch Pavement Marking Tape) (Temporary 6 Inch Black Pavement Marking Tape)	SP-96
627.	PAVEMENT MARKINGS (Temporary Raised Pavement Markers)	SP-99
631.	EQUIPMENT RENTAL (Welding Machine – Including Operators)	SP-101
643.	TRAFFIC SIGNALS (Temporary Traffic Signal)	SP-102
652.	MAINTENANCE OF TRAFFIC	SP-104
652.	MAINTENANCE OF TRAFFIC (Specific Project Maintenance of Traffic Requirements)	SP-133
719.	SIGNING MATERIAL	SP-136

MAINE TURNPIKE AUTHORITYSPECIFICATIONSPART II - SPECIAL PROVISIONS

All work shall be governed by the Maine Department of Transportation Standard Specifications, Revision of November 2014, except for that work which applies to sections of the Maine Department of Transportation Standard Specifications which are amended by the Maine Turnpike Supplemental Specifications and the following modifications, additions and deletions.

General Description of Work

The work consists of bridge repairs at three locations. At the Broadturn Road Underpass in the town of Scarborough, the work generally consists of milling and paving the bridge and local road approaches, concrete haunch removal, pier repair, joint repairs, and concrete sealing. At the I-295 Southbound Underpass in the town of Scarborough, the work generally consists of concrete patch repair to the existing deck fascia and substructure, cleaning and painting of existing bearings, replacing abutment bearings at fascia girders, and miscellaneous superstructure and substructure repairs. At the Maine Mall Road Underpass in the city of South Portland, the work generally consists of milling and paving the bridge and local road approaches, joint repairs, and concrete sealing. The work also includes maintenance of traffic and all other work incidental thereto in accordance with the Plans and Specifications.

Plans

The drawings included in these Contract Documents, and referred to as the Plans, show the general character of the work to be done under this Contract. They bear the general title “Maine Turnpike – Contract 2026.05 – Bridge Repairs – Broadturn Road Underpass (MM 39.90), I-295 Southbound Underpass (MM 44.30), Maine Mall Road Underpass (MM 44.91)”. The right is reserved by the Resident to make such minor corrections or alterations in the Plans as he deems necessary without change in the unit prices on the Schedule of Prices of the Proposal.

101.2 DefinitionHolidays

The following is added after Memorial Day in the Supplemental Specifications:

Independence Day 2026
(Fourth of July)

12:01 p.m. preceding Thursday to
6:00 a.m. the following Monday.

Indigenous Peoples Day (10/12/26)

12:01 p.m. preceding Friday to 6:00 a.m. the
following Tuesday

102.6 Bid Guaranty

Replace the last paragraph with:

Bid Bonds must be (A) issued by an insurance company licensed or approved by the State of Maine, Department of Business Regulation, Bureau of Insurance, to do business in the State of Maine; and (B) properly signed by the Bidder (as Principal) and duly authorized representative of the insurance company referenced above.

103.4 Notice of Award

The following sentence is added:

The Maine Turnpike Authority Board is scheduled to consider the Contract Award on December 18, 2025.

104.3.8 Wage Rates and Labor Laws

Section 104.3.8 Wage Rates and Labor Laws has been amended as follows:

The fair minimum hourly rates determined by the State of Maine Department of Labor for this Contract are as follows:

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

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

2025 Fair Minimum Wage Rates – Highway & Earth Cumberland County

Occupational Title	Minimum Wage	Minimum Benefit	Total
Brickmasons And Blockmasons	\$36.50	\$3.75	\$40.25
Bulldozer Operator	\$31.50	\$5.48	\$36.98
Carpenter	\$29.16	\$4.31	\$33.47
Cement Masons And Concrete Finisher	\$26.50	\$0.00	\$26.50
Construction And Maintenance Painters	\$32.00	\$0.00	\$32.00
Construction Laborer	\$25.51	\$3.36	\$28.87
Crane And Tower Operators	\$39.07	\$8.73	\$47.80
Crushing Grinding And Polishing Machine Operators	\$27.50	\$5.69	\$33.19
Earth Drillers - Except Oil And Gas	\$22.42	\$4.18	\$26.60
Electrical Power - Line Installer And Repairers	\$43.26	\$16.55	\$59.81
Electricians	\$41.50	\$21.34	\$62.84
Elevator Installers And Repairers	\$71.21	\$43.75	\$114.96
Loading Machine And Dragline Operators	\$28.00	\$4.80	\$32.80
Excavator Operator	\$35.83	\$7.42	\$43.25
Fence Erectors	\$26.00	\$3.70	\$29.70
Flaggers	\$21.00	\$0.48	\$21.48
Floor Layers - Except Carpet/Wood/Hard Tiles	\$26.50	\$3.83	\$30.33
Glaziers	\$46.26	\$22.61	\$68.87
Grader/Scraper Operator	\$31.00	\$6.86	\$37.86
Hazardous Materials Removal Workers	\$21.13	\$1.14	\$22.27
Heating And Air Conditioning And Refrigeration Mechanics And Installers	\$35.00	\$5.49	\$40.49
Heavy And Tractor - Trailer Truck Drivers	\$26.50	\$5.42	\$31.92
Highway Maintenance Workers	\$24.75	\$2.91	\$27.66
Industrial Machinery Mechanics	\$29.50	\$3.83	\$33.33
Industrial Truck And Tractor Operators	\$26.17	\$3.49	\$29.66
Insulation Worker – Mechanical	\$25.50	\$6.07	\$31.57
Ironworker – Ornamental	\$31.37	\$25.82	\$57.19
Light Truck Or Delivery Services Drivers	\$22.50	\$3.93	\$26.43
Millwrights	\$33.00	\$9.21	\$42.21
Mobile Heavy Equipment Mechanics - Except Engines	\$30.00	\$5.19	\$35.19
Operating Engineers And Other Equipment Operators	\$36.84	\$4.82	\$41.66
Paving Surfacing And Tamping Equipment Operators	\$29.75	\$5.24	\$34.99
Pile-Driver Operators	\$36.00	\$2.87	\$38.87
Pipe/Steam/Sprinkler Fitter	\$36.00	\$9.30	\$45.30
Pipelayers	\$27.00	\$5.34	\$32.34
Plumbers	\$33.00	\$5.98	\$38.98
Pump Operators - Except Wellhead Pumpers	\$56.03	\$34.76	\$90.79
Radio Cellular And Tower Equipment Installers	\$30.00	\$4.85	\$34.85
Reinforcing Iron And Rebar Workers	\$31.00	\$0.00	\$31.00
Riggers	\$30.50	\$8.25	\$38.75
Roofers	\$24.67	\$4.23	\$28.90
Sheet Metal Workers	\$27.00	\$6.21	\$33.21
Structural Iron And Steel Workers	\$32.02	\$11.13	\$43.15
Tapers	\$28.50	\$3.93	\$32.43
Telecommunications Equipment Installers And Repairers - Except Line Installers	\$31.00	\$5.43	\$36.43
Telecommunications Line Installers And Repairers	\$27.00	\$3.71	\$30.71

Welders are classified as the trade to which welding is incidental (e.g. welding structural steel is Structural Iron and Steel Worker)

Apprentices – The minimum wage rates for registered apprentices are the rates recognized in the sponsorship agreement for registered apprentices working in the pertinent classification.

For any other specific trade on this project not listed above, contact the Bureau of Labor Standards for further clarification.

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

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

A true copy

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

Expiration Date: 12-31-2025

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

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

2025 Fair Minimum Wage Rates – Heavy & Bridge Cumberland County

Occupational Title	Minimum Wage	Minimum Benefit	Total
Brickmasons And Blockmasons	\$31.00	\$6.52	\$37.52
Bulldozer Operator	\$32.68	\$5.28	\$37.96
Carpenter	\$30.78	\$4.43	\$35.21
Cement Masons And Concrete Finisher	\$24.35	\$15.65	\$40.00
Construction And Maintenance Painters	\$45.01	\$26.14	\$71.15
Construction Laborer	\$27.00	\$4.94	\$31.94
Crane And Tower Operators	\$44.07	\$6.92	\$50.99
Crushing Grinding And Polishing Machine Operators	\$27.50	\$5.64	\$33.14
Earth Drillers - Except Oil And Gas	\$22.42	\$4.18	\$26.60
Electrical Power - Line Installer And Repairers	\$53.13	\$21.58	\$74.71
Electricians	\$32.00	\$8.91	\$40.91
Elevator Installers And Repairers	\$71.21	\$43.75	\$114.96
Excavator Operator	\$37.88	\$6.67	\$44.55
Fence Erectors	\$22.00	\$2.06	\$24.06
Flaggers	\$21.50	\$0.54	\$22.04
Floor Layers - Except Carpet/Wood/Hard Tiles	\$26.50	\$3.83	\$30.33
Glaziers	\$46.26	\$22.61	\$68.87
Grader/Scraper Operator	\$31.00	\$6.86	\$37.86
Hazardous Materials Removal Workers	\$21.13	\$1.14	\$22.27
Heating And Air Conditioning And Refrigeration Mechanics And Installers	\$35.00	\$5.49	\$40.49
Heavy And Tractor - Trailer Truck Drivers	\$29.75	\$2.52	\$32.27
Highway Maintenance Workers	\$22.85	\$4.79	\$27.64
Industrial Machinery Mechanics	\$29.50	\$3.83	\$33.33
Industrial Truck And Tractor Operators	\$26.17	\$3.49	\$29.66
Insulation Worker - Mechanical	\$25.50	\$6.07	\$31.57
Ironworker - Ornamental	\$31.37	\$25.82	\$57.19
Light Truck Or Delivery Services Drivers	\$28.00	\$3.95	\$31.95
Loading Machine And Dragline Operators	\$34.63	\$4.94	\$39.57
Millwrights	\$34.50	\$7.70	\$42.20
Mobile Heavy Equipment Mechanics - Except Engines	\$42.50	\$4.04	\$46.54
Operating Engineers And Other Equipment Operators	\$41.25	\$8.91	\$50.16
Paving Surfacing And Tamping Equipment Operators	\$28.00	\$5.04	\$33.04
Pile-Driver Operators	\$36.00	\$2.87	\$38.87
Pipe/Steam/Sprinkler Fitter	\$33.25	\$8.37	\$41.62
Pipelayers	\$27.48	\$4.72	\$32.20
Plumbers	\$35.00	\$4.47	\$39.47
Pump Operators - Except Wellhead Pumpers	\$56.03	\$34.76	\$90.79
Radio Cellular And Tower Equipment Installers	\$30.00	\$4.85	\$34.85
Reinforcing Iron And Rebar Workers	\$31.95	\$25.00	\$56.95
Riggers	\$30.50	\$8.25	\$38.75
Roofers	\$24.67	\$4.23	\$28.90
Sheet Metal Workers	\$27.00	\$6.21	\$33.21
Structural Iron And Steel Workers	\$31.50	\$20.09	\$51.59
Tapers	\$28.50	\$3.93	\$32.43
Telecommunications Equipment Installers And Repairers - Except Line Installers	\$29.00	\$5.43	\$34.43
Telecommunications Line Installers And Repairers	\$28.00	\$1.84	\$29.84

Welders are classified as the trade to which welding is incidental (e.g. welding structural steel is Structural Iron and Steel Worker)

Apprentices – The minimum wage rates for registered apprentices are the rates recognized in the sponsorship agreement for registered apprentices working in the pertinent classification.

For any other specific trade on this project not listed above, contact the Bureau of Labor Standards for further clarification.

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

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

A true copy

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

Expiration Date: 12-31-2025
Revision Date: 2-3-2025

104.4.6 Utility Coordination

This Subsection is amended by the addition of the following:

There are no anticipated utilities within the Project limits that will be impacted. However, the Contractor shall locate and record any utilities in accordance with the Utilities Notes shown on Sheet 3 of the Contract Plans.

The following Subsection is added:

104.4.7 Cooperation With Other Contractors

This Subsection is amended by the addition of the following:

Adjacent contracts currently scheduled for the 2026 construction season include:

MTA Contract 2025.16 – Widened Concrete Haunch Removals and Bridge Mounted Sign Relocation (MM 1.5 to MM 44.0)

MTA Contract 2026.12 – Culvert Repairs – MM 45.9, MM 57.1, and MM 91.2

The following Subsection is added:

105.2.4.2 Lead Paint

The Contractor shall note that the existing bridge structures may contain lead based paint. The Contractor shall institute every precaution when working with materials coated with lead based paints.

Lead Paint Removal

The Contractor is required to remove and dispose of lead based paint and paint residue before cutting, grinding, drilling and sandblasting existing materials in preparation of completing the work except as provided under the Drilling of Lead Based Paint subsection in this Special Provision. All lead based paint and paint residue shall be removed, handled, stored and disposed of in conformance with all local, State and Federal laws and regulations governing lead based paint. The Contractor may use his own properly trained employees to abate the lead based paint in accordance with applicable regulations and requirements; or he may hire a licensed lead abatement subcontractor to abate the lead based paint in accordance with applicable regulations and requirements.

The Contractor, or licensed lead abatement subcontractor, shall submit a Project specific Health and Safety (OSHA) Plan and a Hazardous Waste Management Plan (EPA/DEP) a minimum of two (2) weeks prior to undertaking the removal of lead based paint.

Drilling of Lead Based Paint

The Contractor may drill lead based painted steel, without lead based paint removal, provided the Contractor collects and recycles the drill cuttings at a licensed metal recycling facility. If the Contractor chooses not to collect and recycle the drill cuttings at a licensed metal recycling facility he will be required to abate the area where drilling is to occur in full accordance with the lead based paint removal, storage and disposal requirement of this Special Provision.

The Authority will require a signed statement from the Contractor stating the drill cuttings were collected and recycled at a licensed metal recycling facility and the name the recycling facility.

Health and Safety Plan

The Health and Safety Plan submittal shall describe how the Contractor/licensed lead abatement subcontractor intends to remove the lead based paints; and shall outline how the Contractor/licensed lead abatement subcontractor will adhere to all Federal, State and local ordinances which govern worker (including authorized representatives of the Authority) exposure to lead based paints, and ensure the safety of the workers performing lead removal. Copies of current worker training certificates (OSHA), medical screenings, and respirator fit up shall be included in the submittal.

Hazardous Waste Management Plan

The Hazardous Waste Management Plan submittal shall describe how the Contractor/licensed lead abatement subcontractor intends to manage the hazardous waste that will be generated, temporarily accumulated, stored, transported off-site and disposed; adhere to ordinances associated with the management of hazardous wastes; and ensure protection of the environment.

The Hazardous Waste Management Plan shall:

- Be signed by the Contractor;
- State whether Contractor or licensed lead abatement subcontractor will be undertaking the work; and,
- State whether abated lead materials will be accumulated and stored on-site (required if Contractor is not licensed by DEP/EPA to transport and temporarily store lead based hazardous waste), or be removed in HEPA vacuums daily to the removal Contractor's licensed waste storage facility (permitted only if Contractor is licensed by DEP/EPA to transport and temporarily store lead based hazardous waste).

If abated lead materials are to be accumulated and stored on-site, the Hazardous Waste Management Plan shall include (at a minimum) the following:

- Container size and labeling standards:
 - Containers must be 55 gallons or less
 - Containers must have the labeled "HAZARDOUS WASTE"

- Accumulation requirements:
 - Labels will include accumulation start date and container full date
 - On-site storage will not exceed 180 days from full date
 - Total on-site storage shall not exceed 55 gallons or 220 pounds
- Inspections (including frequency and checklist):
 - Inspections shall be performed each day the Contractor works
 - Inspection checklist shall be similar to MaineDEP format (Refer to Appendix A1 of MaineDEP Handbook for Hazardous Waste Generators – January 2008)
- Transport and DOT “pre-transport requirements”:
 - Specify the licensed hazardous waste transporter to be used
 - Obtain Generator’s EPA ID No. (typically a provisional ID # is obtained through the licensed hazardous waste transporter)
 - USDOT – approved containers must be used for shipment
 - Schedule MTA for signing Hazard Waste Manifest
- Recordkeeping requirements:
 - Describe where at the jobsite the required records (e.g., inspection logs, training records, Lead Determination report/hazardous waste characterization, etc.) will be maintained
 - Describe how and when copies of the required documents specified above will be transferred to the MTA Environmental Services Coordinator’s office

The Contractor/licensed lead abatement subcontractor, shall provide documentation to the MTA that the employees who will be removing, handling, managing and/or directly supervising the hazardous waste operations have received required Resource Conservation and Recovery Act (RCRA) hazardous waste management training, and all training is current.

The lead based hazardous waste must remain on-site, unless the removal is being performed by a licensed lead abatement subcontractor that collects the paint residue in HEPA vacuums and is licensed by DEP/EPA to transport and temporarily store lead based hazardous waste at the removal Contractor’s licensed waste storage facility. Both on-site and licensed off-site lead based hazardous waste storage facilities require secure storage and daily inspection of the stored waste.

If the removal Contractor is not licensed by DEP/EPA to transport and temporarily store lead based hazardous waste off-site, then an EPA licensed Hazardous Waste transporter(s) shall be used to remove hazardous waste from the site. All removal and disposal documentation will be required when the hazardous waste leaves the site. As the Generator, only the Authority’s Environmental Services Coordinator or his trained designee shall sign waste manifests when material is removed from the Project site.

The removal, storage, handling, transporting, and disposal of lead based paint and lead based paint residue will not be measured separately for payment, but shall be incidental to the various Contract work items.

105.8.2 Permit Requirements

The Project is subject to the Stormwater Memorandum of Agreement for Stormwater Management Between the Maine Department of Transportation, Maine Turnpike Authority, and Maine Department of Environmental Protection (Stormwater MOA). Under the Stormwater MOA, all MTA construction, operation, and maintenance activities are subject to Maine Stormwater Law Basic Standards through implementation of MaineDOT's Best Management Practices for Erosion and Sedimentation Control (MaineDOT BMP Manual), which are the Contractor's responsibility to implement.

The Contractor shall prepare a limits of disturbance plan (LOD) illustrating the Contractor's proposed limit of earthwork disturbance. The LOD plan shall show all construction access locations, field office locations, material and temporary waste storage locations, as well as include the Contract limits of earthwork disturbance. All applicable erosion and sedimentation control devices needed shall be detailed on the Contractor's LOD plan and are not limited to those devices shown on the Contract LOD plan. **This Plan shall be submitted for review and approval, to the Resident within 14 days of Contract award.** Payment for creating, revising, and completing this plan shall be incidental to Item 659.10, Mobilization.

The LOD for this Contract has been estimated to be 0.3 acres.

If at any time during the Contract, the Limit of Disturbance needs to be adjusted to accommodate construction activities, the Contractor shall resubmit the LOD plan (including any additional erosion and sedimentation control measures needed) to the Resident for review and approval prior to any additional disturbance taking place:

- If the cumulative area of disturbance is less than one acre, the Resident shall have a minimum of five (5) working days to approve the revised LOD plan.
- If the cumulative area of disturbance exceeds one acre, the Resident shall first approve of the plan and then possibly submit a MCGP NOI for Maine DEP approval. The approval may take a minimum of 14 working days once submitted to Maine DEP.

Compliance with the erosion and sedimentation control requirements outlined in this Contract is required by the Contractor.

The Contractor shall comply with the Maine Erosion and Sedimentation Control Law, and, as applicable to the proposed scope of work, the Maine Pollutant Discharge Elimination System General Permit for stormwater discharge associated with construction activity. The Contractor shall indemnify and hold harmless the Maine Turnpike Authority or its agents, representatives and employees against any and all claims, liabilities or fines arising from or based on the violation of the above noted permits.

This Project is also subject to the requirements of the Maine Pollutant Discharge and Elimination System (MPDES) General Permit for the Discharge of Stormwater from MTA's Municipal Separate Storm Sewer Systems (MS4), because it is located within an Urbanized Area (UA) as defined by the 2000 census by the U.S. Bureau of the Census. MS4 compliance requires all Contractors to be properly trained in Erosion and Sedimentation Control (ESC) measures (as

per Special Provision Subsections 105.8.1 and 656.07) and implement measures to reduce pollutants in stormwater runoff from construction activities.

105.11 As-Built Plans

The Contractor shall provide the Authority with as-built plans in PDF and MicroStation or AutoCAD. The as-built plans shall note changes to the bid documents, including, but not limited to pavement, concrete, barrier, guardrail, culverts, drainage, foundations, wiring, signs, etc. The as-built plans shall also provide GPS accurate locations of all underground work. Submittal of Draft, Final Draft, and 100% as-built plans to the Resident shall be conditions of Mobilization Payment, Retainage Reduction, and Final Payment as noted in Special Provision 108.

105.11.1 As-Built Plan Submittals

The Contractor shall make the following submittals of as-built plans to the Resident as part of the conditions of Mobilization Payment, Retainage Reduction, and Final Payment as noted in Special Provision 108:

- a. Draft As-built Plans containing any underground work completed within the prior 30 day period once 50% of the Work is complete.
- b. Final Draft As-Built Plans containing all underground work
- c. 100% As-Built Plans containing all underground work and changes

105.11.2 As Built Plan Requirements

As-built plans and CADD files shall conform to the following requirements:

- a. Include legend of line weights and styles
- b. Project stationing shall be on its own layer and be color white
- c. Changes to pavement, concrete, barrier, guardrail, foundations, signs etc. shall be on their own layer and be color brown
- d. Electric power lines, cable, conduit, and lighting cables shall be on their own layer and be color red
- e. Gas, oil, steam, petroleum, or gaseous materials shall be on their own layer and be color yellow
- f. Communication, alarm or signal lines, cables, or conduit shall be on their own level and be color orange
- g. Potable water shall be on its own layer and be color blue
- h. Sewers and drain lines shall be on their own layer and be color green
- i. Reclaimed water, irrigation, and slurry lines shall be on their own level and be color purple

107.1 Contract Time and Contract Completion Date

This Subsection is amended by the addition of the following:

At all bridge locations:

- All work shall be substantially complete by October 30, 2026. Supplemental Liquidated Damages on a calendar day basis in accordance with Subsection 107.8 shall be assessed for each calendar day that substantial completion is not achieved.
- All work shall be completed on or before November 20, 2026.

107.1.1 Substantial Completion

This Subsection is amended by the addition of the following:

Substantially complete shall be defined by the Authority as the following:

- All bridge repair work at all locations required by the Contract that requires shoulder and/or lane closures.
- All roads fully opened to traffic including shoulders and surface pavement and pavement markings.

Supplemental Liquidated damages on a calendar day basis in accordance with Subsection 107.8 shall be assessed for each calendar day that substantial completion is not achieved.

107.4.6 Prosecution of Work

The Contractor shall submit to the Authority a construction schedule which shall document that the Contractor has the necessary labor and equipment to work immediately and continuously at the project site once the bridge is closed. The intent of this specification is to minimize the amount of time for bridge closure, while providing the Contractor sufficient time to complete the work in a diligent manner and reopen the bridge as prescribed by the project's Substantial Completion date.

The following restrictions shall be applied to the work at the Broadturn Road Underpass:

- The Contractor shall close each lane on Broadturn Road Underpass for a maximum of fifteen (15) consecutive calendar days. Supplemental liquidated damages on a calendar day basis in accordance with Subsection 107.8 shall be assessed for each calendar day that the bridge is closed in excess of fifteen (15) consecutive calendar days.

107.4.7 Limitations of Operations

Once the surface pavement of the Broadturn Road Underpass or Maine Mall Road Underpass is milled, it shall be paved for a minimum of 25 ft beyond each joint of the bridge within fourteen calendar days. For each calendar day beyond the fourteen days that the bridge and approaches paving is not complete, the Contractor will be charged a fee in the amount of \$500.

Temporary bituminous ramps will be required at the end of each milled lane.

Traffic will be allowed to traverse the longitudinal joint where pavement is lower in one lane than the adjacent lane.

All roadway lanes and driveways shall remain open at all times and in accordance with the restrictions of Special Provision 652 unless otherwise noted herein or approved by the Authority.

The Contractor shall progress the work in a manner that minimizes disruption to the public to the extent practical.

At the I-295 Southbound Underpass, the Contractor may use the existing Emergency Vehicle Ramp (EVR) to access the bridge. If the Contractor uses the EVR, they shall utilize an adjacent lane closures for the deceleration and acceleration onto the EVR. The EVR shall be open and available for MTA and Emergency Vehicle use at all times.

108.2.1 Generation of Progress Payments

The Authority will estimate the amount of Work performed at least monthly and make payment based upon such estimates. Estimates may be paid bimonthly (twice-a-month) if the bimonthly (twice-a-month) invoices exceed \$100,000. No such estimates or payment will be made if, in the judgment of the Authority, the Work is not proceeding in accordance with the provisions of the Contract. The Contractor agrees to waive all claims related to the timing and amount of such estimates.

108.2.3 Mobilization Payment

The second paragraph is deleted in its entirety and replaced with the following:

Upon approval of all pre-construction submittals required for approval by this Contract, including those listed in Section 104.4.2 – Preconstruction Conference, the Contractor will receive payment of 50% of the Lump Sum price for Mobilization, not to exceed 5% of the Bid less the amount bid for Mobilization. After the Authority determines that the Work is 50% complete and the Contractor has submitted a Draft (50%) as-built submittal of all underground work to date (within the prior 30 day pay period) as defined in Special Provision 105., the Contractor will receive the other 50% of the Lump Sum price for Mobilization, not to exceed 5% of the Bid less the amount bid for Mobilization. Any remaining Mobilization will be at the completion of physical work.

108.3 Retainage

The seventh paragraph is deleted in its entirety and replaced with the following:

When requested by the Contractor, an 80 percent reduction of retainage will be considered by the Authority when the Project is substantially complete and the Contractor has submitted a Final Draft (98%) as-built submittal of all underground work, in accordance with Special Provision 105. When requesting a reduction, the Contractor shall include an explanation of the outstanding Work, an estimate of the cost to complete the Work, and a schedule for completing the Work. Seasonal limitations as well as warranty and establishment periods (for vegetation) shall be addressed.

SPECIAL PROVISION

SECTION 202

REMOVING STRUCTURES AND OBSTRUCTIONS

(Removing Existing Girder Haunches)

202.03 Description

The following paragraphs are added:

The work shall also include removing the existing girder haunches at the locations shown on the Plans and as directed by the Resident.

Removing existing girder haunches shall consist of removing and properly disposing of concrete haunches as shown on the plans and shall be accomplished without damage to the portion of the existing structure to remain. The Contractor shall submit a girder haunch removal plan to the Resident for approval. The girder haunch removal plan shall describe the removal procedure, type and size of equipment, containment methods and disposal.

The existing girder haunches shall be removed using pneumatic chipping hammers of a size approved by the Resident, or other methods approved by the Resident. The Contractor shall remove the haunch to an approximate 45-degree angle, as shown in the Plans. The Contractor is not required to grind the removal line to a smooth finish.

The Contractor shall coat all newly exposed areas of concrete with a Type 1c penetrating silane concrete sealer, in accordance with Standard Specification Section 515.

202.07 Method of Measurement

The following paragraph is added:

Removing Existing Girder Haunches will be measured for payment by the linear foot of haunch removed on each side of a girder. The removal of the haunch on each side of a girder top flange will be measured separately for payment.

202.08 Basis of Payment

Removing Existing Girder Haunches will be paid for at the contract unit price per linear foot complete, accepted and disposed of. The payment will be full compensation for furnishing all materials, labor, equipment, access, and for all incidentals necessary to complete the work, including coating all newly exposed areas of concrete.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
202.1211 Removing Existing Girder Haunches	Linear Foot

SPECIAL PROVISION

SECTION 202

REMOVING STRUCTURES AND OBSTRUCTIONS

(Removing Pavement Surface)
(Removing Existing Pavement Surface)

202.01 Description

The following sentences are added:

This work shall also consist of removing the surface of the bituminous concrete pavement in all locations to the depth, width, grade, and cross section on the mainline as shown on the Plans or as directed by the Resident.

Removal of the pavement and membrane surface from the bridge decks shall be completed by scraping or other methods that will not damage the existing concrete deck surface. Milling of bridge deck pavement shall not be allowed.

Removal of approach pavement shall be completed using a milling machine meeting the requirements in the first two paragraphs of section 202.061.

Areas requiring shim pavement to reach final pavement grade shall not be milled.

This work shall also consist of construction of temporary ramps at all butt joints as shown in the MaineDOT Standard Details, November 2014 Edition – Pavement Overlay Butt Joint Detail (Roadways), Page 202(01) or as approved by the Resident. The length of the temporary ramp shall be at least 1/2 L.

The following subsection is added:

202.032 Removing Bridge Pavement Surface and Membrane

All bridge deck pavement, membrane and scrapings shall be disposed of by the Contractor off of the turnpike right-of-way in accordance with the Maine Department of Environmental Protection Solid Waste Management Requirements.

The following paragraph is added:

Extreme care shall be taken to avoid damaging the existing concrete or bituminous pavement intended to remain. All existing bituminous pavement and bridge deck concrete, intended to remain, damaged by the Contractor's removal operations shall be repaired by the Contractor as approved by the Resident at no additional cost to the Authority.

