MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

CONTRACT DOCUMENTS

CONTRACT 2019.15

GRAY SERVICE PLAZA
FUEL SYSTEM REPLACEMENT
MILE 58.8 NB

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

	PAGE
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

ARRANGEMENT OF SPECIFICATIONS

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 2019.15

GRAY SERVICE PLAZA
FUEL SYSTEM REPLACEMENT
MILE 58.8 NB

at the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, ME, until 11:00 a.m., prevailing time as determined by the Authority on July 18, 2019 at which time and place the Proposals will be publicly opened and read. This Project includes a wage determination developed by the State of Maine Department of Labor.

Bids will be accepted from Contractors who can demonstrate a minimum of three (3) successful similar fuel system projects. A list of these projects, including Owner contact information, shall accompany the Proposal. A summary of each construction project must also be submitted demonstrating experience with, but not limited to: demolition of underground storage tanks and piping, proper management of contaminated soils and groundwater, installation of underground tanks, piping, electrical and communication, concrete dispenser slab constructions, canopy installation, dispenser installation, electrical, communication, lighting, and fire suppression system installations. The contractor must also submit a list of Certified Tank Installers that will be assigned to this project.

The work consists of removing and replacing the underground gas and diesel storage tanks at the northbound travel plaza in Gray, providing final installation of temporary gas and diesel dispensers using owner supplied aboveground storage tanks, associated electrical, mechanical, drainage, site work, maintenance of traffic and all other work incidental thereto in accordance with the Plans and Specifications.

Plans and Contract Documents may be examined by prospective Bidders weekdays between 8:00 a.m. and 4:30 p.m. at the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, Maine. **The half size Plans** and Contract Documents may be obtained from the Authority upon payment of Fifty ($50.00) 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** . For Project specific information, fax all questions to Nate Carll, Purchasing Manager, at (207) 871-7739 or email ncarll@maineturnpike.com. 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 July 9, 2019 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 2019.15

GRAY SERVICE PLAZA
FUEL SYSTEM REPLACEMENT
MILE 58.8 NB

MAINE TURNPIKE AUTHORITY

PROPOSAL

CONTRACT 2019.15

GRAY SERVICE PLAZA
FUEL SYSTEM REPLACEMENT
MILE 58.8 NB

TO MAINE TURNPIKE AUTHORITY:

The work consists of removing and replacing the underground gas and diesel storage tanks at the northbound travel plaza in Gray, providing final installation of temporary gas and diesel dispensers using owner supplied aboveground storage tanks, associated electrical, mechanical, drainage, site work, 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 2019.15 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. 2019.15
Fuel System Replacement
Gray Service Plaza
Mile 58.8

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
202.17	Removing Existing Structural Concrete	Lump Sum	1				
202.202	Removing Pavement Surface	Square Yard	820				
203.20	Common Excavation	Cubic Yard	340				
203.2312	Health and Safety Plan	Lump Sum	1				
203.2333	Disposal/Treatment of Special Excavation	Ton	535				
203.2334	Disposal/Treatment of Contaminated Groundwater	Gallon	300,000				
206.061	Structural Earth Excavation - Drainage Minor Structures Below Grade	Cubic Yard	25				
304.10	Aggregate Subbase Course - Gravel	Cubic Yard	450				
304.14	Aggregate Base Course - Type A	Cubic Yard	90				
403.207	Hot Mix Asphalt, 19.0 mm Nominal Maximum Size	Ton	340				
403.208	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size	Ton	400				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
			BROUGHT FORWARD:				
409.15	Bituminous Tack Coat, Applied	Gallon	210				
419.30	Sawing Bituminous Pavement	Linear Foot	1,110				
502.701	Concrete Gas Island and Slab	Cubic Yard	74				
502.702	Concrete Diesel Island and Slab	Cubic Yard	37				
502.703	Concrete Fuel Tank Slab	Cubic Yard	39				
503.14	Epoxy-Coated Reinforcing Steel, Fabricated and Delivered	Pound	12,200				
503.15	Epoxy-Coated Reinforcing Steel, Placing	Pound	12,200				
524.30	Temporary Structural Support	Each	1				
526.306	Temporary Concrete Barrier, Type I - Supplied by Authority (500 LF)	Lump Sum	1				
603.165	15 inch Reinforced Concrete Pipe - Class III	Linear Foot	100				
604.09	Catch Basin Type B1	Each	3				
604.15	Manhole	Each	1				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
			BROUGHT FORWARD:				
604.30	Oil-water Separator	Each	1				
605.09	6" Underdrain Type B	Linear Foot	50				
606.265	Terminal End - single rail-Galvanized steel	Each	4				
606.356	Underdrain Delineator Post	Each	3				
606.3605	Guardrail Remove and Reset	Linear Foot	162.5				
607.18	6 Foot Chain Link Safety Fence	Linear Foot	500				
609.31	Curb Type 3	Linear Foot	120				
610.08	Plain Riprap	Cubic Yard	9				
613.319	Erosion Control Blanket	Square Yard	18				
615.07	Loam	Cubic Yard	80				
618.13	Seeding Method Number 1	Unit	5				
619.1201	Mulch - Plan Quantity	Unit	5				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
			BROUGHT FORWARD:				
619.1202	Temporary Mulch	Lump Sum	1				
622.10	Transplanting Shrub	Each	13				
626.13	18" X 12" X 18" Quazite Junction Box	Each	1				
626.22	Non-Metallic Conduit	Linear Foot	70				
626.32	24 Inch Diameter Foundation	Each	2				
626.36	Remove or Modify Concrete Foundation	Each	2				
627.731	Temporary 6 Inch Black Pavement Marking Tape	Linear Foot	100				
627.733	4" White or Yellow Painted Pavement Marking Line	Linear Foot	650				
627.78	Temporary Pavement Marking Line White or Yellow	Linear Foot	840				
629.05	Hand Labor, Straight Time	Man Hour	20				
631.12	All Purpose Excavator (including operator)	Hour	20				
631.172	Truck Large (including operator)	Hour	40				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
			BROUGHT FORWARD:				
631.221	Small Front End Loader (including operator)	Hour	20				
631.32	Culvert Cleaner (including operator)	Hour	12				
631.36	Foreman	Hour	20				
634.208	Remove and Reset Light Standards	Each	2				
634.23	Temporary Lighting	Lump Sum	1				
639.19	Field Office, Type B	Each	1				
645.109	Remove and Reset Sign	Each	1				
652.33	Drum	Each	70				
652.34	Cones	Each	25				
652.35	Construction Signs	Square Foot	146				
652.361	Maintenance of Traffic Control Devices	Lump Sum	1				
652.38	Flaggers	Hour	40				

CARRIED FORWARD:

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
			BROUGHT FORWARD:				
652.41	Portable Changeable Message Sign	Each	1				
655.101	#6 AWG Wire	Linear Foot	180				
655.11	#10 AWG Wire	Linear Foot	90				
656.50	Baled Hay, in place	Each	12				
656.632	30 Inch Temporary Silt Fence	Linear Foot	280				
659.10	Mobilization	Lump Sum	1				
800.01	Removal of Underground Tanks (Gasoline and Diesel)	Lump Sum	1				
800.02	Underground Tank Installation (Gasoline and Diesel)	Lump Sum	1				
800.03	Aboveground Diesel Tank Installation	Lump Sum	1				
800.04	Aboveground Gasoline Tank Installation	Lump Sum	1				
800.50	New Canopy (Diesel)	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.

_____ *(SEAL)*

_____ *(SEAL)*

Affix Corporate Seal
or Power of Attorney
Where Applicable _____ *(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)

STATEMENT OF QUALIFICATION

The undersigned, under the pains and penalty of perjury, offers the following information as evidence of his qualifications to perform the Work as bid upon according to all the requirements of the Plans and Specifications.

1. How long have you been in business under present business name? _____ Years

2. Have you ever failed to complete any work awarded? _____ Yes _____ No

   If Yes, provide explanation: _____

   _____

   _____

3. History of Contracts: On the following "History of Contracts" sheet, provide full information about all of your Contracts similar to this Contract. Bidder may copy the sheet to provide information for multiple projects. Blank sheets may be used for additional space. Please number additional pages as follow, P-11-2, P-11-3, P-11-4, etc.

4. Status of Contracts on Hand: On the following "Status of Contracts on Hand" sheet, provide full information about all of your Contracts.

_____
(Date)

_____
(Name of Bidder as appearing in submitted Proposal)

HISTORY OF CONTRACTS

PROJECT NAME:

OWNER:

LOCATION:

DESCRIPTION:

CONTRACT AMOUNT:

NAME OF SUBCONTRACTOR(S):

SUBCONTRACTOR'S CONTRACT AMOUNT(S):

CONTRACT COMPLETION DATE:

ACTUAL COMPLETION DATE:

LIST OF CERTIFIED TANK INSTALLERS FOR THIS PROJECT:

SUMMARY OF THE PROJECT SCOPE:

STATUS OF CONTRACTS ON HAND

OWNER	CONTACT NAME & TELEPHONE NO.	LOCATION OF WORK	DESCRIPTION OF WORK	GENERAL CONTRACTOR OR SUBCONTRACTOR	CONTRACT AMOUNT	BALANCE TO BE COMPLETED	ESTIMATED DATE OF COMPLETION

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)

"Supplemental Specifications available on the Maine Turnpike Authority Website"

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART II – SPECIAL PROVISIONS

SECTION	TITLE	PAGE

PART II - SPECIAL PROVISIONS

SECTION	TITLE	PAGE
__	GENERAL DESCRIPTION OF WORK	SP-1
__	PLANS	SP-1
101.2	DEFINITION	SP-1
103.4	NOTICE OF AWARD	SP-1
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-7
105.2	ASBESTOS	SP-7
105.8.2	PERMIT REQUIREMENTS	SP-7
107.1	CONTRACT TIME AND CONTRACT COMPLETION DATE	SP-8
107.1.1	SUBSTANTIAL COMPLETION	SP-9
107.4.6	PROSECUTION OF WORK	SP-9
203.	EXCAVATION AND EMBANKMENT	SP-11
203.	EXCAVATION AND EMBANKMENT (Contaminated Soil and Groundwater Management)	SP-12
206.	STRUCTURAL EXCAVATION	SP-18
401.	HOT MIX ASPHALT PAVEMENT	SP-19
401.	HOT MIX ASPHALT PAVEMENT (HMA using Hydrated Lime)	SP-26
403.	HOT MIX ASPHALT PAVEMENT	SP-28
409.	BITUMINOUS TACK COAT	SP-31
419.	SAWING AND SEALING JOINTS IN BITUMINOUS PAVEMENT (Sawing Bituminous Pavement)	SP-33

SECTION	TITLE	PAGE
502.	STRUCTURAL CONCRETE (Concrete Gas Island and Slab) (Concrete Diesel Island and Slab) (Concrete Fuel Tank Slab)	SP-34
515.	PROTECTIVE COATING FOR CONCRETE SURFACES (Clear Concrete Protective Coating)	SP-36
526.	CONCRETE BARRIER (Temporary Concrete Barrier Type I – Supplied by Authority)	SP-39
527.	ENERGY ABSORBING UNIT (Work Zone Crash Cushion)	SP-42
603.	PIPE CULVERTS AND STORM DRAINS (Reinforced Concrete Pipe) (Concrete Collar) (Corrugated Polyethylene Pipe)	SP-44
604.	MANHOLES, INLETS AND CATCH BASINS (Oil-Water Separator System)	SP-46
604.	MANHOLES, INLETS AND CATCH BASINS (Catch Basin Type B1)	SP-48
606.	GUARDRAIL (31” W-Beam Guardrail – Mid-way Splice (7’ Steel Posts, 8” Offset Blocks, Single Faced)) (31” W-Beam Guardrail – Mid-way Splice – Over 15’ Radius)	SP-50
606.	GUARDRAIL (Delineator Post – Remove and Reset) (Delineator Post – Remove and Stack)	SP-52
606.	GUARDRAIL (Guardrail – Remove, Modify and Reset, Single Rail) (Guardrail – Remove, Modify and Reset, Double Rail) (Guardrail - Remove and Stack) (Guardrail Adjust – Single Rail) (Guardrail Adjust – Double Rail)	SP-55
607.	FENCES (6 Foot Chain Link Safety Fence)	SP-58
613.	EROSION CONTROL BLANKET	SP-59

SECTION	TITLE	PAGE
619.	MULCH (Mulch – Plan Quantity) (Temporary Mulch)	SP-60
626.	FOUNDATIONS, CONDUIT, AND JUNCTION BOXES FOR HIGHWAY SIGNING, LIGHTING AND SIGNALS (Quazite Junction Box 18 x 12)	SP-62
627.	PAVEMENT MARKINGS (Temporary 6 Inch Pavement Marking Tape) (Temporary 6 Inch Black Pavement Marking Tape)	SP-63
634.	HIGHWAY LIGHTING (Remove and Reset Light Standard)	SP-66
634.	HIGHWAY LIGHTING (Temporary Lighting)	SP-68
645.	HIGHWAY SIGNING (Remove and Reset Sign) (Remove and Stack Sign)	SP-70
652.	MAINTENANCE OF TRAFFIC (Specific Project Maintenance of Traffic Requirements)	SP-71
655.	ELECTRICAL WORK	SP-72
719.	SIGNING MATERIAL	SP-73
800.	BUILDING AND STRUCTURES (New Canopy - Diesel)	SP-74
23 11 13	FACILITY FUEL SYSTEM	SP-76

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART 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 removing and replacing the underground gas and diesel storage tanks and fuel systems at the northbound travel plaza in Gray, providing final installation of temporary gas and diesel dispensers using owner supplied aboveground storage tanks, associated electrical, mechanical, drainage, site work, 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 2019.15 – GRAY SERVICE PLAZA – Fuel System Replacement – Mile 58.8 NB". 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 Definition

Holidays

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

Christmas 2019	12:01 p.m. preceding Friday to 6:00 a.m. the following Thursday.
New Years 2020	12:01 p.m. preceding Friday to 6:00 a.m. the following Wednesday.

103.4 Notice of Award

The following sentence is added:

The Maine Turnpike Authority Board is scheduled to consider the Contract Award on July 25, 2019.

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:

THIS DOCUMENT MUST BE CLEARLY POSTED AT THE PERTAINING STATE FUNDED PREVAILING WAGE CONSTRUCTION SITE

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

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

Title of Project --------MTA 2019.15-Maine Turnpike Gray Service Center, Fuel System Replacement-HB

Location of Project --Gray, Cumberland County

2019 Fair Minimum Wage Rates
Heavy & Bridge Cumberland County

Occupation Title	Minimum Wage	Minimum Benefit	Total	Occupation Title	Minimum Wage	Minimum Benefit	Total
Backhoe Loader Operator	$26.48	$4.96	$31.44	Laborer - Skilled	$19.50	$3.55	$23.05
Boilermaker	$24.00	$9.00	$33.00	Line Erector - Power/Cable	$31.00	$5.86	$36.86
Bulldozer Operator	$20.00	$3.71	$23.71	Loader Operator - Front-End	$22.85	$3.31	$26.16
Carpenter	$22.00	$4.42	$26.42	Mechanic- Maintenance	$20.50	$2.96	$23.46
Carpenter - Rough	$22.00	$6.12	$28.12	Mechanic- Refrigeration	$25.71	$5.09	$30.80
Communication Equip Installer	$23.00	$1.82	$24.82	Millwright	$25.20	$8.90	$34.10
Comm Transmission Erector	$19.80	$3.49	$23.29	Painter	$26.00	$1.08	$27.08
Concrete Mixing Plant Operator	$22.11	$4.92	$27.03	Paver Operator	$20.00	$0.00	$20.00
Crane Operator =>15 Tons)	$27.00	$5.14	$32.14	Pipe/Steam/Sprinkler Fitter	$26.40	$9.32	$35.72
Crusher Plant Operator	$17.38	$3.12	$20.50	Pipelayer	$23.00	$1.14	$24.14
Diver	$32.00	$6.91	$38.91	Plumber (Licensed)	$25.00	$4.26	$29.26
Driller - Well	$19.83	$2.66	$22.49	Plumber Helper/Trainee	$19.00	$3.10	$22.10
Earth Auger Operator	$25.84	$5.78	$31.62	Rigger	$22.50	$6.57	$29.07
Electrician - Licensed	$30.07	$7.90	$37.97	Roller Operator - Earth	$22.11	$2.77	$24.88
Electrician Helper/Cable Puller	$17.50	$5.46	$22.96	Roller Operator - Pavement	$19.00	$1.06	$20.06
Excavator Operator	$25.25	$4.27	$29.52	Sheet Metal Worker	$20.00	$4.11	$24.11
Fence Setter	$15.00	$2.00	$17.00	Stone Mason	$21.00	$0.95	$21.95
Flagger	$13.00	$0.00	$13.00	Truck Driver - Light	$17.00	$1.17	$18.17
Ironworker - Reinforcing	$28.71	$0.00	$28.71	Truck Driver - Medium	$19.00	$3.37	$22.37
Ironworker - Structural	$25.38	$3.79	$29.17	Truck Driver - Heavy	$19.00	$2.98	$21.98
Laborers (Helpers & Tenders)	$18.00	$2.26	$20.26	Truck Driver - Tractor Trailer	$21.13	$4.07	$25.20

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

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

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

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

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

Determination No: **HB-016-2019**

A true copy

Filing Date: **June 5, 2019**

Attest: Scott R. Cotnoir

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

Expiration Date: **12-31-2019**

BLS(Heavy & Bridge Cumberland)

THIS DOCUMENT MUST BE CLEARLY POSTED AT THE PERTAINING STATE FUNDED PREVAILING WAGE CONSTRUCTION SITE

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

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

Title of Project --------MTA 2019.15-Maine Turnpike Gray Service Center, Fuel System Replacement

Location of Project --Gray, Cumberland County

2019 Fair Minimum Wage Rates
Highway & Earth Cumberland County

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

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

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

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

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

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

Determination No: **HI-117-2019**

A true copy

Filing Date: **June 5, 2019**

Attest: Scott R. Cotnoir

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

Expiration Date: **12-31-2019**

BLS(Highway & Earth Cumberland)

104.4.6 Utility Coordination

This Subsection is amended by the addition of the following:

These Special Provisions outline the requirements of the contractor for coordination of the work to be accomplished by the utilities. The Contractor shall plan and conduct his work accordingly.