202.061 Removing Pavement Surface

This Subsection is deleted and replaced with the following:

The equipment for removing the bituminous surface, excluding bridge decks, shall be a power-operated milling machine or grinder capable of removing the bituminous concrete pavement to the required depth, transverse cross slope, and profile grade using an automated grade and slope control system. The controls shall automatically increase or decrease the pavement removal depth as required, and readily maintain desired cross slope to compensate for surface irregularities in the existing pavement course. The milling machine shall accurately establish profile grades by referencing from a fixed point such as a 30-foot minimum contact ski (floating beam), 24-foot non-contact ski (floating beam) with 3 or more sensors; or 3 non-contact sensors directly affixed to the fore, mid, and aft points of the milling machine. Systems designed to incorporate a contact sensor located at the mid-point of the milling machine in lieu of a non-contact sensor in conjunction with non-contact sensors at the fore and aft points will be permitted. Grade control sensors shall all be located on the same side. A single sensor, contact or otherwise, shall not be permitted. A copy of the automation operations manual shall be provided to the resident upon request. The equipment shall also have an effective means for removing excess material from the surface and preventing flying material in compliance with Subsections 105.2.5 Compliance with Health and Safety Laws and 105.2.6 Convenience of the Public, of the Specification.

The rotary drum on the machine shall be a minimum of 7 feet in width and utilize carbide tipped tools at a maximum 8mm tooth spacing pattern and a minimum triple wrap configuration. The difference in height from the top of any ridge to the bottom of the groove adjacent to that ridge shall not exceed $\frac{1}{4}$ inch. The carbide tipped tools on the rotary drum shall be continually maintained and shall be replaced as warranted to provide a uniform milled pavement texture. The forward operating speed shall be limited to a maximum speed of 50 feet per minute (fpm). The limited speed is not to be calculated on an average basis over time but shall be the actual limitation at any moment during the milling operation.

The track pads that the machine travel on shall all be of a uniform thickness equal to or exceeding the manufacturers recommendations. A copy of the manufacturer's recommendations shall be provided to the resident upon request.

The Contractor shall locate, identify and remove all objects in the pavement through the work area that would be detrimental to the milling machine.

The Contractor shall be responsible for the layout of the longitudinal centerline along the crown line. The contractor shall layout the site prior to any milling. Layout shall be achieved by physical measurements obtained every 50' along the length to be milled from a fixed reference point. The contractor shall transfer the measurements to the pavement surface every 50' and apply a paint mark at each location. The marks shall then be connected by a smoothed string line and subsequent paint marks applied along the string at no greater than 10' intervals. The Resident will inspect the layout line before milling activities may begin.

The finished milled surface will be inspected before being accepted, and any deviations in the profile exceeding $\frac{3}{8}$ inch under a 16-foot string line or straightedge placed parallel to the

centerline will be corrected. Any deviations in the cross slope that exceed 3/8 inch under a 12-foot string line or straightedge placed transversely to the centerline will be corrected. In no case shall the cross slope in a single lane width be inverted resulting in a depression as measured transverse to the direction of travel. Any cross slope inversions or depressions shall be corrected by spot shimming the area with HMA as directed by the resident prior to installing any leveling or wearing course. Any areas requiring corrections will be subject to the same acceptable surface tolerances. These corrections shall be done with no additional expense to the Authority. Excess material that becomes bonded to the milled surface shall be removed to the Resident's satisfaction before the area is accepted.

If a milled safety wedge is required by the contract, it shall not be removed any sooner than 24 hours prior to paving. In no case will a vertical milled edge be permitted over a weekend or holiday. The contractor shall schedule the wedge removal accordingly.

The Contractor shall deliver the cubic yards of pavement grindings as specified below to the following Maintenance Facilities. The exact location of the stockpile shall be as directed by the Resident.

<u>Name of Facility</u>	<u>Mile Marker</u>	<u>Cubic Yards</u>
None		

All surplus pavement grindings, except for the amount specified above, shall be disposed of by the Contractor off the turnpike right-of-way. All grindings shall be disposed of in accordance with the Maine Department of Environmental Protection Solid Waste Management Requirements.

202.07 Method of Measurement

The removal of existing bituminous concrete pavement – mainline will be measured by the square yard of material removed to the required depth.

The following sentences are added:

Transporting and stockpiling of the pavement grindings at the maintenance facilities will not be measured separately for payment, but shall be incidental to the Removing Pavement Surface items.

Installation of temporary bituminous ramps will not be measured separately for payment, but shall be incidental to the Contract.

Removal of temporary bituminous ramps will not be measured separately for payment, but shall be incidental to the Contract.

Installation of and removal of longitudinal safety wedges will not be measured separately for payment, but shall be incidental to the Contract.

202.08 Basis of Payment

Removing Pavement Surface – Mainline will be paid for at unit price per square yard which price shall be full compensation for removing and disposing of the bituminous and gravel materials.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
202.202 Removing Pavement Surface	Square Yard

SPECIAL PROVISION

SECTION 203

EXCAVATION AND EMBANKMENT

203.01 Description

The following paragraph is added:

This work shall consist of cutting, removing and disposing of the full depth of existing bituminous concrete pavement at the approaches to the bridge structures within the limits of work as shown on the Plans or as approved by the Resident. The pavement shall be sawcut to the full depth of pavement at the limits of the excavation to provide a clean, vertical cut surface.

203.04 General

The following sentence is added to the end of the third paragraph.

There are no approved waste storage areas or waste areas within the Project limits unless shown on the Plans. Unsuitable materials shall be disposed of off-site in accordance with Subsection 203.06.

All excavations shall be accomplished in accordance with the applicable OSHA Standards. The Resident reserves the right to request the Contractor to prepare an excavation plan. This plan shall include, but not necessarily be limited to, the limit and depth of excavation, side slope, shoring, trench box and utility support.

203.10 Embankment Construction - General

The thirteenth and fourteenth paragraphs are deleted and replaced with the following:

All portions of the embankment shall be compacted in accordance with the designated embankment compaction requirements specified for the Project.

The existing slopes shall be benched as shown on the drawings prior to placing additional fill. Embankment fill shall be placed in lifts which extend laterally beyond the limits of the design side slopes such that the specified degree of compaction is achieved within the limits of the completed embankment. The slopes should then be trimmed back to design dimensions.

203.16 Winter Construction of Embankments

The word “core” is deleted from the first and second sentences in the first paragraph.

203.18 Method of Measurement

The following paragraphs are added:

There will be no additional payment for the required excavation plan, and costs shall be incidental to the Excavation items.

SPECIAL PROVISION

SECTION 206

STRUCTURAL EXCAVATION

206.02 Construction Methods

The following paragraphs are added:

There are no approved waste storage areas or waste areas within the Project limits. Unsuitable materials shall be disposed of off-site in accordance with Subsection 203.06.

SPECIAL PROVISIONSECTION 401HOT MIX ASPHALT PAVEMENT

Section 401 of the Maine Turnpike Authority 2016 Supplemental Specifications is deleted in its entirety and replaced with the following:

401.01 Description

The Contractor shall furnish and place one or more courses of Hot Mix Asphalt Pavement (HMA) on an approved base in accordance with the Contract documents and in reasonably close conformity with the lines, grades, thickness, and typical cross sections as shown on the Plans or established by the Resident. The Authority will accept this work under Quality Assurance provisions, in accordance with these Specifications and the requirements of Section 106, Quality, the provisions of AASHTO M 323, except where otherwise noted in Section 401 of these Specifications, and the MaineDOT Policies and Procedures for HMA Sampling and Testing. A Quality Control Plan (QCP) is required.

401.02 Materials

Aggregates for HMA Pavements Coarse Aggregate and fine aggregate for HMA pavements shall be graded such that when combined in the proper proportions, including filler if required, the resultant blend will meet the composition of mixture for the type of pavement specified. Materials shall meet the requirements specified in Section 700 – Materials:

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

Mainline Surface HMA Coarse aggregate: Each individual aggregate stockpile shall conform to the following requirements. The material retained on the No. 4 sieve, shall consist of angular fragments obtained from crushed quarry stone and be free of dirt or other objectionable materials. Coarse aggregate shall have a Micro-Deval value of 15.0 percent or less as determined by AASHTO T 327. The crushed stone shall have a maximum of 1.5% material finer than the No. 200 mesh when tested in accordance with AASHTO T-11. Flat and elongated particles shall not exceed a maximum of 8% at a 5:1 ratio in accordance with ASTM D-4791. Coarse aggregate angularity shall be a minimum of 95/90 in accordance with AASHTO T-335.

Mainline Surface HMA Fine aggregate: Each individual aggregate stockpile shall conform to the following requirements. The material passing the No. 4 sieve, shall be crushed manufactured sand free from dirt, clay balls, or other objectionable material. Natural sand may be incorporated into the mix at a rate no greater than 10 percent by weight of total aggregate. The unconfined void content of the fine aggregate, excluding natural sand, shall be a 45 minimum value when tested in accordance with AASHTO T-304, method A. AASHTO T-176 sand equivalent value shall be 45

minimum. The fine aggregate, excluding RAP, shall have a Micro-Deval of 15.0 percent or less when tested in accordance with ASTM D-7428.

Each individual stockpile for both coarse and fine aggregates shall be completely separated from any other stockpile and be constructed such that the material is visually homogenous and maintains consistent consensus quality test results. A documented testing program and records of all test results shall be maintained for all materials and subject to inspection by the Authority.

Asphalt Low Modulus Joint Sealer: Asphalt Low Modulus Joint Sealer shall be a modified asphalt and rubber compound designed for sealing and improving the strength and performance of the base asphalt cement and shall conform to ASTM D6690 **Type II or IV, as noted in the plans**, and the following specifications:

	Type II	Type IV
Cone Penetration	90 max.	90-150
Flow @ 60°C [140°F]		3.0mm [1/8 in] max
Bond, non-immersed	Three 12.5 mm [½ in] specimens pass 3 cycles @ 50% extension @ -29°C [-20°F]	Three 12.5 mm [½ in] specimens pass 3 cycles @ 200% extension @ -29°C [-20°F]
Resilience, %	60 min	60 min
Asphalt Compatibility, ASTM D5329	pass*	pass*

* There shall be no failure in adhesion, formation of any oily exudate at the interface between the sealant and asphaltic concrete or other deleterious effects on the asphaltic concrete or sealant when tested at 60°C [140°F].

The contractor shall provide the Resident or authorized representative with a copy of the material manufacturer's recommendations pertaining to heating, application, and reheating prior to the beginning of operations or the changing of materials.

401.021 Recycled Asphalt Materials

Recycled Asphalt Pavement (RAP) may be introduced into the mixture at percentages approved by the Authority. If approved by the Authority, the Contractor shall provide documentation stating the source, average 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 Authority will obtain samples for verification and approval prior to its use.

In the event that RAP source or properties change, the Contractor shall notify the Authority of the change and submit new documentation stating the new source or properties. A plant produced test batch meeting all requirements including Hamburg Wheel Tracker results.

RAP shall meet the following requirements:

Classification	Asphalt Content Standard Deviation	% Passing #200 Sieve Standard Deviation	% Passing #200 Sieve / Asphalt Content Ratio	Residual Aggregate Micro Deval Loss Value
Class II	≤ 0.5	≤ 1.0	≤ 2.8	≤ 18.0
Class I	≤ 0.3	≤ 0.5	≤ 1.8	≤ 18.0

401.03 Composition of Mixtures

HMA pavement mixtures for base, intermediate, shim and local road bridge projects shall be a currently approved MDOT design unless otherwise noted. A maximum of 20% RAP may be used. VMA during production shall meet the requirements listed in Table 1.

HMA pavement mixtures for Mainline surface paving projects shall conform to the following requirements:

The Contractor shall compose the Hot Mix Asphalt Pavement with aggregate, Performance Graded Asphalt Binder (PGAB), and mineral filler if required. HMA shall be designed and tested according to AASHTO R35 and the volumetric criteria in Table 1. The Contractor shall size, uniformly grade, and combine the aggregate fractions in proportions that provide a mixture meeting the grading requirements of the Job Mix Formula (JMF). The Contractor may use a maximum of 15 percent Class I reclaimed asphalt pavement (RAP) or a maximum of 10 percent Class II RAP in any mainline surface course.

The Contractor shall submit a job mix formula (JMF) developed for each specified mixture at least 30 days prior to placement.

The JMF shall establish a single percentage of aggregate passing each sieve size within the limits shown in Subsection 703.09. The mixture shall be designed and produced, including all production tolerances, to comply with the allowable control points for the particular type of mixture as outlined in Subsection 703.09. The JMF shall state the original source, gradation, and percentage to be used of each portion of the aggregate and mineral filler if required. It shall also state the proposed PGAB content, the name and location of the refiner, the supplier, the source of PGAB submitted for approval, the type of PGAB modification if applicable, and the location of the terminal if applicable.

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

- Properly completed JMF indicating all mix properties (Gmm, VMA, VFB, etc.).
- Stockpile Gradation Summary.
- Contractor generated test reports for individual aggregate consensus properties. Test results must have been generated within six months of JMF submission
- Design Aggregate Structure Consensus Property Summary.
- Design Aggregate Structure Trial Blend Gradation Plots (0.45 power chart).

- Trial Blend Test Results for at least three different aggregate blends. (Not required if the supplier has mix history with the selected design aggregate blend)
- Selected design aggregate blend.
- Test results for the selected design aggregate blend at a minimum of three binder contents.
- Test results for final selected blend compacted to N_{max} .
- PGAB certification from the supplier
- Specific Gravity for the PGAB to be used.
- Recommended mixing and compaction temperatures from the PGAB supplier.
- Data Sheets (SDS) For PGAB.
- Asphalt Content vs. Air Voids trial blend curve.
- Test report for Contractor's Verification sample.
- Summary of RAP test results (if used), including count, average and standard deviation of binder content and gradation. This should be a MaineDOT generated report showing approval.

At the time of JMF submittal, the Contractor shall identify and make available the stockpiles of all proposed aggregates at the plant site. There must be a minimum of 150 ton for coarse aggregate stockpiles, 75 ton for fine aggregate stockpiles before the JMF may be submitted. The Authority shall obtain samples for laboratory testing. The Contractor shall also make available to the Authority the PGAB proposed for use in the mix in sufficient quantity to test the properties of the asphalt and to produce samples for testing of the mixture. Before the start of paving, the Contractor and the Authority's representative shall test a production sample in the Contractor's laboratory for evaluation. If the Authority finds the mixture acceptable, an approved JMF will be forwarded to the Contractor. The Authority will then notify the Contractor that paving may commence. The first day's production shall be monitored, and the approval may be withdrawn if the mixture exhibits undesirable characteristics such as checking, shoving or displacement. The Contractor shall be allowed to submit aim changes within 24 hours of receipt of the first Acceptance test result for an individual JMF. Adjustments will be allowed of up to 2% on the percent passing the 2.36 mm sieve through the 0.075 mm and 3% on the percent passing the 4.75 mm or larger sieves. Adjustments will be allowed on the %PGAB of up to 0.2 percent. Adjustments will be allowed on GMM of up to 0.010.

The contractor may request to carry over an approved mix design from the previous calendar year. The Authority will evaluate the request based on the performance and production history from the previous season. If the request is approved by the Authority no aggregate material, RAP, or aim changes will be granted for a carryover mix design and the initial design must not be older than the previous paving season.

The Contractor shall submit a new JMF for approval each time a change in material source or materials properties is proposed. The same approval process shall be followed. The cold feed percentage of any aggregate except natural sand may be adjusted up to 10 percentage points from the amount listed on the JMF, however no aggregate listed on the JMF shall be eliminated. Natural sand may be adjusted up to 5 percent from the amount listed on the JMF but shall not exceed 10% by weight of total aggregates. The cold feed percentage for RAP may be reduced up to five percentage points from the amount listed on the JMF and shall not exceed the percentage of RAP approved in the JMF or for the specific application.

TABLE 1
VOLUMETRIC DESIGN CRITERIA

Design ESAL's (Millions)	Required Density (Percent of G _{mm})			Voids in the Mineral Aggregate (VMA)(Minimum Percent)				Voids Filled with Binder (VFB) (Minimum %)	Fines/Eff. Binder Ratio
				Nominal Maximum Aggregate Size (mm)					
	N _{initial}	N _{design}	N _{max}	19	12.5	9.5	4.75		
3 to <30	<89.0	96.0	<98.0	13.5	14.5	15.5	15.5	65-80	0.6-1.2

As part of the JMF submittal the Contractor shall provide the Authority with Hamburg Wheel Tracker test results in accordance with AASHTO T324. The results shall be generated by a third-party independent testing laboratory as approved by the Authority. The test results for each individual specimen as well as the average shall meet the requirements of Table 1A

TABLE 1A
HAMBURG WHEEL TRACKER REQUIREMENTS

Specified PG Binder Grade	Test Temperature (°C)	Maximum Rut Depth (mm)	Minimum Number of Passes	Minimum Allowable SIP*
64-28	45	12.5	20,000	15,000
64E-28	48	8.0	20,000	15,000
70E-28	50	6.3	20,000	15,000

401.031 Warm Mix Technology

The Contractor may place Hot Mix Asphalt Pavement produced with an accepted WMA technology if approved by the Authority. Methods or technologies shall generally be at the Contractors' option, but will be limited to proven, Agency and Industry accepted practice. Mixture production, placement and volumetric testing details, including temperatures, shall be included in the project specific QCP, submitted to the Authority for approval prior to any work. Weather and seasonal limitations as outlined in section 401.06 may be reduced by a maximum 5°F with the use of WMA only after seeking approval from the MTA Construction Project Manager in advance. The temperature reduction shall only apply when paving of the current work pass had already begun while the ambient temperature was at or above the limits outlined in section 401.06. No reduction in ambient temperature will be permitted for HMA being placed over bridge deck membrane.

401.04 Temperature Requirements

After the JMF is established, the temperatures of the mixture shall conform to the following tolerances:

- In the truck at the mixing plant – allowable range 275° to 325°F.
- At the paver – allowable range 275° to 325°F.
- Or the recommendations, approved by the Authority, from the Asphalt Binder supplier.
- Any HMA placed over bridge deck membrane shall have a minimum temperature of 300° F measured directly behind the screed in the uncompacted mat.

The JMF and the mix subsequently produced shall meet the requirements of Table 1.

No vehicular loads shall be permitted on newly completed pavement until adequate stability has been attained and the material has cooled sufficiently to prevent distortion or loss of fines. The newly paved area may be opened to traffic after the internal temperature of the pavement has cooled to 120° F. The Resident will test the internal temperature of the pavement and shall be the sole judge as to the opening to traffic. The period of time before opening to traffic may be extended at the discretion of the Resident. The lane closure may not be removed until the internal temperature has cooled to 120° F.

401.05 Performance Graded Asphalt Binder

Unless otherwise noted in Special Provision Section 403, Hot Bituminous Pavement, PGAB shall be 64-28. The PGAB shall meet the applicable requirements of AASHTO M320 - Standard Specification for PGAB. The Contractor shall request approval from the Authority for a change in PGAB supplier or source by submitting documentation stating the new supplier or source a minimum of 24-hours prior to the change. If the PGAB supplier or source is changed, the Contractor shall make efforts to minimize the occurrence of PGAB co-mingling.

401.06 Weather and Seasonal Limitations

The Contractor may place Hot Mix Asphalt Pavement for use other than a traveled way wearing course, provided that the air temperature as determined by an approved thermometer (placed in the shade at the paving location) is 45°F or higher and the area to be paved is not frozen. The Contractor may place Hot Mix Asphalt Pavement as traveled way wearing course, provided the air temperature determined as above is 50°F or higher. For the purposes of this Section, the traveled way includes truck lanes, ramps, shoulders, approach roads and auxiliary lanes. The atmospheric temperature for all courses on bridge decks shall be 50°F or higher.

Hot Mix Asphalt Pavement used for curb, driveways, sidewalks, islands, or other incidentals is not subject to seasonal limitations, except that conditions shall be satisfactory for proper handling and finishing of the mixture. All mixtures used for curb, driveways, sidewalks, islands, or other incidentals shall conform to Subsection 401.04, Temperature Requirements. Unless otherwise specified, the Contractor shall not place Hot Mix Asphalt Pavement on a wet or frozen surface and the air temperature shall be 40°F or higher.

On all sections of overlay with wearing courses one inch thick or less, the wearing course for the travel way and adjacent shoulders shall be placed provided the air temperature is determined as above 50°F or higher.

401.07 Hot Mix Asphalt Plant

401.071 General Requirements

HMA plants shall meet the requirements of the 2020 Maine Department of Transportation Standard Specifications section 401.07 and maintain current approval from the Maine Department of Transportation.

401.08 Hauling Equipment Trucks for Hauling Hot Mix Asphalt

Trucks for hauling Hot Mix Asphalt Pavement shall have tight, clean, and smooth metal dump bodies, which have been thinly coated with a small amount of approved release agent to prevent the mixture from adhering to the bodies. Solvents based agents developed to strip asphalts from aggregates will not be allowed as release agents.

All truck dump bodies shall have a cover of canvas or other water repellent material capable of heat retention, which completely covers the mixture. The cover shall be securely fastened on the truck, unless unloading.

All truck bodies shall have an opening on both sides, which will accommodate a thermometer stem. The opening shall be located near the midpoint of the body, at least 12 inches above the bed.

The undercarriage of haul units actively hauling HMA to the site shall be relatively free of dust / mud agglomerations. Haul units found to be contaminating the paving surface shall be removed from the site and cleaned prior to returning.

The contractor shall supply enough haul units such that paving is continuous and without any stops or paver speed changes during the installation of ramp or mainline wearing courses utilizing an MTV. or any course placed on a bridge deck. The contractor will be charged a fee of \$1,000. for every occurrence if paving is either stopped or the paver must slow down to avoid stopping due to inadequate number of haul units at the sole discretion of the Authority.

401.09 Pavers

Pavers shall be self-contained, self-propelled units with an activated screed (heated if necessary) capable of placing courses of Hot Mix Asphalt Pavement in full lane widths specified in the Contract on the mainline, shoulder or similar construction.

On projects with no price adjustment for smoothness, pavers shall be of sufficient class and size to place Hot Mix Asphalt Pavement over the full width of the mainline travel way with a 10 feet minimum main screed with activated extensions.

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

The Contractor shall operate the paver in such a manner as to produce a visually uniform surface texture and a thickness within the requirements of Subsection 401.101, Surface Tolerances. The paver shall have a receiving hopper with sufficient capacity for a uniform spreading operation and a distribution system to place the mixture uniformly, without segregation in front of the screed. The screed assembly shall produce a finished surface of the required evenness and texture without tearing, shoving, or gouging the mixture. Pavers with extendible screeds shall have auger extensions and tunnel extenders as per the manufacturer's recommendations, a copy of which shall be available if requested. The forward operating speed of the paver shall be limited based on the course being placed. A shim or leveling course shall have a maximum speed of 50 feet per minute (fpm). Any base, intermediate, or surface course shall have a maximum paver speed of 45 fpm. The limited speed is not to be calculated on an average basis over time but shall be the actual limitation at any moment during the paving operation.

The Contractor shall have the paver at the Project site sufficiently before the start of paving operations to be inspected and approved by the Authority. The Contractor shall repair or replace any paver found worn or defective, either before or during placement, to the satisfaction of the Authority. Pavers that produce an unevenly textured or non-uniform mat will be repaired or replaced before continuing to place HMA on MTA projects. On a daily basis, the Contractor shall perform density testing across the uncompacted mat being placed, at 12 inch intervals. If the values vary by more than 2.0 percent from the mean, the Contractor shall make adjustments until the inconsistencies are remedied.

Failure to replace or repair defective placement equipment may result in a letter of suspension of work and notification of a quality control violation resulting in possible monetary penalties as governed by Section 106, Quality.

401.091 Material Transfer Vehicle (MTV)

When required by Special Provision Section 403, the paver shall be supplied mixture by a material transfer vehicle (Roadtec SB2500 or approved equal) capable of receiving and storing bituminous mixture from haul trucks, remixing, and delivering the mix to the paver hopper in a consistently uniform manner.

The MTV shall operate as an independent unit not attached to the paver. It shall be a commercially manufactured unit specifically designed to transfer the hot mix from haul trucks to the paver without depositing mix on the roadway.

Also required is a separate hopper with a capacity of 18 mg (20 Ton) that shall be inserted into the regular paving hopper.

The MTV shall be designed so that the mix receives additional mixing action.

The MTV and the hopper insert will not be measured separately for payment, but shall be incidental to the various Hot Mix Asphalt items.

401.10 Rollers

Rollers shall be static steel, pneumatic tire, oscillatory, or approved vibrator type. Rollers shall be in good mechanical condition, capable of starting and stopping smoothly, and be free from backlash when reversing direction. Rollers shall be equipped and operated in such a way as to prevent the picking up of hot mixed material by the roller surface. The use of rollers, which result in crushing of the aggregate or in displacement of the HMA will not be permitted. Any Hot Mix Asphalt Pavement that becomes loose, broken, contaminated, shows an excess or deficiency of Performance Graded Asphalt Binder, or is in any other way defective shall be removed and replaced at no additional cost with fresh Hot Mix Asphalt Pavement, which shall be immediately compacted to conform to the adjacent area.

The Contractor shall repair or replace any roller found to be worn or defective, either before or during placement, to the satisfaction of the Authority. Rollers that produce grooved, unevenly textured or non-uniform mat will be repaired or replaced before continuing to place HMA on MTA projects.

The type of rollers to be used and their relative position in the compaction sequence shall generally be the Contractor's option, provided Specification densities are attained and with the following requirements:

- a. At least one roller shall be a pneumatic-tired. Pneumatic-tired rollers shall be equipped with skirting to minimize the pickup of HMA materials from the paved surface. The contractor shall provide a weigh slip for the rubber tire being used.
- b. Compaction with a vibratory or steel wheel roller shall precede pneumatic-tired rolling, unless otherwise authorized by the Authority.
- c. Vibratory rollers shall not be operated in the vibratory mode when checking or cracking of the mat occurs, or on bridge decks.
- d. Any method, which results in cracking or checking of the mat, will be discontinued and corrective action taken.
- e. The use of an oscillating steel roller shall be required to compact all mixtures placed on bridge decks.

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

401.101 Surface Tolerances

The Authority will check surface tolerance utilizing the following methods:

- a. A 16 ft straightedge or string line placed directly on the surface, parallel to the centerline of pavement.
- b. A 12 ft straightedge or string line placed directly on the surface, transverse to the centerline of pavement.

The allowable tolerance shall be $\frac{1}{4}$ inch in the segments as described above. This includes fresh HMA joints as well as new longitudinal HMA adjoining pavements. The tolerance shall also apply to the cross slope in a single paver width with the exception that in no case shall the pavement surface in the single paver width be inverted resulting in a depression as measured transverse to the direction of travel. The Contractor shall correct variations exceeding $\frac{1}{4}$ inch by removing defective work and replacing it with new material as directed by the Authority. The Contractor shall furnish a 12 foot straightedge for the Authority's use.

401.11 Preparation of Existing Surface

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

The contractor will be permitted to be generally innovative in methods to dry existing wet or damp pavement. Any method which causes damage or burning of the existing pavement, or which causes debris to fly into traffic shall be discontinued.

Section 401.111 Layout

The contractor shall layout the site prior to any pavement course or final striping. Layout shall be achieved by physical measurements obtained every 50' along the length to be paved or striped from a fixed reference point. The contractor shall transfer the measurements to the pavement surface every 50' and apply a paint mark at each location. The marks shall then be connected by a smoothed string line and subsequent paint marks applied along the string at no greater than 10' intervals. The Resident will inspect the layout line before associated activities may begin.

401.12 Hot Mix Asphalt Documentation

The Contractor and the Authority shall agree on the amount of Hot Mix Asphalt Pavement that has been placed each day. HMA Pavement yield shall be calculated and monitored by both the resident and the paving foreman. Yield calculations shall be communicated in real time between both parties throughout the paving operations. All delivery slips shall conform to the requirements of 401.073.

401.13 Preparation of Aggregates

The Contractor shall dry and heat the aggregates for the HMA to the required temperature. The Contractor shall properly adjust flames to avoid physical damage to the aggregate and to avoid depositing soot on the aggregate.

401.14 Mixing

The Contractor shall combine the dried aggregate in the mixer in the amount of each fraction of aggregate required to meet the JMF. The Contractor shall measure the amount of PGAB and introduce it into the mixer in the amount specified by the JMF.

The Contractor shall produce the HMA at the temperature established by the JMF.

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

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

401.15 Spreading and Finishing

On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impracticable, the Contractor shall spread, rake, and lute the HMA with hand tools to provide the required compacted thickness. Solvent based agents developed to strip asphalts from aggregates will not be allowed as release agents.

On roads opened to two-way traffic, the Contractor shall place each course over the full width of the traveled way section being paved that day, unless otherwise noted by the Authority in Section 403, Hot Mix Asphalt Pavement.

In addition, hot mix asphalt pavement placed on bridges shall also conform to Section 508.04 and the following requirements.