A Preconstruction Utility Conference, as defined in subsection 104.4.6 Utility Coordination, is required.

General

Unless otherwise specified, any underground utility facilities shown on the project plans represent approximate locations gathered from available information. The MTA cannot certify the level of accuracy of this data.

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

The Contractor shall plan and conduct his operations in accordance with the utility schedules developed. The Contractor must comply with all OSHA regulations pertaining to work adjacent to utility wires. The Contractor shall plan and conduct his work accordingly.

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

The propane tanks shall be protected during excavations and all other operations during the construction timeframe.

The following utilities may be located within the Project limits. The Contractor shall ascertain the location of the existing utilities and any other necessary information by direct inquiry at the office of the following utility owners:

AERIAL UTILITIES

COMMUNICATION:

OTELCO
Jim Taplin
(207) 688-8824

CABLE TELEVISION:

Charter (formerly Time Warner)
Dennis Heffernan

(207) 253-2226

ELECTRIC:

Central Maine Power
Jason Ward
(207) 629-1432

CMP Alternate Contacts
Alpay Balkir (207) 629-1430
Tony Tanguay (207) 629-1431

OTELCO

OTELCO requests a 10-day notification prior to start of construction adjacent to the aerial and underground lines. OTELCO does not anticipate any working days for utility modification.

CHARTER (FORMERLY TIME WARNER CABLE)

CHARTER requests a 10-day notification prior to start of construction adjacent to the aerial and underground lines. CHARTER does not anticipate any working days for utility modification.

CENTRAL MAINE POWER (CMP)

CMP requests a 10-day notification prior to start of construction adjacent to the aerial and underground lines.

CMP anticipates the need to secure the Utility Pole adjacent to the proposed culvert replacement, station 109+70, during culvert replacement. There are three possible scenarios, to be discussed at the Pre-Construction Conference, 1) anchor the pole with two sections of temporary concrete barrier, 2) install a push-pole, and 3) use a CMP truck to hold the pole.

CMP requests the Contractor and the Maine Turnpike coordinate a 2 hour electrical power shut-off to allow temporary securing of the utility pole.

CMP requests that the minimum width trench box be used for culvert installation to limit excavation next to the utility pole.

CMP requests that temporary concrete barriers be placed to protect the utility pole and temporary anchors during construction.

CMP anticipates one (1) working day for securing utility pole and one (1) working day to restore the permanent anchor following installation of culvert, new underground tanks, and tank slab.

UNDERGROUND UTILITIES

OTELCO

OTELCO requests a 10-day notification prior to start of construction adjacent to the aerial and underground lines. OTELCO will mark their utility.

CHARTER (FORMERLY TIME WARNER CABLE)

CHARTER requests a 10-day notification prior to start of construction adjacent to the aerial and underground lines. CHARTER will mark their utility.

CENTRAL MAINE POWER (CMP)

CMP requests a 10-day notification prior to start of construction adjacent to the aerial and underground lines. CMP will mark their utility.

MAINE TURNPIKE AUTHORITY (MTA)

MTA requires 10 working days' notice prior to any excavation. In addition to the normal Contractor responsibility of complying with all Dig Safe rule, the Contractor shall request MTA to mark all MTA owned facilities within the project area.

MTA has underground electric, sewer, and water lines. Notification of all work adjacent to these lines shall be coordinated with the Resident.

104.4.7 Cooperation with Other Contractors

This Subsection is amended by the addition of the following:

The Contractor shall allow access to the site by the Authority's fuel vendor C.N. Brown for the removal and/or installation of their materials and equipment.

The following Subsection is added:

105.2 Asbestos

This Subsection is amended by the addition of the following:

Portions of the existing electrical conduit may contain asbestos-cement material. Unless otherwise noted or directed, the Contractor shall assume all electrical conduit is asbestos-cement material. Removal of or making connections to this material shall be performed in a manner, and using techniques, that protects workers and environmental safety and health and complies with all local, State and Federal requirements for working with this type of material. As required, the Contractor shall utilize trained and certified personnel when making these connections. Removed asbestos-cement pipe shall be transported and disposed of in a legal manner.

The following Subsection is added:

105.8.2 Permit Requirements

Because the project will not disturb one acre or more of area, it is not subject to the requirements of the Maine Pollutant Discharge Elimination System (MPDES) General Permit for Stormwater Discharge from Construction Activity, as promulgated by the US Environmental Protection Agency (US EPA) and Administrated by the Maine Department of Environmental Protection (DEP).

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

The Contractor shall prepare a LOD plan 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 0.65 Acres. However, 0.04 acres of that disturbance will be final stabilized and/or repaved prior to the remaining 0.61 acres being disturbed.

At any time during the Contract, if 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 exceeds the estimated LOD noted above, by 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 the estimated LOD noted above, by over one acre, the Resident shall first approve of the plan and then possibly submit a NOI for MaineDEP approval. The approval may take a minimum of 21 working days.

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

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.

107.1 Contract Time and Contract Completion Date

This Subsection is amended by the addition of the following:

The contractor will be permitted to construct these improvements in one of two timeframes:

- Starting on August 19th and being complete by November 22nd, 2019; however existing fuel dispensers, northerly truck stalls, and perimeter road shall remain in service until September 3 or,
- starting on March 16th and being complete by June 19, 2020.

Regardless of the timeframe chosen, a maximum14-week construction period will be required, starting from the date the temporary facility is brought to the site by the Contractor, to Substantial Completion. All shop reviews and construction documentation shall be submitted prior to the start of construction.

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:

- Existing underground storage tanks decommissioned and disposed.
- Proposed underground storage tanks installed and made fully functioning.
- Final fuel systems operational and open to the public.
- Above ground storage tanks decommissioned, removed, and set as noted in the Plans and Specifications, including preparing the tanks for use with a different fuel product.
- Drainage systems installed and functioning.
- Traffic circulation returned to final (existing) conditions.
- All site work complete, pavement complete, and disturbed slopes loamed, seeded and mulched, and erosion control measures installed where necessary.

Supplemental Liquidated damages of $1,000 per day, on a calendar day basis, in accordance with Subsection 107.8 shall be assessed for each calendar day that substantial completion is not achieved, as well as for final completion, beyond the 14-week timeframe allotted for construction.

107.4.6 Prosecution of Work

The Authority's fuel operator is responsible for removing the existing gas and diesel dispensers. The Contractor shall provide a minimum of five days' notice to the Resident of when the dispensers need to be removed. The fuel operator shall have five working days to remove dispensers.

The Authority's fuel operator shall operate the aboveground storage tanks. Contractor shall provide Resident with five working days' notice of when the aboveground storage tanks will be operational.

The contractor shall plan for and provide access to the travel plaza and temporary fuel systems for delivery vehicles (food, supplies, gas, diesel, maintenance, etc.).

The following is a list of major milestone activities required:

- Pick up, delivery and install of owner purchased above ground gas and diesel storage tanks, protective barrier, point of sale, and temporary lighting
- Install temporary kiosk (supplied by the Authority's fuel operator) including providing power and communication protective barrier and temporary lighting
- Decommission (including but not limited to all systems disconnected, lines and tanks drained and purged and prepped for removal and disposal) and remove underground gas and diesel tanks
- Take receipt of and install owner purchased underground gas and diesel tanks
- Take receipt of and install vendor supplied gas and diesel dispensers
- Design and install of diesel canopy

- Decommission above ground tanks (including but not limited to removing fuel from tanks and lines, purging and prepping tanks and lines to accept a different fuel. Gas tank will be used for diesel and diesel tank will be used for gas.)
- Delivery of the decommissioned aboveground storage tanks.

Note: Delivery of aboveground storage tanks will be dependent upon the timeframe of construction operations. If the construction occurs in the fall of 2019, the contractor shall decommission and transport the tanks to the Crosby Maintenance facility

If the construction occurs in the Spring of 2020 and the fuel storage tanks fail testing at the Cumberland travel plaza (testing and inspection of the existing tanks at Cumberland facility to be completed by the Authority under different contract), the tanks will be delivered to the Cumberland travel plaza. The Authority will make the tanks active under a different contract if they are needed for temporary operations at the Cumberland facility.

Regardless of delivery location, the (Gray Fuel System) contractor will be required to decommission the aboveground tanks prior to delivery to include but not limited to: removal of all fuel from the tanks and piping, cleaning of the two tanks and piping sufficient to allow the current diesel tank to accept a gasoline product and the current gasoline tank to accept a diesel product, and confirming that all system components are in good working order.

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 work area is closed to traffic. The intent of this specification is to minimize the amount of time for plaza disruption, while providing the Contractor sufficient time to complete the work in a diligent manner and to reopen the plaza parking, circulation, and fuel systems as prescribed by the project’s Substantial Completion dates.

The Contractor shall plan the Phase 3 work, such that impacts to the truck parking stalls are minimized. The contractor will be given a maximum 2-week window in which the truck stalls may be taken completely out of service (24 hours per day) for contractor's use. Outside of this single 2-week window the contractor shall makes these truck stalls accessible from 7pm to 7am each day. Supplemental Liquidated Damages of $1,000 per day, on a calendar day basis, in accordance with Subsection 107.8, shall be assessed for each calendar day beyond the single 2-week window that the truck stalls are not accessible for a minimum of 7pm to 7am.

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 should be benched as shown on the drawings prior to placing additional fill. Embankment fill should 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 203

EXCAVATION AND EMBANKMENT

(Contaminated Soil and Groundwater Management)

203.01 General

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

A representative from the Authority's Environmental Services Department shall be notified at least five (5) working days prior to beginning any excavation of the contaminated soil. The representative shall be on site to observe and document the work. For unanticipated contaminated areas see Subsection 203.10.

203.02 Environmental Site Conditions

There is potential that the soil surrounding the tank, which is to be removed during the existing tank removal and the tank installations may contain petroleum impacted soil and groundwater. Additionally, petroleum impacted soils and groundwater may also exist at the gas and diesel island locations.

203.02 Potential Areas of Contamination

Identifying and Screening Contaminated Soil and Groundwater.

Excavated soils will be classified by a Maine Turnpike Environmental representative based on their visual and olfactory evidence of contamination and by Photo-Ionization Detector (PID) field screening. Field screening with a PID shall be performed according to the MaineDEP "Jar/Poly Bag Headspace Technique" contained in Appendix Q of *Regulations for Registration, Installation, Operation and Closure of Underground Oil Storage Facilities, Chapter 691* (MDEP 3/14/00) and using MDEP's July 2006 calibration set-points.

The soils shall be classified by the Resident/Authority as Group 1, Group 2 or Group 3.

GROUP 1 soils shall have Photo-Ionization Detector (PID) field screening measurements indicating relative concentrations of VOCs less than or equal to 20 parts per million (ppm) as measured in the soil headspace.

GROUP 2 soils shall have PID field screening measurements indicating VOC concentrations greater than 20 ppm and less than or equal to 100 ppm and contain no "petroleum saturated" soils or free-phase petroleum product.

GROUP 3 soils shall have PID field screening measurements greater than 100 ppm or be "petroleum saturated." Analysis to determine "petroleum saturation" shall be performed according to MDEP guidance in *Procedural Guidelines for Establishing Standards for Remediation of Oil Contaminated Soil and Ground Water in Maine* (MDEP, 3/13/00).

Handling and Disposition of Soil Materials

Soil material excavated during construction shall be handled as follows:

GROUP 1 soils are not considered contaminated. Thus, special handling and disposal are not required for Group 1 soils and can be used as fill anywhere on site.

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

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

The Authority's designated representative is responsible for signing any manifests or bills of lading required to transport and dispose of contaminated soil. All documentation and paperwork associated with the transport and disposal of Group 2 and Group 3 soils (i.e., manifests/bills of lading, weigh slips, invoices, permits, etc.) shall be forwarded to the Maine Turnpike Authority's Environmental Services Coordinator at 2360 Congress Street, Portland, Maine 04102 within 30 days of the last shipment of soil to the licensed facility.

203.04 Secured Stockpile Area

Should the Contractor utilize a Temporary Secured Stockpile Area (hereafter referred to as a “Secured Stockpile”), they shall install a continuous one-foot (0.30 m) high compacted soil berm around the Secured Stockpile (see Secured Stockpile Area – Materials below for Specifications pertaining to soil berm, liner, cover and barricades). The Secured Stockpile shall be placed on a liner of 20-mil polyethylene and securely covered with 20-mil polyethylene. The polyethylene liner and cover shall be placed over the soil berm and be installed to ensure that precipitation water drains directly to the outside of the berm perimeter while leachate from the contaminated soil is retained within the stockpile by covering with a polyethylene. The Secured Stockpile and soil berm shall be enclosed within a perimeter of temporary concrete barriers or security fence. The area within the temporary concrete barriers (or security fence) shall be identified as a "restricted area" to prevent unauthorized access to the contaminated soils. The Contractor shall submit to the Resident a plan (sketch and sections) of the proposed secured stockpile area.

203.05 Secured Stockpile Area - Materials

The Contractor shall develop a soils management plan for the project for any Group 2 and 3 soils stored onsite as part of the health and safety plan. As part of the plan, the Contractor shall submit to the Resident a plan (sketch and sections) of the proposed secured stockpile areas. If soils are stored on site, the following will be required as a minimum:

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

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

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

203.06 Health and Safety/Right-to-Know

Contractors and subcontractors are required to notify their workers of the history of the area and contamination that may be present and to be alert for evidence of contaminated soil and groundwater. The Contractor shall notify the Resident at least 72-hours prior to commencing any excavation in Area A.

The Contractor shall prepare a site specific Health and Safety Plan (HASP) for its workers and subcontractors who may work in the contaminated area of the site. A Qualified Health and Safety Professional shall complete the HASP. The HASP shall be submitted to the Authority in accordance with the Submittal section below. The Qualified Health and Safety Professional will be an expert in field implementation of the following federal regulations:

29 CFR 1910.120 or	Hazardous Waste Operations, and
29 CFR 1926.65	Emergency Response

29 CFR 1910.134	Respiratory Protection
29 CFR 1926.650	Subpart D - Excavations
29 CFR 1926.651	General Requirements
29 CFR 1926.652	Requirements for Protective Systems

The Contractor shall designate a person to provide direct on-site supervision of the work in the contaminated area. This person shall have the training and medical surveillance under OSHA 1910.120 (e) and (f) respectively, as detailed above and in addition be qualified as a construction Competent Person [OSHA 1926.32 (f) and (l)]. It is the responsibility of this designated person to make those inspections necessary to identify situations that could result in hazardous conditions (e.g., possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions), and then to insure that corrective measures are taken.

Work inside contaminated trench sections may be subject to OSHA's permit-required confined space regulations under 29 CFR 1910.146.

Submittals. The Contractor shall submit for Authority and the Authority's Environmental Services Coordinator, review a site specific Health and Safety Plan (HASP) to the Resident at least two weeks in advance of any excavation work on the Project.

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

203.07 Dewatering

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

203.08 On-Site Water Storage Tanks - Materials

If dewatering within the identified contaminated area becomes necessary the holding tanks used for temporary storage of contaminated water pumped from excavations shall be contamination-free and sized appropriately for contractor's storage, treatment, and disposal process.

203.09 Dust Control

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

203.10 Unanticipated Contamination.

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

203.11 Method of Measurement.

Health and Safety Plan (HASP) will be measured for payment by the lump sum.