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

- d. After the top course has been placed, the shoulder areas shall be sealed 3 ft wide with two applications of an emulsified bituminous sealer meeting the requirements of Section 612.03 – Sealing and Section 702.12 – Emulsified Bituminous Sealing Compound. The first application shall be pre-mixed with fine, sharp sand, similar to mortar sand, as needed to fill all voids in the mix in the area being sealed. The second application may be applied without sand. The sealer shall be carried to the curb at the gutter line in sufficient quantity to leave a bead or fillet of material at the face of curb. The area to be sealed shall be clean, dry and the surface shall be at ambient temperature.
- e. The furnishing and applying of the required quantity of sealer for the bridge shoulder areas shall be incidental to placing the hot mix asphalt pavement. The sealer shall be applied after 30 days of cure time on the new HMA placed.
- f. The atmospheric temperature for all courses placed on bridge decks shall be 50°F or higher.
- g. A pneumatic tire roller shall be used on the bridge deck membrane just prior to paving.

401.16 Compaction

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

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

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

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

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

401.162 Voids

The HMA will be accepted for percent air voids on a subplot basis. Percent air voids will be determined in accordance with AASHTO T 312. Point of sampling will be from the truck at the plant. A subplot will consist of 500 tons. The number of samples per day will be computed as one for every 500 tons plus one for any additional fractional subplot that is equal to or greater than 100 tons or as directed by the Resident. There shall be a minimum of one subplot per day per JMF. One sample shall be taken and tested for each 500 tons of production or portions thereof. Full payment will be made for each 500 tons of production that meets the specified void range of 2.5 to 5.5 percent.

Payment reduction will be applied to each subplot (500 tons) that falls outside of this range. See Subsection 401.21.

Section 401.163 PGAB Content and Aggregate Gradation

The HMA will be accepted for PGAB content and Aggregate Gradation on a subplot basis. PGAB content will be determined in accordance with AASHTO T 308. Aggregate Gradation will be determined in accordance with AASHTO T 30. Point of sampling will be from the truck at the plant. A subplot will consist of 500 tons. The number of samples per day will be computed as one for every 500 tons plus one for any additional fractional subplot that is equal to or greater than 100 tons or as directed by the Resident. There shall be a minimum of one subplot per day per JMF.

Payment reduction will be applied to each subplot (500 tons) that falls outside the allowable limits. See Subsection 401.21.

401.164 Density

Pavement density will be determined by comparing the density of six-inch diameter full depth cores (for the course being laid) taken from the compacted pavement to the Theoretical Maximum Density of that core. Core locations shall be by random samples in conformance with ASTM-D979 & D3665. The Contractor shall supply a masonry saw with a 12 inch diamond wet cutting saw blade capable of cutting the six inch diameter cores. The resident shall determine if trimming is required and the core will be labeled as such.

For determination of pavement density, core samples six inches in diameter, for the full depth of the course being laid, shall be taken by the Contractor from the mixture incorporated in the work after finishing operations have been completed and the pavement has cooled to 70°F. Ice or dry ice shall be used to reduce temperature as necessary. All core samples shall be inspected, measured, and sealed in an approved transport container by the Resident. The contractor shall deliver the sealed container to the laboratory for testing by the Authority's representative.

Vertical surface of the core area shall be coated with rubberized joint sealer prior to refilling with bituminous mixture. Cores will not be cut for shim pavement.

The joint sealer, bituminous mixture and the labor for obtaining these samples in the field and restoring the surface shall be furnished without charge by the Contractor. The joint sealant shall conform to the material requirements for Asphalt Low Modulus Joint Sealer and shall be

incidental to the pavement items. Care must be exercised to avoid excess joint material on top of the finish mat and at the bottom of the joint.

No additional course shall be constructed on a course until the density of the sample has been established and approved.

The densities of the completed pavement shall be 92.5 to 97.0 percent of the theoretical maximum density obtained.

The pavement will be accepted for density on a subplot basis. A subplot will consist of 500 tons. The number of cores per day will be computed as one for every 500 tons plus one for any portion that does not equal 500 tons or as directed by the Resident. There shall be a minimum of one subplot per day per JMF.

Each subplot will be evaluated separately and full or partial payment will be made based on the results of tests performed on the cores.

Payment reduction will be applied to each core that has a density outside of the allowable range (92.5 to 97.0). See Subsection 401.21.

401.165 Longitudinal Joint Density

When noted in Special Provision Section 403, the Authority will measure the pavement density of longitudinal joints between adjoining mainline travel lanes in both the unconfined and confined condition as determined by the days paving operation. Only joints constructed between travel lanes will be tested, joints between a travel lane and a shoulder are excluded from sampling.

Pavement joint density will be determined by comparing the density of six-inch diameter full depth cores (for the course being laid) taken from the compacted pavement to the Theoretical Maximum Density of that core. The edge of the core nearest the joint shall be a 1" offset from the visible longitudinal joint as determined by the resident. Longitudinal core locations shall be determined by random sampling in conformance with ASTM-D979 & D3665. The Contractor shall supply a masonry saw with a 12 inch diamond wet cutting saw blade capable of trimming the underside of the six inch diameter cores if necessary. The resident shall determine if trimming is required and the core will be labeled as such.

For determination of pavement joint density, core samples six inches in diameter, for the full depth of the course being laid, shall be taken by the Contractor from the mixture incorporated in the work after finishing operations have been completed and the pavement has cooled to 70°F. Ice or dry ice shall be used to reduce temperature as necessary.

Vertical surface of the core area shall be coated with rubberized joint sealer prior to refilling with bituminous mixture. Cores will not be cut for shim pavement.

The joint sealer, bituminous mixture and the labor for obtaining these samples in the field and restoring the surface shall be furnished without charge by the Contractor. The joint sealant

shall conform to the material requirements for Asphalt Low Modulus Joint Sealer and shall be incidental to the pavement items. Care must be exercised to avoid excess joint material on top of the finished mat and at the bottom of the joint.

No additional course shall be constructed on a course until the density of the sample has been established and approved.

The minimum density of the completed pavement shall be 92.0 percent of the theoretical maximum density obtained. Two consecutive failing tests shall result in production shut down. Prior to resuming paving operations, the contractor quality control unit shall satisfy the Authority that the paving operation will produce joint densities in compliance with the Specifications.

The pavement will be accepted for joint density on a subplot basis. A subplot will consist of 500 tons. The number of cores per day will be computed as one for every 500 tons plus one for any portion that does not equal 500 tons or as directed by the Resident. There shall be a minimum of one subplot per day per JMF.

Each subplot will be evaluated separately and full or partial payment will be made based on the results of tests performed on the cores.

Payment reduction will be applied to each subplot that has a density lower than 92.0% as outlined below.

PERCENT COMPACTION	PERCENT PAY
92.0 or greater	100
91.9 to 90.0	95
89.9 to 88.5	90
88.4 or less	75

401.166 Balanced Mix Design Testing

When required by Special Provision 403, the contractor shall be required to collect samples, fabricate specimens, and provide to the Authority said specimens for Balanced Mix Design testing to be performed by a third-party laboratory. The sample collection and specimen fabrication shall be considered incidental to the paving item, and the cost of the third-party laboratory testing shall be borne by the Authority. The contractor shall also fabricate and test split samples of the material with their own equipment/subcontracted laboratory.

Balanced Mix Design testing shall include AASHTO T-324 Hamburg Wheel Tracker and ASTM D8225 Ideal CT Index. Four specimens for each test shall be required.

Sample locations will be determined randomly by the Authority at a frequency of one sample per 6000 Tons of HMA produced with a minimum of 3 samples per project. If the total HMA quantity for the item is less than 18,000 Tons the new lot size will be the total divided by three.

The data collected during this testing will not be subject to monetary disincentives but production may be halted by the Authority for failing results.

401.17 Joints

The Contractor shall construct wearing course transverse and longitudinal joints in such a manner that minimum tolerances shown in Subsection 401.101, Surface Tolerances, are met when measured with a straightedge.

The paver shall always maintain a uniform head of HMA during the joint construction.

The HMA shall be free of segregation and meet temperature requirements outlined in Subsection 401.04. Transverse joints of the wearing course shall be straight and neatly trimmed. The Contractor may form a vertical face exposing the full depth of the course by inserting a header, by breaking the bond with the underlying course, or by cutting back with hand tools.

When required by Special Provision Section 403, Mainline Longitudinal joints shall be constructed as notched-wedge joint and constructed in a manner that will best ensure joint integrity.

The installation of the longitudinal joint shall be straight and true to the direction of travel and be located within 1-1/2" of the layout line. Deviations and or crossing back and forth over the layout line shall not be permitted and any such deviations or meandering shall be corrected by saw cutting the affected area prior to placing the adjacent lane with no additional cost to the Authority. Methods or activities that prove detrimental to the construction of straight, sound longitudinal joints will be discontinued.

Extra care shall be taken to insure satisfactory vertical joints in the pavements. On the notched-wedge joints a double layer of tack shall be applied. The Contractor shall apply a coating of joint sealant immediately before paving all cold joints (temperatures less than 120°F) to the vertical face of the wearing surface if they are not a notched-wedge joint unless otherwise directed by the Resident. A heavy application of tack coat shall be applied to the vertical face of all cold joints on lower lifts. The Contractor shall use an approved spray apparatus designed for covering a narrow surface. The Authority may approve application by a brush for small surfaces, or in the event of a malfunction of the spray apparatus, but for a period of not more than one (1) working day. Joint sealer shall conform to the material requirements for Asphalt Low Modulus Joint Sealer.

Where pavement under this Contract joins an existing pavement or when the Authority directs, the Contractor shall cut the existing pavement along a smooth line, producing a neat, even, vertical joint. The Authority will not permit broken or raveled edges. The cost of all work necessary for the preparation of joints is incidental to related Contract pay items.

401.18 Quality Control

The Contractor shall submit for approval and operate in accordance with the approved Quality Control Plan (QCP) to assure a product meeting the contract requirements. The QCP shall meet the requirements of Section 106.4 – Quality Control and this Section. The Contractor shall not begin paving operations until the Authority approves the QCP in writing. Prior to placing any mix, the Authority and the Contractor shall hold a Pre-paving conference to discuss the paving

schedule, source of mix, type and amount of equipment to be used, sequence of paving pattern, rate of mix supply, random sampling, project lots and sublots and traffic control.

A copy of the QC random numbers to be used on the project shall be provided to the Resident.

The Authority's random numbers for Acceptance testing shall be generated and on file with the Resident and the Project Manager. All personnel of the Authority and the Contractor who have significant information relevant to the paving items shall attend, including the responsible onsite paving supervisor for the Contractor. The Resident will prepare minutes of the conference and distribute them to all attendees. Any requests to revise the minutes must be made to the Resident within 7 days of receipt. These minutes will constitute the final record of the pre-paving conference.

The QCP shall address any items that affect the quality of the Hot Mix Asphalt Pavement including, but not limited to, the following:

- a. JMF(s)
- b. Hot mix asphalt plant details
- c. Stockpile Management (to include provisions for a minimum 2 day stockpile). Detailing how the stockpiles will be built, labeled, and kept separated from each other. Also provide a detailed description of the aggregate consensus quality testing program including all pertinent qualities, frequency of testing, in house procedures for determining material acceptability and addressing deficient test results.
- d. Make and type of paver(s)
- e. Make and type of rollers including weight, weight per inch of steel wheels, and average contact pressure for pneumatic tired rollers
- f. Name of QCP Administrator, and certification number
- g. Name of Process Control Technician(s) and certification number(s)
- h. Name of Quality Control Technician(s) and certification number(s)
- i. Mixing and transportation including process for ensuring that truck bodies are clean and free of debris or contamination that could adversely affect the finished pavement
- j. Testing plan
- k. Laydown operations including longitudinal joint construction, procedures for avoiding paving in inclement weather, type of release agent to be used on trucks tools and rollers, compaction of shoulders, tacking of all joints, methods to ensure that segregation is minimized, procedures to determine the maximum rolling and paving speeds based on best engineering practices, and provide these results, as well as past experience in achieving the best possible smoothness of the pavement. Solvent based agents developed to strip asphalts from aggregates will not be allowed as release agents

- l. Examples of Quality Control forms including a daily plant report, daily paving report, control charts, and delivery slip template for any plant to be utilized.
- m. Silo management and details (can show storage for use on project of up to 36 hours)
- n. Provisions for varying mix temperature due to extraordinary conditions or production limitations. If a warm-mix technology is utilized, a proposed target production range (not to exceed 50 F) will be provided for each mix design.
- o. Name and responsibilities of the Responsible onsite Paving Supervisor
- p. Method for calibration/verification of Density Gauge
- q. A note that all testing will be done in accordance with AASHTO and the Maine DOT Policies and Procedures for HMA Sampling and Testing
- r. A detailed description of RAP processing, stockpiling and introduction into the plant as well as a note detailing conditions under which the percent of RAP will vary from that specified on the JMF
- s. A detailed procedure outlining when production will be halted due to QC or Acceptance testing results
- t. A plan to address the change in PGAB source or supplier and the potential co-mingling of differing PGAB's.
- u. Provisions for how the QCP will be communicated to the Contractor's field personnel
- v. The contractor shall provide a detailed plan outlining how the number of haul units will be determined and supplied to the project to prevent the paver from stopping on mainline wearing course and bridge deck paving over membrane

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

- a. QCP Administrator – A qualified individual shall administer the QCP. The QCP Administrator must be a full-time employee of or a consultant engaged by the Contractor or paving subcontractor. The QCP Administrator shall have full Authority to institute any and all actions necessary for the successful operation of the QCP. The QCP Administrator (or its designee in the QCP Administrator's absence) shall be available to communicate with the Authority at all times. The QCP Administrator shall be certified as a Quality Assurance Technologist certified by the New England Transportation Technician Certification Program (NETTCP).
- b. Process Control Technician(s) (PCT) shall utilize test results and other quality control practices to assure the quality of aggregates and other mix components and control proportioning to meet the JMF(s). The PCT shall inspect all equipment used in mixing to assure it is operating properly and that mixing conforms to the mix design(s) and other Contract requirements, and that delivery slips and plant

recording accurately reflects the mix being produced with all required information. The QCP shall detail how these duties and responsibilities are to be accomplished and documented, and whether more than one PCT is required. The Plan shall include the criteria to be utilized by the PCT to correct or reject unsatisfactory materials. The PCT shall be certified as a Plant Technician by the NETTCP.

- c. Quality Control Technician(s) (QCT) shall perform and utilize quality control tests at the job site to assure that delivered materials meet the requirements of the JMF(s). The QCT shall inspect all equipment utilized in transporting, laydown, and compacting to assure it is operating properly and that all laydown and compaction conform to the Contract requirements. The QCP shall detail how these duties and responsibilities are to be accomplished and documented, and whether more than one QCT is required. The QCT shall be on site during paving operations performing quality control activities. QCT's shall not act as equipment operators, trainers or laborers. The QCP shall include the criteria utilized by the QCT to correct or reject unsatisfactory materials. The QCT shall be certified as a Paving Inspector by the NETTCP.

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

401.191 Inspection/Testing

Aggregates used in mainline surface mixes shall be tested at the following frequencies during mix production:

Test	Frequency	Test Method
Coarse Aggregates		
Sieve Analysis	1 per week	AASHTO T27/T11
Specific Gravity	1 per 10000 Mix Ton minimum of 1 test	ASHTO T85
Micro Deval	1 per 10000 Mix Ton minimum of 1 test	AASHTO T327
Fine Aggregates		
Sieve Analysis	1 per week	AASHTO T27/T11
Specific Gravity	1 per 10000 Mix Ton minimum of 1 test	ASHTO T84
Micro Deval	1 per 10000 Mix Ton minimum of 1 test	ASTM D-7428

All quality control testing at the plant and paving site for bituminous concrete paving shall be provided by the Contractor and will be incidental to the various items of the Contract. Quality control testing to verify the job mix formula at the plant shall be comprised of a sample taken and tested for each 500 tons of production. The plant will be shut down for two consecutive out of Specification test results for VMA, VFB, Fbe, PGAB content, gradation, and/or voids. The consecutive failures need not be on the same property. Prior to resuming paving operations, the plant quality control unit shall satisfy the Authority that the plant production is in compliance with

the Specifications. The plant, at no additional cost to the Authority, shall assign qualified quality control staff personnel and have an on-site laboratory equipped to perform all tests.

The Contractor shall monitor plant production on each approved mix design using running average of three control charts as specified in Section 106 - Quality. Control limits shall be as noted in Table 7 below. The UCL and LCL, shall not exceed the allowable gradation control points for the mixture as outlined in Table 1 of Section 703.09.

CONTROL LIMITS	
Property	UCL and LCL
% Passing #4 and larger sieves	Target $\pm$ 4.0
% Passing #8 and #16 sieves	Target $\pm$ 2.5
% Passing #30, #50, and #100 sieves	Target $\pm$ 1.5
% Passing #200 sieve	Target $\pm$ 1.0
PGAB Content	Target $\pm$ 0.25
VMA N_{des}	LCL = LSL + 0.2
Voids N_{des}	Target $\pm$ 1.2
G_{mm}	Target $\pm$ 0.015

The Contractor shall submit all QC test and inspection reports and updated control charts to the Resident by email. The reports and updated control charts shall be signed by the appropriate technician and be submitted to the Resident by 1:00 P.M. / A.M. on the next working day / night.

The Contractor shall submit a list of on-site laboratory and sampling facilities, including available equipment.

Adequate and convenient sampling facilities shall be provided, allowing the Resident and the Authority's designated quality assurance personnel to obtain representative samples from the full width and depth of the discharge area of each aggregate bin. The sampling tray shall be structurally supported during the sampling operation. Access to the sampling facilities shall be provided. The use of such access shall not be more difficult than climbing a ladder leading to a secure platform with railings.

Final acceptance shall be based on quality assurance tests to assure compliance with the job mix formula as established. Samples and certified quality control reports shall be available to the Resident and the Authority's designated quality assurance personnel as often as requested. Sample locations will be random in compliance with ASTM D3665 or as directed by the Resident.

When plant inspection is maintained, the material will be considered acceptable for use when the specified tests from samples obtained at the production plant indicate conformance to the approved job mix formula.

Quality assurance testing services for bituminous concrete pavement shall be provided by the Authority. The Contractor shall provide adequate space and all lab equipment, materials and chemicals at the bituminous plant necessary to verify job mix formula (asphalt content (AASHTO T164 or T308) and gradations). Upon completion, the Contractor shall be responsible for the

proper disposal of all materials and chemicals. This work will not be measured separately for payment, but shall be incidental to the various items of the Contract.

A. Inspection. The Resident, or his authorized representative, shall have access and use of the laboratory facilities at any time and access to all parts of the plant for:

1. Inspection of the condition and operations of the plant.
2. Confirmation of the adequacy of equipment in use.
3. Verification of the character and proportions of the mixture.
4. Determination of temperatures being maintained in the preparation of the mixtures.
5. Inspection of incidental related procedures.
6. Performing quality assurance testing.

B. Plant Testing Laboratory. The Contractor shall provide a plant testing laboratory for use by the Authority's quality assurance personnel for acceptance testing functions.

The plant laboratory shall be available at the following times for use by the Authority's quality assurance personnel:

1. During periods of pavement production;
2. During periods of sampling and testing; and,
3. Whenever materials subject to the provisions of these Specifications are being supplied or tested.

The Authority's quality assurance personnel will always have priority in use of the laboratory. The laboratory shall have sufficient equipment in order for both (Authority's and Contractor's) testing representatives to operate efficiently.

The plant testing laboratory shall have a floor space area of not less than 150 square feet, with a ceiling height of not less than 7-1/2 feet. The laboratory shall be weather tight, sufficiently heated in cold weather and air-conditioned in hot weather, to maintain temperatures for testing purposes of 70°F ± 5°F.

As a minimum the plant testing laboratory shall have:

1. Adequate artificial lighting.
2. Electrical outlets sufficient in number and capacity for operating the required testing equipment and drying samples.
3. Two fire extinguishers, Underwriter's Laboratory approved.

4. Work benches for testing, minimum 2-1/2 feet by 10 feet.
5. Desk with two chairs.
6. Sanitary facilities convenient to testing laboratory.
7. Exhaust fan to outside air, minimum 12 inch blade diameter.
8. Secure High Speed Internet Access
9. File cabinet with lock for Resident.
10. Sink with running water, attached drain board and drain.
11. Metal stand for holding washing sieves.
12. Mechanical shaker and appropriate sieves (listed in 639.06) meeting the requirements of ASTM E11.
13. Superpave gyratory compactor.
14. Oven, thermostatically controlled, inside minimum one cubic foot.
15. Two volumetric specific gravity flasks, 500 CC.
16. Other necessary hand tools required for sampling and testing.
17. Library containing Contract Specification, latest ASTM Volumes 4.03 and 4.04, AASHTO Materials Parts I and II.
18. Equipment for Maximum Theoretical Density meeting the requirements of AASHTO T209 and equipment for Bulk Spec. Gravity meeting the requirements of AASHTO T166.
19. Infra-red temperature measuring device for use at both plant and Project site.
20. Necessary equipment for PGAB Content testing.
21. Diamond blade saw for trimming pavement cores.
22. Two ovens.
23. All equipment (scales, Superpave gyratory compactor, etc.) to have current calibrations and certifications.

Approval of the plant and testing laboratory by the Resident requires all the above facilities and equipment to be in good working order during pavement production, sampling and testing. Failure to provide any of the above shall be sufficient cause for disapproving the bituminous plant operations.

401.21 Method of Measurement

The Authority will measure Hot Mix Asphalt Pavement by the ton in accordance with Subsection 108.1, Measurement of Quantities for Payment.

A reduction in payment will occur when the voids, asphalt content, gradation, and density are other than the limits specified below for 100 percent payment. The payment reduction for voids and PGAB content and density will be based upon each subplot (500 tons) of production as specified in Subsections 401.162, 401.163, 401.164, and 401.165. The Contractor may request one retest for each failing subplot for core density only. The original core density and the recut core density shall be averaged together to determine payment for the subplot. No retest will be allowed for voids or asphalt content. The Contractor shall pay \$250.00 for each additional core tested. Pavement restoration will not be measured separately for payment but shall be incidental to the respective pay item.

Any lot resulting in zero payment shall be removed, disposed of and replaced at no additional cost to the Authority. Replacement pavement will be paid for based on the accepted and payment criteria specified herein.

<u>CORE DENSITY VS. CORE THEORETICAL MAXIMUM DENSITY COMPACTION (SURFACE) 92.5-97 PERCENT</u>	
<u>PERCENT COMPACTION</u>	<u>PERCENT PAYMENT</u>
92.5 - 97.0	100
91.5 - 92.4, 97.1 - 97.9	95
90.5 - 91.4, 98.0 - 98.5	85
90.0 - 90.4, 98.6 - 99.0	75
<90.0, > 99.0	0
Note: Percent compaction is the percentage of the field core density as compared to the Theoretical Maximum Density (TMD) of that core.	

<u>AIR VOIDS – 2.5 – 5.5 PERCENT</u>	
<u>VOIDS</u>	<u>PAYMENT PERCENT</u>
2.5 to 5.5	100
2.0 - 2.4, 5.6 - 6.1	95
1.5 – 1.9, 6.2 – 6.6	85
1.0 - 1.4, 6.7-7.1	75
<1.0, >7.1	0
Note: Voids are based on the average of the test specimens fabricated at the plant for each subplot (500 tons).	

Payment for PGAB content shall be based on the JMF aim with an allowable production tolerance of 0.4% except that test results which fall outside of the following ranges shall not be permitted:

9.5 mm	5.7 – 7.5
12.5 mm	5.2 – 6.4

9.5 mm PGAB CONTENT	
% PGAB	% PAYMENT
JMF Aim ± 0.4	100
JMF Aim $+ 0.5, - 0.5, < 5.7$	95
JMF Aim $+ 0.6, - 0.6, < 5.6$	85
JMF Aim $+ 0.7, - 0.7, < 5.5$	75
JMF Aim $+ 0.8, - 0.8, \leq 5.4, > 7.5$	50
<u>Note:</u> PGAB content is based on samples tested at the plant for each 500 Ton subplot	
12.5 mm PGAB CONTENT	
% PGAB	% PAYMENT
JMF Aim ± 0.4	100
JMF Aim $+ 0.5, - 0.5, < 5.1$	95
JMF Aim $+ 0.6, - 0.6, < 5.0$	85
JMF Aim $+ 0.7, - 0.7, < 4.9$	75
JMF Aim $+ 0.8, - 0.8, \leq 4.8, > 6.4$	50
<u>Note:</u> PGAB content is based on samples tested at the plant for each 500 Ton subplot	

Gradation	
Sieve Size	% Deduction
% Passing #4 and larger sieves	N/A
% Passing #8 sieve	2
% Passing #16 sieve	N/A
% Passing #30 sieve	N/A
% Passing #50 sieve	1
% Passing #100 sieve	N/A
% Passing #200 sieve	3
<u>Note:</u> Gradation is based on samples tested at the plant for each 500 Ton subplot	

As an example of payment reduction, if a subplot of 500 tons of 12.5mm was tested and found to have 96 percent TMD compaction, 5.8 percent air voids and asphalt content of 5.19 percent, the payment reduction would be as follows:

$$\begin{array}{llll}
 500 \text{ tons} \times 1.00 & = & 500 \text{ tons payment} & = & 0 \text{ tons reduction (compaction)} \\
 500 \text{ tons} \times 0.95 & = & 475 \text{ tons payment} & = & 25 \text{ tons reduction (voids)} \\
 500 \text{ tons} \times 0.95 & = & 475 \text{ tons payment} & = & 25 \text{ tons reduction (asphalt content)}
 \end{array}$$

$$\text{Payment} = 500 \text{ tons} - (0 + 25 + 25) = 450 \text{ tons.}$$

401.22 Basis of Payment

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

The Authority will pay for the work specified in Subsection 401.11, for the HMA used, except that cleaning objectionable material from the pavement and furnishing and applying bituminous material to joints and contact surfaces is incidental.

Payment for this work under the appropriate pay items shall be full compensation for all labor, equipment, materials, and incidentals necessary to meet all related Contract requirements, including design of the JMF, implementation of the QCP, obtaining core samples, transporting cores and samples, filling core holes, applying specified material to joints, and providing testing facilities and equipment.

SPECIAL PROVISIONSECTION 403HOT MIX ASPHALT PAVEMENT

Section 403 of the Maine Turnpike Authority 2016 Supplemental Specifications modified as follows:

403.01 Description

This work shall also consist of the construction, maintenance and removal of all temporary bituminous ramps at locations as shown on the Plans or as directed by the Resident.

403.02 General

The Contractor shall compose the Hot Mix Asphalt Pavement with aggregate, Performance Graded Asphalt Binder (PGAB), and mineral filler if required. The Performance Graded Asphalt Binder (PGAB) shall be polymer modified as detailed in this special provision and shall conform to the requirements of AASHTO M 332. The PG70E-28 Binder shall be modified using Styrene-Butadiene-Styrene (SBS) polymer in a homogeneous blend. The stability of the modified binder shall be verified in accordance with ATSM D7173 using the Dynamic Shear Rheometer (DSR). The DSR $G^*/\sin(\delta)$ results from the top and bottom sections of the ATSM D7173 test shall not differ by more than 10%. The results of ASTM D7173 shall be included on the Certified Test Report. The Contractor shall compose the Hot Mix Asphalt Pavement with aggregate, Performance Graded Asphalt Binder (PGAB), and mineral filler if required. The Performance Graded Asphalt Binder (PGAB) shall be polymer modified as detailed in this special provision and shall conform to the requirements of AASHTO M 332. The PG70E-28 Binder shall be modified using Styrene-Butadiene-Styrene (SBS) polymer in a homogeneous blend. The stability of the modified binder shall be verified in accordance with ATSM D7173 using the Dynamic Shear Rheometer (DSR). The DSR $G^*/\sin(\delta)$ results from the top and bottom sections of the ATSM D7173 test shall not differ by more than 10%. The results of ASTM D7173 shall be included on the Certified Test Report

403.03 Construction

All areas which have been milled or overlaid shall have a minimum length temporary ramp constructed as determined by the Resident at the milled or overlaid limits prior to opening the roadway to traffic. Temporary ramps shall be constructed using the same material as being placed on that day or as directed by the Resident. All temporary ramps are to be constructed on a sand joint. The Contractor shall be responsible for all repairs and maintenance required for the temporary ramps.

The Contractor shall be responsible for the layout of the longitudinal centerline between the travel lanes.

The sand and loose debris adjacent to the median guardrail shall be removed and disposed of by the Contractor off of Turnpike property.

The forty-five degree pavement safety edge needed between adjacent lanes and or shoulders shall be incidental to the 202 pay items.

Lane 2 and the eight foot shoulder shall be pulled as one.

403.04 Method of Measurement

The construction and removal of temporary ramps on sand joints, and maintaining the ramps will not be measured separately for payment, but shall be incidental to Items 403.

The removal of sand and loose debris will not be measured separately for payment, but shall be incidental to paving items.

Hot Mix Asphalt, 12.5 mm (Polymer/Latex Modified) pavement with (up to) 15% RAP, placed as a wearing surface will be measured under Item 403.2081 Hot Mix Asphalt, 12.5 mm (Polymer/Latex Modified).

403.05 Basis of Payment

Hot Mix Asphalt, 12.5 mm (Polymer/Latex Modified) pavement, placed as a wearing surface will be paid under Item 403.2081 Hot Mix Asphalt, 12.5 mm (Polymer/Latex Modified).

The following pay items are added:

<u>Pay Item</u>	<u>Pay Unit</u>	
403.207	Hot Mix Asphalt. 19.0 mm	TON
403.2072	19.0 mm Asphalt Rich Base HMA	TON
403.208	Hot Mix Asphalt, 12.5mm, Surface	TON
403.2081	Hot Mix Asphalt, 12.5 mm (Polymer/Latex Modified)	TON
403.2084	Hot Mix Asphalt, 12.5 mm (incidentals)	TON
403.209	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size (sidewalks, drives, islands & incidentals)	TON
403.210	Hot Mix Asphalt, 9.5 mm Nominal Maximum Size	TON
403.211	Hot Mix Asphalt, Shimming	TON
403.212	Hot Mix Asphalt, 4.75 mm Nominal Maximum Size (Shim)	TON
403.213	Hot Mix Asphalt, 12.5 mm (Base and Intermediate Base Course)	TON

SPECIAL PROVISIONSECTION 403HOT MIX ASPHALT PAVEMENT

Course	HMA Grading	Item Number	Total Thickness	No. of Layers	Complimentary Notes
--------	-------------	-------------	-----------------	---------------	---------------------

Maine Mall Road and Broadturn Road Bridge Deck and Approaches

Wearing	12.5 mm	403.2081	1.5"	1	A,C,H,I,K
---------	---------	----------	------	---	-----------

Spot Shims/Delaminated Areas/Incidentals (As Directed by the Resident)

Shim	9.5 mm	403.211	variable	1/more	C,I
------	--------	---------	----------	--------	-----

Sidewalks

Incidental	9.5 mm	403.209	2"	1/more	C
------------	--------	---------	----	--------	---

COMPLEMENTARY NOTES

- A. The required PGAB for this mixture shall be **70E-28**.
- B. RAP may not be used.
- C. The Maine DOT will conduct the job mix verification. The aggregate qualities shall meet the design traffic level of 3 to <10 million ESALS for mix placed under this contract. Minimum and Maximum PGAB content limits from 401.21 shall not apply.
- D. The MTA will conduct the job mix verification. The aggregate qualities shall meet the design traffic level of 10 to <30 million ESALS for mix placed under this contract. The design verification, Quality Control, and Acceptance tests for this mix will be performed at **75 gyrations**. (N design)
- E. A material transfer vehicle (MTV) shall be used for the placement of Hot Mix Asphalt wearing surface on all roadways including acceleration and deceleration lanes and all ramps.
- F. Joints shall be constructed as the "notched wedge" type in accordance with Subsection 401.17.
- G. Joint density will be measured in accordance with Subsection 401.165.
- H. PGAB shall conform to the provisions of 403.02 – Polymer Modified PGAB for HMA
- I. The contractor shall furnish a quality control technician equipped with an approved densometer to ensure density requirements are met.
- J. Hydrated Lime may be incorporated into the mixture.
- K. The antistripping additive Zycotherm SP manufactured by Zydex Industries shall be incorporated into the PGAB at a rate of 0.125%.
- L. Carryover mix designs will not be permitted.

M. Special Provision section 401.166 BMD testing is required.

SPECIAL PROVISION

SECTION 409

BITUMINOUS TACK COAT

409.01 Description

This Subsection is deleted and replaced with the following:

This work consists of furnishing and applying one uniform application of Emulsified Asphalt RS-1 or RS-1h conforming to the specifications of AASHTO M-140. The application rate shall be 0.04 gal/yd²

409.05 Equipment

Add “or as determined by the Resident”, after the words “gal/yd²” in the fourth line of the second paragraph of this Subsection.

409.06 Preparation of Surface

The following paragraph is added:

All existing pavement and shoulder areas on which bituminous concrete mixtures are to be placed shall receive a tack coat. The surface area where the tack coat is to be applied shall be dry and cleaned of all dirt, sand, and loose material. Cleaning shall be accomplished by use of revolving brooms or mechanical sweepers. Undesirable material not removed by the above means shall be cleaned by hand sweeping or scraping, or a combination of both. Small areas otherwise inaccessible may be swept with hand brooms. The tack coat shall be applied only when the existing surface is dry.

409.08 Method of Measurement

The following paragraphs are added:

Measurement will be based on delivery slips made out in duplicate by the Contractor and signed by the Resident, or his representative, at the point of delivery. One of these slips shall be retained by the Resident and one by the Contractor. Delivery slips shall be furnished by the Contractor and shall provide space for identifying the vehicle and driver, for stating the volume of material carried, the source of the material, the date, and the Resident or his representative's signature.

Material included in the delivery slips and not used or rejected shall be deducted from the amount being measured for payment. Each day's delivery slips shall be reconciled by the Contractor and the Resident within 24-hours.

Cleaning of the surface area where tack coat is to be applied shall be incidental to the 409 items.

409.09 Basis of Payment

The following pay items are added:

<u>Pay Item</u>	<u>Pay Unit</u>
409.15 Bituminous Tack Coat RS-1 or RS1h– Applied	Gallon

SPECIAL PROVISION

SECTION 502

STRUCTURAL CONCRETE

(Weep Drain Extensions with Brace)

502.01 Description

The following sentence is added:

The work also consists of extending and bracing deck weep drains as noted on the Plans and as directed by the Resident.

502.03 Materials

The following paragraphs are added:

Bridge weep drain extensions shall match the material of the existing weep drains to be extended.

Braces for weep drain extensions shall be the materials noted on the Plans.

All structural concrete removed shall be replaced with a material from Maine Turnpike Authority's approved concrete patching material list. See Section 518 – Structural Concrete Repair.

502.17 Bridge Drains and Incidental Drainage

The following sentence is added:

Patch concrete with a concrete repair material with a concrete repair material from the Maine Turnpike Authority's approved concrete patching material list.

502.18 Method of Measurement

The following sentence is added:

Weep Drain Extensions with Brace will be measured by the each, as required on the Plans and directed by the Resident, complete in place and accepted.

502.19 Basis of Payment

The following paragraphs are added:

Weep Drain Extensions with Brace will be paid for at the Contract price per each, which price shall be the full compensation for measuring and preparing the existing weep drains,

providing shop drawings for approval by the Engineer of the intended repair method and materials, fabrication and installation of the weep drain extension, brace, deck removal and repair including all materials, labor, tools, equipment, and incidentals necessary for furnishing and installing the Weep Drain Extensions with Brace as detailed in the Plans and Specifications, and as directed by the Resident.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
502.7011 Weep Drain Extensions with Brace	Each

SPECIAL PROVISION

SECTION 506

SHOP APPLIED PROTECTIVE COATING - STEEL

(Field Painting of Existing Structural Steel)

506.01 Description

This section is amended by the addition of the following:

This work shall also consist of the cleaning and painting of the existing steel bearings at the I-295 Southbound Underpass, as noted in the Plans. The finish coat color shall match color of the existing paint system.

506.03 Submittals

This section is amended by the addition of the following:

The Contractor shall submit for review by the Authority a materials list and other such details as described within the Plans and the respective subsections of this Specification.

506.05 Inspection

This section is amended by the addition of the following:

The Resident will have the authority to reject material or workmanship that does not meet the Contract requirements.

506.06 Non-Conforming Work

This section is amended by the addition of the following:

Rejected material and workmanship shall be corrected or replaced by the Contractor in accordance with Subsection 106.8.2 of the Standard Specifications.

ZINC-RICH COATING SYSTEMS

506.10 Description

This section is amended by the addition of the following:

Work shall consist of application of a two coat, zinc-rich coating system in accordance with this Specification. Where the selected coating system is a three coat system, the intermediate coat shall be omitted and only the primer and top coat shall be applied.

506.11 Materials

This section is amended by the addition of the following:

Coatings systems shall be selected from the Northeast Protective Coating Committee (NEPCOAT) Qualified Products List (QPL) A or B list. The list may be found through the NEPCOAT Web page (<http://www.nepcoat.org>).

The Contractor shall provide the batch description, lot number, date of manufacture, shelf life and the manufacturer's published storage requirements for each coating to the Resident. In addition, the Contractor shall provide the manufacturer's published instructions for application of each coat of the coating system including equipment, surface preparation, anchor profile, mixing, thinning, application, cure time for the entire range of allowable environmental conditions, DFT and recoat time.

506.13 Surface Preparation

This section is amended by the addition of the following:

Removal of lead based paint shall be in accordance with Subsection 105.2, Health and Safety. The Contractor shall submit a lead based paint removal plan to the Resident for approval prior to the start of the work.

Prior to cleaning, all corners and edges of members and plates, whether rolled cut or sheared, exposed in the assembled product shall be rounded to approximately 1/8 inch radius. A series of tangents to the approximate radius will be considered as rounded

Surfaces to be field-painted shall be power tool cleaned to meet the requirements of SSPC-SP3. All surfaces shall be solvent wiped in accordance with SSPC-SP1 following power tool cleaning. Faying surfaces shall be blast cleaned to bare metal to meet the requirements of SSPC-SP6.

After cleaning is complete the surface shall be visually inspected for fins, tears, delaminations and other discontinuities. Fins, tears and other discontinuities shall be removed with a grinder or other suitable power tool and the area shall be blended at a slope of approximately 1:20.

The allowable time between cleaning and primer application shall not exceed the manufacturer's published recommendations or eight hours, whichever is less. If the substrate develops flash rust (rust bloom) before the primer is applied or before the primer application is completed, the piece shall be re-blasted to bare substrate and re-coated.

506.14 Inspection

This section is amended by the addition of the following:

All protective coatings shall be applied using a method approved by the Resident. Protective coating shall not be applied when the steel temperature, or the ambient temperature in the immediate vicinity of the piece(s) in question; See manufacturers guidelines for temperature

limitations. Thinning and mixing of coatings shall be in conformance with the manufacturer's published instructions. Thinner shall be measured using a graduated cup or other container that clearly indicates the amount of thinner being added. Mixing shall be done using the method, equipment and for the amount of time recommended by the coating manufacturer.

Primer and topcoat shall be applied in accordance with the manufacturer's published recommendations. Environmental conditions in the immediate vicinity of the surfaces to be coated shall be within the range of the manufacturer's published requirements both during the coating operation and during the curing period. Primer shall not be force cured.

Recoat time shall be in accordance with the manufacturer's published requirements for the environmental conditions at the time of application and cure. If the coating is contaminated with dust, debris, over spray or other deleterious material, the surface shall be cleaned in accordance with SSPC-SP 1 immediately prior to recoating. Other methods of cleaning may be used if approved by the Resident.

The Resident shall be given ample notice in order to inspect the product prior to coating, recoating or removal of paint from the area. "Ample notice" shall be defined at the Pre-Job meeting depending on shop or site conditions.

Substrates that are primed or surfaces that are recoated without notification of the Resident will be rejected and no further coating shall be done on the piece. Rejected coating shall be removed and re-applied. The cost of repairs shall be borne by the Contractor.

506.16 Touch-up and Repairs

This first paragraph is deleted and replaced with the following:

Damaged or unacceptable coatings shall be repaired. Damaged areas shall be prepared in accordance with the manufacturer's published instructions or as directed by the Resident. Damaged or unacceptable coatings shall be repaired using the same coating removed and prepared for repair. Environmental conditions, cure times and DFTs shall be in accordance with manufacturer's published directions for the coating being applied. Repairs to topcoat shall result in a uniform gloss and color match. The Resident shall have final authority concerning acceptable appearance.

506.60 Method of Measurement

The following sentences are added:

Field Painting of Existing Structural Steel will be measured by the lump sum, complete and accepted. The coating limits shall be as shown or described in the Contract Documents. Surface preparation of the existing steel bearings will not be measured separately for payment, but shall be incidental to the Field Painting of Existing Structural Steel pay item.

506.61 Basis of Payment

The following sentence is added:

Payment for Field Painting of Existing Structural Steel will be full compensation for furnishing all labor, materials, equipment and incidentals necessary to prepare and paint the existing steel bearings.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
506.14 Field Painting of Existing Structural Steel	Lump Sum

SPECIAL PROVISION

SECTION 515

PROTECTIVE COATING FOR CONCRETE SURFACES

(Pigmented Concrete Protective Coating)

Section 515, Protective Coating for Concrete Surfaces, is deleted in its entirety and replaced with the following:

515.01 Description

The work shall include the surface preparation and application of a pigmented concrete protective coating system, consisting of a pigmented penetrating sealer, to protect new and existing concrete and masonry structures. The coating system shall be applied in accordance with the manufacturer's published recommendations.

Where pigmented protective coatings are already present on concrete surfaces specified to receive new protective coatings, the work shall also include removing areas of existing protective coating that are blistered, flaking, peeling, or otherwise loosely adhered to the concrete substrate prior to application of the new coating. The removal of loosely adhered pigmented protective coatings shall be completed by high-pressure washing with a rotating nozzle head.

515.02 Materials

The pigmented penetrating sealer system shall be a one-coat system consisting of ChemMasters TextureDOT Smooth, as manufactured by ChemMasters, Inc., or an approved equal, consisting of the following:

- The coating shall be an acrylic silane polymer blend or an approved equal. This primer shall provide the main protection against the ingress of water borne chlorides and sulfates.

The products shall comply with regulations limiting the Volatile Organic Compound (VOC) content of architectural and industrial maintenance coatings.

The Contractor shall submit the product data sheets, material safety data sheets and recommended instructions for application of the ChemMasters Texture DOT Smooth coating.

The pigmented penetrating sealer color shall be Federal Color Number 16492 Concrete Gray.

Materials shall be delivered to the site in original packages or containers bearing the manufacturer's labels and identification.

515.021 Substitute Materials

The Contractor shall submit a written request for approval of proposed substitute material naming the proposed manufacturer and product. This request shall be accompanied by:

1. Test data from an independent testing laboratory stating that the proposed substitute meets or exceeds the specified requirements as listed and has been tested in accordance with the specified test standards.
2. Documentation that the proposed material has a proven record of performance when used in the intended application as confirmed by actual field tests and successful installations in place on at least five similar projects.
3. Certification that if two or more types of products are intended to be used as part of a system, they will be supplied by the same manufacturer to ensure compatibility of materials, and to maintain single source manufacturer responsibility.

The Resident reserves the right to require additional testing to evaluate any proposed substitute product at no additional cost to the Authority. The Resident's decision as to the acceptability or non-acceptability of the proposed product shall be final.

515.03 Surface Preparation

The surface shall be prepared in accordance with the instructions of the approved manufacturer. Surface shall be fully cured, dry, and free from contamination such as coatings, oil, grease, loose particles, decaying matter, moss, algae growth, and curing compounds. The Contractor shall lightly sandblast the surface to achieve an adequate surface roughness for coating adhesion, in accordance with manufacturer's recommendations. After sandblasting, all surfaces shall be rinsed by pressure washing, and allowed to air dry for a minimum of 48 hours. Once the surface preparation has been completed to the satisfaction of the Resident, the Contractor may apply the protective coating.

All caulking, patching, and joint sealant shall be installed and cured prior to application of the protective coating.

Existing form tie hole plugs which are loose or deteriorated shall be completely removed. The holes shall be reamed to sound concrete. All open form tie holes, new and existing shall be filled with an approved non-shrinking mortar, and after setting, rubbed level to the adjacent surface. Filled holes shall be cured for at least two (2) days prior to the application of the protective coating.

Grass and vegetation adjacent to surfaces to be coated shall be removed or trimmed closely to permit proper preparation and application of the protective coating.

Where protective coatings are specified to be applied to concrete surfaces that have been previously covered with pigmented coating, the Contractor shall remove any protective coating that, in the judgement of the Resident, is blistered, flaking, peeling, or otherwise loosely adhered to the concrete substrate. Loosely adhered coating shall be generally defined as any coating that

can be removed by vigorously scraping the concrete surface using a 3" steel putty knife and firm pressure. The goal of the removal work is to remove areas of flaking, missing or otherwise compromised coating systems; protective coatings that are tightly adhered to the concrete substrate need not be removed.

The removal of existing protective coatings shall be completed using high pressure washing. The specific pressure, flow rate, nozzle and standoff distance for the high-pressure washing operation shall be selected by the Contractor to remove loosely adhered coatings as specified. After high-pressure washing, the Resident shall verify all loosely adhered coatings have been removed from the specified areas by scraping the surfaces with a putty knife. The Contractor will be required to complete additional pressure washing to remove any remaining loosely adhered coatings identified by the Resident.

The Contractor may use, when required, appropriate cleaning materials recommended by the sealer manufacturer in conjunction with high pressure washing with a rotating nozzle head. Following removal of existing coating systems, all surfaces of the substructure unit to be coated shall be lightly sandblasted to achieve a surface roughness adequate for coating adhesion, then cleaned and rinsed by pressure washing.

The Contractor will be responsible for controlling and filtering runoff resulting from the pressure washing operations in accordance with Supplemental Specification 656, and all local, state, and federal requirements.

515.04 Application

The materials shall be mixed and applied in strict accordance with the instructions of the approved manufacturer. Apply the coating at the recommended application rate. If the surface is very absorbent, the coating should be applied until surface is saturated per the manufacturer's written instructions. All areas not to receive coating shall be marked with straight, even lines as the limit lines.

The Contractor shall, in the presence of the Resident, apply the materials on a sample area which is representative of a jobsite application. When color and application methods are approved, the sample area shall serve as a standard of acceptance for all further work.

The application shall not be conducted when surface and air temperatures are below 40°F or above 90°F. The work shall not be conducted when there is a chance of the surface temperature falling below 40°F in the 24-hours following application; nor should it be applied on hot, windy days.

The treatment shall not be applied during rain to wet surfaces or when there is a chance of rain within 24-hours after application. After treatment, surfaces should be protected from rain for not less than 48-hours. It shall not be applied when winds are sufficient to carry airborne chemicals to unprotected surfaces.

Coating material shall be applied per the manufacturer's recommended application rate and in strict accordance with the manufacturer's written instructions. The coating shall provide

consistent color without light spots or shadows. The Resident reserves the right to have the Contractor recoat coating if the dried coat lacks consistent color or shows light spots or shadows.

For surfaces that have previously received pigmented coating, the coating shall be applied to the complete limits of pigmented coating application as described on the Contract Plans, not just the area of old coating removal.

Regardless of the application method used (sprayer, roller, or brush) the Contractor shall be responsible for achieving 100% coverage of the concrete including the interior surfaces of concrete voids, recesses, or other depressions on the concrete surface.

Protect plants, grass, sealant, asphalt, traffic, etc. during application from spray.

515.05 Method of Measurement

Pigmented Protective Coating will be measured for payment by the square yard satisfactorily applied and accepted.

No separate measurement will be made for providing, cleaning, and coating test area.

515.06 Basis of Payment

Pigmented Protective Coating will be paid at the Contract unit price per square yard which price shall be full compensation for all labor, materials, equipment and incidentals required for furnishing and applying the coating as shown on the Plans, in accordance with these Specifications or as approved by the Resident.

Surface preparation, including high-pressure washing to remove existing pigmented coatings, sandblasting, vegetation removal, and protection of surfaces not designated for treatment will not be measured separately for payment, but shall be incidental to the Pigmented Protective Coating pay item.

Providing, cleaning, and coating test area will not be measured separately for payment, but shall be incidental to the Pigmented Protective Coating pay item.

Payment will be made under:

Pay Item

Pay Unit

515.201	Pigmented Protective Coating for Concrete Surfaces	Square Yard
---------	---	-------------

SPECIAL PROVISIONSECTION 515PROTECTIVE COATING FOR CONCRETE SURFACES

(Clear Concrete Protective Coating)

Section 515, Protective Coating for Concrete Surfaces, is deleted in its entirety and replaced with the following:

515.01 Description

The work shall include the surface preparation and application of a clear protective coating on concrete surfaces as depicted on the Plans to protect new cast-in-place concrete, precast concrete, masonry structures, existing concrete receiving repairs, and existing concrete exposed by concrete haunch removals. Coating application shall be in accordance with the Plans, Specifications and the manufacturer's published recommendations.

515.02 Materials

The penetrating sealer shall be:

Certi-Vex Penseal 244-100%

Type	1c Penetrating Silane
Min. Appl.Temp. (F)	20-90
Silanes (%)	100% silane, alcohol based
VOCs (g/L)	< 250

Sikagard 705 L

Type	1c Penetrating Silane
Min. Appl.Temp. (F)	40-95
Silanes (%)	100% silane, alcohol based
VOCs (g/L)	100

SIL-ACT ATS-100 LV Silane

Type	1c Penetrating Silane
Min. Appl.Temp. (F)	40-110
Silanes (%)	100% silane, alcohol based
VOCs (g/L)	< 250

SIL-ACT ATS-300

Type	1c Penetrating Silane
Min. Appl.Temp. (F)	20-110
Silanes (%)	100% silane, solvent based
VOCs (g/L)	242

The product shall comply with regulations limiting the Volatile Organic Compound (VOC) content of architectural and industrial maintenance coatings.

The Contractor shall submit the product's data sheets, material safety data sheets and recommended instructions for application.

Materials shall be delivered to the site in original packages or containers bearing the manufacturer's labels and identification.

515.03 Surface Preparation

All caulking, patching, and joint sealant shall be installed prior to application of the sealer. On new surfaces to be treated, all voids shall be dressed by dry rubbing to remove form marks and blemishes to present a neat appearance. Concrete and masonry surfaces shall be cleaned free of dust, surface dirt, oil, efflorescence and contaminants to ensure penetration of the sealer.

The Contractor may use, when required, appropriate cleaning materials recommended by the sealer manufacturer in conjunction with high pressure water for cleaning the concrete or masonry.

515.04 Application

The Contractor shall apply the clear concrete protective coating in strict accordance with the manufacturer's published recommendations.

The work shall not be conducted when there is a chance of the surface temperature falling below minimum allowable temperature in the 24-hours following application; nor should it be applied on hot, windy days.

The treatment shall not be applied during rain to wet surfaces. It shall not be applied when winds are sufficient to carry airborne chemicals. Product shall be cured per the manufacturer's recommendations.

Prior to applying the sealer, the Contractor shall protect all surrounding non-masonry/non-concrete surfaces, landscape and lawn areas, and surfaces not designated for treatment, from contact with the penetrating sealer, and prevent overspray of the penetrating sealer caused by wind drift.

The Contractor shall ensure that all safety equipment, facilities and precautions recommended by the product manufacturer are furnished and/or strictly adhered to.

The sealer material shall be applied in the manner and with the equipment recommended by the product manufacturer. Coverage will vary depending on condition, texture and porosity of the surfaces. Pre-testing is required to determine acceptability of the procedure.

Sealer shall be applied as packaged without dilution or alteration. Sufficient material shall be applied to thoroughly saturate the surface making sure to brush out excess material that does not penetrate.

When the sealer is applied to horizontal surfaces, it shall be applied in a single saturating application with sufficient material and applied so the surface remains wet for one to two minutes before penetration into the concrete. Surface residues, pools and puddles shall be broomed-out thoroughly until they completely penetrate into the surface.

When the sealer is applied to vertical and sloped surfaces, it shall be applied in a "wet-on-wet" application for best results on most porous materials. In the case of extremely dense concrete, it may be necessary to restrict the amount of material applied to one saturating application in order to prevent surface darkening.

515.05 Method of Measurement

Clear Protective Coating for Concrete Surfaces will be measured for payment by the square yard, satisfactorily applied and accepted.

515.06 Basis of Payment

Clear Protective Coating for Concrete Surfaces will be paid at the Contract unit price per square yard which price shall be full compensation for all labor, materials, equipment and incidentals required for furnishing and applying the clear concrete protective coating as shown on the Plans, in accordance with these Specifications or as approved by the Resident.

Surface preparation, vegetation removal, and protection of surfaces not designated for treatment will not be measured separately for payment, but shall be incidental to the Clear Protective Coating for Concrete Surfaces item.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
515.202 Clear Protective Coating for Concrete Surfaces	Square Yard

SPECIAL PROVISION

SECTION 515

PROTECTIVE COATING FOR CONCRETE SURFACES

(Broadcast Sealant for Concrete Surfaces)

Section 515, Protective Coating for Concrete Surfaces, is deleted in its entirety and replaced with the following:

515.01 Description

The work shall include the surface preparation and application of a broadcast sealant on concrete surfaces to Maine Mall Road and Broadturn Road as shown on the plans. The coating system shall be applied to the slab wearing surface in accordance with the Plans, Specifications and the manufacturer's published recommendations.

515.02 Materials

The broadcast sealer shall be one of the following products, or an approved equal:

- T-78 Methyl Methacrylate Crack Sealer, as manufactured by Transpo Industries, Inc.
- KBP 204 P Seal, as manufactured by Kwik Bond Polymers
- MasterSeal 630, as manufactured by BASF

The product shall comply with regulations limiting the Volatile Organic Compound (VOC) content of architectural and industrial maintenance coatings.

The Contractor shall submit the product's data sheets, material safety data sheets and recommended instructions for application.

Materials shall be delivered to the site in original packages or containers bearing the manufacturer's labels and identification.

515.03 Surface Preparation

Concrete surfaces shall be cleaned to remove dust, surface dirt, oil, laitance, and other contaminants to ensure proper coverage and penetration of the sealer. Surface preparation shall be performed in strict conformance with the manufacturer's published recommendations.

The Contractor shall use cleaning materials and methods recommended by the sealer manufacturer in conjunction with high pressure water for cleaning the concrete.

The Resident shall approve the prepared surface prior to applying the sealer.

515.04 Application

The Contractor shall apply the sealer in strict accordance with the manufacturer's published recommendations. If there is a conflict between the manufacturer's recommendations and the restrictions below, the stricter of the two criteria shall apply. Coverage will vary depending on the condition, texture and porosity of the surfaces. A second coat may be required on very porous substrates.

The application shall not be conducted when surface and air temperatures are outside the range recommended by the manufacturer. The work shall not be conducted when there is a chance of the surface and air temperatures falling outside of the recommended temperature range during the appropriate curing time for the air temperature plus four hours.

The treatment shall not be applied during rain, to wet surfaces, or when there is a chance of rain within 48 hours after application. Following any rain fall, allow the concrete to air dry a minimum of 48 hours before applying broadcast sealant. Sealant shall not be applied when winds are sufficient to carry airborne chemicals to unprotected surfaces.

Prior to applying the sealer, the Contractor shall protect all surrounding non-concrete surfaces, streams, landscape and lawn areas, and surfaces not designated for treatment, from contact with the penetrating sealer, and prevent overspray of the penetrating sealer caused by wind drift. Provide shielding as necessary to prevent dust, debris, and overspray from striking vehicular traffic.

The Contractor shall ensure that all safety equipment, facilities and precautions recommended by the product manufacturer are furnished and/or strictly adhered to.

Sealer shall be applied as packaged without dilution or alteration from manufacturer's recommended mixing instructions. Sufficient material shall be applied to thoroughly saturate the surface making sure to brush out excess material that does not penetrate.

When the sealer is applied to horizontal surfaces, it shall be applied in a single saturating application with sufficient material and applied so the surface remains wet for one to two minutes before penetration into the concrete. Surface residues, pools and puddles shall be broomed-out thoroughly until they completely penetrate into the surface.

Broadcast sand shall be applied either by hand or mechanical means on the entire treated area of concrete surfaces prior to cure to achieve a uniform coverage. Follow the manufacturer's requirements for the amount of sand per square area. Place the sand as the sealant begins to gel. Placing of the sand before the gelling of the sealant may cause settlement, excessive coating of the sand, and loss of friction characteristics. Additional sand that does not adhere to the sealant shall be brushed off. The surface shall be inspected and approved by the Resident before allowing traffic to resume. An alternative to sand, if the manufacturer's requirements allow, is providing a brushed finish for skid resistance.

515.041 Storage

Store in factory sealed containers of unmixed material at temperatures within the range recommended by the manufacturer away from direct sunlight and sources of heat. Once the container is opened for product use the manufacturer’s requirements shall be followed for storage and the product shall not be used if the recommended shelf life is exceeded.

515.05 Method of Measurement

Broadcast Sealant for Concrete Surfaces will be measured for payment by the square yard, satisfactorily applied and accepted.

515.06 Basis of Payment

Broadcast Sealant for Concrete Surfaces will be paid at the Contract unit price per square yard which price shall be full compensation for all labor, materials, equipment and incidentals required for furnishing and applying the sealer as shown on the Plans, in accordance with these Specifications or as approved by the Resident.

Surface preparation and protection of surfaces not designated for treatment will not be paid for separately, but shall be incidental to the Broadcast Sealant for Concrete Surfaces item.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
515.203 Broadcast Sealant for Concrete Surfaces	Square Yard

SPECIAL PROVISIONSECTION 518STRUCTURAL CONCRETE REPAIR

(Epoxy Injection Crack Repair)

518.01 Description

The following paragraphs are added:

The work includes epoxy injection crack repair at the locations shown in the Plans and as described below.

- Epoxy Injection Crack Repair includes repair of concrete cracks with widths equal to or greater than 1/8 inches as shown on the Plans or identified by the Resident.

518.02 Repair Materials.

The following paragraphs are added:

Epoxy Injection Crack Repairs shall be completed using a high strength, low viscosity moisture tolerant epoxy resin as recommended by the manufacturer and approved by the Resident. The proposed repair materials shall be submitted to the Resident for approval.