Disposal/Treatment of Special Excavation will be measured for payment by the ton.

Disposal/Treatment of Groundwater will be measured for payment by the gallon.

203.012 Basis of Payment.

Health and Safety Plan (HASP) will be paid for at the Contract lump sum price which payment shall be full compensation for development of an approved Health and Safety Plan (HASP) and providing health and safety equipment and personnel.

Disposal/Treatment of Special Excavation (contaminated Surplus Group 2 and all Group 3 soils) will be paid for at the Contract unit price per ton which payment shall be full compensation for excavating, loading, hauling, treatment, placing, grading and compacting, and all necessary equipment and labor. Only soil excavated from within the area shown on the plans or as designated by the Resident will be paid under this pay item.

Disposal/Treatment of Contaminated Groundwater will be paid for at the Contract unit price per Gallon which payment shall be full compensation for pumping excavations, loading, hauling, treatment, and all necessary equipment and labor. Only groundwater pumped, treated and disposed of properly from the site will be paid under this pay item. Any water that is not required to be treated will not be paid for. Contractor is to propose and submit for review measurement and calibration of meter for pumped water.

There will be no measurement for identification and environmental screening of contaminated soil material or groundwater (this will be done by the Resident or Authority's Environmental Services Coordinator).

Construction of a Temporary Secured Stockpile Area, or groundwater holding tank, if necessary, will not be measured separately for payment, but shall be incidental to Items 203.2312, 203.2333, and 203.2334.

Hauling Surplus Group 2 or Group 3 soils to the Temporary Secure Stockpile area or placement and removal of Surplus Group 2 or Group 3 soils in or out of the Temporary Secure Stockpile area will not be measured separately for payment, but shall be incidental to Items 203.2312 and 203.2333.

All hauling and any subsequent management/placement of contaminated soils and/or groundwater shall be incidental to Items 203.2312, 203.2333, and 203.2334.

There will be no separate measurement for additional laboratory testing of contaminated soil that is required by the landfill or treatment facility. Testing shall be incidental to Item 203.2333, and 203.2334.

Payment will be made under:

Pay Item		Pay Unit
203.2312	Health and Safety Plan	Lump Sum
203.2333	Disposal/Treatment of Special Excavation	Ton
203.2334	Disposal/Treatment of Groundwater	Gallon

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 PROVISION

SECTION 401

HOT MIX ASPHALT PAVEMENT

Section 401 of the Maine Turnpike Authority 2016 Supplemental Specifications is modified as follows:

401.01 Description

The following paragraph is added:

A Quality Control Plan (QCP) is required.

401.02 Materials

Section 401.02 is deleted in its entirety and replaced with the following:

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: 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: 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 blend 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.

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 IV and the following specifications:

Cone Penetration	90-150
Flow @ 60°C [140ºF]	3.0mm [1/8 in] max
Bond, non-immersed	Three 12.7mm [½ in] specimens pass 3 cycles @ 200% extension @ -29°C [-20ºF]
Resilience, %	60 min
Asphalt Compatibility, ASTM D5329	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 [140ºF].

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.

Section 401.03 Composition of Mixtures

Section 401.03 is deleted in its entirety and replaced with the following:

HMA pavement mixtures for base, intermediate, shim and local road bridge projects shall be a currently approved MEDOT design unless otherwise noted. A maximum of 20% RAP may be used. VMA 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 reclaimed asphalt pavement (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.
- Test reports for individual aggregate consensus properties
- 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.
- 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 $N_{max.}$
- 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.

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 enough 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.

Approved mix designs from the previous calendar year may be carried over, however no 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) Nominal Maximum Aggregate Size (mm)				Voids Filled with Binder (VFB) (Minimum %)	Fines/Eff. Binder Ratio
	$N_{initial}$	N_{design}	N_{max}	19	12.5	9.5	4.75		
10 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, there are Hamburg Wheel Tracker requirements, the Contractor shall provide the Authority the 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 (ºC)	Maximum Rut Depth (mm)	Minimum Number of Passes	Minimum Allowable SIP*
64-28	45	12.5	20,000	15,000
64E-28	45	8.0	20,000	15,000
70E-34	45	6.3	20,000	15,000

Section 401.031 Warm Mix Technology

Add the following to the end of the first paragraph:

Weather and seasonal limitations as outlined in section 401.06 may be reduced by a maximum 5ºF with the use of WMA except for HMA being placed over bridge deck membrane.

Section 401.04 Temperature Requirements

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.

Section 401.06 Weather and Seasonal Limitations

The first paragraph shall be deleted and replaced with:

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 40°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, approach roads and auxiliary lanes. The atmospheric temperature for all courses on bridge decks shall be 50°F or higher.

Section 401.08 Hauling Equipment Trucks for Hauling HMA

Add the following paragraph:

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.

Section 401.09 Pavers

Add the following to the end of the fourth paragraph:

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 40 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.

Section 401.091 Material Transfer Vehicle (MTV)

The first paragraph shall be deleted and replaced with:

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 fourth paragraph shall be deleted and replaced with:

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

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. 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.

Section 401.165 Longitudinal Joint Density

The first paragraph shall be deleted and replaced with:

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.

The eighth paragraph shall be deleted and replaced with:

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 eleventh paragraph and associated table shall be deleted and replaced with:

Payment reduction will be applied to each sublot 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	80

Section 401.17 Joints

The fourth paragraph shall be deleted and replaced with:

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.

Section 401.18 Quality Control

The following shall be added to section c. Quality Control Technician(s) QCT:

The QCT shall be on site during paving operations performing quality control activities. QCT's shall not act as equipment operators, trainers or laborers.

Section 401.191 Inspection/Testing

In paragraph nine delete and replace Item #8 with:

8. Secure High-Speed Internet Access

401.21 Method of Measurement

The second paragraph shall be deleted and replaced with:

A reduction in payment will occur when the voids, asphalt content, 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 sublot (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 sublot for core density only. The original core density and the recut core density shall be averaged together to determine payment for the sublot. 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.

SPECIAL PROVISION

SECTION 401

HOT MIX ASPHALT PAVEMENTS

(HMA using Hydrated Lime)

The following sections of Section 400 have been revised with following additional requirements.

401.01 Description

The Contractor shall compose Hot Mix Asphalt (HMA) Pavement with aggregate, Performance Graded Asphalt Binder (PGAB), hydrated lime, and mineral filler if required. Hydrated Lime shall be utilized in all mixtures so denoted in Special Provision 403 - Hot Mix Asphalt Pavement.

401.02 Materials

Materials shall meet the requirements specified.

Hydrated Lime	AASHTO 216

401.03 Composition of Mixtures

The Contractor shall compose the Hot Mix Asphalt Pavement with aggregate, Performance Graded Asphalt Binder (PGAB), hydrated lime 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).

Hydrated lime shall be used in all HMA at a rate of one percent (1%) by weight of the total dry aggregate including RAP aggregate, if used. The Contractor shall obtain a shipping ticket for each shipment of hydrated lime. The Contractor shall provide the Resident with a copy of each shipping ticket from the supplier, including the date, time and weight of hydrated lime shipped and used in HMA production. The Contractor shall submit a material data sheet for the hydrated lime to the Resident for approval.

The Contractor shall provide the following information with the proposed JMF:

Safety Data Sheets (SDS) for hydrated lime

Supplier and source for Hydrated Lime

401.13 Preparation of Aggregates

The Contractor shall add water to the aggregates as required to maintain a minimum total aggregate moisture content of 3 percent. The Contractor shall mix the lime uniformly with the aggregate before introducing the aggregate into the dryer or dryer drum. Hydrated lime introduction systems must be controlled by a proportioning device to the amount required on the JMF plus or minus 0.1% of the target.

The Contractor shall add lime to the aggregate by one of the following methods:

A. The Contractor shall add lime to the combined cold feed aggregate using an enclosed in-line cold feed mechanical pugmill mixer. The Contractor shall use a twin-shaft, continuous mixing pugmill with mixing paddles to thoroughly blend the lime with the aggregate. The Contractor shall adjust the retention time of the mixture in the pugmill so no unmixed lime is visible after the lime and aggregate exit the pugmill.

B. The Contractor shall add lime to the combined cold feed aggregate by introducing the lime between aggregate layers as the aggregate flows from the cold feed bins. The Contractor shall thoroughly mix the lime and aggregate on the conveyor belt. The Contractor shall provide a lime introduction system so that no unmixed lime is visible before the lime and combined aggregate enter the drum.

The cold storage for hydrated lime shall be a separate bulk storage bin with a vane feeder or other approved feeder system which can be readily calibrated. The system shall provide a means for convenient sampling of the hydrated lime additive and verifying the quantity of lime dispensed. If the hydrated lime is to be introduced directly into the plant, then the additive equipment shall be synchronized with the cold feed controls to operate concurrently with the cold feed operation. The system will be configured to automatically adjust the hydrated lime feed to variations in the cold aggregate feed. The hydrated lime system shall have out-of-tolerance sensing ability by weight, and have a means to indicate the out–of–tolerance condition.

401.14 Mixing

Hydrated lime shall be added into the HMA aggregate mixture prior to the aggregate blend mixing with the PGAB. Aggregate feed rate, or pugmill mixing times shall be adjusted to ensure complete blending of Hydrated Lime and aggregate before the PGAB is added.

401.18 Quality Control

The Contractor shall provide a written supplement to the project specific QCP outlining the proposed methods of adding and mixing the hydrated lime for approval by the Authority. This written summary shall also provide information describing how the Contractor will perform quality control on the addition of hydrated lime, specifically the method of introduction and how the lime use will be measured to assure that the specified percentage is consistently added, and appropriately mixed. The supplemental QCP covering hydrated lime introduction shall be provided to the Authority at least one week prior to the prepave meeting.

SPECIAL PROVISION

SECTION 403

HOT MIX ASPHALT PAVEMENT

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 (including Appendix 1). The PG64E-28 Binder shall contain a minimum of 2.25% Styrene-Butadiene-Styrene (SBS) polymer {BWT} in a homogeneous blend with a minimum average percent recovery of 75% as determined by AASHTO T350 @ 3.2 kPA (R3.2) on RTFO residue at 64ºC to assure significant polymer load and performance. The stability of the modified binder shall be verified in accordance with ATSM D7173 using the Dynamic Shear Rheometer (DSR). The DSR G*/sin(δ) 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.

When required PG70E-34 Binder shall be modified with Styrene-Butadiene-Styrene (SBS) polymer {BWT} in a homogeneous blend with a minimum average percent recovery of 75% as determined by AASHTO T350 @ 3.2 kPA (R3.2) on RTFO residue at 70ºC to assure significant polymer load and performance. The stability of the modified binder shall be verified in accordance with ATSM D7173 using the Dynamic Shear Rheometer (DSR). The DSR G*/sin(δ) 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 lanes 1 and 2 shall be incidental to the 202 pay items.

A minimum test strip of 100 tons placed at a nominal depth of 1 ½ inches, full lane width, shall be required. It shall be evaluated under testing requirements for mix volumetric and density. The exact location will be identified by the Authority. Prior to placement of the test strip, a leveling course (Item 403.211) shall be placed at the chosen location. A fog coat of Item 409.15, Bituminous Tack Coat, shall be applied to the level course prior to the placement of the HMA surface course, payment to be made under the 409.15 pay item. The test strip will be excluded from the remainder of the projects' QA analysis. The Contractor shall notify the Authority at least 48 hours in advance of placing the test strip. The test strip is intended to allow the Contractor to establish a method of compaction and adjust plant settings prior to mainline plant production.

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 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 Modified) - RAP.

Hot Mix Asphalt, 12.5 mm (Polymer Modified pavement with (up to) 15% RAP, placed as a wearing surface will be measured under Item 403.20811 Hot Mix Asphalt, 12.5 mm (Polymer Modified) - RAP.

403.05 Basis of Payment

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

Hot Mix Asphalt, 12.5 mm (Polymer Modified) pavement with (up to) 15% RAP, placed as a wearing surface will be paid under Item 403.20811 Hot Mix Asphalt, 12.5 mm (Polymer Modified) – RAP.

The following pay items are added:

Pay Item		Pay Unit
403.2081	Hot Mix Asphalt, 12.5 mm (Polymer Modified) – RAP	Ton
403.20811	Hot Mix Asphalt, 12.5 mm (Polymer Modified) – RAP	Ton
403.2084	Hot Mix Asphalt, 12.5 mm Nominal Maximum Size (sidewalks,drives, islands & incidentals)	Ton

SPECIAL PROVISION

SECTION 403

HOT MIX ASPHALT PAVEMENT

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

Service Plaza- Full Depth Construction

Surface and Intermediate	**12.5mm**	**403.207**	**1.5”**	**2**	**B,E,J,L,N**
Base	**19.0mm**	**403.208**	**2.5”**	**1**	**B,E,J,L,N**

COMPLEMENTARY NOTES

A. The required PGAB for this mixture shall be **64E-28.**
B. The required PGAB for this mixture shall be **64-28.**
C. A maximum of 15 percent RAP may be used.
D. RAP may not be used.
E. 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. The design verification, Quality Control, and Acceptance tests for this mix will be performed at **75 gyrations**. (N design) Minimum and Maximum PGAB content shall not apply.
F. 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)
G. 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.
H. Joints shall be constructed as the “notched wedge” type in accordance with Subsection 401.17.
I. Joint density will be measured in accordance with Subsection 401.165.
J. Tack coat shall be applied between all layers of pavement at a rate of 0.04 G/SY.
K. PGAB shall conform to the provisions of 403.02 – Polymer Modified PGAB for HMA
L. The contractor shall furnish a quality control technician equipped with an approved densometer to ensure density requirements are met.
M. Hydrated Lime shall be incorporated into the mixture.
N. 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.

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/yd^2

This work consists of furnishing and applying one uniform application of UltraTack (NTSS-1HM) by Blacklidge or an approved equal as indicated in this specification and as per manufacturers' recommendation. The application rate shall be 0.06 gal/yd^2

409.05 Equipment

Add "or as determined by the Resident", after the words "gal/yd^2]" 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 Item 409.152, Bituminous Tack Coat - Applied.

409.09 Basis of Payment

The following pay items are added:

Pay Item		Pay Unit
409.15	Bituminous Tack Coat RS-1 or RS1h– Applied	Gallon
409.152	Bituminous Tack Coat NTSS-1HM Trackless– Applied	Gallon

SPECIAL PROVISION

SECTION 419

SAWING AND SEALING JOINTS IN BITUMINOUS PAVEMENT

(Sawing Bituminous Pavement)

419.01 Description

This work consists of sawing bituminous concrete pavement as shown on the Plans, as specified herein or as approved by the Resident.

419.02 General

The bituminous concrete pavement to be sawed shall be accurately marked before cutting. The marking shall be in accordance with the locations as shown on the Plans or as approved by the Resident. Cutting shall be with an approved power driven saw with an abrasive blade.

Unless otherwise noted or directed, the sawcut shall be vertical, a minimum of 3/8 inch wide, and extend to the depth as shown on the Plans.

Residue or debris from the sawing operation shall be removed immediately and legally disposed of by the Contractor.

419.03 Method of Measurement

Sawing Bituminous Pavement will be measured by the linear foot of pavement actually cut and accepted. No additional payment will be made for variations in the pavement thickness.

419.04 Basis of Payment

Sawing Bituminous Pavement will be paid for at the Contract unit price per linear foot which shall be full compensation for all materials, tools, equipment labor, and all incidentals necessary for the completion of the work to the satisfaction of the Resident. The disposal of sawcut residue shall be incidental to this item.

Payment will be made under:

Pay Item		Pay Unit
419.30	Sawing Bituminous Pavement	Linear Foot

SPECIAL PROVISION

SECTION 502

STRUCTURAL CONCRETE

(Concrete Gas Island and Slab)
(Concrete Diesel Island and Slab)
(Concrete Fuel Tank Slab)

502.01 Description

The following paragraph is added:

This work shall consist of furnishing and placing Portland Cement Concrete for the fuel system islands and slabs, and fuel tank slabs in accordance with these Specifications and in conformity with the lines, grades, and dimensions shown on the Plans.

All exposed surfaces shall be coated with a clear penetrating sealer meeting the requirements of Section 515.

502.18 Method of Measurement

The following sentences are added:

Concrete for Concrete Gas Island and Slab satisfactorily placed and accepted will be measured by the cubic yard, in accordance with the dimensions shown on the Plans or authorized changes in the Plans.

Concrete for Concrete Diesel Island and Slab satisfactorily placed and accepted will be measured by the cubic yard, in accordance with the dimensions shown on the Plans or authorized changes in the Plans.

Concrete for Concrete Fuel Tank Slab satisfactorily placed and accepted will be measured by the cubic yard, in accordance with the dimensions shown on the Plans or authorized changes in the Plans.

502.19 Basis of Payment

The following paragraphs are added:

The accepted work completed for Concrete Gas Island and Slab will be paid for at the Contract unit price per cubic yard. Payment shall be full compensation for furnishing all materials, expansion joint filler, bonding, curing, and joint sealing and all incidentals necessary to complete the work.

The accepted work completed for Concrete for Concrete Diesel Island and Slab will be paid for at the Contract unit price per cubic yard. Payment shall be full compensation for

furnishing all materials, expansion joint filler, bonding, curing, and joint sealing and all incidentals necessary to complete the work.

The accepted work done for Concrete Fuel Tank Slab will be paid for at the Contract unit price per cubic yard. Payment shall be full compensation for furnishing all materials, expansion joint filler, bonding, curing, and joint sealing, protective coating and all incidentals necessary to complete the work.

Reinforcing steel will be paid for separately in accordance with Section 503, Reinforcing Steel.

Protective coating will not be measured for payment but will be incidental to Concrete Slab items.

All costs associated with obtaining, testing and evaluating drilled specimens for dispute resolution will not be paid for separately, but shall be considered incidental to the related items.

Payment will be made under:

Pay Item		Pay Unit
502.701	Concrete Gas Island and Slab	Cubic Yard
502.702	Concrete Diesel Island and Slab	Cubic Yard
502.703	Concrete Fuel Tank Slab	Cubic Yard

SPECIAL PROVISION

SECTION 515

PROTECTIVE 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 to protect new cast-in-place concrete, precast concrete and masonry structures. The coating system shall be applied to piers, endposts, curbs and fascia in accordance with the Plans, Specifications and the manufacturer's published recommendations.

515.02 Materials

The penetrating sealer shall be StandOff® SLX100 Water & Oil Repellent, as manufactured by ProSoCo, Inc., or an approved equal. The sealer shall have the following properties:

Active Substance:	modified alkyl alkoxy silane
Active Content:	> 90%
Form:	clear liquid
VOC:	< 3.5 pounds per gallon

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

The Contractor shall submit the ProSoCo's product data sheets, material safety data sheets and recommended instructions for application of the StandOff® SLX100.

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

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 surface may be slightly damp at the time of treatment.

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 application shall not be conducted when surface and air temperatures are below 40^{o}F or above 90^{o}F. The work shall not be conducted when there is a chance of the surface temperature falling below 40^{o}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.

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.

Sealer shall be applied as packaged without dilution or alteration. The sealer shall be applied with low pressure (20 psi) airless spray equipment or with a heavily saturated brush or roller unless otherwise permitted by the Resident. 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. Apply from the bottom up with sufficient material to thoroughly coat the surface and create a slight rundown below the spray pattern. Allow the first application to penetrate the concrete surface, and within a few minutes after the first coat appears dry, reapply in the same saturating manner.

When the sealer is applied to vertical and sloped surfaces, it shall be applied in two applications, 10 minutes apart, with a low pressure (20 psi) airless sprayer.

515.05 Method of Measurement

Clear Protective Coating for Concrete Surfaces will not be measured separately for payment but shall be incidental to the applicable Section 502 gas and diesel islands and slabs pay items.

SPECIAL PROVISION

SECTION 526

CONCRETE 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 Area	Linear Feet of Barrier
Crosby Maintenance Area	500

Upon substantial completion of work, the Contractor shall remove and transport the barrier back to its maintenance area of origin. 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 shall be measured for payment by the lump sum.

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 be paid for at the Contract lump sum price, complete in place. 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.

Payment of Concrete Barrier shall be based on a percentage of the work accomplished during that pay period.

Payment will be made under:

Pay Item		Pay Unit
526.306	Temporary Concrete Barrier, Type I – Supplied by Authority	Lump Sum

SPECIAL PROVISION

SECTION 527

ENERGY ABSORBING UNIT

(Work Zone Crash Cushion)

527.01 Description

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

The Contractor shall furnish and install 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:

Only work zone crash cushions meeting the NCHRP Report 350 TL-3 crash test requirements may be used on the turnpike and local roadways with posted speeds of 45 MPH or greater. Work zone crash cushions meeting the NCHRP Report 350 TL-2 crash test requirements may be used 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 NCHRP Report 350 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.

527.05 Basis of Payment

Payment will be made under:

Pay Item		Pay Unit
527.34	Work Zone Crash Cushions – TL-2	Unit

SPECIAL PROVISION

SECTION 603

PIPE CULVERTS AND STORM DRAINS

(Reinforced Concrete Pipe)
(Concrete Collar)
(Corrugated Polyethylene Pipe)

603.01 Description

The following paragraphs are added:

This work shall also consist of furnishing and installing Class III or Class V reinforced concrete pipe at the locations as shown on the Plans or as approved by the Resident.

This work also consists of furnishing and installing a concrete collar to join existing concrete pipe to the proposed concrete or Corrugated High Density Polyethylene (HDPE) pipe in accordance with the details as shown on the Plans. The Contractor shall note that the concrete pipe ends may be of different sizes and may not fit snugly together.

This work shall also consist of furnishing and installing various sizes of corrugated HDPE pipe, including a dual wall adaptor fitting by Hancor or an approved equal as shown on the plans. No other pipe types within the Option III alternatives will be accepted.

603.02 Materials

All Corrugated High Density Polyethylene (HDPE) pipe for storm water and drainage systems shall meet the requirements of Subsection 706.06.

603.11 Method of Measurement

The following paragraph is added:

The Concrete Collar shall be measured by each unit installed, complete in place and accepted. This shall be full compensation for furnishing labor and materials to construct a Concrete Collar to connect the existing and proposed pipe ends in a working like manner.

Dual Wall Adapter Fitting shall be included for payment as three additional linear feet of the largest pipe involved.

603.12 Basis of Payment

Concrete Collars will be paid for at the Contract unit price each regardless of the size of the existing and proposed pipes.

Corrugated HDPE pipe will be paid for under the appropriate sized Culvert Pipe Option III pay items

Payment will be made under:

Pay Item		Pay Unit
603.155	12 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.165	15 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.1653	15 inch Reinforced Concrete Pipe - Class V	Linear Foot
603.175	18 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.1753	18 inch Reinforced Concrete Pipe - Class V	Linear Foot
603.195	24 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.1953	24 inch Reinforced Concrete Pipe - Class V	Linear Foot
603.205	30 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.2053	30 inch Reinforced Concrete Pipe - Class V	Linear Foot
603.215	36 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.2153	36 inch Reinforced Concrete Pipe - Class V	Linear Foot
603.225	42 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.2253	42 inch Reinforced Concrete Pipe - Class V	Linear Foot
603.235	48 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.2353	48 inch Reinforced Concrete Pipe - Class V	Linear Foot
603.245	54 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.2453	54 inch Reinforced Concrete Pipe - Class V	Linear Foot
603.255	60 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.2553	60 inch Reinforced Concrete Pipe - Class V	Linear Foot
603.265	66 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.2653	66 inch Reinforced Concrete Pipe - Class V	Linear Foot
603.275	72 inch Reinforced Concrete Pipe - Class III	Linear Foot
603.2753	72 inch Reinforced Concrete Pipe - Class V	Linear Foot
603.155	12 Inch Reinforced Concrete Pipe – Class III	Linear Foot
603.28	Concrete Collar	Each

SPECIAL PROVISION

SECTION 604

MANHOLES, INLETS, AND CATCH BASINS

(Oil-Water Separator System)

604.01 Description

This work shall include furnishing and installing an oil-water separator system. The oil-water separator system shall consist of a precast oil-water separator structure, including a swirl chamber, baffles, manways and covers for access and maintenance, design and shop drawing submittal(s). The system shown on the plans is for informational purposes only. The limits of the oil-water separator system will be from the manhole connecting to the upstream drainage system to the manhole connecting to the downstream drainage system. The manhole used to connect to the upstream drainage system shall include a baffle to allow bypass of high flow volumes and will be paid for under Item 604.09.

The oil-water separator system shall tie into the existing upstream and downstream plaza drainage system as shown on the plans. The bypass pipe diameter shall be 15" and the final outlet elevation shall be maintained at the same elevation as exists for the drainage system at the site.

The work shall also include design of the proposed drainage system to include connections to the existing drainage system as required, all testing and all other work necessary to complete the construction, all in accordance with these Specifications and as shown on the Plans or as directed by the Resident.

604.02 Materials

The following sentences are added:

Elastomeric sealer shall be Sikaflex 1a as manufactured by Sika or an approved equal.

Class AAA concrete shall conform to Subsection 502.05; except that the minimum cement factor shall be 750 pounds per cubic yard and the coarse aggregate size shall conform to ASTM C33 Grading 7.

The third paragraph should be deleted and replaced with:

Catch Basin Frames and Grates shall be as outlined below and be manufactured by EJ Company of Brockton, Massachusetts or an approved equal and shall meet or exceed the AASHTO M306 Loading Requirements.

Catch Basin Frames shall be manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product numbers:

5521Z - 8 Inch Frame Product Number 00552111
5546Z – 6 Inch Frame Product Number 00554611

5544Z - 4 Inch Frame Product Number 00554411

Catch Basin Frames shall be 8" frames unless otherwise specified by the plans or approved by the resident.

Catch Basin Grates shall be a square holed grate as manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product number:

5520M5 Grate Product Number 00552060

If a cascade catch basin grate is specified on the plans then it shall be manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product numbers depending on the direction of flow:

5520M8 Product Number 00552084 or 5520M8 Product Number 00552085

604.05 Method of Measurement

The following sentence is added:

Oil-Water Separator System will be measured by the number of units, complete and accepted in place.

604.06 Basis of Payment

The following paragraphs are added:

The accepted quantity of Oil-Water Separator System will be paid for at the contract unit price each complete and place. Payment shall include the design, detailing, fabrication, delivery and installation as well as excavation, dewatering, shoring, bracing, sheeting, bedding, backfill, compaction, precast concrete manholes, steps, casting frames and covers, brick masonry, concrete, concrete adjustment collars, mortar, dampproofing, all piping and piping support systems and hardware within the structure, flexible watertight pipe connectors, testing, and all material, labor and tools incidental to the work which is required to construct a complete functional system.

Payment shall be full compensation for furnishing and installing and all incidental materials and equipment necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
604.30	Oil-Water Separator System	Each

SPECIAL PROVISION

SECTION 604

MANHOLES, INLETS, AND CATCH BASINS

(Catch Basin Type B1)

604.01 Description

This work shall include furnishing and installing catch basins type B1.

604.02 Materials

The following sentences are added:

Elastomeric sealer shall be Sikaflex 1a as manufactured by Sika or an approved equal.

Class AAA concrete shall conform to Subsection 502.05; except that the minimum cement factor shall be 750 pounds per cubic yard and the coarse aggregate size shall conform to ASTM C33 Grading 7.

The third paragraph should be deleted and replaced with:

Catch Basin Frames and Grates shall be as outlined below and be manufactured by EJ Company of Brockton, Massachusetts or an approved equal and shall meet or exceed the AASHTO M306 Loading Requirements.

Catch Basin Frames shall be manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product numbers:

5521Z - 8 Inch Frame Product Number 00552111
5546Z – 6 Inch Frame Product Number 00554611
5544Z - 4 Inch Frame Product Number 00554411

Catch Basin Frames shall be 8” frames unless otherwise specified by the plans or approved by the resident.

Catch Basin Grates shall be a square holed grate as manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product number:

5520M5 Grate Product Number 00552060

If a cascade catch basin grate is specified on the plans then it shall be manufactured by EJ Company of Brockton, Massachusetts (or an approved equal) with the following product numbers depending on the direction of flow:

5520M8 Product Number 00552084 or 5520M8 Product Number 00552085

670.16 Basis of Payment

Payment will be made under:

Pay Item		Pay Unit
604.09	Catch Basin Type B1	Each

SPECIAL PROVISION

SECTION 606

GUARDRAIL

(31” W-Beam Guardrail – Mid-way Splice (7’ Steel Posts, 8” Offset Blocks, Single Faced))
(31” W-Beam Guardrail – Mid-way Splice – Over 15’ Radius)

606.01 Description

The section is amended by the addition of the following:

This work shall consist of furnishing and installing guardrail components at the required locations in accordance with the Specifications and in reasonably close conformity with the lines and grades shown on the Plans. The types of guardrail are designated as follows:

31” W-Beam Guardrail – Mid-way Splice (7’ Steel Posts, 8” Offset Blocks)
31” W-Beam Guardrail – Mid-way Splice – Over 15’ Radius

606.02 Materials

The section is amended by the addition of the following:

Steel posts shall be 7 feet long as specified in the plans.

The guardrail elements shall be per the Components’ List found on Sheet No. 2 of 2 of draft Drawing SGR47 – 31” W-Beam Guardrail with Standard 8” Offset Block in the Task Force 13 Report noted above and/or as noted in the Contract Documents unless noted otherwise.

606.04 Rails

The section is amended by the addition of the following:

Height of top of rail shall be 31” measured from final grade. Height transition from 31” W-Beam, mid-spliced guardrail to existing guardrail shall occur over a 34’-4 ½” length.

606.08 Method of Measurement

The section is amended by the addition of the following:

31” W-Beam Guardrail – Mid-way Splice (7’ Steel Posts, 8” Offset Blocks) and 31” W-Beam Guardrail – Mid-way Splice – Over 15’ Radius will be paid for at the contract unit price per linear foot of rail satisfactorily installed and accepted.

606.09 Basis of Payment

The section is amended by the addition of the following:

The accepted quantity of 31" W-Beam Guardrail – Mid-way Splice (7' Steel Posts, 8" Offset Blocks) and 31" W-Beam Guardrail – Mid-way Splice – Over 15' Radius will be paid for at the contract unit price per linear foot of rail and shall be full compensation for furnishing all labor, equipment and materials necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
606.1301	31" W-Beam Guardrail – Mid-way Splice (7' Steel Posts, 8" Offset Blocks, Single Faced)	Linear Foot
606.1304	31" W-Beam Guardrail – Mid-way Splice – Over 15' Radius	Linear Foot

SPECIAL PROVISION

SECTION 606

GUARDRAIL

(Delineator Post – Remove and Reset)
(Delineator Post - Remove and Stack)

606.01 Description

The following paragraphs are added:

This work shall also consist of furnishing and installing new delineator posts and/or removing and resetting and/or removing and stacking existing delineator posts within the Contract limits. The existing reflectorized delineator panels shall be removed and replaced with new reflectorized delineator panels as required by the Resident.

Existing and new delineator posts shall be located as follows, with the indicated panel:

Outside Shoulder:

- One at guardrail trailing ends (green delineator).
- Two at guardrail approach ends (one red delineator on first post and one red delineator on angle points.)

Median:

- One at guardrail trailing ends (green delineator, facing traffic).
- Two at guardrail approach ends (one red delineator on first post of CAT units, green on guard rail side, red on median opening side; and one red (both sides) delineator at angle point.)
- One at all other median guardrail angle points (red on both sides)

Other Locations:

- One at culvert outlets (green delineator).
- Twenty per mile evenly spaced at the edge of outside shoulder (white delineator).
- One at electrical junction boxes not associated with another item (red delineator).
- One at communication only junction boxes not associates with another item(orange delineator).

Delineator posts that do not exist in the locations described above, shall be supplied and installed by the Contractor. The installation of the delineator post shall include the demountable reflectorized delineator panel.

White edge delineators shall not be installed on any portion of the widened shoulder for Guardrail 350 Flared Terminal installations, and shall not be installed behind the Guardrail 350 Flared Terminal rail segments.

606.02 Materials

The following paragraphs are added:

Non-guardrail Delineator Posts shall conform to Subsection 606.02 paragraph 3.

The seventh through ninth sentences of the fourth paragraph are deleted and replaced with the following:

Reflectorized flexible guardrail markers shall be a minimum of 2-inches in diameter, a maximum of 36” in length, ovalized at the top of the post to allow application of 3 inch by 9 inch high intensity reflective sheeting, and shall be capable of recovering from repeated impacts. The flexible guardrail delineator markers shall be grey and capped at the top with a flexible rubber cap; Safe-Hit Flexible Guardrail Delineator or approved equal. Reflective material shall meet the requirements of ASTM Type IX Diamond Grade VIP (Visual Impact Performance).

The demountable reflectorized delineator panels shall meet the material requirements of Subsection 719.06. The delineator panel shall be rectangles measuring 9" x 3".

606.03 Posts

The following paragraphs are added:

The top of delineator posts shall be installed 4’ - 6” (54”)) above edge of pavement elevation. Delineators shall be installed four feet from edge of pavement except those delineating end treatments, culverts and electrical items.

Mile marker posts shall be mounted on breakaway supports. The bottom of the sign shall be 5’ - 0” (60”) above the pavement at the solid white line and shall be offset five feet from the edge of pavement.