The structural properties of all crack repair materials shall meet or exceed the following requirements:

Tensile Strength (@ 7 days)	5,000 psi	ASTM D638
Bond Strength (@ 14 days)	1,000 psi	ASTM C882
Compressive Strength (@ 3 days, 73 °F)	5,000 psi	ASTM D695
Compressive Modulus (@ 7 days)	250 ksi	ASTM D695
Flexural Strength (@14 days)	8,000 psi	ASTM D790

Wide cracks (1/2" +/- and greater) may be repaired with a non-shrink cementitious grout as recommended by the manufacturer. The following product shall be used:

- CONSPEC UW300 as manufactured by Dayton Superior, 7777 Washington Village Drive, Suite 130, Dayton OH, 45459

518.07 Placing Repair Materials

The following Subsection is added:

518.071 Placing Epoxy Injection Materials

- a) Mix epoxy components per manufacturer's instructions. Review pot life characteristics of combined materials and prepare quantities accordingly;
- b) Open all injection ports along the crack and ensure that all injection ports are securely fastened to the concrete substrate;
- c) Attach injection device to the lowest port on vertical cracks, or the first port in the series on horizontal cracks;
- d) Slowly and under constant pressure, inject the epoxy material into the first port until the epoxy flows out of the next port in the series. While maintaining constant pressure and flow at the first port, close the adjacent port and continue injection process until epoxy flows from the subsequent port in the series, or until no additional epoxy can be injected into the first port.
- e) Repeat the above procedure until all ports have been injected.

518.10 Method of Measurement

The quantity of Epoxy Injection Crack Repair will be measured by the linear foot.

518.11 Basis of Payment

The following paragraphs are added:

Epoxy Injection Crack Repair will be paid at the Contract unit bid price per linear foot for each repair; which price shall include, but not necessarily be limited to, removal and disposal of materials, cleaning existing concrete, placing, curing and finishing epoxy and all materials, labor, equipment, tools and incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
518.4 Epoxy Injection Crack Repair	Linear Foot

SPECIAL PROVISION

SECTION 518

STRUCTURAL CONCRETE REPAIR

(Parapet Joint Repair)

518.01 Description

The following paragraph is added:

This work shall consist of the removal and replacement of existing parapet joint sealant to the limits shown on the Plans, and as directed by the Resident. The Contractor shall provide the Resident safe access to all the parapet joints for inspection before this work begins, including access to the fascia parapet joints in areas of parapet replacement.

518.032 Construction Requirements

The following paragraph is added: After the Resident has identified the joint repair locations, the Contractor shall remove the existing joint sealant to a minimum 1 3/8 inch depth, clean and prepare the concrete surfaces per sealant manufacturer recommendations, and replace the sealant to the edge of concrete with an approved polyurethane-based sealant, such as Sikaflex-1a, or other product on the MaineDOT approved products list as approved by the Resident.

518.10 Method of Measurement

The following sentence is added:

The quantity of Parapet Joint Repair will be measured by the linear foot authorized and accepted.

518.11 Basis of Payment

The following sentence is added:

Parapet Joint Repair will be paid for at the Contract unit price per linear foot, which includes providing access for construction and inspection, materials, labor, equipment, and incidentals necessary to satisfactorily remove existing joint sealant, prepare the surfaces to receive new sealant, and the installation of new sealant.

Pay Item

Pay Unit

518.43 Parapet Joint Repair

Linear Foot

SPECIAL PROVISION

SECTION 518

STRUCTURAL CONCRETE REPAIR

(Elastomeric Concrete)

518.01 Description

The following paragraph is added:

The work includes placement of new elastomeric concrete at the deck expansion joints, as shown on the Plans and as directed by the Resident. The work also includes removal of any areas of deteriorated concrete at the top of the backwall or deck end, and preparation of the concrete surface in accordance with Supplemental Specification 518 and as directed by the Resident.

518.02 Repair Materials.

The following paragraphs are added:

The materials shall be from one of the manufactures on the Maine Department of Transportation Qualified Products List of Elastomeric Concrete.

Products shall be delivered to the site in Manufacturer's original, intact, labeled containers. Products shall be handled and protected as necessary to prevent damage or deterioration during shipment, handling and storage. Products shall be stored in accordance with Manufacturer's instructions.

518.07 Placing Repair Materials

The following paragraph is added:

The installation shall be conducted in strict accordance with the selected manufacturer's recommendations.

518.10 Method of Measurement

The following paragraph is added:

The quantity of Elastomeric Concrete will be measured by the cubic foot.

518.11 Basis of Payment

The following paragraphs are added:

Elastomeric Concrete will be paid for at the contract unit price per cubic foot, which shall be payment in full for furnishing all materials, labor and equipment, including removing any deteriorated backwall or deck end concrete, preparation of the surfaces in accordance with the manufacturer’s recommendations, placement of the proposed elastomeric concrete, and all incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
518.865	Elastomeric Concrete	Cubic Foot

SPECIAL PROVISION

SECTION 518

STRUCTURAL CONCRETE REPAIR

(Concrete Header Repair)

518.01 Description

The following paragraph is added:

At the Broadturn Road and Maine Mall Road bridges, the work includes placement of a new concrete header and concrete repair to the existing backwall and/or deck below the proposed headers at the deck expansion joints, as shown on the Plans and as directed by the Resident. The work also includes removal of any areas of deteriorated concrete at the top of the backwall and/or deck and preparation of the concrete surface in accordance with Supplemental Specification 518 and as directed by the Resident. If the repair depth is less than 6 inches from the top of the proposed header, the work shall include placement of new elastomeric concrete in accordance with Special Provision 518 (Elastomeric Concrete). At Broadturn Road, if the depth of repair is greater than 6 inches from the top of the proposed header, AAA concrete modified with 3/8" aggregate may be used for the repair and the header in accordance with this Special Provision and at the direction of the Resident

518.02 Repair Materials.

The following paragraphs are added:

The repair and header materials shall be Class AAA Concrete modified with 3/8" Aggregate in accordance with Supplemental Specification 518.

518.10 Method of Measurement

The following paragraph is added:

The quantity of Concrete Header Repair will be measured by the cubic foot. If the Contractor completes the repair and header under Item 518.865, Elastomeric Concrete then this item will not be measured for payment.

518.11 Basis of Payment

The following paragraph is added:

Concrete Header Repair will be paid for at the contract unit price per cubic foot, which shall be payment in full for furnishing all materials, labor and equipment, including removing any deteriorated backwall concrete, preparation of the surfaces of the joint in accordance with the manufacturer's recommendations, placement of the proposed AAA concrete modified with 3/8" aggregate, and all incidentals necessary to complete the work.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
518.866 Concrete Header Repair	Cubic Foot

SPECIAL PROVISIONSECTION 520EXPANSION DEVICES – NON-MODULAR

(Silicone Coated and Pre-Compressed Seal)

520.01 Description

At the Maine Mall Road Underpass the work shall consist of furnishing and installing a waterproof expansion joint at each abutment in accordance with the details shown on the plans and the requirements of this specification. Preformed sealant shall be silicone pre-coated, preformed, pre-compressed, self-expanding, sealant system. The work shall also consist of removing the existing compression seal and saw cutting the top flanges of the existing steel edge beams thereof, including any required surface preparation, as shown in the Plans and as directed by the Resident.

520.02 Materials

The pre-compressed sealant shall be Bridge Expansion Joint System (BJES) as manufactured by EMSEAL, Willseal 250 as manufactured by Tremco, or approved equivalent.

Approved equivalents shall meet the following requirements:

The expansion joint system shall be comprised of two components:

1. Cellular polyurethane foam impregnated with hydrophobic 100% acrylic (free in composition of any waxes or asphalts), water-based emulsion, and factory coated with highway-grade, fuel resistant silicone.
2. Field-applied epoxy adhesive primer.

Impregnation agent shall have proven non-migratory characteristics. Silicone coating shall be black or grey and be highway-grade, low-modulus, fuel resistant silicone applied to the impregnated foam sealant at a width greater than maximum allowable joint extension and which when cured and compressed will form a bellows

Material shall be capable of movements of +50%, -50% (100% total) of nominal material size, tested in accordance with ASTM E1399.

All products must be certified by independent laboratory test report to be free in composition of any waxes or wax compounds using FTIR and DSC testing.

All products shall be certified in writing to be: a) capable of withstanding 150°F (65°C) for 3 hours while compressed down to the minimum of movement capability dimension of the basis of design product (-50% of nominal material size) without evidence of any bleeding of impregnation medium from the material; and b) that the same material after the heat stability test

and after first being cooled to room temperature will subsequently self-expand to the maximum of movement capability dimension of the basis-of-design product (+50% of nominal material size) within 24 hours at room temperature 68°F (20°C).

Alternate manufacturers must demonstrate that their products meet or exceed the design criteria and must submit certified performance test reports performed by nationally recognized independent laboratories. Submittal of alternates must be made three weeks prior to fabrication to allow proper evaluation time.

The following systems have been pre-approved for use on this project:

Bridge Expansion Joint System (BJES) as manufactured by EMSEAL.
25 Bridle Lane
Westborough, MA 01581
Phone: 800-526-8365
www.emseal.com

Willseal 250 as manufactured by Tremco.
34 Executive Drive
Hudson, NH 03051
Phone: 800-274-2813
www.willseal.com

520.03 Fabrication

Submittals – Prior to construction, the Contractor shall prepare and submit:

- A. Typical joint seal system drawing(s) indicating pertinent dimensions, general construction, and expansion joint opening dimensions. Directional changes and terminations into horizontal plane surfaces shall be shown in the drawings. No field splices are allowed within 2 feet of a low point.
- B. Joint seal system product information, including complete installation instructions.
- C. Samples of the materials comprising the joint seal system.

The joint seal system shall be supplied pre-compressed to less than the joint size, packaged in shrink-wrapped lengths with a mounting adhesive on one face.

520.04 Delivery

Products shall be delivered to the site in Manufacturer's original, intact, labeled containers. Products shall be handled and protected as necessary to prevent damage or deterioration during shipment, handling and storage. Products shall be stored in accordance with Manufacturer's instructions.

520.05 Installation

The Contractor shall remove the existing compression seal and saw cut the top flanges of the existing steel edge beams thereof. The saw cutting shall be performed with a circular metal cutting saw and/or large grinder with metal cutting blades 8 inches or more in diameter. Torches are unacceptable. A straight-line marker is required. Layout of the cuts shall be reviewed by the Resident prior to cuts being made. Straightness of the cuts must be 1/8 inch in 12 feet or better. All cut edges shall be smoothed. Labor used to perform saw cutting of the existing steel edge beam top flanges shall be qualified welders in accordance with the most recent edition of the D1.5 Code.

The Contractor shall arrange with the pre-compressed sealant's manufacturer to have the services of a competent field representative at the work site prior to any installation to instruct the work crews in the proper installation procedures. The field representative shall remain at the job site after work commences and continue to instruct until the representative and the Contractor, Inspector and Engineer are all in agreement that the crew has mastered the technique of installing the system successfully.

The manufacturer's field representative must be fully qualified to perform the work and shall be subject to the approval of the Engineer.

Immediately prior to the installation of the seal element, the steel or concrete contact surface shall be prepared per the manufacturer's requirements and to the satisfaction of the manufacturer's field representative.

Any protruding roughness of the surfaces shall be removed to ensure joint sides are smooth. The Contractor shall ensure that there is sufficient depth to receive the full depth of the size of the seal being installed. The joint gap shall be inspected for cleanliness by the Resident. Should any contaminants remain, the joint must be re-cleaned.

The joint seal shall be protected by the Contractor to prevent any damage by any site equipment or other matters throughout the on-going construction process.

520.06 Method of Measurement

Expansion Device – Silicone Coated and Pre-compressed Seal will be premeasured by the linear foot, as measured along the joint centerline complete in place. Labor will not be measured separately, but will be incidental to the Expansion Device – Silicone Coated and Pre-compressed Seal pay item.

520.07 Basis of Payment

Expansion Device – Silicone Coated and Pre-compressed Seal will be paid for at the contract unit price per linear foot, which shall be payment in full for furnishing all materials, labor and equipment, including the manufacturer's field representative, removal and disposal of existing joint seals, and preparation of the steel or concrete surfaces of the joint in accordance with the manufacturer's recommendations, and all incidentals necessary to provide a complete watertight joint seal.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
520.234	Expansion Device – Silicone Coated and Pre-Compressed Seal	Linear Foot

SPECIAL PROVISION

SECTION 523

BEARINGS

(Bearing Removal and Installation)

523.01 Description

The following paragraphs are added:

This work shall also consist of removing existing bearing assemblies. The existing bearing assemblies specified for removal shall become the property of the Contractor and shall be removed from the site.

All new bearings shall be coated with a Zinc Rich Coating System in accordance with Standard Specification Section 506. The top coat color shall match the existing paint color.

This work shall also consist of removing all lead based paint that will be disturbed by the removal of the existing bearings.

523.09 Installation of Bearings

The following paragraphs are added:

Where required, the removal of lead based paint shall be in accordance with Subsection 105.2, Health and Safety. The Contractor shall submit a lead based paint removal plan to the Resident for approval prior to the start of the work.

All surfaces of steel girders where paint is removed for welding shall be repaired after bearing installation in accordance with Special Provision 506, or as approved by the Resident.

523.50 Method of Measurement

The following sentences are added:

Bearing Removal and Installation will be measured for payment by the actual number of bearings removed and replaced.

Transporting and stacking of existing bearings, or disposal of existing bearings, will not be measured for payment directly, but shall be incidental to the related Contract Items.

Construction of concrete bearing pedestals required for bearing installation will be measured for payment separately under the respective Structural Concrete pay item.

Jacking and temporary support of bridge girders required for bearing removal and installation will be measured for payment separately under the respective Temporary Structural Support pay item.

523.51 Basis of Payment

The following paragraphs are added:

Bearing Removal and Installation will be paid for at the contract unit price each, which price shall be full compensation for all materials, equipment, labor and incidentals required for: lead paint removal; bearing removal and disposal or transporting and stacking; preparing the steel girders and concrete surfaces to receive bearings; and field repair of painted or galvanized surfaces.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
523.521 Bearing Removal and Installation	Each

SPECIAL PROVISION

SECTION 524

TEMPORARY STRUCTURAL SUPPORTS

(Protective Shielding - Steel Girders)
(Protective Shielding - Prestressed Structural Concrete I-Girders)
(Protective Shielding - Prestressed Structural Concrete Slabs)

524.01 Description

The following paragraph is added:

This work shall also consist of furnishing all labor, equipment and materials required to provide protection for the public during demolition and construction. This protection shall include, but not necessarily be limited to, protective shielding of existing structures during demolition work, concrete removal, and installation of temporary deck support over roadway lanes and shoulders on all existing and new bridge structures.

The following Subsections are added:

524.031 Protective Shielding Design

Prior to the start of work, the Contractor shall submit working drawings for review and comment indicating the sizes and dimensions of protective shielding. If the shielding is to be attached to prestressed concrete components the submittal shall be coordinated with the respective precast concrete shop drawings. The proposed methods of protective shielding, including connections and fasteners, shall be in accordance with the following criteria:

The protective shielding shall be designed for safely supporting all construction and dead loads, but not less than 100 pounds per square foot with a load duration of seven (7) days. Protective shielding shall be stiff enough to limit deflection to 1/2 inch under maximum loads and to be tightly sealed at all joints. The protective shielding shall be placed on the tops of the bottom flanges of the steel girders, or between the web or bottom flanges of the concrete I-girders, with edges and laps made tight to protect the turnpike motorists from dust, debris and falling objects.

Special hangers may be required to support shielding on prestressed structural concrete I-girders or prestressed structural concrete slabs. The Contractor will not be permitted to install inserts, shoot fasteners, or drill holes in the concrete I-girders or concrete slabs to support the shielding. The Contractor may propose 3/4 inch or one inch diameter sleeves be installed in the webs of the girders during fabrication for temporary fasteners to pass through. The proposed and approved sleeves shall be coordinated with the girder manufacturer; and shall be filled, and stuck flush, with an epoxy grout after the protective shielding is removed.

524.041 Protective Shielding Erection and Removal

No portion of the protective shielding installed over a roadway shall project below a plane connecting the bottoms of the bottom flanges of the steel stringers or concrete I-girders. During demolition operations, the protective shielding shall be covered with sheet plastic made tight at edges and laps to prevent water used in the sawcutting operation from falling onto the facilities under the bridge.

The protective shielding on existing and new structures shall extend horizontally three feet beyond the fascia lines and vertically to a point one foot minimum above the top of parapet or railing. The shielding shall also extend 10 feet beyond the edge of pavement of the roadway below, unless otherwise noted on the Plans or as approved by the Resident.

Shielding shall be approved and installed prior to the start of any demolition work and shall remain in position during all demolition work. Shielding shall also be approved and installed prior to the start of any deck forming and shall remain in position during all deck work. The shielding shall be relocated or removed only as approved by the Resident.

Construction sequences may require protective shielding material to be removed, stored and then reinstalled by the Contractor. Any shielding which is damaged during this removal and reinstallation shall be replaced by the Contractor at no additional cost.

524.28 Method of Measurement

The following paragraph is added:

Protective Shielding will be measured by the square yard for shielding designed, installed, removed and disposed or stacked. For purposes of computing the area, only the horizontal plan dimensions will be used.

524.29 Basis of Payment

The following paragraphs are added:

Protective Shielding will be paid for at the Contract bid price per square yard and shall include all design, materials, transportation and stacking, labor (to install, remove and stack as needed), tools and equipment necessary to perform the work as described above or as approved by the Resident. The measurement shall include one sequence of placement, removal, and on-site storage (if applicable for intended reuse) of Protective Shielding. Where bridge and girder construction dictates that Protective Shielding is to be installed in the same location at a later date, then the quantity of Protective Shielding shall be increased accordingly to reflect the total work, and shall be tabulated on the drawings. Therefore, the calculated quantity of Protective Shielding will be the summation of each sequence noted above (placement, removal, and on-site storage). The Contractor shall note that additional timber material may be required to accommodate differing girder spacing or differing overhang dimensions.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
524.40	Protective Shielding - Steel Girders	Square Yard
524.41	Protective Shielding - Prestressed Concrete I-Girders	Square Yard
524.42	Protective Shielding - Prestressed Structural Concrete Slabs	Square Yard

SPECIAL PROVISIONSECTION 524TEMPORARY STRUCTURAL SUPPORTS

(Jacking Existing Superstructure)

524.01 Description

The following paragraphs are added:

At I-295 Southbound Underpass, this work shall consist of the jacking and temporary structural support of the existing superstructures at the pier locations to allow for the removal and resetting of existing bearings and associated concrete patch repair work.

This work shall also consist of designing, fabricating, erecting, operating, maintaining, and dismantling the temporary structural supports and jacking systems required to perform the work, including resetting the affected bearings.

524.02 Materials

The following paragraphs are added:

Materials used as temporary structural supports shall be structural grade sawn timber, structural steel, or a combination of both, at the Contractor's option. All temporary structural support materials, whether new or used, shall be sound and of adequate strength and cross section for the intended loads. All structural steel shall have a minimum yield strength of 36,000 psi.

Blocking and/or pads required to accommodate differences in elevation and/or to distribute loads to the soil may additionally incorporate plain and reinforced concrete as approved by the Resident.

524.03 Design

The following paragraphs are added:

The jacking system and temporary structural supports shall be designed to support all applicable loads including, but not limited to, all vertical loading including live load and impact, transverse and longitudinal horizontal loads, differential settlement induced loads, and shall account for any temporary unbalanced loading due to jacking forces and other loading during load transfer. The temporary structural supports shall be designed with sufficient redundancy that failure of one member will not cause the collapse of the entire system or the supported structure. Temporary structural supports which are adjacent to traveled ways or which support structures carrying traffic, shall additionally be designed to resist any vibration or impact forces due to traffic and shall incorporate sufficient protection against impact by errant vehicles. Temporary structural supports which are founded on, or are in close proximity to, existing structures to be rehabilitated shall be designed to resist any vibration induced by other work to be completed on the project.

The jacking system and temporary structural support shall be designed and sealed by a Professional Engineer licensed in the State of Maine. Design computations, plans, details, working drawings, and other documentation necessary to complete the work and certify conformance with these provisions shall be approved by the Resident prior to beginning this work.

The Contractor shall provide bracing or other means of restraint to prevent longitudinal and transverse movement of the superstructure and twisting of the stringers or deck during the jacking operations, and while the superstructure is temporarily supported. These lateral restraints shall include steel sliding plates, or alternative low friction rigid material, to facilitate vertical movement of the superstructure during jacking operations.

All design, detail and load requirements shall conform to the most current edition of the AASHTO LRFD Bridge Design Specifications with applicable Interim Specifications, the Contract Plans, the Standard Specifications, and as specified herein. The design computations shall verify the proposed jacking scheme does not introduce unacceptable stresses in the existing bridge components including steel girders, diaphragms, connections, bridge decks, and pier caps. All design computations submitted for approval shall be reviewed, checked, and initialed accordingly. Any support systems requiring attachment to existing concrete shall be approved by the Resident. Systems requiring extensive drilling and anchoring into existing concrete will not be accepted.

The unfactored bearing loads are as follows:

Interior Bearings:

Interior Dead Load: 161 kips/girder

Interior Live Load: 130 kips/girder

Exterior Bearings:

Exterior Dead Load: 148 kips/girder

Exterior Live Load: 111 kips/girder

The Contractor shall provide a jacking system and a temporary support system with a capacity of at least 150% of the calculated loads.

The jacking force applied at each jack location shall not exceed of 125% of the loads identified to avoid overstressing, or otherwise damaging, the pier caps or superstructure. If loads in excess of these limits are required the jacking operations shall cease and the Resident shall be notified. Jacking operations shall not resume until guidance is provided by the Resident. Jacks on the piers and abutments shall be located on the existing centerlines of bearing.

Removal of lead based paint shall be in accordance with Subsection 105.2.4.2, Lead Paint. The Contractor shall submit a lead based paint removal plan to the Resident for approval prior to the start of the work.

All surfaces of the existing steel girders, where paint is removed for jacking operations shall be repaired with two coats of cold-galvanizing, upon completion of the work.

524.04 Erection and Removal

The following paragraphs are added:

The jacking shall be synchronized so that all portions of the girders are raised by approximately equal amounts simultaneously. A maximum of 1/8 inch differential movement between adjacent girders will be allowed during the jacking operation.

The Contractor may support the jacking systems and temporary structural support systems off of the top of abutment seats, footings, or Contractor-furnished blocking systems. The proposed anchorage system shall not be supported primarily from the face of abutment. Bracing shall be provided to maintain the superstructure in a stable condition during the jacking operations.

Drawings showing the method the Contractor chooses to raise, temporarily support, and brace the superstructures shall be stamped by a Professional Engineer registered in the State of Maine, and shall be submitted to the Resident for approval.

524.05 Method of Measurement

This subsection is replaced in its entirety with the following:

Jacking Existing Superstructure will be measured by the lump sum at each bridge and will include the design, fabrication, erection, operation, maintenance, and removal of all required temporary jacking and structural support systems to the extent specified herein. It shall also include the removal or modification, and reinstallation of existing bridge elements to prevent damage during the jacking operation and the repair of damaged or removed protective coatings as specified herein. Temporary works used by the Contractor for their convenience will not be measured for payment. The work associated with removal and reinstallation of existing highway appurtenances (e.g. guardrails, sign supports, etc.) to facilitate the erection of temporary structural supports will not be measured for payment, but will be considered incidental to the Jacking Existing Superstructure Pay Item.

524.06 Basis of Payment

This subsection is removed and replaced with the following:

Jacking Existing Superstructure will be paid for at the contract lump sum price at each bridge which price shall be full compensation for all materials, equipment, labor and incidentals necessary for the design, erection, maintenance and dismantling of the jacking and temporary support systems; and the satisfactory jacking and lowering of the superstructure required on the project in accordance with these specifications.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
524.7212 Jacking Existing Superstructure (I-295 Southbound Underpass)	Lump Sum

SPECIAL PROVISION

SECTION 526

CONCRETE BARRIER

(Temporary Barrier Markers)

526.1 Description

The following paragraphs are added:

This work shall consist of furnishing, installing and maintaining temporary barrier markers on all temporary barrier supplied by the Contractor and the Authority.

526.2 Materials

The following paragraphs are added:

Temporary barrier markers shall be "Big Dog" barrier markers manufactured by Custom Products Corporation, or approved equal. Markers shall be bi-directional with a minimum effective reflective area of 96 square inches (48 square inches each side) as approved by the Resident. The reflectors shall meet MUTCD reflectivity requirements and shall be orange in color.

526.3 Construction Requirements

The following paragraphs are added:

Temporary barrier markers shall be mounted as follows:

1. One on every fourth barrier in tangents and one on every two barriers in tapers, including all barrier furnished by the Contractor.
2. Delineators shall be physically adhered so as to withstand the force of throw from a snow plow.
3. If more than 25% of delineators in any 50 foot section of barrier fall off for any reason, the Contractor will be responsible for reinstalling all the delineators in that run at that their own cost.
4. Contractor is required to submit the installation method for review and approval to the Resident.

526.4 Method of Measurement

The following paragraphs are added:

Temporary barrier markers shall not be measured for payment separately but shall be incidental to the temporary barrier item.

526.5 Basis of Payment

The following paragraphs are added:

Temporary barrier markers shall not be paid for separately but shall be incidental to the temporary barrier item.

SPECIAL PROVISIONSECTION 526CONCRETE BARRIER

(Temporary Concrete Barrier Type I - Supplied by Authority)

526.01 Description

The following paragraphs are added:

This work shall consist of loading, transporting, setting, resetting, removing, transporting and stacking Temporary Concrete Barrier Type I – Supplied by Authority. The barrier shall have attachments allowing individual sections to be connected into a continuous barrier.

The work also includes supplying connecting pins and furnishing and mounting retro-reflective delineators, per Subsection 526.02 and 526.03.

Concrete barriers supplied by Authority shall be available at the following location(s):

Maintenance AreaLinear Feet of Barrier

Crosby Maintenance Area Mile 45.8 Southbound	350LF (Broadturn)
--	-------------------

Upon substantial completion of work, the Contractor shall remove and transport the barrier back to Kennebunk Maintenance Area Mile Marker 25.3 Northbound. All barrier shall be returned, sorted and stacked according to type in locations directed by the project Resident or maintenance area foreman.

526.02 Materials

The following paragraphs are added:

- e. Delineators shall be bi-directional with a minimum effective reflective area of eight square inches as approved by the Resident. The reflectors shall be methyl methacrylate and the housing of acrylonitrile butadiene styrene. Color shall be in accordance with the MUTCD.

526.021 Acceptance

The Resident shall have the authority to accept or reject all Temporary Concrete Barrier Type I – Supplied by Authority used on the Project that does not meet the requirements of this specification

526.03 Construction Requirements

The following paragraphs are added:

The Contractor shall notify the Resident prior to the scheduled pick-up and delivery of concrete barrier. No barrier shall be removed from or stacked at the Turnpike Maintenance Area without approval of the Resident.

The Contractor shall move and place barrier-utilizing methods that will not damage the barrier. Barrier that is damaged by the Contractor by failing to use proper methods shall be replaced by the Contractor at no additional cost to the Maine Turnpike Authority.

Concrete barrier supplied by the Authority consists of several different styles. Not all barriers may be compatible. The Contractor shall utilize caution when setting barrier to use identical barrier types as adjacent barrier. Non-compatible barrier that cannot be attached together shall be overlapped by a minimum of 10 feet with the blunt end on the non-traffic side of the barrier. This work will not be measured separately for payment, but shall be incidental to the concrete barrier.

Concrete barrier placed at roadway low points shall be shimmed on 1" by 2" by 2' long wood planks to allow drainage to pass under the barrier. In addition, the Resident may direct the Contractor to shim the concrete barrier at other locations to provide for proper roadway drainage. All labor, material, and equipment necessary to shim the barrier will not be measured separately for payment, but shall be incidental to the Concrete Barrier.

The removal of concrete barrier from adjacent to the travel lane may be conducted without a lane closure if it is accomplished in accordance with the following requirements:

1. Barrier is removed from the trailing end and the workmen and equipment involved in the operation are always behind the barrier. No workmen or equipment shall enter the travel lane.
2. Barrier shall be dragged away from the travel lane to at least a 30-degree angle by the use of a cable.
3. Barrier shall be lifted no more than six inches while within 10 feet of the travel lane.

Retro-Reflective Delineators shall be mounted as follows:

4. One on top of each barrier.
5. One on the traffic side of every barrier used in a taper.
6. One on the traffic side of every other barrier at regularly spaced intervals and locations.
7. Delineators shall be installed on both sides of the barrier if barrier is used to separate opposing traffic.
8. Delineators shall be physically adhered so as to withstand the force of throw from a snow plow.
9. If more than 25% of delineators in any 50 foot section of barrier fall off for any reason, the Contractor will be responsible for reinstalling all the delineators in that run at that their own cost.

10. Contractor is required to submit the installation method for review and approval to the Resident.

526.04 Method of Measurement

The following paragraphs are added:

Temporary Concrete Barrier Type I – Supplied by Authority will not be measured for payment but shall be considered incidental to the Maintenance of Traffic Control Devices items.

The loading, transporting, setting, resetting, removing, transporting, sorting and stacking of the barrier, the furnishing, installation and maintenance of the barrier delineators, and furnishing and installing connector pins will not be measured separately for payment, but shall be incidental to the cost of the Barrier. Temporary storage of Concrete Barrier between construction phases, if required, will not be measured separately for payment, but shall be incidental to the cost of the Barrier. All equipment required to load, unload, transport and stack Concrete Barrier shall be supplied by the Contractor.

Any Barrier lost or damaged by the Contractor shall be replaced by the Contractor at no additional cost to the Authority.

526.05 Basis of Payment

The fifth paragraph is deleted and not replaced.

The following paragraphs are added:

Temporary Concrete Barrier Type I – Supplied by Authority will not be paid for directly but shall be incidental to the related Maintenance of Traffic Control Devices Pay Items 652.3611, 652.3612, or 652.3613. Such payment shall be full compensation for loading, transporting, setting, resetting, temporary storage, removing, transporting and stacking at the area designated, furnishing all materials, and all other incidentals necessary to complete the work. Temporary Concrete Barrier Type I – Supplied by Authority and all connecting pins shall remain the property of the Authority, and shall be returned to the Turnpike Maintenance Area as designated in Subsection 526.01.

SPECIAL PROVISION

SECTION 527

ENERGY ABSORBING UNIT

(Work Zone Crash Cushion)
(Resetting Existing Work Zone Crash Cushions)

527.01 Description

The first paragraph is deleted in its entirety and replaced with the following:

The Contractor shall furnish and install, or reset work zone crash cushions where shown on the Plans, as specified herein, in Special Provision 652, or as approved by the Resident. Work zone crash cushions are required at each exposed end of temporary concrete barrier or guardrail.

The exposed end of the concrete barrier within 30 feet of the mainline travel lane shall be protected at all times. Barrier shall not be reset until after the work zone crash cushion(s) has been set to protect the exposed end of the barrier.

527.02 Materials

The following paragraph is added:

Work zone crash cushions fabricated prior to December 31, 2019 in serviceable condition shall meet the requirements of NCHRP 350 TL-3 crash test requirements and work zone crash cushions fabricated after December 31, 2019 shall meet the MASH TL-3 crash test requirements for use on the turnpike and local roadways with posted speeds of 45 MPH or greater. Work zone crash cushions fabricated prior to December 31, 2019 shall meet in serviceable condition shall meet the requirements of NCHRP 350 TL-2 crash test requirements and work zone crash cushions fabricated after December 31, 2019 shall meet the MASH TL-2 crash test requirements for use on local roadways with posted speeds of 40 MPH or less. The Contractor shall provide the Resident with documentation of the proposed work zone crash cushion's MASH Crash Test Results prior to installation at the jobsite.

527.03 Construction Requirements

The following is added to the end of the first paragraph:

The design speeds for work zone crash cushions shall be 45 mph for local road and 70 mph for turnpike roadways unless otherwise noted on the Plans.

527.04 Method of Measurement

Work Zone Crash Cushions used to protect exposed ends of guardrail for steel girder erection will not be measured separately for payment but shall be included under the Maintenance of Traffic for Steel Girder Erection item.

Replacement barrels, after collisions, will be paid for as a percentage of the individual barrels damaged to the total barrels in the complete system. The removal of impacted barrels and debris will be considered incidental to the replacement barrels. Barrels on hand, but unused will not be paid for directly.

Resetting Existing Work Zone Crash Cushion will be measured by the Unit, complete in place and accepted.

527.05 Basis of Payment

Work Zone Crash Cushions will not be paid for directly but shall be incidental to the related Maintenance of Traffic Control Devices Pay Items 652.3611, 652.3612, or 652.3613. Such payment shall be full compensation for furnishing and placing the Work Zone Crash Cushion, including all incidentals and for resetting as many times as required.

SPECIAL PROVISION

SECTION 627

PAVEMENT MARKINGS

(White or Yellow Pavement Marking Line)

627.01 Description

The following sentences are added:

This work shall consist of furnishing and placing the final pavement markings at locations as shown on the Plans or as directed by the Resident.

The following sentence is added:

This work shall consist of furnishing and placing pavement marking paint and temporary pavement marking paint at locations as shown on the Plans or as directed by the Resident.

627.02 Materials

The following is added before the last paragraph:

The paint for pavement markings shall be 100% acrylic waterbase paint.

627.04 General

The following is added to the third paragraph:

Dotted white lines (DWL) shall consist of alternate 3 foot painted line segments and 9 foot gaps.

Permanent pavement marking paint shall be applied at the end of each work week prior to opening the work area to traffic or as approved by the Resident.

Temporary pavement marking paint and temporary pavement markers shall be applied daily prior to opening the work area to traffic during non-work hours or as approved by the Resident.

627.08 Removing Lines and Markings

The last sentence is deleted and is not replaced.

627.09 Method of Measurement

The second and third sentences in the second paragraph are deleted and replaced with the following:

The measurement of broken white lines, both permanent and temporary and dotted white lines, will include the gaps when painted. Temporary painted pavement marking lines will be measured for payment by the linear foot.

627.10 Basis of Payment

This Subsection is deleted and replaced with the following:

The accepted quantity of white or yellow pavement marking lines will be paid at the Contract price per linear foot. This price shall include all labor and materials to furnish, and install the paint line.

The accepted quantity of broken and dotted white pavement marking lines will be paid at the Contract price per linear foot. This price shall include all labor and materials to furnish and install the paint line.

The accepted quantity of temporary white or yellow pavement marking lines will be paid at the Contract price per linear foot. This price shall include all labor and materials to furnish, install and maintain the paint marking.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
627.712 White or Yellow Pavement Marking Line	Linear Foot

SPECIAL PROVISION

SECTION 627

PAVEMENT MARKINGS

(Temporary 6 Inch Pavement Marking Tape)
(Temporary 6 Inch Black Pavement Marking Tape)

627.01 Description

The following sentence is added:

This work shall also consist of furnishing, placing, maintaining and removing temporary pavement marking tape at locations shown on the Plans or as directed by the Resident.

This work shall also consist of furnishing, placing, maintaining and removing temporary black pavement marking tape at locations shown on the Plans or as directed by the Resident. Temporary 6 Inch Black Pavement Marking Tape shall be used to cover conflicting existing pavement marking paint.

627.02 Materials

The following paragraph is added:

Temporary pavement marking tape shall be Stamark Wet Reflective Removable Pavement Marking Tape Series 710 as manufactured by 3M of St. Paul, Minnesota or an approved equal.

Temporary pavement marking tape shall be Stamark Removable Black Line Mask Tape Series 715 as manufactured by 3M of St. Paul, Minnesota or an approved equal.

627.04 General

The following paragraphs are added:

Work under this item shall be in accordance with the manufacturer's recommendations. A factory representative from 3M shall be present for the first application of all temporary pavement marking tape to insure proper application and product performance.

The pavement markings shall be applied mechanically to clean dry pavement as recommended by the manufacturer and approved by the Resident.

Temporary pavement markings shall consist of applying six inch solid white, six inch broken white, and six inch yellow reflectorized pavement marking tape for traffic maintenance during construction as shown on the Plans or as directed by the Resident.

Temporary pavement marking tape that loses reflectivity, becomes broken, dislodged or missing during the life of the Contract shall be replaced by the Contractor at no additional cost to the Authority.

627.06 Application

The following paragraphs are added:

For application of the tape, when the pavement temperature is below 50F, heat shall be applied to the pavement surface, if deemed necessary by the factory representative or as directed by the Resident, at no additional cost to the Authority. Proper primer for the temperatures shall be used as directed by the manufacture.

The pavement marking tape shall be rolled over with a vehicle once application is complete and then scored every 20 feet when placed in long runs to prevent full length unraveling.

627.08 Removing Lines and Markings

The following sentence is added:

Removal of temporary pavement marking tape shall be accomplished without the use of heat, solvents, grinding, or sandblasting and in such a manner that no damage to the pavement results.

627.09 Method of Measurement

The following paragraph is added:

Temporary Pavement Markings - Tape will be measured for payment by the linear foot. The measurement of broken lines will not include the gaps.

627.10 Basis of Payment

The following paragraphs are added:

Payment for the Temporary Pavement Markings - Tape will be made at the Contract bid price per linear foot, which price shall include furnishing, installing, maintaining and removing the temporary tape and all materials, labor, equipment and incidentals necessary to accomplish the work. Replacement of Temporary Pavement Markings - Tape, as described above, will be incidental and no separate payment will be made.

Payment for the Temporary 6 Inch Black Pavement Marking Tape will be made at the Contract bid price per linear foot installed, which price shall include furnishing, installing, maintaining and removing the temporary tape and all materials, labor, equipment and incidentals necessary to accomplish the work. Replacement of 6 Inch Black Temporary Pavement Marking Tape, as described above, will be incidental and no separate payment will be made.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
627.73	Temporary 6 Inch Pavement Marking Tape	Linear Foot
627.731	Temporary 6 Inch Black Pavement Marking Tape	Linear Foot

SPECIAL PROVISION

SECTION 627

PAVEMENT MARKINGS

(Temporary Raised Pavement Markers)

627.01 Description

The following sentence is added:

This work shall consist of furnishing, placing and removing temporary raised pavement markers at locations as shown on the Plans or as directed by the Resident.

627.02 Materials

The second paragraph is deleted and replaced with the following:

The temporary raised pavement markers shall be white or yellow one way markers (Type Tom W-1, Y-1, Grade WZ) as distributed by Davidson Plastics Co. (DAPCO), Kent, WA, or an approved equal. Colors shall conform to 2009 MUTCD requirements.

627.04 General

The following sentences are added:

Temporary raised pavement markers shall be used to delineate travel lanes (BWLL) after placement of the surface course (HMA 12.5 mm).

Temporary raised pavement marker that lose reflectivity, becomes broken, dislodged or missing during the life of the Contract shall be replaced by the Contractor at no additional cost to the Authority.

The spacing and number of temporary pavement markers installed as edge lines shall be the same as shown for the BWLL on the Plans for Temporary Pavement Marking.

627.09 Method of Measurement

The following sentence is added:

Temporary Raised Pavement Markers will be measured by each unit, complete in place, maintained and accepted.

627.10 Basis of Payment

The following paragraphs are added:

The accepted quantity of Temporary Raised Pavement Markers white and/or yellow will be paid for at the Contract price each. This price shall include all labor and materials to furnish, install, maintain, and remove the markers.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
627.812 Temporary Raised Pavement Markers	Each

SPECIAL PROVISION

SECTION 631

EQUIPMENT RENTAL

(Welding Machine – Including Operators)

631.01 Description

This work shall consist of furnishing and operating construction equipment as directed by the Resident. Welding Machine (including operators) shall be used by the Resident for field welding of bridge joint modifications that are not otherwise included in the work of other contract items.

631.02 General

Equipment used for work under this section shall conform to the following minimum sets of requirements:

Equipment

The equipment requirements for the Welding Machine (including operators) are truck or trailer mounted 225 AC/DC 120/240 SMAW/FCAW welding machine with 120/240 V electrical generating capacity (Miller Bobcat 225 AC Welder/Generator or equal), 100 feet of welding leads, 100 feet of 10/3 electrical cord; an oxy-acetylene torch setup with heating and cutting tips; 4 ½ and 7 inch grinders, ½ inch electric drill, and a rotabroach cutter style magnetic drill.

The welding machine operator shall be an AWS D1.5 certified welder in all positions. The welding machine helper shall be a skilled laborer with experience in drilling, cutting, grinding, metal preparation and metal fit-up.

631.08 Basis of Payment

The following paragraph is added:

Consumables (welding rod, oxygen, acetylene, grinding wheels, drill bits, rotabroach cutters, etc, will be reimbursed at cost plus 15%.

Payment will be made under:

Pay Item

Pay Unit

631.112 Welding Machine (including operators)

Hour

SPECIAL PROVISIONSECTION 643TRAFFIC SIGNALS

(Temporary Traffic Signal)

643.01 Description

The following paragraph is added:

The contractor shall provide, install, operate, maintain, and remove temporary signals for the time period when traffic along Broadturn Road is restricted to one lane alternating two-way operation using temporary concrete barrier.

643.02 General

The following paragraphs are added:

Temporary traffic signal shall consist of interconnected portable traffic signal trailers. The Contractor shall submit a temporary traffic signal plan with supporting equipment submittals for approval.

Temporary stop bars shall be provided for each approach. The contractor shall locate the stop lines based on the proposed lane closures, a minimum of 40 feet from the approach signal heads, and the locations shall be approved by the Resident. Temporary stop bars shall be removed by the Contractor at the completion of the temporary signal operations. Non-invasive stop bar detection shall be provided on each approach. The Contractor shall determine the method of detection with the approval of the Resident.

The Contractor shall program the signal controller with the following phasing and timing (in seconds):

	Phase 1 (Eastbound)	Phase 2 (Westbound)
Min Green	15	15
Extension	4	4
Max Green 1 (a.m.)	40	35
Max Green 2 (p.m.)	35	40
Yellow	3	3
All Red	15.5	15.5
Recall	Min	Min

The Clearance time is based on a vehicle speed of 25 mph for a distance of 575 feet. The specified signal timing may be adjusted by a professional engineer licensed in the State of Maine

as operation requires. The Resident may increase All-Red Clearance times as necessary for the safety of the traveling public. If the All Red Clearance time exceeds the maximum allowable All Red time on the controller, the Contractor shall propose an active clearance phase between applicable vehicle phases such that the active clearance phase shall always be called when the preceding phase is called.

643.19 Basis of Payment

Delete the third paragraph and replace with the following:

Payment for Temporary Traffic Signals will be paid for at the contract lump sum price, which payment will be full compensation for furnishing, installing, maintaining, and removing all materials for a fully functional traffic signal system, including portable traffic signal trailers, temporary stop bar placement and removal, and stop bar detection.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
643.72 Temporary Traffic Signal: Broadturn Road	Lump Sum

SPECIAL PROVISIONSECTION 652MAINTENANCE OF TRAFFIC

MaineDOT Standard Specification 2014 Edition Section 652 – Maintenance of Traffic and the Maine Turnpike Authority 2016 Supplemental Specification Section 652 – Maintenance of Traffic are deleted in their entirety and replaced with the following:

652.1 Description

This work shall consist of furnishing, installing, maintaining and removing traffic control devices necessary to provide reasonable protection for motorists, pedestrians and construction workers in accordance with these Specifications, the applicable provisions of Section 105.4.5 - Special Detours, and the plans.

Traffic control devices include signs, signals, lighting devices, markings, barricades, channelizing, and hand signaling devices, portable light towers, truck mounted impact attenuators, traffic officers, and flaggers.

652.2 Materials

All traffic control devices shall conform to the requirements of the latest edition of the MUTCD, NCHRP 350 guidelines and all Traffic control devices shall meet Manual for Assessing Safety Hardware (MASH) 16 guidelines if date of manufacture was after December 31, 2019.

All signs shall be fabricated with high intensity fluorescent retroreflective sheeting conforming to ASTM D 4956 - Type VII, Type VIII, or Type IX (prismatic). All barricades, drums, and vertical panel markers shall be fabricated with high intensity orange and white fluorescent retroreflective sheeting conforming ASTM D 4956 - Type VII, Type VIII, or Type IX (prismatic).

Construction signs shall be fabricated from materials that are flat, free from defects, retroreflectorized, and of sufficient strength to withstand deflections using a wind speed of 80 miles/hr.

652.2.2 Signs

Only signs with symbol messages conforming to the design of the Manual of Uniform Traffic Control Devices(MUTCD) shall be used unless the Resident approves the substitution of word messages.

Any proposed use of temporary plaques to cover text or to change text shall be approved by the resident. All signs or proposed plaques shall have a uniform face and be constructed from similar sheeting.

All signs shall be new, or in like new condition and maintained in like new condition throughout the project duration. Signs shall be cleaned just prior to installation and throughout the project utilizing a method that will not damage the reflective sign sheeting.

652.2.3 Flashing Arrow Board

Flashing Arrow Boards must be of a type that has been submitted to AASHTO's National Transportation Product Evaluation Program (NTPEP) for evaluation and placed on the Maine Department of Transportation's Approved Products List of Portable Changeable Message Signs & Flashing Arrow Panels.

Flashing Arrow Boards units shall meet requirements of the current Manual on Uniform Traffic Control Devices (MUTCD) for Type "C" panels as described in Section 6F.56 - Temporary Traffic Control Devices. Flashing Arrow Boards shall have matrix of a minimum of 15 low-glare, sealed beam, Par 46 elements capable of either flashing or sequential displays as well as the various operating modes as described in the MUTCD, Chapter 6-F. If a Flashing Arrow Board consisting of a bulb matrix is used, each element should be recess-mounted or equipped with an upper hood of not less than 180 degrees. The color presented by the elements shall be yellow.

Flashing Arrow Board elements shall be capable of at least a 50 percent dimming from full brilliance. Full brilliance should be used for daytime operation and the dimmed mode shall be used for nighttime operation. Flashing Arrow Board shall be at least 96 inches x 48 inches and finished in non-reflective black. The Flashing Arrow Board shall be interpretable for a distance not less than 1 mile.

Operating modes shall include, flashing arrow, sequential arrow, sequential chevron, flashing double arrow, and flashing caution. In the three arrow signals, the second light from the arrow point shall not operate.

The minimum element on-time shall be 50 percent for the flashing mode, with equal intervals of 25 percent for each sequential phase. The flashing rate shall be not less than 25 nor more than 40 flashes per minute. All on-board circuitry shall be solid state.

Primary power source shall be 12 volt solar with a battery back-up to provide continuous operation when failure of the primary power source occurs, up to 30 days with fully charged batteries. Batteries must be capable of being charged from an onboard 110 volt AC power source and the unit shall be equipped with a cable for this purpose.

Controller and battery compartments shall be enclosed in lockable, weather-tight boxes.

The Flashing Arrow Board shall be mounted on a pneumatic-tired trailer or other suitable support for hauling to various locations, as directed. The minimum mounting height of an arrow panel should be 7 feet from the roadway to the bottom of the panel.

The face of the trailer shall be delineated on a permanent basis by affixing retro-reflective material, known as conspicuity material, in a continuous line as seen by oncoming drivers.

A portable changeable message sign may be used to simulate an arrow panel display.

652.2.4 Other Devices

Vertical panel markers shall be orange and white striped, 8 inches wide by 24 inches high. On the Interstate System, vertical panel markers shall be orange and white striped, 12 inches wide by 36 inches high.

Cones shall be orange in color, a minimum of 28 inches high, and retro-reflectorized. Retro-reflection shall be provided by a white bands of retro-reflective sheeting conforming to the MUTCD. All cones utilized on the project shall be new or in like new condition and shall have a consistent design/appearance.

Drums shall be of plastic or other yielding material and shall be a minimum of 36 inches high and a minimum of 18 inches in diameter. There shall be at least two retro-reflectorized orange and at least two retro-reflectorized white stripes a minimum of 4 inches wide on each drum. All drums utilized on the project shall be new or in like new condition and shall have a consistent design/appearance.

Flaggers shall use a STOP / SLOW handheld paddle as the primary and preferred hand signaling device. Flags shall only be limited to emergencies. STOP / SLOW paddles shall have high intensity prismatic retro reflective sheeting, have an octagonal shape on a rigid handle and shall be at least 18 inches wide with letters at least 6 inches high and shall be constructed from light semi-rigid material. The STOP (R1-1) face shall have white letters and a white border on a red background. The SLOW (W20-8) face shall have black letters and a black border on an orange background.

STOP / SLOW paddles shall also incorporate either white or red flashing lights on the STOP face and white or yellow flashing lights on the SLOW face of the paddle and always be in use.

Paddles must conform to any of the following patterns:

- A. Two white or red lights (colors shall be all white or all red), one centered vertically above and one centered vertically below the STOP legend; and/or two white or yellow lights (colors shall be all white or all yellow), one centered vertically above and one centered vertically below the SLOW legend.
- B. Two white or red lights (colors shall be all white or all red), one centered horizontally on each side of the STOP legend; and/or two white or yellow lights (colors shall be all white or all yellow), one centered horizontally on each side of the SLOW legend.
- C. One white or red light centered below the STOP legend; and/or one white or yellow light centered below the SLOW legend.
- D. A series of eight or more small all white or all red lights no larger than 1/4 inch in diameter along the outer edge of the paddle, arranged in an octagonal pattern at the eight corners of the border of the STOP face; and/or a series of eight or more small all

white or all yellow lights no larger than 1/4 inch in diameter along the outer edge of the paddle, arranged in a diamond pattern along the border of the SLOW face; or

- E. A series of white lights forming the shapes of the letters in the legend. Flashing light patterns shall be compliant with Section 6E.03 Hand Signaling Devices in the most current version of the Manual on Uniform Traffic Control Devices.

All flashing light patterns on the STOP / SLOW paddle shall be visible from a minimum distance of 1000 feet.

Type I barricades shall be 2 feet minimum, 8 feet maximum in length with an 8 inch wide rail mounted 3 feet minimum above the ground. Type II barricades shall be 2 feet in length with two 8 inch wide rails, and the top rail shall be mounted 3 feet minimum above the roadway. Type III barricades shall be 8 feet in length with three 8 inch wide rails, and the top rail shall be mounted 5 feet minimum above the roadway. The cross members of all barricades shall be of 1/2 or 5/8 inch thick plywood or other lightweight rigid material such as plastic, fiberglass or fiber wood as approved by the Resident. The predominant color for supports and other barricade components shall be white, except that unpainted galvanized metal or aluminum components may be used.

652.2.5 Portable Changeable Message Sign

Portable-Changeable Message Signs (PCMS) will be furnished by the Contractor and shall be Ver-Mac PCMS-1210 or an approved equal. The face of the PCMS trailer shall be delineated on a permanent basis by affixing retro-reflective material, known as conspicuity material, in a continuous line as seen by oncoming drivers. PCMS's shall be located and relocated to locations approved by the Resident within the Project limits for the duration of the Project.

Features to the Ver-Mac PCMS shall include:

- An all-LED display.
- Be legible from a distance of 1,000 feet.
- Have three (3) lines available for messages.
- Be NTCIP compliant (NTCIP 1203 & 1204).
- Be capable of being programmed by a remote computer via a data (IP over Cell) cellular modem connection.
- Have GPS location capability by adding on a GPS device capable of providing GPS location remotely to the MTA Communications' Center.
- Be programmable by Vanguard Software by Daktronics.

The Contractor shall complete and/or provide the following:

- Submit a catalog cut shop drawing to the Resident of all proposed equipment for review and approval.

- Establish and pay for a data cellular account so that PCMS may be remotely programmed and operated from the MTA Communications' Center.
- Provide to the Authority technical support from the PCMS manufacturer that may be necessary to integrate the PCMS into the MTA software platform (Vanguard Software by Daktronics).
- Provide the manufacturer's software necessary to change the PCMS messages remotely from the MTA Communications' Center and the Resident's computer if necessary or requested.
- Provide training on the operation of the PCMS to the Resident and the MTA Communications' Center representative.
- Make all PCMS on the Project work site available to the MTA for any/all emergency situations as defined by the MTA. This shall include the preemption of any messages running at the time of need as approved by the MTA and the Resident.

The Contractor shall also:

- Furnish, operate, relocate and maintain the PCMS as approved or requested by the Resident.
- Be responsible for the day-to-day programming and operation of the PCMS for Project purposes.

The PCMS(s) shall be on-site, with data cellular account established, GPS location capable, and all training required complete within one month after mobilization or seven days prior to implementing traffic shifts, detours or stoppages, whichever is sooner. Implementation of traffic shifts, detours, or stoppages of traffic will not be allowed without PCMS boards on-site with the specified MTA Communications' Center Software Platform integration and training.

652.2.5 Truck Mounted Attenuator

The truck mounted attenuator system shall conform to the following requirements:

- Truck and attached attenuator shall conform to the NCHRP Report 350, Test Level 3 criteria or MASH if manufactured after 2019.
- Amber strobe lights with 360-degree visibility.
- An arrow light bar fixed to the vehicle.
- The attenuator shall be mounted to a vehicle with a minimum weight of 24,000 lbs. unless otherwise specified.

Installation: The TMA shall be located in the closed lane adjacent to active traffic; for double lane closures, only the outer closed lane requires the TMA. If a buffer zone is required the TMA shall not be located in the buffer zone. The shadow vehicle shall have its front wheels turned away from the work area and from traffic, have parking brake set, and be put in park if an automatic transmission; or if a manual transmission it shall have its front wheels turned away from the work area and from traffic, have parking brake

set and should be placed in gear and shut off if possible while still maintaining warning lights. If length of time or weather are a concern for the battery since the warning lights must be maintained the engine should be started and run periodically for battery recharging. No other vehicles or equipment shall park in front of the shadow vehicle or within the buffer space behind the shadow vehicle. For placement details, reference the Manual on Uniform Traffic Control Devices (MUTCD).

A Truck Mounted Attenuator **shall** be utilized in all lane closures, and shoulder closures, where workers are not protected by other positive means (i.e., closures that do not include temporary concrete barrier). If work is being completed behind guardrail a TMA shall be required for all work that is being completed within the deflection zone of the guardrail (minimum of four feet behind the guardrail post).

The placement and positioning of the vehicle shall be in accordance with the Manual on Uniform Traffic Control Devices and the manufacturer's recommendation. TMAs used on the Turnpike mainline shall have a minimum weight of 24,000 lbs and shall provide a 200 foot shadow distance from vehicles or the work zone. **For lane and shoulder closures in excess of 3,000 feet containing multiple work zones a TMA shall be used at each work zone.**

If a Truck Mounted Attenuator is not used as described above, then it will be considered a Traffic Control Plan violation and result in a reduction of payment as outlined in Section 652.

652.2.6 Sequential Flashing Warning Lights

When included in contracts as a bid item Sequential Flashing Warning Lights on drums used for merging tapers and shifting tapers during nighttime operation for project use. The purpose of these lights is to assist the motorist in determining which direction to merge or shift and to reduce the number of late merges resulting in devices being struck and having to be reset to maintain positive guidance at the merge point. The successive flashing of the lights shall occur from the upstream end of the taper to the downstream end of the taper in order to identify the desired vehicle path.

The Sequential Flashing Warning Lights shall meet all of the requirements for warning lights within the current edition of the MUTCD. Each light unit shall be capable of operating fully and continuously for a minimum of 500 hours when equipped with a standard battery set. Each light in sequence shall be flashed at a rate of not less than 55 times per minutes and not more than 75 times per minute. The flash rate and flash duration shall be consistent throughout the sequence.

Sequential Flashing Warning Lights shall be "Pi-Lit" Sequential Barricade Warning Lamps or an approved equal.

Sequential Flashing Warning lights are to be used for merging and shifting tapers that are in place during the nighttime hours (12-hours when ambient light is dimmed). These lights shall flash sequentially beginning with the first light and continuing until the final light at the beginning of a tangent section.

The Sequential Flashing Warning Lights shall automatically flash in sequence when placed on the drums that form the merging or shifting tapers.

The number of lights used in the drum taper shall equal one half the number of drums used in the taper.

Drums are the only channelizing device permitted for mounting the Sequential Flashing Warning Lights.

The Sequential Flashing Warning Lights shall be weather independent and visual obstruction shall not interfere with the operation of the lights.

The Sequential Flashing Warning Lights shall automatically sequence when placed in line in an open area with a distance between lights of 25 to 150 feet. A 10-foot stagger in the line of lights shall have no adverse effect on the operation of the lights.

If one light fails, the flashing sequence shall continue. Non-sequential flashing is prohibited.

652.2.7 Automated Trailer Mounted Speed Sign

The Contract will furnish, operate, and maintain Automated Trailer Mounted Speed Limit Sign(s) for project use. The automated speed sign shall be required when there is a Work Zone Speed Limit in place. The Contractor shall furnish, operate, and maintain the Automated Trailer Mounted Radar Speed Limit Signs during the project operations

Trailer mounted speed limit signs shall be self-contained units including sign assembly, flashing lights, directional radar to measure speed limits, a regulatory speed limit sign, and power supply specifically constructed to operate as a trailer-mounted sign. The preferred color of the unit shall be “construction orange”.

Base material for the regulatory speed limit signs shall be weatherproof, rigid substrate specifically manufactured for highway signing and meet the retro-reflective sheeting application requirements of the sheeting manufacturer.

Sign text shall consist of the letters, digits and symbols either applied by stick-on or silk screen, to conform to the dimensions and designs indicated in the Contract, MUTCD and/or FHWA Standard Highway Signs. The materials and methods shall be in accordance with standard commercial processes.

“Work Zone” construction signs shall be mounted on the trailer unit above the regulatory speed limit sign. (see attached graphic details).

Signs and secondary signs shall follow the MUTCD for minimum mounting heights.

The power supply shall be either full battery power with solar panel charging (capable of maintaining a charged battery level) and 135 amperes, 12-volt deep cycle batteries, or diesel powered generator with a fuel capacity sufficient for 10 hours of continuous operation.