A mock-up of the guardrail delineator posts shall be submitted to the Resident for approval prior to installation.

Any materials damaged by the Contractor’s operations shall be replaced at no additional cost to the Authority.

Top of the delineator panel shall be flush with the top of post.

606.08 Method of Measurement

The following paragraphs are added:

Delineator Posts shall be measured by each unit satisfactorily installed. Delineator Post-Removed and Reset will be measured by each unit satisfactorily removed and reset. Delineator Posts Removed and Stacked will be measured by each unit satisfactorily removed and stacked.

Mile Marker post shall be measured for payment as Delineator Post. The breakaway supports shall be incidental to the Underdrain Delineator Post pay item.

606.09 Basis of Payment

The following sentences are added:

The accepted quantity of Delineator Posts will be paid for under the Underdrain Delineator Post item, at the Contract unit price per each which price shall be full compensation for the post and specified delineator or mile marker panel, complete in place.

The accepted quantity of Delineator Post - Removed and Reset will be paid for at the Contract unit price each, which price shall be full compensation for removing and resetting the delineator panel or mile marker panel and post and all incidentals necessary to complete the work.

The accepted quantity of Delineator Posts Removed and Stacked will be paid for at the Contract unit price each, which price shall be full compensation for removing and stacking delineator panel or mile marker panel and posts and all incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
606.3561	Delineator Post - Remove and Reset	Each
606.3562	Delineator Post - Remove and Stack	Each

SPECIAL PROVISION

SECTION 606

GUARDRAIL

(Guardrail – Remove, Modify and Reset, Single Rail)
(Guardrail – Remove, Modify and Reset, Double Rail)
(Guardrail - Remove and Stack)
(Guardrail Adjust – Single Rail)
(Guardrail Adjust – Double Rail)

606.01 Description

The following paragraphs are added:

This work shall also consist of adjusting the height of the existing single and double rail guardrail in locations where the existing height of rail is not 30 inches. The guardrail shall be adjusted to a height of 30 inches. Existing single and double rail shall also be adjusted for lean.

The guardrail adjustment shall take place at all necessary locations; approximate locations are listed in the schedule of guardrail limits both median and outside shoulder. Exact locations for adjustment shall be determined by the Resident. If, during the course of the work, the contractor finds additional rail to be adjusted, then he shall notify the Resident, and the Resident determine if the rail is to be adjusted.

This work shall also consist of removing, stockpiling and stacking of existing single and double guardrail elements, component parts and hardware suitable for replacement as approved by the Resident. At the completion of the Contract, any unused guardrail elements, posts, component parts and hardware suitable for reuse shall remain the property of the Authority. Any guardrail elements, posts, component parts and hardware unsuitable for reuse shall become property of the Contractor.

Stockpiled materials, suitable for reuse, shall be utilized on Remove, Modify and Reset items prior to new materials being paid for.

This work shall consist of removing, disposing of existing guardrail elements, component parts and hardware, as directed by the Resident. All materials shall become the property of the Contractor and shall be removed from the site at the completion of the Project. The Contractor shall provide the Resident with an affidavit stating the final location of all disposed material and that the material was disposed of in accordance with the Maine Department of Environmental Protection Solid Waste Regulations.

606.02 Materials

The following paragraph is added at the end of the subsection:

New non-wood offset blocks conforming to NCHRP 350 Test Level 3 shall be installed on all guardrail being reset. The existing steel offset brackets and backup plates shall become the property of the contractor.

The following Subsection is added:

606.021 General

All existing guardrail to be raised or lowered shall be completed prior to new guardrail or end treatments being attached.

606.036 Adjusting Existing Guardrail

Any materials or galvanizing damaged by the Contractor's operations shall be replaced or touched-up at no additional cost to the Authority.

Guardrail posts shall be raised to a minimum of five inches above final elevation prior to driving post to final elevation; this applies to both raising and lowering rail.

Any given length of guardrail to be adjusted shall be done in such a way that top of rail elevations do not vary drastically between each section of guardrail. Rail height tolerance shall be 30 inches, plus 0 inches, minus 1/2 inch. The 30 inches shall be measured from the edge of pavement to the top of rail beam when within 2 feet of the edge of pavement.

Rail shall be adjusted for lean where needed. All posts shall be plumb after adjusting for lean.

When the rail tapers from one bound to the other the rail shall be adjusted to the correct height on the farthest ends and shall be adjusted towards the center of the median to create a smooth line.

Earth around each adjusted or reset post shall be raked and compacted with a minimum 8-pound hand tamper or an approved device. Holes created due to adjusting or resetting a post shall be filled with a similar surrounding material and compacted.

606.08 Method of Measurement

The following paragraphs are added:

Adjusting of both single and double rail guardrail shall be measured by the linear foot of Guardrail adjusted and accepted.

Raking and compacting the earth around each reset post with a minimum 8 pound hand tamper or an approved device, and infilling and compacting holes created due to resetting posts with a similar surrounding material will not be paid separately, but shall be incidental to the Guardrail - Remove, Modify and Reset Pay or Guardrail - Adjust pay items.

Guardrail Remove and Stack will be measured on a linear foot basis of guardrail satisfactorily removed and stockpiled whether single rail or double rail. Single and double twisted end sections will be measured for payment on a linear foot basis as 25 feet of guardrail removed.

Guardrail removed and not reset or stacked shall be incidental to Contract Items and include all removal, disposal, equipment and labor necessary to satisfactorily complete the work.

Steel posts to replace damaged posts shall come from the stockpile of guardrail components to be disposed of, from this Contract and will not be measured separately for payment. If, in the opinion of the Resident, there are no suitable steel posts in the stockpile then steel posts will be measured for payment.

W-beam rail elements to replace damaged rail elements shall come from the stockpile of guardrail from the Remove and Stack or the guardrail to be disposed of from this Contract and will not be measured separately for payment. If, in the opinion of the Resident, there are no suitable W-beam rail elements in the stockpile then the W-beam rail elements will be measured for payment.

606.09 Basis of Payment

The following paragraphs are added:

Adjusting of single and double rail guardrail will be paid for at the Contract unit price per linear foot and shall be full compensation for furnishing all labor, equipment and materials necessary to complete the work. Guardrail Adjust will not be measured for payment until all compaction has been completed.

The accepted quantity of guardrail removal will be paid for at the Contract unit price bid, which price shall be full compensation for removing, transporting and stacking all guardrail elements, component parts and hardware, equipment, labor and all incidentals necessary to complete the work. No additional payment will be made for double rail.

Payment will be made under:

Pay Item		Pay Unit
606.3605	Guardrail – Remove, Modify, and Reset Single Rail	Linear Foot
606.3606	Guardrail – Remove, Modify, and Reset Double Rail	Linear Foot
606.369	Guardrail - Remove and Stack	Linear Foot
606.3621	Guardrail Adjust, Single Rail	Linear Foot
606.3622	Guardrail Adjust, Double Rail	Linear Foot

SPECIAL PROVISION

SECTION 607

FENCES

(6 Foot Chain Link Safety Fence)

607.01 Description

The following paragraph is added:

The work shall consist of the construction of a free standing six foot chain link safety fence, in accordance with these Specifications and in reasonably close conformity with the lines and grades shown on the Plans or established the Resident. The construction of the safety fence shall include furnishing, erection, maintaining, removing and resetting, and removal of the fence from the jobsite at the completion of the Project as directed by the Resident.

607.02 Materials

The following sentence is added:

The fence shall be a free standing six foot chain link fence by National Construction Rentals (Telephone number 1-800-352-5675), or an approved equal.

Contractor will submit drawings showing major components of the fencing and methods of support for approval.

607.07 Basis of Payment

Payment will be made under:

Pay Item		Pay Unit
607.18	6 Foot Chain Link Safety Fence	Linear Foot

SPECIAL PROVISION

SECTION 613

EROSION CONTROL BLANKET

613.01 Description

This work shall also include seeding, mulching and watering the median swale and/or longitudinal flow line to the limits and width as shown on the Plans or as directed by the Resident.

613.02 Materials

The following sentences are added:

Seeding shall meet the requirements of Section 618, Seeding, Method Number 1.

Mulch shall meet the requirements of Section 619.

The following Subsection is added:

613.041 Maintenance and Acceptance

See Section 618.10 for maintenance and acceptance of seeding.

613.042 Mulch

All mulch shall be placed after the area has been seeded and prior to the installation of the Erosion Control Blanket.

613.09 Basis of Payment

The following "and mulch" is added after the words "initial seeding" in the second sentence.

SPECIAL PROVISION

SECTION 619

MULCH

(Mulch – Plan Quantity)
(Temporary Mulch)

619.01 Description

The first paragraph is modified by the addition of the following:

"as a temporary or permanent erosion control measure" after the word "mulch".

Add the following sentence at the end of the first paragraph:

Refer to Section 656 Temporary Soil and Water Pollution Control, for more information on Temporary Mulch.

619.03 General

The first paragraph is deleted and replaced with the following:

Cellulose fiber mulch shall not be used within 200 feet of a wetland or stream. The limits shall be 200 feet up station and down station of the wetland or streams as well as the slopes adjacent to the stream. The application of hay or straw mulch with an approved binder shall be used at these locations to prevent erosion.

The use of cellulose fiber mulch will only be allowed at other areas with the approval of the Resident. The Contractor may be required to demonstrate that the material may be applied in a manner that will prevent erosion and will aid in the establishment of permanent vegetation. The Resident reserves the right to require the use of hay or straw mulch at all locations if he determines that the cellulose mulch is ineffective. Cellulose fiber mulch is not acceptable for winter stabilization.

619.06 Method of Measurement

The following sentence is added:

Temporary Mulch will be paid for by the lump sum.

619.07 Basis of Payment

Temporary Mulch will be paid for at the Contract price per lump sum which shall be full compensation for furnishing and spreading the Temporary Mulch as many times as necessary as determined by the Contractor's operations and staging. The price shall also include the additional mulch netting and snow removal necessary during the winter months.

Payment will be made under:

Pay Item		Pay Unit
619.1201	Mulch – Plan Quantity	Unit
619.1202	Temporary Mulch	Lump Sum

SPECIAL PROVISION

SECTION 626

FOUNDATIONS, CONDUIT, AND JUNCTION BOXES
FOR HIGHWAY SIGNING, LIGHTING AND SIGNALS

(Quazite Junction Box 18” x 12” X 18”)

626.02 General

The following paragraph is added:

Junction boxes for the electrical associated with highway lighting shall be polymer concrete as manufactured by QUAZITE® a division of Hubbell Power Systems. The boxes shall be 18” x 12” and 18” deep. All existing Junction Boxes in useable condition shall be removed and relocated as directed by the Resident Engineer. The boxes shall have a 15,000 lb. load rating. All conduit on this project shall be schedule 80 PVC or RMC.

626.04 Method of Measurement

The following sentences are added:

Quazite junction box shall be measured by each unit in place and accepted existing or new.

626.05 Basis of Payment

The words, “polymer concrete” shall be added after the words, “precast concrete” in the second sentence of the second paragraph.

Payment will be made under:

Pay Item		Pay Unit
626.13	18" x 12" x 18" Quazite Junction Box	Each

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 50ºF, 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 mark 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:

Pay Item		Pay Unit
627.73	Temporary 6 Inch Pavement Marking Tape	Linear Foot
627.731	Temporary 6 Inch Black Pavement Marking Tape	Linear Foot

SPECIAL PROVISION

SECTION 634

HIGHWAY LIGHTING

(Remove and Reset Light Standard)

634.01 Description

The following paragraph is added:

This work shall consist of removing existing light standards, luminaires, and any breakaway devices and resetting at locations as shown on the Plans.

634.02 General

The following paragraphs are added:

All Contract work shall be overseen by a Maine licensed Master Electrician. The lead person for the field installations shall be either a Maine licensed Master Electrician, or a Maine licensed Journeyman Electrician. Apprentice Electricians, Helper Electricians, Journeyman-In-Training Electricians, and helpers may work under the Master or Journeyman Electrician as permitted under the law.

The Contractor shall comply with National Electrical Code (NFPA 70) as applicable to construction and installation of electrical cable, wire and connectors; provide electrical cable, wire and connectors, which have been listed and labeled by Underwriters Laboratories, and comply with National Electrical Manufacturers Association/Insulated Power Cable Authorities Association Standards publications pertaining to materials, construction and testing wire cable, where applicable.

At a minimum the Contractor shall provide the following field quality control:

- Prior to energizing, check wire for continuity of circuitry and for short circuits with ohmmeter type testing equipment. Correct malfunction when detected.
- Subsequent to wire hook-ups, energize circuitry and demonstrate functioning in accordance with requirements.

634.051 Removing Light Standards

The first paragraph is deleted and replaced with the following:

Before removing light standards, the luminaires shall be removed from the light standard and stacked. The Contractor will not be allowed to remove the existing light standards until the temporary lighting has been installed.

634.052 Resetting Light Standards

Existing light standards shall be reset on to new foundations with a new or reset breakaway device.

634.092 Method of Measurement

The following sentence is added:

Removal and Resetting Light Standards will be measured by the single unit, complete in place and accepted.

634.093 Basis of Payment

The following paragraphs are added:

The accepted quantity of Remove and Reset Light Standards will be paid at the Contract unit price each for the number of units that are removed and reset. Payment shall be full compensation for the removal and resetting of the light standard, including luminaires, breakaway device reset or new breakaway device installed, new pole wires, new disconnect fuse kit, and all incidentals necessary to complete the work.

Payment will be made under:

Pay Item		Pay Unit
634.208	Remove and Reset Light Standard	Each

SPECIAL PROVISIONS

SECTION 634

HIGHWAY LIGHTING

(Temporary Lighting)

634.01 Description

The following paragraph is added:

This work shall consist of maintenance of existing lighting, installing and removing temporary lighting, and relocating temporary lights in accordance with these Specifications and at locations for project phasing as shown on the Plans. The existing light standards, luminaries, and foundations may be utilized as temporary lights.

The Gray service plaza maintains 24 hour operations and therefore lighting shall be provided for the complete nighttime duration.

Temporary Lighting may not be powered by portable generators.

If necessary, disruption to existing ramp lighting is permitted during daylight hours in order to tie in to power source. Contractor shall verify voltage of all electrical circuits before any changes are made.

634.021 Materials

The following sentence is added:

Temporary roadway luminaries shall provide a minimum of 0.6 candle power in the parking areas.

The following Subsection is added:

634.053 Conductors

Conductors for temporary lighting shall be constructed utilizing techniques approved by the Resident. Shop drawings showing the proposed temporary lighting route and details shall be submitted by the Contractor for approval prior to the commencement of the work.

If approved, conductors may be hung from pole to pole in free air. Conductors hung from pole to pole shall have a sag that allows for a minimum vertical clearance from the conductor to the traveled way of no less than 20 feet.

634.092 Method of Measurement

The following sentence is added:

Temporary Lighting shall be measured for payment by the lump sum at each plaza.

634.093 Basis of Payment

The following sentences are added:

The accepted Temporary Lighting will be paid for at the contract lump sum price for each plaza. Lump sum payment shall be full compensation for furnishing, installing and erecting: ballasts, lamps, conduit, all wiring, breakaway devices when applicable, and all materials, labor, equipment and tools necessary to provide a fully operational temporary lighting system at each plaza.

Payment will be made under:

Pay Item		Pay Unit
634.23	Temporary Lighting	Lump Sum

SPECIAL PROVISION

SECTION 645

HIGHWAY SIGNING

(Remove and Reset Sign)
(Remove and Stack Sign)

645.07 Demounting and Reinstalling Existing Signs and Poles

The following paragraphs are added:

At locations noted on the Plans, existing ground-mounted signs are designated to be removed and reset. This work shall consist of removing the sign panels, removing and resetting or disposing of the existing wood post and resetting the sign panels on a new wood post if required in the appropriate specified location. The Resident will determine if a new wood post is required.

Any existing signs not shown on the Plans are to remain in their existing condition unless directed otherwise by the Resident.

645.08 Method of Measurement

The following sentences are added:

Removing and Resetting existing ground-mounted signs shall be measured as complete units each, removed, reset and accepted.

645.09 Basis of Payment

The following paragraphs are added:

The accepted signs Removed and Reset will be paid for at the Contract unit price each as specified. Such price will include removing and resetting sign panels, removing and resetting or disposing existing wood post and resetting the sign panels on the existing or new wood post and new hardware as required to complete the sign installation. Any signs or supports damaged by the Contractor shall be replaced by him with new signs or supports conforming to the applicable Specifications at no additional cost to the Authority.

Payment will be made under:

Pay Item		Pay Unit
645.109	Remove and Reset Sign	Each

SPECIAL PROVISION

SECTION 652

MAINTENANCE 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:

Northbound Service Area Traffic Control Requirements

- Access to the gas islands and diesel islands, temporary or permanent, shall be maintained at all times. Access along Perimeter Road either along its current alignment or to and through the truck parking area on the north side of the facility shall be maintained at all times. See the MOT plans for detailed information on passage through the site during construction.

Some trench activities across pavement will be considered favorably for night work. The Contractor shall submit a request, in writing to the Resident. The approval will be at the Resident's discretion and will not be unreasonably withheld.

652.3.5 Installation of Traffic Control Devices

The Portable Changeable message sign shall be installed on the mainline a minimum of two weeks prior to the temporary fueling systems being operational.

SPECIAL PROVISION

SECTION 655

ELECTRICAL WORK

The following Section is added:

655.01 Description

This task shall include the providing and installation of the AWG wire, as described herein for clean and dirty power wiring, for grounding wires (where applicable) and other locations called for in the plans/specifications.

655.05 Measurement of Payment

Measurement and payment for furnishing and installation of the AWG wire as described herein will be per foot, to the nearest 10 foot interval per run.

Basis of Payment

The accepted quantity of AWG Wire will be paid for at the Contract unit price per linear foot for the furnishing, installation, routing, termination, splices and connection of the wire per plans and specifications.

This pay item is for wiring for street lighting only, all conduit, wiring and associated electrical for the fuel system power, communication and leak detection shall be incidental to Item 800.02 Underground Tank Installation (Gasoline and Diesel).

Payment will be made under:

Pay Item		Pay Unit
655.101	#6 AWG Wire	Linear Foot
655.11	#10 AWG Wire	Linear Foot

SPECIAL PROVISION

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 VII, Type VIII or Type IX, for all signs. All Type 1 Guide Signs shall meet at a minimum the requirements for ASTM 4956 –Type XI sheeting. Use of overlay film that degrades the retroreflectivity of the sign sheeting (i.e. Avery-Dennison overlay film) will be prohibited.

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.

Signs may only be covered using materials and techniques explicitly approved by the sheeting manufacturer for that purpose and shall not alter the sign sheeting warranty.

- 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.
- E-ZPASS Purple shall conform to the FHWA Purple color block.

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 Direct Applied Reflectorized Letters, Numerals, Symbols, and Borders

Direct applied letters, numerals, symbols and borders shall consist of cut out sheeting shall meet at a minimum the requirements for ASTM 4956 – Type VII, Type VIII or Type IX sheeting.

All Type 1 Guide Signs shall meet at a minimum the requirements for ASTM 4956 –Type XI sheeting.

SPECIAL PROVISION

SECTION 800

BUILDING AND STRUCTURES

(New Canopy - Diesel)

800.51 Description

This work shall consist of furnishing and installing materials and components for a new diesel canopy over the new diesel dispenser slab, as well as all other related electrical and communication facilities, fire suppression system, canopy lighting, and drainage facilities needed for the new canopies as detailed in the Plan drawings and these specifications.

800.52 Design Requirements

The proposed canopy system and foundations shall be designed and stamped by a Professional Engineer licensed in the State of Maine. The designs shall be completed in accordance with the latest edition of the International Build Code, MaineDOT Standard Specifications, and project-specific Special Provisions. The Contractor shall submit for approval detailed plans and calculations for the proposed canopies and associated foundations.

Clearance to the bottom of the fire suppression nozzles, from the ground, shall be 15’-6” minimum.

Heat traces shall be commercial grade, shall be placed in and along the canopy gutters to 4’ below slab grade and included in the system design (to include materials to be used) submitted for review and approval.

800.53 Construction Requirements

The work in this item generally includes, but is not limited to:

The contractor shall install a new canopy over the diesel dispenser slabs as shown in the plan drawings and described within these specifications. The canopy installation shall include shop painted structural steel, roofing system, drainage, fire suppression system, electrical mounted to or routed through the canopy, canopy lighting, shop application of CNBrown provide fascia decals, all associated systems, as well as all material labor and equipment needed to provide the completed canopy.

800.54 Method of Measurement

The canopy will be measured by lump sum for the design, detailing, fabrication, delivery, and construction.

800.55 Basis of Payment

The proposed canopy system will be paid at the contract lump sum price for the pay items listed below. Such payment shall be full compensation for the design, detailing, fabrication, delivery, construction of the canopy, associated foundations, fascia decals, associated systems, and all other incidentals necessary to complete the work in accordance with the Plans and these specifications. All labor, materials and equipment required will be incidental to this item.

Drainage includes all canopy drainage items up to the first catch basin in the parking area. Payment will be made under:

Pay Item		Pay Unit
800.50	New Canopy – Diesel	Lump Sum

SECTION 23 11 13

FACILITY FUEL SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

A. Contractor is responsible for full design of the entire fuel storage and dispensing systems. Designs shall be stamped and signed by licensed Professional Engineers in the State of Maine. Refer to Sections 23 13 13 and 23 13 23 for Owner provided equipment. Contractor is responsible for all installation, testing and commissioning work for complete and operational aboveground and underground storage and dispensing fuel systems.

B. REQUIREMENTS INCLUDED
1. Shop Drawings, Product Data, and Samples (Submittals and Distributions).
2. Manufacturers' Instructions.
3. Certificates of Compliance.
4. Field Samples

1.2 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Other specifications, which directly relate to the work of this section, include but are not limited to the following:
1. 23 11 13 – Fuel Piping and Fittings
2. 23 12 00 – Fuel Dispensing Equipment
3. 23 13 13 – Fuel Underground Storage Tanks
4. 23 13 23 – Fuel Aboveground Storage Tanks
5. 23 14 00 – Fuel Excavation, Bedding and Backfill
6. 23 15 00 – Fuel System Demolition

1.3 Shop Drawings, Product Data and Samples (Submittals and Distribution)

A. Shop Drawings:
1. For fuel piping.
   a. Include plans, elevations sections, and supports for pipes.
   b. Include details of location of anchors, alignment guides, and expansion joints and loops.

B. Product Data:
1. For each type of product:
   a. Include construction details, material descriptions, and dimensions of individual components and profiles.
   b. Include, where applicable, rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

c. For valves, include pressure rating, capacity, settings, and electrical connection data of selected models.

C. Distribution:
1. Product Data – The Engineer will retain one (1) copy; the Engineer's Consultant, when applicable, will retain one (1) copy; the Engineer will forward one (1) copy to his Resident Engineer and one (1) copy to the Authority; and return three (3) copies to the Contractor.
2. Shop Drawings – The Engineer will print reviewed shop drawings for his own use and for his Consultants, retain one (1) copy for record, forward one (1) copy to his Resident Engineer, and return one (1) sepia and one (1) print to the Contractor.
3. Samples – The Engineer will retain one (1) sample, forward one (1) to his Resident Engineer, and return one (1) to the Contractor.

1.4 Manufacturers' Instructions

A. When required in individual specification sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting and finishing in quantities specified for product data.

1.5 Certificates of Compliance

A. Submit certificates of compliance together with the associated Shop Drawings, Product Data, and Samples required for the product.

B. Submit one (1) copy.

C. The Engineer will retain the certificates of compliance; no approval reply is intended.

PART 2 - PRODUCTS

Not used; see related Specifications.

PART 3 - EXECUTION

Not used.

PART 4 - COMPENSATION

4.1 Method of Measurement

A. No separate measurement for payment will be made for the work described in this specification as this work is a subsidiary obligation to various associated items and Specifications.

4.2 Basis of Payment

A. All Quality Control and Material Acceptance Testing relating to this item will be considered incidental to various work items and no separate payment shall be made for this item.

PART 5 - GENERAL

5.1 SUMMARY

A. Contractor is responsible for full design of the entire fuel storage and dispensing systems. Designs shall be stamped and signed by licensed Professional Engineers in the State of Maine. Refer to Sections 23 13 13 and 23 13 23 for Owner provided equipment. Contractor is responsible for all installation, testing and commissioning work for complete and operational aboveground and underground storage and dispensing fuel systems.

B. This section also includes:

1. Fuel pipes, vents, and fittings.
2. Double-containment piping and fittings.
3. Piping specialties.
4. Joining materials.
5. Specialty valves.
6. Mechanical leak-detection valves.
7. Leak detection and monitoring system.
8. Labels and identification.

5.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

5.3 RELATED SECTIONS

A. 23 12 00 – Fuel Dispensing Equipment

B. 23 13 13 – Fuel Underground Storage Tanks

C. 23 13 23 – Fuel Aboveground Storage Tanks

5.4 REFERENCES

A. American Society of Mechanical Engineers (ASME):
1. Welding processes and operators in accordance with ASME “Boiler and Pressure Vessel Code,” Section IX, “Welding and Brazing Qualifications.”

B. Maine Department of Environmental Protection (DEP):
1. Chapter 691 – Rules for Underground Oil Storage Facilities.
2. Chapter 695 – Rules for Underground Hazardous Substance Storage Facilities.

C. National Fire Protection Association (NFPA):
   1. NFPA 30 – Flammable and Combustible Liquids Code.
   2. NFPA 30A – Code for Motor Fuel Dispensing Facilities and Repair Garages.
   3. NFPA 31 – Standard for the Installation of Oil-Burning Equipment.

D. Underwriters Laboratories (UL):
   1. UL 917 – Standard for Nonmetallic Underground Piping for Flammable Liquids.

5.5 SUBMITTALS

A. Contractor shall develop design details for the complete new fuel systems, including but not limited to mechanical, electrical, and civil components, and make a minimum of two submittals for review, comment and approval prior to any operations on site; approximately at 90% and at 100% development. Construction shall not begin until approval is received from Maine Turnpike Authority.

B. Product Data
   1. For each type of product:
      a. Include construction details, material descriptions, and dimensions of individual components and profiles.
      b. Include, where applicable, rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
      c. For valves, include pressure rating, capacity, settings, and electrical connection data of selected models.

C. Shop Drawings
   1. For fuel piping:
      a. Include plans, elevations sections, and supports for pipes.
      b. Include details of location of anchors, alignment guides, and expansion joints and loops.

D. Delegated-Design Submittal
   1. For fuel piping indicated to comply with performance requirements and design criteria:
      a. Include analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
      b. Detail fabrication and assembly of anchors and seismic restraints.
      c. Design Calculations: Calculate requirements for selecting seismic restraints.
      d. Detail fabrication and assembly of pipe anchors and supports for pipes, and attachments of the same to the fuel dispensers and tanks.

5.6 INFORMATIONAL SUBMITTALS

A. Coordination Drawings:

   1. Plans and details, drawn to scale, on which fuel piping is shown and coordinated with other installations, using input from installers of the items involved.
   2. Site Survey: Plans, drawn to scale, on which fuel piping and tanks are shown and coordinated with other services and utilities.

B. Welding certificates.

C. Field quality-control reports.

D. Sample Warranty: For special warranty.

5.7 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fuel equipment and accessories to include in emergency, operation, and maintenance manuals.

5.8 QUALITY ASSURANCE

A. Steel Support Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Pipe Welding Qualifications: Qualify procedures and personnel according to ASME Boiler and Pressure Vessel Code.

5.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver pipes and tubes with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe end damage and to prevent entrance of dirt, debris, and moisture.

B. Store pipes and tubes with protective PE coating to avoid damaging the coating and to protect from direct sunlight.

C. Store PE pipes and valves protected from direct sunlight.

5.10 FIELD CONDITIONS

A. Interruption of Existing Fuel Service: Do not interrupt fuel service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary fuel supply according to requirements indicated:
   1. Contractor will be allowed up to a 24 hour period with a minimum 7-day notice given to MTA Resident Engineer and approval from the MTA on a mutually agreed upon date for the proposed interruption of fuel service.
   2. Do not proceed with interruption of fuel service without Owner's written permission.

5.11 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of flexible, double-containment piping and related equipment that fail in materials or workmanship within specified warranty period.

   1. Failures due to defective materials or workmanship for materials including piping, dispenser sumps, water-tight sump entry boots, terminations, and other end fittings.

B. Verify available warranties and warranty periods for double-containment piping.
   1. Warranty Period for Below Ground Installation: 30 years from date of Substantial Completion.
   1. Warranty Period for Above Ground Installation: 15 years from date of Substantial Completion.

PART 6 - PRODUCTS

6.1 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application. Refer to Electrical Specifications.

B. Comply with ASME B31.9, "Building Services Piping," for Fuel piping materials, installation, testing, and inspecting.

C. Fuel Valves: Comply with UL 842 and have service mark initials "WOG" permanently marked on valve body. The water, oil, and gas (WOG) rating for the valve reflects the maximum pressure capability of the valve at 100 F.

D. Comply with requirements of the EPA and of state and local authorities having jurisdiction. Include recording of Fuel piping.

6.2 FUEL PIPES, TUBES, AND FITTINGS

A. See materials below for pipes, vents, fittings, and joining materials are applied for fueling services:.

B. Aboveground Steel Pipe, vents, fittings and joining materials: ASTM A 53/A 53M, black steel, Schedule 40, Type E or S, Grade B.

1. Malleable-Iron Threaded Fittings: ASME B16.3, Class 150, standard pattern.
2. Wrought-Steel Welding Fittings: ASTM A 234/A 234M, for butt and socket welding.
3. Unions: ASME B16.39, Class 150, malleable iron with brass-to-iron seat, ground joint, and threaded ends.
4. Forged-Steel Flanges and Flanged Fittings: ASME B16.5, minimum Class 150, including bolts, nuts, and gaskets of the following material group, end connections, and facings:

    a. Material Group: 1.1.
    b. End Connections: Threaded or butt welding to match pipe.
    c. Lapped Face: Not permitted underground.
    d. Gasket Materials: Asbestos free, ASME B16.20 metallic, or ASME B16.21 nonmetallic, gaskets compatible with fuel.
    e. Bolts and Nuts: ASME B18.2.1, cadmium-plated steel.

6.3 DOUBLE-CONTAINMENT PIPE AND FITTINGS

A. Flexible, Nonmetallic, Double-Containment Piping

1. Manufacturers – Subject to compliance with requirements, provide products by the following:

    a. OPW Fueling Components; Dover Company.
    b. Franklin Fueling Systems.
    c. National Oilwell Varco.
    d. Substitutions will be considered by Owner.

2. Pipe Materials:
   a. PVDF complying with ASTM D 3222 for carrier pipe with mechanical couplings to seal carrier.
   b. PE pipe complying with ASTM D 4976 for containment piping.
3. Plastic to Steel Pipe Transition Fittings
   a. Factory-fabricated fittings with plastic end matching or compatible with carrier piping, and steel pipe end complying with ASTM A 53/A 53M, black steel, Schedule 40, Type E or S, Grade B.
4. Watertight sump entry boots, pipe adapters with test ports and tubes, coaxial fittings, and couplings.
5. Minimum Operating Pressure Rating: 10 psig.
6. Include design and fabrication of double-containment pipe and fitting assemblies with provision for field installation of cable leak-detection system in annular space between carrier and containment piping.

6.4 PIPING SPECIALTIES

A. Nonmetallic Flexible Connectors:

1. Manufacturers – Subject to compliance with requirements, provide products by the following:

   a. American Flexible Hose Co., Inc.
   b. Flexicraft Industries.
   c. FLEX-ING, Inc.
   d. Tru-Flex Metal Hose Corp.
   e. Substitutions will be considered by Owner.

2. Listed and labeled for underground applications by an NRTL acceptable to authorities having jurisdiction.
3. PFTE bellows with woven, flexible, bronze or stainless-steel, wire-reinforcing protective jacket.
4. Minimum Operating Pressure: 150 psig.
5. End Connections: Socket, flanged, or threaded end to match connected piping.
6. Maximum Length: 30 inches.
7. Swivel end, 50-psig maximum operating pressure.

B. Manual Air Vents:

1. Body: Bronze.
2. Internal Parts: Nonferrous.
3. Operator: Screwdriver or thumbscrew.
4. Inlet Connection: NPS 1/2.
5. Discharge Connection: NPS 1/8.
6. CWP Rating: 150 psig.
7. Maximum Operating Temperature: 225 deg F.

6.5 JOINING MATERIALS

A. Joint Compound and Tape for Threaded Joints: Suitable for fuel.

B. Welding Filler Metals: Comply with AWS D10.12/D10.12M for welding materials appropriate for wall thickness and chemical analysis of steel pipe being welded.

C. Brazing Filler Metals: Alloy with melting point greater than 1000 deg F complying with AWS A5.8/A5.8M. Brazing alloys containing more than 0.05 percent phosphorus are prohibited.

D. Bonding Adhesive for RTRP and RTRF: As recommended by piping and fitting manufacturer.

6.6 SPECIALTY VALVES

A. Pressure Relief Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

    a. Anderson Greenwood; Pentair, Ltd.
    b. Fulflo Specialties, Inc.
    c. OPW Engineered Systems; OPW Fluid Transfer Group; a Dover company.
    d. Webster Fuel Pumps & Valves; a division of Capital City Tool, Inc.
    e. Substitutions will be considered by Owner.