Each unit shall be equipped with two mono-directional flashing lights, placed in accordance with the MUTCD, with amber lenses and reflectors, which are visible through a range of 120 degrees when viewed facing the sign. The lights shall be a minimum of **8-inch diameter**, either LED, halogen, or incandescent lamps, and shall be visible for a minimum distance of one mile under daylight conditions and shall have a minimum flash rate of 40 flashes per minute. An “On” indicator light shall be mounted on the back of the signs, which is visible for at least 500 feet to provide confirmation that the flashing lights are operating.

The directional radar shall monitor approaching traffic only. The radar shall be capable of measuring speeds from 5 to 70 MPH at a distance of up to 1500 feet and shall have a high speed cut off threshold. Speed data shall be recorded and stored on the sign and must be made available to the Authority as requested.

All existing speed limit signs, which conflict with the construction zone trailer mounted speed limit signs shall be covered completely when the work zone speed limit is in place.

Automated Trailer Mounted Speed Limit Signs shall only be used when a work zone speed limit is in place **and shall be required when the work zone speed limit is active**. The Contractor shall manage the utilization and operation of the Automated Trailer Mounted Speed Limit Signs and if at least one is not used when work zone speed limits are in place then it will be considered a Traffic Control Plan violation and result in a reduction of payment as outlined in Section 652.

The Resident will record the actual time and location for the signs on a daily basis when the Automated Trailer Mounted Speed Limit Signs are in use.

The Automated Trailer Mounted Radar Speed Limit Sign may be placed as shown on the plans, or may replace the posted regulatory speed limit signs, or may be placed at a location within the closed lane that has a reduced speed limit.

Automated Trailer Mounted Speed Limit Signs shall be delineated with retro-reflective temporary traffic control devices while in use and shall also be delineated by affixing a retro-reflective material directly on the trailer.

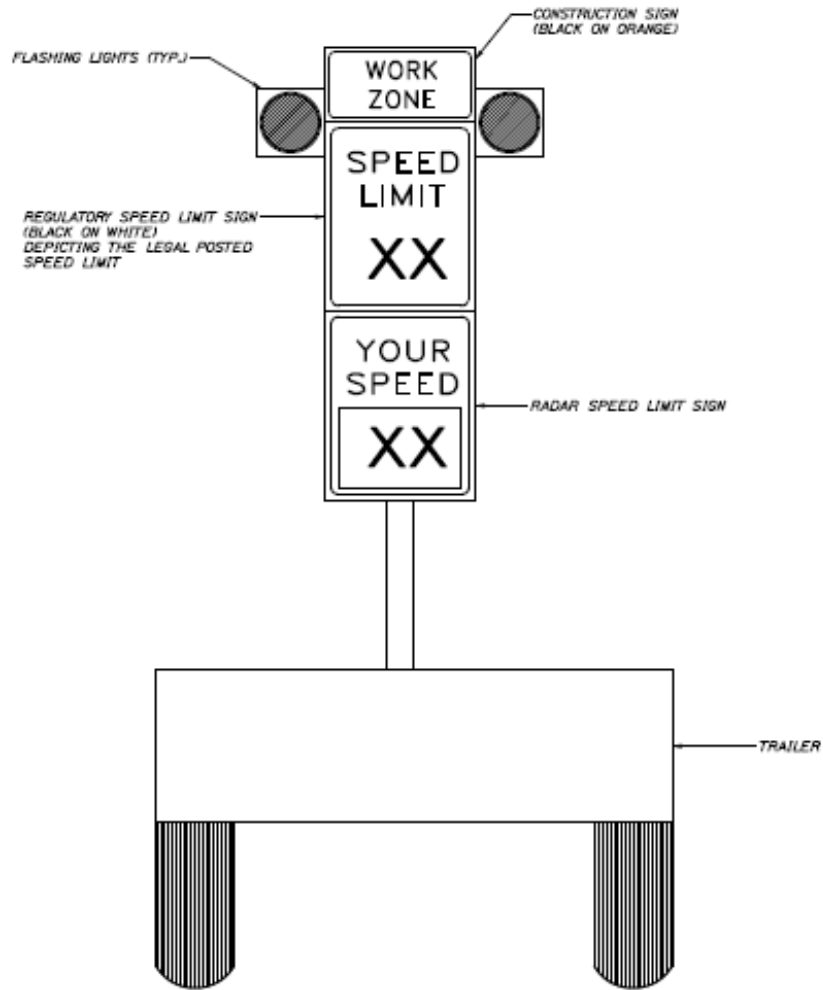
Upon delivery of the Automated Trailer Mounted Speed Limit Sign and before acceptance by the Authority, the Contractor shall have a representative of the manufacturer review the condition and notify the Resident in writing, of all deficiencies noted.

The Contractor shall arrange to have all necessary repairs performed at no cost to the Authority.

To avoid impairing driver vision, the Contractor shall dim the lighted speed limit readings by 50 percent during nighttime use and restore full power lighting during daytime operation.

Date: 2/13/2018

Filename: Trailer Mounted Speed Limit.dgn

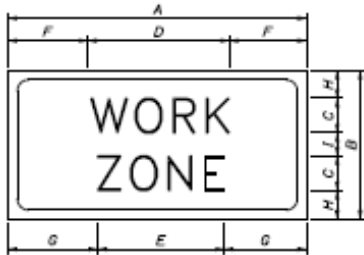


HNTB
FEBRUARY 2018

AUTOMATED TRAILER MOUNTED
SPEED LIMIT SIGN

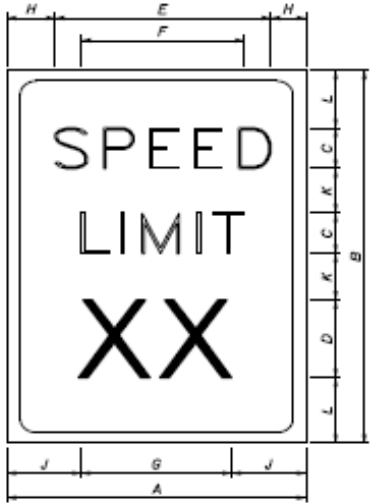
10F 2

Date: 2/13/2018



SIGN #1

1.25" BORDER, 0.75" INDENT,
BLACK ON ORANGE, BB GRADE PLYWOOD SIGN



SIGN #2

1.25" BORDER, 0.75" INDENT,
BLACK ON WHITE, BB GRADE PLYWOOD SIGN

DIMENSIONS (INCHES) / LETTER FONTS												
	A	B	C	D	E	F	G	H	I	J	K	L
*1	48	20	5D	10 1/8	16 1/8	14 1/8	15 1/8	4	2	N/A	N/A	N/A
*2	48	60	8E	16E	30 1/4	29 1/4	29 1/2	4 1/2	9 1/2	9 1/4	8	6



Filename: Trailer Mounted Speed Limit.dgn



HNTB
FEBRUARY 2018

TRAILER MOUNTED CONSTRUCTION ZONE
SPEED LIMIT SIGN

652.2.8 Temporary Portable Rumble Strips

If a pay item is included in the contract or the Contract desires to utilize Temporary Portable Rumble Strips this work consists of furnishing and placing temporary portable rumble strips RoadQuake 2F TPRS or an approved equal. Furnishing a temporary portable rumble strip system includes a method to transport and move these to on-site locations where they will be used. The Contractor shall submit for approval, literature and all necessary certifications to the Maine Turnpike prior to procurement of the product.

If used, Temporary Portable Rumble Strips may not be practicable in areas where the roadway has more than two travel lanes, where volume windows do not allow for breaks in traffic to set up and monitor and adjust, or during nighttime lane closures.

Provide rumble strips where the plans show or as directed by the Resident as follows:

Prior to placing rumble strips, clean the roadway of sand and other materials, that may cause slippage.

Place one end of the rumble strips 6 inches from the roadway centerline. Extend the strips perpendicular to the direction of travel. Ensure strips lay flat on the roadway surface.

Only one series of rumble strips, placed before the first work zone, is required per direction of travel for multiple work zones spaced 1 mile or less apart. Work zones spaced greater than 1 mile apart require a separate series of rumble strips. Each lane shall use one group of temporary rumble strips.

Bracketed “Rumble Strip Ahead” and “Bump” signs shall be utilized and will be paid for under the respective construction sign pay items.

Maintain rumble strips as follows:

If rumble strips slide, become out of alignment, or are no longer in the wheel path of approaching vehicles during the work period, thoroughly clean both sides of the rumble strips and reset on a clean roadway.

Repair or replace damaged rumble strips immediately.

652.3.1 Responsibility of the Authority

The Authority will provide Project specific traffic control requirements and traffic control plans for use by the Contractor. The specific traffic control requirements for the Project are identified in Special Provision Section 652, Maintenance of Traffic (Specific Project Maintenance of Traffic Requirements). No revisions to these requirements or Plans will be permitted unless the Contractor can thoroughly demonstrate an overall benefit to the public and a Contract Modification is approved.

The Maine Turnpike Authority may erect lane closures on the mainline within the Project area to collect survey, provide layout, and for any other reasons deemed necessary by the Authority.

652.3.2 Responsibility of the Contractor

The Contractor shall provide continuous and effective traffic control and management for the Project that is appropriate to the construction means, methods, and sequencing allowed by the Contract and selected by the Contractor:

The Contractor shall ensure all jobsite personnel shall wear a safety vest labeled as ANSI 107-2004 standard performance for Class 3 risk exposures at all times. This requirement also applies to truck drivers and equipment operators when out of an enclosed cab.

652.3.3 Submittal of Traffic Control Plan

The Contractor shall provide continuous and effective traffic control and management for the Project that is appropriate to the means, methods and sequencing allowed by the Contract; and consistent with the Traffic Control Plans and Maintenance of Traffic Specifications. The Contractor is responsible for ensuring a safe environment for the Contract workforce, local road users, and turnpike users; and maintaining the safe efficient flow of traffic through the construction zone at all times during the Contract. The protocols and requirements outlined in the Contract shall be strictly enforced. The Contractor shall submit, at or before the Preconstruction Meeting, a Traffic Control Plan (TCP) that provides the following information to the Authority:

- a. The name, telephone number, and other contact numbers (cellular phone, pager, if any) of the Contractor's Traffic Control Supervisor (TCS). The TCS is the person with overall responsibility for ensuring the contractor follows the TCP, and who has received Work Zone Traffic Control Training commensurate with the level of responsibility shown in the requirements of the Contract, and who is empowered to immediately resolve any work zone traffic control deficiencies or issues. Provide documentation that the Traffic Control Supervisor has completed a Work Zone Traffic Control Training Course (AGC, ATSSA, or other industry- recognized training), and a Supervisory refresher training every 5 years thereafter. Submit training certificates or attendance roster that includes the course name, training entity, and date of training. **State how the traffic control devices will be maintained including a frequency of inspection for both temporary and permanent traffic control devices.**

Traffic Control Training Course curriculum must be based on the standards and guidelines of the MUTCD and must include, at a minimum, the following:

1. Parts of Temporary Traffic Control Zone
2. Appropriate use and spacing of signs
3. Use and spacing of channelizing devices
4. Flagging basics

5. Typical examples and applications

The Traffic Control Supervisor, or designee directly overseeing physical installation, adjustment, and dismantling of work zone traffic control, will ensure all personnel performing those activities are trained to execute the work in a safe and proper manner, in accordance with their level of decision-making and responsibility. The emergency contact list shall contain a listing of individuals who may be contacted during non-work hours and shall adequately respond to the request.

- b. Proposed revisions to the construction phasing or sequencing that reasonably minimizes traffic impacts.
- c. A written narrative and/or plan explaining how traffic and pedestrians will be moved through the Project Limits, including transitions during the change from one phase of construction to the next, as applicable.
- d. Temporary traffic control treatments at all intersections with roads, rail crossings, businesses, parking lots, pedestrian ways, bike paths, trails, residences, garages, farms, and other access points, as applicable.
- e. A list of all Contractor or Subcontractor certified flaggers to be used on the Project, together with the number of flaggers which will be used for each type of operation that flagging is needed. If the Contractor is using a flagging Subcontractor, then the name and address of the Subcontractor may be provided instead of a list of flaggers.
- f. A procedure for notifying the Resident of the need to change the traffic control plan or the need to remove a lane restriction.
- g. A description of any special detours including provisions for constructing, maintaining, signing, and removing the detour or detours, including all temporary bridges and accessory features and complete restoration of the impacted land.
- h. The maximum length of requested contiguous lane closure. The Contractor shall not close excessive lengths of traffic lane to avoid moving traffic control devices.
- i. The proposed temporary roadway surface conditions and treatments. The Contractor shall provide an adequate roadway surface at all times; taking into account traffic speed, volume, and duration.
- j. The coordination of appropriate temporary items (drainage, concrete barriers, barrier end treatments, impact attenuators, and traffic signals) with the TCP.
- k. The plan for unexpected nighttime work, the contractor shall provide a list of emergency nighttime lighting equipment and safety personnel available on-site or have the ability to have them on site within an hour of the time of need.
- l. The plan for meeting any project specific requirements contained in special provision 105 and/or 107, and/or Section 656

m. The lighting plan if night work is anticipated.

The Authority will review the TCP for completeness and conformity with Contract provisions, the current edition of the MUTCD, and Authority policy and procedures. The Authority will review and provide comments to the Contractor within 14 days of receipt of the TCP. No review or comment by the Authority, or any failure to review or comment, shall operate to absolve the contractor of its responsibility to design and implement the plan in accordance with the Contract, or to shift any responsibility to the Authority. If the TCP is determined by the Authority to be operationally ineffective, the Contractor shall submit modifications of the TCP to the Authority for review and shall implement these changes at no additional cost to the Contract. Nothing in this Section shall negate the Contractor's obligations set forth in Section 110 - Indemnification, Bonding, and Insurance. The creation and modification of the TCP will be considered incidental to the related 652 items.

652.3.4 General

Prior to starting any work on any part of the project adjacent to or being used by the traveling public, the Contractor shall install the appropriate traffic control devices in accordance with the plans, specifications and the latest edition of Manual of Uniform Traffic Control Devices, Part VI. The Contractor shall continuously maintain the traffic control devices in their proper position, and they shall be kept clean, legible and in good repair throughout the duration of the work. If notified that the traffic control devices are not in place or not properly maintained, the Contractor may be ordered to immediately suspend work until all deficiencies are corrected.

No equipment or vehicles of the Contractor, their subcontractors, or employees engaged in work on this contract shall be parked or stopped on lanes carrying traffic, or on lanes or shoulders adjacent to lanes carrying traffic, at any time, except as required by ongoing work operations. Contractor equipment or vehicles shall never be used to stop, block, or channelize traffic.

Vehicles parked on the shoulder shall be located so all portions of the vehicle(s) are a minimum of one foot from the traveled way. No operation shall be conducted on or near the traveled lanes or shoulders without first setting up the proper lane closure and traffic control devices. These precautions shall be maintained at all times while this Work is being performed. The Contractor shall keep all paved areas of the highway as clear as possible at all times. No materials shall be stored on any paved area of the highway or within 30 feet of the traveled way (unless protected by concrete barriers and specifically approved by the Resident). Private vehicles owned by Contractor's employees shall be parked close together in a group no closer than 30 feet from the traveled way in pre-approved areas.

Channelization devices shall include Vertical Panel Markers, Barricades, Cones, and Drums shall be in accordance with the MUTCD. These devices shall be installed and maintained at the spacing determined by the MUTCD through the work area.

The Contractor shall maintain existing guardrails and/or barriers until removal is necessary for construction. The Contractor shall use a temporary barrier or appropriate channelizing devices, as approved by the Resident, while the guardrails and/or barriers are absent. Permanent guardrails and barriers shall be installed as soon as possible to minimize risk to the public.

When Contractor operations or shoulder grading leave a continuous 3 inch or less exposed vertical face at the edge of the traveled way, including the shoulder, or when traffic is shifted into the shoulder adjacent to the edge of pavement where an existing 3 inch or less exposed vertical face creates a safety hazard, channelization devices should be placed 2 feet outside the edge of the pavement at intervals not exceeding 600 feet and, depending on type and location of the exposed vertical face, a 48 inch by 48 inch W8-9 Low Shoulder, or W8-11 Uneven Lane, and/or a W8-17P Shoulder Drop-Off sign should be placed at a maximum spacing of ½ mile. When Contractor operations or shoulder grading leave greater than a 3-inch exposed continuous vertical face at the edge of the traveled way, including the shoulder, or when an existing condition of an exposed vertical face of 3 inches or more is adjacent to active traffic shifted into shoulder, the Contractor shall place shoulder material at a slope not exceeding 3 horizontal to 1 vertical to meet the pavement grade, before the lane is opened to traffic.

Special Detours and temporary structures, if used, shall meet applicable AASHTO standards, including curve radii and grade.

Maine Turnpike Traffic Control Requirements

This Section outlines the minimum requirements that shall be maintained for working on, over, or adjacent to the Maine Turnpike roadway.

General

Two travel lanes in each direction (each direction being 24 feet wide including/excluding shoulder) in the two lane portion of the turnpike, and three travel lanes in each direction (each direction being 36 feet wide including/excluding shoulder) in the three lane portion of the turnpike (Mile 0.0 to mile 44.3) shall be maintained at all times except while performing work in a designated lane, directly over or adjacent to traffic, and during the placement and removal of traffic control devices.

Unless otherwise specified in the contract documents the minimum main line width for a single travel lane shall be 14 ft and minimum ramp widths of 16 ft which must be maintained at all times, from ½ hour before sunrise and ½ hour after sunset as indicated on the Sunrise/Sunset Table at: <http://www.sunrisesunset.com/usa/Maine.asp>. If the Project town is not listed, the closest town on the list will be used as agreed at the Preconstruction Meeting.

Shoulder closures, lane closures, and lane shifts meeting the MUTCD guidelines, other than those shown in the plans, must be submitted for approval from the MTA prior to use in the construction operations.

No lane closures will be allowed during non-working hours, weekends and/or holiday periods unless included in the Contract as long-term traffic control requirement as outlined in Section 652 – Specific Project Maintenance of Traffic Requirements **unless written permission is obtained from the Authority.**

Any special signs, barricades or other devices deemed necessary by the Resident shall be furnished and maintained by the Contractor. Extra care shall be taken so that the traffic flow will

not be disturbed. The use of construction signs and warning devices not shown on the Plans or in the MUTCD is prohibited unless approved by the Resident

The Contractor's personnel and equipment shall avoid crossing traffic whenever possible. No Contractor's vehicle may slow down or stop in a traffic lane unless said lane has previously been made safe with signs and barricades as required by the Resident.

No vehicle will move onto the traveled way at such a time or in such a manner so as to cause undue concern or danger to traffic approaching from either direction. The Contractor or his employees are not empowered to stop traffic.

The Contractor shall take necessary care at all times, in all operations and use of his equipment, to protect and facilitate traffic. During periods of idleness, the equipment shall not be left in a way to obstruct the traffic artery or to interfere with traffic.

The Contractor shall furnish approved signs reading "Construction Vehicle - Keep Back" to be used on trucks hauling to the Project. The signs shall be a minimum of 30-inch by 60-inch, Black and Orange, and meet construction sign retro reflectivity requirements

All vehicles used on the Project shall be equipped with amber flashing lights, by means of a single or multiple, flashing LED or strobe lights mounted so as to be visible 360 degrees. **In addition, vehicles operating under direction of the Maine Turnpike Authority may be equipped with auxiliary lights that are green, white or amber or any combination of green, white or amber.** Auxiliary lighting shall have sufficient intensity to be visible at 500 feet in normal daylight and a flash rate between 1Hz and 4Hz. The vehicle flashing system shall be in continuous operation while the vehicle is on any part of the project and positioned or mounted in such a way to not be obstructed by vehicle mounted or other equipment. Dump trucks, **concrete trucks** and utility trucks **at a minimum** shall have a strobe light mounted on each side of the vehicle. **The use of motorcycles is not permitted within a construction site or as a means to arrive at or leave a work zone.**

Where space is available pavement striping for all tapers shall create a minimum buffer of 250 feet to the point where the temporary concrete barrier taper ends and becomes parallel to the travelway. Temporary concrete barrier shall be tapered at a minimum 8:1 unless space is available and then it should be tapered at 15:1 or 100 feet whichever is longest.

Milling and paving of interchange ramps shall be done between 9:00 p.m. and 5:00 AM, unless otherwise shown on the Maintenance of Traffic Phasing Plans or as directed by the MTA. Only a single ramp at an interchange may be closed at once. Ramp closures will not be permitted the day before or after holidays, on holidays, or on Saturdays or Sundays. The Contractor shall request approval from the Resident/Authority two weeks prior for all ramp closures. Portable changeable message signs shall be used to provide advance notice and warning of the ramp closure. PCMS's shall be operational a minimum of 1 week prior to ramp closure to notify Patrons. The contractor shall coordinate PCMS locations with the Resident and the MTA.

Access to, and egress from, the construction area shall be with the direction of travel without crossing traffic. Construction vehicles are prohibited from merging with mainline

traffic during the AM and PM peak traffic hours unless approved in writing from the MTA. The contractor shall develop work zone access/egress with acceleration and deacceleration areas and should utilize interchange ramp areas whenever feasible.

Temporary Mainline Lane Closures

A lane closure may be required whenever personnel will be actively working within four feet of a travel lane.

Loading/unloading trucks shall not be closer than six feet from an open travel lane. Temporary lane closures will only be allowed at the times outlined in Special Provision, Section 652, Specific Project Maintenance of Traffic Requirements. These hours may be adjusted based on the traffic volume each day by the Resident.

A lane closure is required when a danger to the traveling public may exist. The following is a partial list of activities requiring lane closures. Lane closures may be required for other activities as well:

- Milling and Paving Operations
- Bridge work
- Drainage Installation and/or Adjustment
- Clear Zone Improvements
- Pavement Markings Layout and Placement
- **Work directly over traffic within six feet of a travel lane as measured from the painted pavement marking line or traffic control device will require a lane closure. This work includes but is not limited to the following:**
 1. Unbolting structural steel
 2. Removing structural steel
 3. Erecting structural steel
 4. Erecting or moving sign panels on bridges or sign structures
 5. Bolting structural steel
 6. Loading and unloading trucks
 7. Light pole removal or installation
 8. Snow fence installation

Lane closures shall be removed if work requiring the lane closure is not ongoing unless included in the Contract as a long-term traffic control requirement or approved by the Resident.

During adverse weather condition when the speed limit on the Maine Turnpike has been reduced to 45 MPH, or during fog or when there is less than ½ mile of visibility, shoulder/lane closures cannot be set up and any currently in place shall be removed. Only work on the turnpike mainline that is behind temporary concrete barrier will be allowed when speed is reduced to 45 MPH or fog/visibility conditions exist.

Daytime lane closures shall be a maximum of three (3) miles. Only one daytime lane closure will be permitted per direction. Nighttime lane closures may extend through the entire length of the Project.

Temporary single lane closures are allowed upon approval of the Resident. **Lane and/or ramp** closure setup may not begin until the beginning time specified. Closures that are setup early or that remain in place outside of the approved time period shall be subject to a lane rental fee of **\$1,000** per five minutes for every five minutes outside of the approved time. The installation of the construction signs will be considered setting up the lane closure. Removal of the last construction sign will be considered removal of the closure. Construction signs shall be installed immediately prior to the start of the closure and shall be promptly removed when no longer required. The installation and removal of a closure, including signs, channelizing devices, and arrow boards shall be a continuous operation. The Authority reserves the right to order the removal of an approved closure.

The Authority desires to minimize the number of daytime lane closures and the number of times that a complete stoppage of traffic is required. The Contractor is encouraged to schedule work so that the interference with the flow of traffic will be minimized. Lane closures will not be allowed until traffic associated with complete stoppages of traffic has cleared. Complete stoppages of traffic or lane closures may not be allowed on a particular day if another complete stoppage of traffic has been previously approved for another project.

The Resident is required to receive approval from the Maine Turnpike Authority for all lane closures. **The Resident is required to submit a request for lane closures by noon on Thursday for any lane closures needed for the following week.** The Contractor shall plan the work accordingly.

Mainline Shoulder Closures

Shoulder closures are anticipated at locations where Contractor access to the mainline is required.

Shoulder closures with plastic drums shall be removed at the end of the workday. Temporary shoulder closures with plastic drums will not be allowed during periods of inclement weather as determined by the Authority.

The location (limits) of shoulder closures with concrete barrier are shown on the Plans. The barrier must be placed prior to the start of the work requiring concrete barrier and shall remain in place until the work activity is complete.

Equipment Moves

The complete stoppage of traffic for an equipment move (including delivery of materials to the median) will be considered for approval if the action cannot reasonably be completed with the erection of a lane closure. Contractor shall be responsible for the installation of Signs CS-3, "Expect Stopped Traffic" and Signs W3-4 "Be Prepared to Stop", in accordance with the Single Lane Closure Detail immediately prior to the equipment move. **Signs will be required on any**

adjacent ramps within proximity to the stoppage. These signs shall be covered when not applicable.

State Police will be used to stop traffic. Cost for State Police will be the responsibility of the Authority. The times requested for trooper assisted equipment moves by on-duty troopers cannot be guaranteed. The MTA will not be held responsible for any delays or costs associated with the delay, postponement or cancellation of an on-duty trooper assisted equipment move.

The maximum time for which traffic may be stopped and held for an equipment move at any single time shall be five (5) minutes. The duration shall be measured as the time between the time the last car passes the Resident until the time the Resident determines that all travel lanes are clear. The traffic shall only be stopped for the minimum period of time required to complete the approved activity. The Contractor shall reimburse the Authority at a rate of \$500 per minute for each minute in excess of the five-minute allowance.

Unapproved movement of equipment or materials across the travel lanes shall be considered a violation of the Maintenance of Traffic Requirements and is subject to a minimum fine of \$500 per occurrence with an additional \$500 per minute thereafter.

Request for Complete Stoppage of Traffic

A request for a complete stoppage of traffic must be submitted to the Resident for approval. The Resident is required to receive approval from the Maine Turnpike Authority for all stoppages. The request shall be submitted to the Authority by the Resident at least five (5) working days prior to the day of the requested stoppage of traffic and two (2) days for a stoppage less than five minutes. All requests must be received by 12:00 p.m. noon to be considered as received on that day. Requests received after 12:00 p.m. shall be considered as received the following day. The Contractor shall plan the work accordingly.

During the erection or removal of overhead structures or signs traffic shall be stopped and may be held for periods of up to 25 minutes during these operations. Before the roadway is reopened, all materials shall be secured so they will not endanger traffic passing underneath. The Contractor will reimburse the Authority at the rate of \$2,500.00 per five-minute period for each roadway not reopened (northbound and southbound), in excess of the 25-minute limit. Total penalty shall be deducted from the next pay estimate.

Blasting of Ledge. The maximum time for which traffic may be stopped at any single time shall be six (6) minutes. This duration shall be measured as the time between the time that the last car passes the Resident, until the time the Resident determines that all travel lanes are cleared of blast debris. The Contractor shall reduce the size of the blast, change the design and method of the blast, use more mats, or otherwise alter the blasting so that the traffic is not stopped for more than six minutes. If, due to the throw of rock onto the highway or other blasting related activities, traffic is stopped for more than six minutes, the Contractor shall pay a penalty of \$1,000.00 per minute for every minute traffic is stopped in excess of the six-minute limit. The penalty shall be measured separately on the northbound and southbound roadway (or eastbound and westbound roadway). Total penalties will be deducted from the next pay estimate. Whenever the volume of traffic is excessive such that a six-minute interruption would cause objectionable congestion, in the opinion of the Authority, the hours during which blasting may occur may be

further restricted. A detailed blasting plan shall be submitted as required in Supplemental Specific or Special Provision Sections 105 or 107.

652.3.5 Installation of Traffic Control Devices

All traffic control devices shall be in conformance with NCHRP 350 requirements and MASH 16 requirements if manufactured after December 31, 2019 and installed as per manufactures recommendations.

Portable signs shall be erected on temporary sign supports approved crashworthy devices so that the bottom of the sign is either 1) 12 inches or 2) greater than 5 feet above the traveled way. The bottom of all regulatory signs and ramp exit signs shall be a minimum of 5 feet above the traveled way. The contractor is responsible for maintaining the temporary sign structures so that the sign face remains in a vertical position. Temporary signs supports shall not be used for signs that will remain in place at a single location for more than one month.

No signs on easels shall be placed on 4 foot shoulders with guardrail, signs required at these location shall be placed on taller easels on the median side of the guardrail.

Post-mounted signs shall be erected so the bottom of the sign is no less than 5 feet above the traveled way, and 7 feet above the traveled way in business, commercial, and residential areas. Post-mounted signs must be erected so that the sign face is in a true vertical position. All signs shall be placed so that they are not obstructed in any manner and immediately modified to ensure proper visibility if obstructed.

The bottom of mainline and ramp traffic control signs intending to remain longer than 3 days, except as provided in 2009 MUTCD Section 6F.03 paragraph 12, shall be mounted 5 feet or greater above the edge of pavement on posts or portable sign supports.