2. Listed and labeled for Fuel service by an NRTL acceptable to authorities having jurisdiction.
3. Body: Brass, bronze, or cast steel.
4. Springs: Stainless steel, interchangeable.
5. Seat and Seal: Nitrile rubber.
6. Orifice: Stainless steel, interchangeable.
7. Factory-Applied Finish: Baked enamel.
8. Maximum Inlet Pressure: 150 psig.
9. Relief Pressure Setting: 60 psig.

B. Fuel Safety Valves (Safety Breakaway Couplings and Non Return Valves):

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

    a. Anderson Greenwood; Pentair, Ltd.
    b. Fulflo Specialties, Inc.
    c. OPW Engineered Systems; OPW Fluid Transfer Group; a Dover company.
    d. Webster Fuel Pumps & Valves; a division of Capital City Tool, Inc.
    e. Substitutions will be considered by Owner.

2. Listed and labeled for Fuel service by an Nationally Recognized Testing Laboratories (NRTL) acceptable to authorities having jurisdiction.
3. Body: Brass, bronze, or cast steel.
4. Springs: Stainless steel.
5. Seat and Diaphragm: Nitrile rubber.
6. Orifice: Stainless steel, interchangeable.
7. Factory-Applied Finish: Baked enamel.
8. Manual override port.
9. Maximum Inlet Pressure: 60 psig.
10. Maximum Outlet Pressure: 3 psig.
11. Swing Joints – to relieve stress on suction line.

C. Emergency Shutoff Valves:

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

   a. EMCO Wheaton.
   b. Franklin Fueling Systems.
   c. OPW Engineered Systems; OPW Fluid Transfer Group; a Dover company.
   d. Substitutions will be considered by Owner.

2. Listed and labeled for Fuel service by an Nationally Recognized Testing Laboratories (NRTL) acceptable to authorities having jurisdiction.
3. Single poppet valve.
4. Body: ASTM A 126, cast iron.
5. Disk: FPM.
6. Poppet Spring: Stainless steel.
7. Stem: Plated brass.
8. O-Ring: FPM.
9. Packing Nut: PTFE-coated brass.
10. Fusible link to close valve at 165 deg F.
11. Thermal relief to vent line pressure buildup due to fire.
12. Air test port.
13. Maximum Operating Pressure: 0.5 psig.

6.7 MECHANICAL LEAK-DETECTION VALVES

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Franklin Fueling Systems.
2. Red Jacket Pumps.
3. Substitutions will be considered by Owner.

B. Listed and labeled for Fuel service by an Nationally Recognized Testing Laboratories (NRTL) acceptable to authorities having jurisdiction.

C. Body: ASTM A 126, cast iron.

D. O-Rings: Elastomeric compatible with fuel.

E. Piston and Stem Seals: PTFE.

F. Stem and Spring: Stainless steel.

G. Piston Cylinder: Burnished brass.

H. Indicated Leak Rate: Maximum 3 gph at 10 psig.

I. Leak Indication: Reduced flow.

6.8 LEAK-DETECTION AND MONITORING SYSTEM

A. Cable and Sensor System: Comply with UL 1238.

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

    a. Caldwell Systems Corporation.
    b. Containment Solutions, Inc.
    c. Franklin Fueling Systems.
    d. Gems Sensors & Controls Inc.
    e. Highland Tank & Manufacturing Company, Inc.
    f. INCON, Inc.
    g. In-Situ, Inc.
    h. MSA Instrument Division.
    i. Pentair Thermal Management.
    j. Perma-Pipe, Inc.
    k. Pneumercator Inc.
    l. Veeder-Root Company (The).
    m. Substitutions will be considered by Owner.

2. Calibrated leak-detection and monitoring system with probes and other sensors and remote alarm panel for Fuel piping.
3. Include fittings and devices required for testing.

6.9 LABELS AND IDENTIFICATION

A. Detectable Warning Tape: Acid- and alkali-resistant PE film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored yellow.

PART 7 - EXECUTION

7.1 EXAMINATION

A. Examine areas for compliance with requirements for installation tolerances and other conditions affecting performance of Fuel piping.

B. Examine installation of fuel-burning equipment and fuel-handling and storage equipment to verify actual locations of piping connections before installing fuel piping.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

7.2 PREPARATION

A. Close equipment shutoff valves before turning off fuel to premises or piping section.

B. Comply with NFPA 30 and NFPA 31 requirements for prevention of accidental ignition.

7.3 OUTDOOR PIPING INSTALLATION

A. Install underground fuel piping with a minimum of three (3) feet of cover from top of pipe to grade:

B. Steel Piping with Protective Coating:

1. Apply joint cover kits to pipe after joining, to cover, seal, and protect joints.
2. Replace pipe having damaged PE coating with new pipe.

C. Install double-containment, fuel pipe at a minimum slope of half (0.5) percent downward toward Fuel storage tank sump.

D. Vents:
1. Install vent pipe and suction pipes at a minimum slope of two (2) percent downward towards Fuel Storage Tanks.
2. Ensure top of vent pipe is at least twelve (12) feet above ground.

E. Assemble and install entry boots for pipe penetrations through sump sidewalls for liquid-tight joints.

F. Install metal pipes and tubes, fittings, valves, and flexible connectors at piping connections to AST and UST.

G. Install fittings for changes in direction in rigid pipe.

H. Install system components with pressure rating equal to or greater than system operating pressure.

I. Swing Joints – Use swing joint assembly for vent pipe over the tank and where vent rises out of the ground. Provide swing joint assembly for suction line above the tank and under pump. Swing joints relieve the piping from strains caused by the settling of the tank, frost heaving of the ground or pump island settling.

J. Provide extractable check valve on suction line above tank complete with four (4) inch pipe and manhole.

K. Slope tank three (3) inches away from suction end to avoid suction of water.

7.4 VALVE INSTALLATION

A. Install manual fuel shutoff valves on branch connections to Fuel appliance.

B. Install valves in accessible locations.

C. Install fuel safety valves at inlet of each dispenser.

D. Install pressure relief valves on discharge side of pumps and route relief back to tank.

E. Install one-piece, bronze ball valve with hose end connection at low points in Fuel piping.

F. Install manual air vents at high points in Fuel piping.

G. Install emergency shutoff valves at dispensers.

7.5 PIPING JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs.

B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

C. Threaded Joints – Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged. Do not use pipe sections that have cracked or open welds.

D. Welded Joints – Construct joints according to AWS D10.12/D10.12M, using qualified processes and welding operators according to "Quality Assurance" Article, as follows:

1. Bevel plain ends of steel pipe.
2. Patch factory-applied protective coating as recommended by manufacturer at field welds and where damage to coating occurs during construction.

E. Brazed Joints – Construct joints according to AWS's "Brazing Handbook," "Pipe and Tubing" Chapter.

F. Flanged Joints – Install gasket material, size, type, and thickness for service application. Install gasket concentrically positioned.

G. Flared Joints – Comply with SAE J513. Tighten finger tight then use wrench according to fitting manufacturer's written instructions. Do not overtighten.

H. Fiberglass-Bonded Joints – Prepare pipe ends and fittings, apply adhesive, and join according to pipe manufacturer's written instructions.

7.6 LEAK-DETECTION AND MONITORING SYSTEM INSTALLATION

A. Install leak-detection and monitoring system. Install alarm panel inside building where indicated.

B. Double-Containment, Fuel Piping: Install leak-detection sensor probes at low points in piping and cable probes in interstitial space of double-containment piping.

7.7 CONNECTIONS

A. Where installing piping adjacent to equipment, allow space for service and maintenance.

B. Install unions, in piping NPS two (2) and smaller, adjacent to each valve and at final connection to each piece of equipment having threaded pipe connection.

C. Install flanges, in piping NPS two and half (2-1/2) and larger, adjacent to flanged valves and at final connection to each piece of equipment having flanged pipe connection.

D. Connect piping to equipment with shutoff valve and union. Install union between valve and equipment.

E. Install flexible piping connectors at final connection to burners or oil-fired appliances.

7.8 LABELING AND IDENTIFYING

A. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplates and signs on or near each emergency service valve.

1. Text: In addition to identifying unit, distinguish between multiple units; inform operator of operational requirements; indicate safety and emergency precautions; and warn of hazards and improper operations.

B. Install detectable warning tape directly above Fuel piping, twelve (12) inches below finished grade, except six (6) inches below subgrade under pavements and slabs. Terminate tracer wire in an accessible area and identify as "tracer wire" for future use with plastic-laminate sign.

7.9 FIELD QUALITY CONTROL

A. Pressure Test Piping – Minimum hydrostatic or pneumatic test-pressures measured at highest point in system:

1. Fuel Distribution Piping Pneumatic Test: Minimum 5 psig for minimum 30 minutes.
2. Fuel, Double-Containment Piping Hydrostatic Test:

a. Carrier Pipe: Minimum 50 psig for minimum 30 minutes.
b. Containment Conduit: Minimum 25 psig for minimum 60 minutes.

3. Suction Piping: Minimum 20-in. Hg for minimum 30 minutes.
4. Isolate storage tanks if test pressure in piping will cause pressure in storage tanks to exceed 10 psig.

B. Inspect and test Fuel piping according to NFPA 31, "Tests of Piping" Paragraph; and according to requirements of authorities having jurisdiction.

C. Test leak-detection and monitoring system for accuracy by manually operating sensors and checking against alarm panel indication.

D. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

E. Bleed air from Fuel piping using manual air vents.

F. Fuel piping and equipment will be considered defective if it does not pass tests and inspections.

G. Prepare test and inspection reports.

PART 8 - COMPENSATION

Not used.

END OF SECTION 23 11 13

SECTION 23 12 00

FUEL DISPENSING EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Contractor is responsible for full design of the entire fuel storage and dispensing systems. Designs shall be stamped and signed by licensed Professional Engineers in the State of Maine. Refer to Sections 23 13 13 and 23 13 23 for Owner provided equipment. Contractor is responsible for all installation, testing and commissioning work for complete and operational aboveground and underground storage and dispensing fuel systems.

B. This section also includes:
   1. Fuel Dispensers for Underground Tanks:
      a. Existing fuel dispensers for Underground Tanks will be removed by CN Brown.
      b. New fuel dispensers for Underground Tanks will be provided by CN Brown and installed by Contractor.
   2. Submersible Fuel Pumps for Underground Tanks – installed by Contractor.

1.2 RELATED SECTIONS

A. 23 11 13 – Facility Fuel-Piping

B. 23 13 13 – Fuel Underground Storage Tanks

C. 23 13 23 – Fuel Aboveground Storage Tanks

1.3 REFERENCES

A. American Concrete Institute (ACI):
   1. Standard 318, Building Code Requirements for Structural Concrete.

B. Maine Department of Environmental Protection (DEP):
   1. Chapter 691 – Rules for Underground Oil Storage Facilities.
   2. Chapter 695 – Rules for Underground Hazardous Substance Storage Facilities.

C. National Fire Protection Association (NFPA):
   1. NFPA 30: Flammable and Combustible Liquids Code.
   2. NFPA 30A: Code for Motor Fuel Dispensing Facilities and Repair Garages.
   3. NFPA 31: Standard for the Installation of Oil-Burning Equipment.

D. Underwriters Laboratories (UL):
   1. UL 917 – Standard for Nonmetallic Underground Piping for Flammable Liquids.
   2. UL1316 – Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products, Alcohols, and Alcohol-Gasoline Mixtures.

1.4 SUBMITTALS

A. Contractor shall develop design details for the complete new fuel systems, including but not limited to mechanical, electrical, and civil components, and make a minimum of two submittals for review, comment and approval before proceeding; approximately at 90% and at 100% development. Construction shall not begin until approval is received from Maine Turnpike Authority.

B. Shop drawings: Contractor shall submit the following for review and approval prior to approval:

1. Shop drawings of all fuel delivery equipment complete with all accessories supplied by the manufacturer.

2. Detailed shipping, handling and installation instructions.

1.5 QUALITY ASSURANCE

A. Equipment installations in the United States:

1. Regulatory Requirements: Comply with applicable requirements of the laws, codes, ordinances, and regulations of Federal, State, and local authorities having jurisdiction.

1.6 DELIVERY, STORAGE, AND HANDLING

A. General: Comply with equipment manufacturer's Installation and Operating Guidelines recommendations for delivery, storage, and tank handling.

1.7 WARRANTY

A. Warranty: Provide manufacturer's standard limited warranties.

PART 2 - PRODUCTS

2.1 FUEL DISPENSERS FOR UNDERGROUND STORAGE TANKS

A. The fuel dispensers are being provided by C.N. Brown. The Contractor shall review C.N. Brown-Furnished Equipment, assess any missing components, include missing items in the final design for review by Owner and provide those items to complete the installation of this system.

B. Single Product, Single Nozzle, Standard Duty Fuel Dispensers (10.5 gpm).

C. Two Product, Dual Nozzle, Standard Duty Fuel Dispensers (10.5 gpm).

D. Accuracy/Maximum permissible error ± 0.25%.

E. Power Supply 230V ± 6% Single phase, 50 Hz ± 1%.

F. Location Outdoor, hazardous/classified area.

G. Noise Level Shall not exceed 75 dB at 3.3 feet.

H. Vibration Within the limits specified in ISO 2372or equivalent.

I. Protection Overload and short circuit protection to be provided as standard. Further the electronic hardware shall be protected against lightning induced surge.

J. Main Display:
1. Type LCD Display with back light for clear visibility at day/night.
2. Character/Digit height(minimum) Volume/Amount : 1”.
3. Unit price : ¾” .
4. Display Cover Plain Glass.
5. Units Volume : l (Gal).
6. Price: $ (Dollars).

7. Unit Price Minimum 5 Digits including 2 decimals. ($. 0.01 – 999.99).
8. Volume Preset Standard Duty ->0.5 – 999 Gal.
9. Standard Duty -> 1 – 999 Gallons.
10. Price Preset (Cash) Minimum 5 Digits ($0.50 – 99999)
11. Volume Display Minimum 6 Digits including 3 decimals. 0.000 – 999.999 Gal
12. Price/Cash Display Minimum 8 digits including 2 decimal Dollars ($.) 0.00 – 999999.99

K. Keypad with LCD Display:
1. Keypad and back lit LCD display shall be IP 65 rated. Amount, Volume preset data shall be entered using keypad. Unit price and pump settings shall be edited from keypad with password and key protection.

L. Flow Meter/Metering Unit:
1. Type Positive Displacement piston type volumetric meter with stainless steel seamless liners and corrosion resistant materials.
2. Least Measurement 0.01 l
3. Pulser 100 pulses/Gal (minimum)
4. Calibration Adjustment Mechanical/Electronic
5. Flow Control Valve Solenoid operated two stage or better flow control valve certified by UL or FM

M. Dispenser Cabinet:
1. Material Galvanized steel EN10142 with powder coatings (Electrostatic coating).
2. Panel Covers Shall be Epoxy Coated Steel.
3. Panel Locks Durable Panel key Locks shall be provided.
4. Approximate Dimensions 40 inch x 20 inch x 80 inch.
5. Color of the Panel covers should be white. Otherwise CPC product color code will be noticed at the time of ordering.

N. Hose, Nozzle and Configuration:
1. Nozzle Automatic Shut off Nozzle (¾” BSPT female thread preferred) Spout Diameter 16 mm
2. Hose:
3. Diameter = ¾ inch
4. Wall Thickness = 0.24 -inch
5. Minimum Length = 13 feet
6. Couplings = ¾ -inch NPT chrome plated brass swivel couplings, male thread at one end and female thread at the other end

2.2 SUBMERSIBLE TURBINE PUMPS FOR UNDERGROUND STORAGE TANKS

A. Pumping Unit and Components:
1. Turbine type pump with bypass valve.
2. Flow = 52 GPM @ 10 PSI.
3. Required NPSH (Net Positive Suction Head) = 4-inches above pump inlet Strainer – The pumping unit shall be equipped with a suction side strainer having reinforced, corrosion resistant screen for use with Motor Gasoline/Auto Diesel. It shall be easily removable for cleaning or replacement.
4. Air Separator and release – The pumping unit shall be equipped with as air eliminator unit and venting shall comply with the requirement of ANSI/UL 87 or equivalent.
5. Pressure Relief Devices – Pumping unit shall be equipped with a manual or self-adjusting bypass valve capable of bypassing the entire output of the pump and fuel expansion pressure relief valve.

6. Check Valve – The pumps shall be provided with check valve to keep the discharge lines full of fuel.
7. Material of Construction – The material used in the construction of external parts of the pumping unit shall not contain more than 7.5 % Magnesium according to EN13463-1 clause 8.2 – Non- electrical equipment for use in potentially explosive atmosphere part 1-Basic Methods & Requirements.