The Resident will verify the exact locations of the construction signs in the field. Construction signs behind guardrail shall be mounted high enough to be visible to traffic. Vertical panel markers shall be mounted with the top at least 4 feet above the traveled way.

Drums placed along the Turnpike mainline shall have a minimum of one drum weight. Drums that will remain in the same location for more than three days shall have double drum weights. (i.e. a minimum of 40 lbs of drum tire rings). Drums shall not be weighted on the top. Drain holes shall be provided to prevent water from accumulating in the drums During winter periods, drums shall be placed on the grass shoulder or removed from the roadway so winter maintenance operations will not be impacted. This requires the placement of drums behind the median guardrail. Drums shall not be placed on snowbanks.

The Contractor shall operate and maintain the flashing arrow board unit and for dependable service during the life of the contract. The units shall remain in continuous night and day service at locations designated until the Resident designates a new location or discontinuance of service.

The Contractor shall maintain the devices in proper position and clean them as necessary. Maintenance shall include the covering and uncovering of all signs when no longer applicable

(even if for a very short duration). The sign shall be considered adequately covered when no part of the sign face is visible either around or through the covering.

The Contractor shall replace damaged traffic control devices with devices of acceptable quality, as directed by the Resident.

The Contractor is required to cover all existing signs, including regulatory and warning signs, within the Work zone which may conflict with the proposed construction signs. The Contractor is also required to cover all permanent construction signs when they conflict with a daily traffic control setup. The method of covering existing signs must be approved by the Resident. The use of adhesives on the sign face is prohibited.

Work Zone Speed Limits

Work Zone Speed (Fines Doubled) is a regulatory speed limit that indicates the maximum legal speed through a work zone which is lower than the normal posted speed. The speed limit shall be displayed by black on white speed limit signs in conjunction with a black on orange "Work Zone" plate. Speed limit signs shall be installed at each mile within the work zone. Any existing regulatory speed limit signs within the reduced speed zone shall be covered once the reduced speed signs have been erected.

Two orange fluorescent flags shall be attached to all speed limit signs that are uncovered for a period of time exceeding one week. This work shall be incidental. Signs that are covered and uncovered on a regular basis are not required to have the supplemental flags.

The reduced speed limit signs shall be used when workers are adjacent to traffic, when travel lane(s) are closed, when indicated on Maintenance of Traffic Control Plans provided or other times as approved by the Resident:

The signs shall be covered or removed when not applicable. The covering and uncovering of signs shall be included for payment under Maintenance of Traffic. Signs relating to reduced speed shall be installed in accordance with the details. The Contractor shall note that all signs including those behind concrete barrier or guardrail are required to be clearly visible to all drivers at all times.

Lane Closure Installation and Removal Procedure

The Contractor will follow the following procedures when closing any travel lanes on the turnpike roadways:

1. The sign package shall be erected starting with the first sign and proceeding to the start of the taper. The sign crew shall erect signs with the vehicle within the outside shoulder.
2. Position the arrow board with the proper arrow at the beginning of the taper; and,
3. When arrow board is in place, continue with the drums/cones to secure the work area.

To dismantle the lane closure, start with last drums/cone placed and work in reverse order until all the drums are removed. The arrow board which was installed first shall be the final traffic control device removed, excluding the sign package. The remaining sign package shall be picked-up starting with the first sign placed and continuing in the direction of traffic and with the vehicle in the outside shoulder.

Trucking Plan

The Contractor shall submit a trucking plan to the Resident within 10 working days of the award of the Contract. The trucking plan shall consist of at least the following:

- Date of anticipated start of work per each location.
- Haul routes from plant/pit to work area and return.
- Haul routes from work area to disposal area and return.
- Entering / exiting the work area.
- Vehicle safety equipment and Vehicle inspection.
- Personal safety equipment.
- Communications equipment and plan.

The trucking plan will not be paid for separately but shall be incidental to the Contract.

652.3.6 Traffic Control

The existing travel way width shall be maintained to the maximum extent practical.

Vertical panel markers, drums, cones, or striping shall be used to clearly delineate the roadway through the construction area. Two-way traffic operation shall be provided at all times that the Contractor is not working on the project. One- way traffic shall be controlled through work areas by flaggers, utilizing radios, field telephones, or other means of direct communication.

The traffic control devices shall be moved or removed as the work progresses to assure compatibility between the uses of the traffic control devices and the traffic flow.

Pavement markings shall be altered as required to conform to the existing traffic flow pattern. Repainting of pavement marking lines, if required to maintain the effectiveness of the line, shall be considered **incidental** to the maintenance of traffic control devices, no separate payment will be made. Inappropriate pavement markings shall be removed whenever traffic is rerouted, and temporary construction pavement markings shall be placed. Removal of non-applicable markings and **initial** placement of temporary construction pavement markings will be paid for under the appropriate Contract items. Traffic changes shall not be made unless there is sufficient time, equipment, materials, and personnel available to complete the change properly before the end of the workday. This provision will not be required when traffic is rerouted for brief periods and the route can be clearly defined by channelizing devices, or flaggers, or both.

All vehicles used during the installation and removal of traffic control devices, including lane closures, shall be equipped with a vehicle-mounted lighted arrow board or **high intensity LED full width light bar** acceptable to the Resident. The arrow board or **full width light bar** shall be capable of displaying a left arrow, right arrow, double arrow, and light bar **patterns**.

652.4 Flaggers

The Contractor shall furnish flaggers as required by contract documents or as otherwise specified by the Resident. **Flaggers shall not stop traffic on Turnpike mainline or interchange ramps. Only State Police are allowed to stop traffic on mainline or interchange ramps.**

All flaggers must have successfully completed a flagger test approved by the Maine Department of Transportation and administered by a Maine Department of Transportation approved Flagger-Certifier. All flaggers must carry an official certification card with them at all times while flagging.

For daytime conditions, flaggers shall wear a top (vest, shirt or jacket) that is orange, yellow, yellow-green, or fluorescent versions of these colors meeting ANSI 107-2004, Class 3, along with a hat with 360 ° retro-reflectivity.

For nighttime conditions, flaggers shall wear all Class 3 apparel, meeting ANSI 107-2004, including a Class 3 top (vest, shirt or jacket) and a Class E bottom (pants or coveralls), shall be worn along with a hardhat with 360 ° retro-reflectivity and shall be visible at a minimum distance of 1000 ft. Flagger stations must be illuminated in nighttime conditions to assure visibility and will be specifically addressed in detail in the Contractor's TCP.

Flagger stations shall be located far enough in advance of the workspace so that approaching road users will have sufficient distance to stop at the intended stopping point. While flagging, the flagger should stand either on the shoulder adjacent to the traffic being controlled, or in the closed lane. At a spot obstruction with adequate sight distance, the flagger may stand on the shoulder opposite the closed sections to operate effectively. Under no circumstances shall the flagger stand in the lane being used by moving traffic or have their back to oncoming traffic. The flagger should be clearly visible to approaching traffic at all times and should have a clear escape route.

When conditions do not allow for proper approach sight distance of a flagger or storage space for waiting vehicles, additional flaggers shall be used at the rear of the backlogged traffic or at a point where approaching vehicles have adequate stopping sight distance to the rear of the backlogged traffic. All flagger stations shall be signed, even when in close proximity. The signs shall be removed or covered when flagger operations are not in place, even if it is for a very short duration.

Flaggers shall be provided as a minimum, a 10-minute break, every 2 hours and a 30 minute or longer lunch period away from the workstation. Flaggers may only receive 1 unpaid break per day; all other breaks must be paid. Sufficient certified flaggers shall be available onsite to provide for continuous flagging operations during break periods. If the flaggers are receiving

the appropriate breaks, breaker flagger(s) shall be paid starting 2 hours after the work begins and ending 2 hours before the work ends. A maximum of 1 breaker per 6 flaggers will be paid. (1 breaker flagger for 2 to 6 flaggers, 2 breaker flaggers for 7 to 12 flaggers, etc.). If a flagger station is manned for 10 hours or more, then ½ hour for lunch will be deducted from billable breaker flagger hours.

652.41 Traffic Officers

Local road traffic officers, if required, shall be uniformed police officers. State Police officers and vehicles shall be used to warn and stop traffic on the Maine Turnpike. All State Police shall be scheduled through the Maine Turnpike Authority. The Authority will make payment for the State Police officers and vehicles directly to the State Police.

The Contractor will not be entitled to additional compensation if scheduled Work is not completed due to the unavailability of State Police.

652.5.1 Rumble Strip Crossing

When lane shifts or lane closures require traffic to cross a permanent longitudinal rumble strip for 7 calendar days or less, the Contractor shall install warning signs that read “RUMBLE STRIP CROSSING” with a supplemental Motorcycle Plaque, (W8-15P).

When lane shifts or lane closures require traffic to cross a permanent longitudinal rumble strip for more than 7 calendar days, the Contractor shall pave in the rumble strips in the area that traffic will cross, unless otherwise directed by the Resident. Rumble strips shall be replaced prior to the end of the project, when it is no longer necessary to cross them.

652.6.1 Daylight Work Times

Unless otherwise described in the Contract, the Contractor is allowed to commence work and end work daily according to the Sunrise/Sunset Table at: <http://www.sunrisesunset.com/usa/Maine.asp>. If the Project town is not listed, the closest town on the list will be used as agreed at the Preconstruction Meeting. Any work conducted before sunrise or after sunset will be considered Night Work.

652.6.2 Night work

When Night Work occurs (either scheduled or unscheduled), the Contractor shall provide and maintain lighting on all equipment, at all workstations, and all flagger stations.

The lighting facilities shall be capable of providing light of sufficient intensity to permit good workmanship, safety, and proper inspection at all times. The lighting shall be cut off and arranged on stanchions at a height that will provide perimeter lighting for each piece of equipment and will not interfere with traffic, including commercial vehicles, approaching the work site from either direction.

The Contractor shall have available portable floodlights for special areas.

The Contractor shall utilize padding, shielding or other insulation of mechanical and electrical equipment, if necessary, to minimize noise, and shall provide sufficient fuel, spare lamps, generators, etc. to maintain lighting of the work site.

The Contractor shall submit a lighting plan prior to any night work for review showing the type and location of lights to be used for night work. The Resident may require modifications be made to the lighting set up in actual field conditions.

Prior to beginning any Night Work, the Contractor shall furnish a light meter for the Residents use that is capable of measuring the range of light levels from 5 to 20 foot-candles.

Horizontal illumination, for activities on the ground, shall be measured with the photometer parallel to the road surface. For purposes of roadway lighting, the photometer is placed on the pavement. Vertical illumination, for overhead activities, shall be measured with the photometer perpendicular to the road surface. Measurements shall be taken at the height and location of the overhead activity.

Night Work lighting requirements:

Mobile Operations: For mobile-type operations, each piece of equipment (paver, roller, milling machine, etc.) will carry indirect (i.e. balloon type) lights capable of producing at least 10 foot-candles of lighting around the work area of the equipment.

Fixed Operations: For fixed-type operations (flaggers, curb, bridge, pipes, etc.), direct (i.e. tower) lighting will be utilized capable of illuminating the work area with at least 10 foot-candles of light.

Hybrid Operations: For hybrid-type operations (guardrail, sweeping, In-slope excavation, etc.), either direct or indirect lighting may be utilized. The chosen lights must be capable of producing at least 10 foot-candles of light around the work area of the equipment

Inspection Operations: Areas required to be inspected by the Authority will require a minimum of 5 foot-candles of lighting. This may be accomplished through direct or indirect means.

The Contractor shall apply 2- inch wide retro-reflective tape, with alternating red and white segments, to outline the front back and sides of construction vehicles and equipment, to define their shape and size to the extent practicable. Pickup trucks and personal vehicles are exempt from this requirement.

The Resident or any other representative of the Authority reserves the right to suspend the work at any time and request a meeting to discuss violations and remedies. The Authority shall not be held responsible for any delay in the work due to any suspension under this item.

Failure to follow the approved Lighting Plan will result in a Traffic Control violation.

Payment for lighting, vehicle mounted signs and other costs accrued because of night work will not be made directly but will be considered incidental to the related contract items.

652.6.3 Traffic Coordinator and Personnel

The Contractor shall submit to the Resident for approval a list of traffic control personnel assigned to the Project including qualifications, certifications and experience.

The Traffic Coordinator duties shall include, but are not necessarily limited to:

- a. Developing, in conjunction with the Resident and Project superintendent, a traffic control program for the days' work activities which will facilitate traffic in a safe and efficient manner.
- b. Ensure that all traffic control implements (signs, arrow boards, barrels, etc.) are on-site so the traffic program can be implemented effectively.
- c. Ensure a safe and effective setup or take-down of all signing implements to least impact the traveling motorist; and,
- d. Working knowledge of construction signing/traffic control requirements in conformance with the latest issued Manual on Uniform Traffic Control Devices.
- e. The Contractor shall supplement the traffic control plan with a daily plan, which includes schedules for utilizing traffic coordinators and flaggers. This plan shall be submitted daily and agreed upon cooperatively with the Resident.

652.7 Method of Measurement

Signs, signs supplied by the Authority, panel markers, flashing arrow boards, portable-changeable message signs, flashing and steady burn lights, barricades, drums, and cones will not be measured separately but shall be considered incidental to the associated Maintenance of Traffic Control Devices item. No additional payment will be made for devices that require replacement due to poor condition or inadequate retroreflectivity.

Flaggers or traffic officers used during the Contract will not be measured separately for payment, but shall be incidental to the associated Maintenance of Traffic Control Devices item. This includes use of Flaggers for the delivery of materials and equipment to the project or other Flagger use that is for the Contractor's convenience, as determined by the Resident Engineer.

The Authority will make payment for the State Police officers and vehicles directly to the State Police when utilized for mainline traffic control activities. State Police escorts, if required to move oversize material or equipment loads to the jobsite, will not be paid separately, but shall be incidental to the various pay items.

Maintenance of Traffic Control Devices, per location, will be measured as one lump sum per work zone location, as indicated in the plans and specifications, for all authorized and installed traffic control devices.

The vehicle mounted arrow board, mounted on trucks used for installation and removal of lane closures, will not be measured separately for payment, but shall be incidental to the associated Maintenance of Traffic Control Devices item.

The traffic coordinator(s) will not be measured separately for payment but shall be incidental to the associated Maintenance of Traffic Control Devices item.

Portable light towers, lighting on equipment and lighting plan will not be measured separately for payment but shall be incidental to the associated Maintenance of Traffic Control Devices item.

Truck mounted attenuator will not be measured for payment but shall be incidental to the associated Maintenance of Traffic Control Devices item.

Sequential Flashing Warning Lights will not be measured for payment but shall be incidental to the associated Maintenance of Traffic Control Devices item. Work associated with Sequential Flashing Warning Lights Payment includes all materials and labor to install, maintain and remove all Sequential Flashing Warning Lights.

Automated Trailer Mounted Speed Limit Sign will not be measured for payment but shall be incidental to the associated Maintenance of Traffic Control Devices item. Work associated with Automated Trailer Mounted Speed Limit Sign includes the Trailer, Radar Speed Limit Sign, flashing beacon amber lights, regulatory speed limit sign, fuel, necessary maintenance, and all checking of Radar Speed Limit Signs by manufacturer and all project moves including the transporting and delivery of the unit.

Temporary portable rumble strips will not be measured for payment but shall be incidental to the associated Maintenance of Traffic Control Devices item.

652.8 Basis of Payment

Failure by the contractor to reinstall cones, barrels, signs, covered/uncovered signs, and similar traffic control devices within an hour of them being displaced, moved, knocked over, un-covered and etc. will result in a \$150 fine per traffic control device if the issues is not resolved within 1 hour of notification by the resident. An additional \$150 will be assessed for each additional hour that the device has not been corrected. If the traffic control device is critical to the maintenance of traffic creating an actual or potential safety issue with traffic and is not corrected immediately then it will result in a violation letter as described below.

Failure by the contractor to follow the Contract's 652 Supplemental Specifications, Special Provisions and Standard Specification and/or the Manual on Uniform Traffic Control Devices (MUTCD) and/or the Contractors own Traffic Control Plan, or failure to correct a violation, will result in a violation letter and result in a reduction in payment as shown in the schedule below. The Resident or any other representative of the Authority reserves the right to suspend the work at any time and request a meeting to discuss violations and remedies. The Authority shall not be held responsible for any delay in the work due to any suspension under

this item. Any reduction in payment under this Special Provision will be in addition to forfeiting payment of maintenance of traffic control devices for that day.

<u>Amount of Penalty Damages per Violation</u>		
<u>1st</u>	<u>2nd</u>	<u>3rd & Subsequent</u>
\$500	\$1,000	\$2,500

652.8.1 Maintenance of Traffic Control Devices

Maintenance of Traffic Control Devices will be paid at the contract lump sum price per location, as indicated in the plans and specifications. Such payment will be full compensation for signs, signs supplied by the Authority, panel markers, flashing arrow boards, portable-changeable message signs, flashing and steady burn lights, barricades, drums, cones, sequential flashing warning lights, truck mounted attenuators, automated trailer mounted speed limit signs, vehicle mounted arrow boards and signs, the traffic coordinator, portable light towers, lighting plans and other lighting on equipment, temporary portable rumble strips, and for all days that the Contractor maintains traffic as specified herein, and for moving devices as many times as necessary; for replacing devices damaged, lost, or stolen; and for cleaning, maintaining, and removing all devices used for traffic control, including replacing temporary pavement marking lines.

The contract price for Maintenance of Traffic Control Devices pre location shall be full compensation for all days for such maintenance, encompassing the work zone area surrounding the locations identified in the pay item, regardless of whether or not the work areas or projects are geographically separated or combined.

652.8.2 Other Items

There will be no payment made under any 652 pay items after the expiration of the adjusted total contract time.

Flaggers will be incidental to the associated Maintenance of Traffic Control Devices item. Flaggers shall include hiring, transporting, equipping, supervising, and the payment of flaggers and all overhead and incidentals necessary to complete the work.

The accepted quantities of traffic officer hours will be paid for by the Authority. This price shall be full compensation for supplying uniformed officers with police cruisers, and all incidentals necessary to complete the work, including transportation, equipment, and supervision.

Temporary pavement marking lines and pavement marking removal shall be incidental to the associated Maintenance of Traffic Control Devices item.

Temporary concrete barriers and work zone crash cushions shall be incidental to the associated Maintenance of Traffic Control Devices item.

Payment for temporary traffic signals will be made under Section 643 - Traffic Signals.

For a PCMS that fails to operate when required, the Contractor will be given 24-hours to repair or replace the PCMS. For periods longer than 24-hours, payment for the applicable Maintenance of Traffic Control Devices item will be reduced based on the pro-rated time that the PCMS is out of service.

The accepted quantity of temporary portable rumble strips will not be paid but will be considered incidental to the Maintenance of Traffic Control Devices item. This item includes providing, relocating, maintaining or replacing, and removing temporary portable rumble strips. If the pay item is not included in the contract quantities, then the Authority does not anticipate the use of this item on the contract. If contractor wishes to utilize temporary portable rumble strips and the item is not in the contract, then the contractor may propose use of them to the Authority for consideration.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
652.3611 Maintenance of Traffic Control Devices (Broadturn Road)	Lump Sum
652.3612 Maintenance of Traffic Control Devices (I-295 Southbound)	Lump Sum
652.3613 Maintenance of Traffic Control Devices (Maine Mall Road)	Lump Sum

SPECIAL PROVISIONSECTION 652MAINTENANCE OF TRAFFIC

(Specific Project Maintenance of Traffic Requirements)

This Specification describes the specific project maintenance of traffic requirements for this Project.

The following minimum traffic requirements shall be maintained. These requirements may be adjusted based on the traffic volume when authorized by the Authority.

Broadturn Road Traffic Control Requirements

Temporary traffic signals with alternating one-lane, two-way traffic shall be used at all times to maintain traffic along Broadturn Road when traffic is restricted to one lane with temporary concrete barrier. The Contractor shall maintain a minimum of 14 feet between the existing bridge curb and the temporary concrete barrier.

I-295 Traffic Control Requirements

Maintenance of traffic plans have been developed for the work on the I-295 Southbound Bridge and approach. I-295 may be reduced to one lane of traffic between 9:00 p.m. and 6:00 a.m. Sunday through Thursday nights.

Maine Mall Road Traffic Control Requirements

Maintenance of traffic plans have been developed for the work on the Maine Mall Road Underpass and approaches. Maine Mall Road may be reduced to one lane of traffic in each direction between 9:00 p.m. and 6:00 a.m. Sunday through Thursday nights.

Maine Turnpike Traffic Control Requirements

This Section outlines the minimum requirements that shall be maintained for work on, over, or adjacent to the Maine Turnpike roadway. Operations are allowed as outlined below:

Work zone speed limits shall only be in place when work is actively occurring in the work zone or a long term lane closure with temporary concrete barrier present. Temporary concrete barrier will only be allowed when there is an active work area behind it. Set up of temporary concrete barrier shall occur just prior to the start of work and shall be removed as soon as the work is completed or as otherwise approved by the Resident.

Speed limits shall be reduced by 10 mph on mainline and Samantha Smith Way (Route 703).

- a) Traffic Counts will be conducted by the MTA Resident to adjust the start and end times of allowable closures to provide the Contractor with maximum duration work windows.
- b) Weekend work requires approval from the Authority.
- c) Work zones that span multiple zone shall have the most restrictive times govern.
- d) Temporary Shoulder Closures are allowed at all times.
- e) Equipment Moves are allowed during low traffic periods as approved by the Authority.
- f) Operations for the travel lane closures are allowed as outlined in the following tables. Turnpike Lane Closures shall be removed if construction is not ongoing. Unattended lane closures are not allowed.

Mainline 36-42 Northbound (3 Lane Section)		
	Double Lane Closures (1 Lane Open)	Single Lane Closures (2 Lanes Open)
Before June 27, 2026		
<i>Sunday PM through Monday AM</i>	9 PM to 6 AM (7 PM start Jan 1 thru March 31)	6 PM to 7 AM
<i>Monday PM through Friday AM</i>	9 PM to 6 AM (next day) (7 PM start Jan 1 – March 31)	6 PM to 7 AM (next day)
June 28, 2026 to October 10, 2026		
<i>Sunday PM through Monday AM</i>	9 PM to 6 AM	6 PM to 7 AM
<i>Monday PM through Friday AM</i>	10 PM to 6 AM (next day)	6 PM to 7 AM (next day)
October 11, 2026 to December 31, 2026		
<i>Sunday PM through Monday AM</i>	9 PM to 6 AM	6 PM to 7 AM
<i>Monday PM through Friday AM</i>	8 PM to 6 AM (next day)	6 PM to 7 AM (next day)

Mainline MM 36-42 Southbound (3 Lane Section)		
	Double Lane Closures (1 Lane Open)	Single Lane Closures (2 Lanes Open)
Before May 30, 2026		
<i>Sunday PM through Monday AM</i>	9 PM to 6 AM	7 PM to 2 PM
<i>Monday PM through Friday AM</i>	8 PM to 6 AM (next day)	6 PM to 2 PM (next day) (Fri 12 PM)
May 31, 2026 to September 12, 2026		
<i>Sunday PM through Monday AM</i>	9 PM to 6 AM	7 PM to 9 AM
<i>Monday PM through Friday AM</i>	9 PM to 6 AM (next day)	6 PM to 9 AM (next day) (Fri 10 AM)
September 13, 2026 to October 10, 2026		
<i>Sunday PM through Monday AM</i>	9 PM to 6 AM	6 PM to 12 PM
<i>Monday PM through Friday AM</i>	9 PM to 6 AM (next day)	6 PM to 12 PM (next day) (Fri 11 AM)
October 11, 2026 to December 31, 2026		
<i>Sunday PM through Monday AM</i>	8 PM to 6 AM	6 PM to 2 PM
<i>Monday PM through Friday AM</i>	8 PM to 6 AM (next day)	6 PM to 2 PM (next day) (Fri 12 PM)

Mainline MM 44-45 Northbound (3 Lane Section)		
	Double Lane Closures (1 Lane Open)	Single Lane Closures (2 Lanes Open)
Before June 28 2026 and After September 5, 2026		
<i>Sunday PM through Monday AM</i>	7 PM to 6 AM	6 PM to 7 AM
<i>Monday PM through Friday AM</i>	7 PM to 6 AM (next day)	8 AM to 7 AM (next day) (Fri 5 PM)
June 28, 2026 to September 5, 2026		
<i>Sunday PM through Monday AM</i>	7 PM to 6 AM	6 PM to 7 AM
<i>Monday PM through Friday AM</i>	7 PM to 6 AM (next day)	8 AM to 7 AM (next day) (Fri 2 PM)

Mainline MM 44-45 Southbound (3 Lane Section)		
	Double Lane Closures (1 Lane Open)	Single Lane Closures (2 Lanes Open)
Before June 28 2026 and After September 5, 2026		
<i>Sunday PM through Monday AM</i>	8 PM to 6 AM	6 PM to 3 PM
<i>Monday PM through Friday AM</i>	8 PM to 6 AM (next day)	6 PM to 3 PM (next day)
June 28, 2026 to September 5, 2026		
<i>Sunday PM through Monday AM</i>	8 PM to 6 AM	6 PM to 10 AM
<i>Monday PM through Friday AM</i>	8 PM to 6 AM (next day)	6 PM to 10 AM (next day)

SECTION 719

SIGNING MATERIAL

Section 719.01 Reflective Sheeting

This Subsection is deleted in its entirety and replaced with the following:

Retroreflective sheeting for signs shall meet at a minimum the requirements for ASTM 4956 – Type XI (Prismatic) manufactured by 3M Company, for all signs.

Reflective sheeting, used in sign construction, shall have been manufactured within the six months immediately prior to the fabrication of each sign. Upon delivery at the job site of each shipment of signs, a letter of certification shall be provided that the reflective sheeting conforms to the requirements.

For Type 1 Guide Signs, all reflective sheeting shall be color matched on each sign unit.

All warning signs shall be fluorescent yellow except for Ramp Advisory Speed signs which shall be yellow.

All Construction Series signs that use orange backgrounds shall be fluorescent orange.

All Pedestrian Signs shall be fluorescent yellow-green.

EZ-PASS Purple shall conform to the FHWA Purple color box.

719.02 Demountable High Intensity Reflectorized Letters, Numerals, Symbols, and Borders

This Subsection, including the title, is deleted in its entirety and replaced with the following:

719.02 Letters, Numerals, Symbols, and Borders

All signs shall be manufactured utilizing Direct Applied letters, numerals, symbols and borders or be Digitally Printed meeting all sign sheeting manufacturer's (3M) requirements to ensure that the manufacturer's warranty will be in full effect.

All Type 1 overhead signs, Type 1 interchange signs and any other Type 1 signs over 100 square feet shall utilize Direct Applied letters, numerals, symbols and borders.

Direct Applied

Direct reflectorized applied letters, numerals, symbols and borders shall consist of cut out sheeting that shall meet at a minimum the requirements for ASTM 4956 – Type XI (Prismatic) sheeting. The sheeting material used for the direct applied legend shall be the same type as used for the background.

Digitally Printed

Digital printing methods may be used to produce the sign copy and borders on retroreflective sheeting. Retroreflective sheeting complying with ASTM D 4956 Type XI and designated by the manufacturer as suitable for digital printing traffic signs along with associated ink and premium overlay film. Digitally Printed signs shall meet all sign sheeting manufacturer's (3M) requirements to ensure that the manufacturer's warranty will be in full effect

Transparent and opaque durable inks used in digital printed sign copy and borders shall be as recommended by the sheeting manufacturer (3M). Digital printed traffic colors shall be properly applied and shall have a warranty life of the base retroreflective sign sheeting. Digitally printed signs shall present a flat surface, free from foreign material, and all copy and borders shall be clear and sharp. Digital printed signs shall conform to 70% of the retroreflective minimum values established for its type and color (applicable to traffic colors only), as required by ASTM D 4956. Digital printed signs shall meet the daytime color and luminance, and nighttime color requirements of ASTM D 4956. Printed traffic colors shall meet the accelerated weathering and colorfastness requirements of ASTM D 4956. Digitally printed black shall remain sufficiently opaque for its intended use for the warranty period of the base sheeting. No variations in color or overlapping of colors will be permitted.

Digitally printed traffic signs shall have an integrated engineered match component clear UV- premium protective overlay recommended by the sheeting manufacturer applied to the entire face of the sign.

All digitally printed traffic signs shall utilize an integrated engineered match component system for materials and printing process and equipment. The integrated engineered match component system shall consist of retroreflective sheeting, durable ink(s), and clear protective overlay film, as specified by the sheeting manufacturer, applied to aluminum substrate.

The sign fabricator shall use an integrated engineered match component system digital printer approved by the sheeting manufacturer. Each approved digital printer shall only use the compatible retroreflective sign sheeting manufacturer's engineered match component system products. The sign fabricator shall maintain their digital printer's color calibration according to the sheeting manufacturer's requirements to help ensure digitally printed signs meet the manufacturer's specifications. The fabricator shall be trained by the sheeting manufacturer to produce digitally printed traffic signs that qualify for the sheeting manufacturer's warranty.

General

Type 1 Guide Signs shall have two-inch-tall, series C text that indicates the sign size, and the sign install date (MM/YY) located two inches above the bottom border of the sign.