B. Electric Motor:
1. Capacity(minimum) 0.75 Hp (Standard Duty).
2. Duty Cycle Continuous.
3. Hazardous area Certification Zone 1, Gas Group II A according to IEC.
4. Standards & Codes Applicable The motor shall be manufactured according to ANSI, NFPA, NEC, API, IEEE, NEMA, BS, IEC, VDE or any other equivalent International standards.

PART 3 - EXECUTION

3.1 Refer to Section 23 13 13 Fuel Underground Storage Tanks for work sequencing, installation for Fuel Dispensing Equipment.

PART 4 - COMPENSATION

Not used.

END OF SECTION 23 12 00

SECTION 23 13 13
FUEL UNDERGROUND STORAGE TANKS

PART 2 - GENERAL

SUMMARY

Contractor is responsible for full design of the entire fuel storage and dispensing systems. Designs shall be stamped and signed by licensed Professional Engineers in the State of Maine. Owner-Furnished Equipment is listed below and is to be delivered to the site. Contractor is responsible for all installation, testing and commissioning work for complete and operational aboveground and underground storage and dispensing fuel systems.

This section also includes:
Underground Fuel Tanks, Sumps and Sump Covers – Owner-Furnished Equipment and installed by Contractor.
Underground Fuel Tank Alarms, Sensors and Probes – by Contractor.
Fuel Management System – by Contractor.

RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

RELATED SECTIONS

23 11 13 – Fuel Piping and Fittings

23 12 00 – Fuel Dispensing Equipment

23 14 00 – Fuel System Excavation, Bedding and Backfill

REFERENCES

American Society of Mechanical Engineers (ASME):
Welding processes and operators in accordance with ASME “Boiler and Pressure Vessel Code,” Section IX, “Welding and Brazing Qualifications.”

Maine Department of Environmental Protection (DEP):
Chapter 691 – Rules for Underground Oil Storage Facilities.
Chapter 695 – Rules for Underground Hazardous Substance Storage Facilities.

National Fire Protection Associate (NFPA):
NFPA 30 – Flammable and Combustible Liquids Code.
NFPA 30A – Code for Motor Fuel Dispensing Facilities and Repair Garages.
NFPA 31 – Standard for the Installation of Oil-Burning Equipment.

Underwriters Laboratories (UL):
UL 917 – Standard for Nonmetallic Underground Piping for Flammable Liquids.
UL 1316 – Standard for Fibre Reinforced Underground Tanks for Flammable and Combustible Liquids.

SUBMITTALS

Contractor shall develop design details for the complete new fuel systems, including but not limited to mechanical, electrical, and civil components, and make a minimum of two submittals for review, comment and approval prior to any operations on site; approximately at 90% and at 100% development. Construction shall not begin until approval is received from Maine Turnpike Authority.

Product Data: Submit manufacturer's data sheets on each product to be used, including, but not limited to, the following:
Preparation instructions and recommendations.
Storage and handling requirements and recommendations.
Installation manual and operating guidelines.

Shop drawings: Tank manufacturer shall submit the following for review and approval prior to fabrication of the tanks:
Detailed shop drawings of each tank complete with all accessories supplied by the manufacturer.
Detailed shipping, handling and installation instructions.

QUALITY ASSURANCE

Tank installations in the United States:
Regulatory Requirements: Comply with applicable requirements of the laws, codes, ordinances, and regulations of Federal, State, and local authorities having jurisdiction.

DELIVERY, STORAGE, AND HANDLING

General: Comply with tank manufacturer's Installation and Operating Guidelines recommendations for delivery, storage, and tank handling.

WARRANTY

Warranty: Provide manufacturer's standard limited warranty as follows:
Underground Storage Tanks:
Will not leak for a period of thirty (30) years from date of original delivery due to natural external corrosion.
Will not leak for a period of thirty (30) years from date of original delivery due to internal corrosion, provided the tank is used solely to store fuel products with or without water bottoms.
Will not leak for a period of thirty (30) years from date of original delivery due to structural failure.
Sumps and Sump Covers:
Will not leak for a period of five (5) years due to external or internal corrosion.
Will not leak for a period of five (5) years due to structural failure.

PART 3 - PRODUCTS

MANUFACTURERS:

Underground Storage Tank in the United States:
Acceptable Manufacturers: Containment Solutions, or approved equal.

Tank sumps and sump covers in the United States:
Acceptable Manufacturers: Containment Solutions, Franklin Fueling Systems, Petroleum Containment, or approved equal.

Requests for substitutions will be considered by Owner.

UNDERGROUND STORAGE TANKS

Tank Design

Double wall Fiberglass reinforced plastic (FRP) vessel.

Tanks shall be eight (8) nominal feet in diameter.

Tank shall be manufactured with structural ribs which are fabricated as in integral part of the tank wall.

Tank shall be manufactured with a laminate consisting of resin and glass fiber reinforcement only. No sand/silica fillers or resin extenders shall be used.

Tank shall be vented to atmospheric pressure.

Tank shall be capable of handling liquids with specific gravity up to 1.1.

Tank shall be compatible with liquids identified in the manufacturer's standard limited warranty.

Dimensional Requirements

Nominal outside diameter of the tank shall be eight (8) feet.

Nominal capacity of the tank shall be:

Single Compartment Tank: 10,000 gallons.

Dual Compartment Tank: 5,000/5,000 gallons.

Loading Conditions

Internal Load:

Tanks shall be designed to withstand a 5-psig (35 kPa) air-pressure test with a 5:1 safety factor.

Surface Loads:

Tanks shall be designed to withstand surface H-20 and HS-20 axle loads when properly installed according to manufacturer's current Installation Manual and Operating Guidelines.

External Hydrostatic Pressure for Underground Water Tank:

Tank shall be designed for 7 feet of overburden over the top of the tank, the hole fully flooded, and a safety factor of 5:1 against general buckling.

Interstitial Space

The interstitial space between the primary and secondary walls shall be constructed with a glass reinforcement material such as Parabeam, which provides a structural bond between the two tank walls, while creating a defined interstice that allows for free flow of liquid.

The interstitial space shall be brine filled, at the factory, by the manufacturer.

A tank top fitting shall be provided to allow for a monitoring sensor to be installed at the bottom of the interstice.

The interstice of the tank shall be designed to withstand 20-psig (138 kPa) pressure.

UNDERGROUND FUEL TANKS, SUMPS AND SUMP COVERS

Tank, Sump and Sump Covers

Double walled fiberglass reinforced rigid base with tank collar mount attachment as specified and shown on the drawings. Include bright white color interior for improved visibility. Coat interior with manufacturer’s recommended resin gel coating to act as a barrier for any contained fuel. Include 32" – 72” adjustable height riser. Provide water-tight access cover. No metal parts allowed.

The sump and sump cover size, fittings and accessories shall be as shown on the drawings.

UNDERGROUND STORAGE TANK ALARMS, SENSORS AND PROBES:

Sensor Alarm Console for tank overfill protection and sensor leak detection.

Remote audible and visible alarm unit for use with automatic tank gauges.

Electronic Line Leak Detectors

Leak Detection and Inventory Control Probes

Moorman Level Gauge Kit

Water & Phase Separation Detection Float Kit

Hydrostatic interstitial Brite™ sensor detects leaks in double wall tanks where the interstitial space is filled with a liquid brine solution.

Fast acting discriminating sensor that utilizes magnetostrictive technology to provide reliable monitoring of dispenser pans and containment sumps. Float sensors detect the presence of water or hydrocarbons.

High tank level sensor overfill prevention switch compatible with fuel management system consoles.

Turbine pump interface, with communication link for intelligent pump controllers, to communicate faults to enabled devices. This link allows the INCON ATG to include the reporting of submersible pump conditions to a monitoring party or to the station operator.

FUEL MANAGEMENT SYSTEM

Product Criteria:

Number of tanks monitored: 12
Number of lines monitored: 8
Sensor input channels: 12
Dry contact input channels: 2
AC input channels: 12
4-20 ma input channels: 8
Relay output channels: 2
Display type: colour LCD touch screen
Printer type: thermal
Internal audible alarm
Alarm, warning and power LEDs
Applicable liquids: petroleum,
chemicals and hazardous waste
Level units: inches
Volume units: gallons (mass with density option)
Display size: 7"
Power requirements: 110 to 240
VAC, 60 hz, 2.6 Amps
Operating temperature: 32° to 104°F
Humidity: 0-90% non-condensing
Dimensions: 11" x 11.75" x 9.5"
Interface to devices with intrinsic safety rating:
US - Class I, Div. I, Group D

Connectivity

Ethernet/complete web interface
RS-232/485
USB
Fax/data modem
IFSF via Echelon

Capabilities
Inventory and delivery management
Leak detection sensors
Static and Continuous tank testing
Static and Statistical Electronic Line
Leak Detection
High, low and water alarm set points
Inventory reconciliation / tank autocalibration
Density and mass measurement
Secondary Containment
Monitoring (vacuum)
Turbine Pump Interface (TPI)
Email notifications
Back-up generator monitoring /fuel flow control

Internal Hardware
Internal dispenser interface module, dispenser interface cable must be ordered separately
EcheLON communication module, IFSF protocol capability

Internal modem includes fax and data software capability
Internal Software
Statistical Continuous Automatic Leak Detection, 24-hour continuous tank testing software
Tank inventory reconciliation and auto calibration
Electronic line leak detection
Secondary containment monitoring

Approvals
UL, cUL, ATEX, IECEx
Third party certification of leak detection capabilities

PART 4 - EXECUTION

WORK SEQUENCING

Prior to receipt of the Owner-Furnished Equipment, the Contractor shall have completed certain elements of the work at work site. The purpose of this sequencing restraint is to minimize the time the Equipment sits at the site prior to its startup. The Contractor shall submit a final sequencing plan within thirty (30) days of contract award.

Contractor shall coordinate with the Resident for the final delivery date of the Owner-Furnished Aboveground Fuel Tanks and Temporary Dispensers. In addition, Contractor is responsible for crane and off-loading tank, bearing pad for the temporary tanks, and providing proper electrical and communication service to the tank and dispenser locations and the Temporary Fuel System Kiosks. All wire runs shall be underground and meet all applicable National and State Codes

Contractor shall coordinate with the Resident for the final delivery date of the Owner-Furnished and CN Brown-Furnished Equipment (Underground Fuel Systems). Contractor is

responsible for crane, off-loading equipment and installation.

Contractor to install the Aboveground Fuel Tanks and Fuel Dispensers (Temporary Fuel Systems), test and commission them prior to demolition of the existing fueling systems. Contractor shall provide Resident and CN Brown with 10 days' notice of Aboveground Fuel System installation, then coordinate with CN Brown for the Point-of-sale connections and all final testing. Contractor shall provide certified staff for testing and commissioning and shall provide Owner with required information for tank registration.

Once the Aboveground Fuel Tanks and Temporary Fuel Dispensers are operational and accepted by the Owner, Contractor shall coordinate demo of the existing (Underground Fuel Systems) dispensers with CN Brown for CN Brown to demo. Contractor to demo the balance of the existing (Underground Fuel Systems) and install the new fuel systems, consisting but not limited to underground tanks, dispensers, pumps, electrical, communication, alarms, sensors and probes and fuel management systems.

Once the new fuel systems are installed, tested, commissioned, operational and accepted by the Owner, Contractor shall decommission the Aboveground tanks and dispensers and relocate the Temporary Fuel Systems to the designated MTA Maintenance Facility.

SITE PREPARATION

Contractor shall provide traffic control, perform survey and utilities locates to confirm areas of concern are free of interferences and complete required earthwork, paving, paving sealant, striping, bollards, walk and drive lanes, curbs and containment.

Contractor shall notify the Resident of all items considered to cause interference with the Work. Upon approval from Resident, the contractor shall relocate interference items such as the trash container. Contractor shall install temporary concrete barriers for traffic flow to the temporary fueling and to cordon off the work area as generally shown on the plans. Contractor shall coordinate with the Resident to protect existing items to remain in place such as the generator.

Install or modify a construction fence at the site, to protect the work and protect the public from entering the work areas. If required for access, a portion of the fence may be left down, but the fence shall be installed, at least temporarily, by the end of the day until the respective work is finished.

Complete the modifications to the electrical service, as needed, to power the temporary fuel system (AST) and Kiosks without interrupting operations for the existing fueling system.

Install the required conduit runs from the electrical, instrumentation, controls and communications services. Stub up and temporarily cap prior to setting the Equipment requiring power. Connection of conduits to the Equipment and pulling of conductors to and termination of conductors at the Equipment shall be completed after the Equipment is set.

Upon completion of the new fuel systems commissioning, Contractor shall reposition temporary concrete barrier to move traffic back to the new system, to complete all remaining site work, and to decommission the Aboveground Fuel Tanks and Dispensers.

INSTALLATION

The contractor shall have properly certified staff on-site overseeing the installation. This includes: certified tank installers, dispenser installers, monitoring system installers, electricians, and all other certified individuals required by the Regulatory Agencies and the manufacturers of equipment being installed.

Install Equipment in conformance with Owner-furnished product shop drawings and installation instructions.

Provide interconnecting structures, equipment, piping, electrical, instrumentation, controls and communications work, finish painting, and all appurtenances to achieve a complete and functional system.

Provide foundation pads and bedding (Aboveground and Underground tanks respectively) for Owner-furnished Equipment as shown on the Performance Documents. Verify dimensions and configuration of pads, including penetrations, with Owner furnished product Shop Drawings. Contractor to pour and cure concrete pads for the UST including full anchor pads, depending on soils conditions. Contractor design to confirm UST tie-down requirements based on geotechnical study. Deadman anchors are highly recommended.

Anchor Bolts:

Where required, provide anchor bolts, fasteners, washers, and templates required for installation of Owner-furnished Equipment.

Size and locate anchor bolts in accordance with Owner-furnished Equipment Shop Drawings and installation instructions.

Mechanical and electrical equipment shall be properly aligned, plumb and level, with no stresses on connecting piping or conduit.

Install vibration insulators when finished with Owner-Furnished Equipment.

Verify operability and safety of electrical system needed to operate Equipment. Check electrical system for continuity, phasing, grounding, and proper functions.

FIELD FINISHING

Equipment will be delivered with prime and finish coat(s) applied.

Touchup or repair damage to coatings resulting from unloading, storage, installation, testing, and startup.

If finish coats are damaged extensively after transfer, completely repaint.

Touchup, repair, or complete repainting shall match color of original paint, and shall be fully compatible with applied primers and finish.

PRODUCT PROTECTION

Immediately after installation, lubricate components in accordance with manufacturer's instructions.

Follow manufacturer's instructions for protection and maintenance during storage, after installation, during testing and startup, and after startup but prior to acceptance.

Furnish incidental supplies including lubricants, cleaning fluids, and similar Equipment as needed for protecting and maintaining the Owner-furnished Equipment.

Supplier will furnish diesel and gasoline fuel for Equipment during startup. Contractor shall furnish diesel and gasoline fuel needed to run the "temporary fuel system" prior to startup.

TESTS AND INSPECTION

Tests and inspections of installed Equipment shall be in accordance with requirements shown below.

Licensed Installer will inspect installation and issue a Certificate of Proper Installation prior to

testing. Contractor shall remedy deficiencies noted by Licensed Installer associated with the work performed by the Contractor.

Functional Test: Assist Licensed Installer in performing functional test to verify Equipment runs within its allowable limits, that unit's safety devices function, and that the dispensers transfer fuel to a vehicle.

Performance Test: Assist Licensed Installer in performing test to verify rated output of pumps and dispensers.

Contractor to provide assistance during testing to correct installation issues relating to the Contractor scope of Work. As a minimum, the Contractor's electrician shall be present during the Functional Test and for the Performance Test until the temporary fuel system is operating within the Licensed Installer's rated performance criteria.

PART 5 - COMPENSATION

Method of Measurement

The Underground Storage Tank Installation – Gas and Diesel will be measured as one Lump-Sum unit for, but not limited to: design, off-loading, setting, providing and installing complete fuel delivery and monitoring systems, electrical and communications supply and connection, point-of-sale coordination, testing, and commissioning, for a complete functioning fuel system and all other incidentals such as excavation for trenching and providing for and installation of any aggregates necessary to complete the work in accordance with the Plans and these specifications. Pavement is paid for separately under other appropriate items.

Any tank, dispenser, or other Owner-Furnished Equipment lost or damaged by the Contractor shall be replaced by the Contractor at no additional cost to the Authority.

Basis of Payment

The proposed underground tank system installation, gas and diesel, will be paid at the contract lump sum price for the pay item(s) listed below. Such payment shall be full compensation for, but not limited to, the: design, off-loading, setting, providing and installing complete fuel delivery and monitoring systems, electrical and communications supply and connection, point-of-sale coordination, testing, and commissioning, for a complete functioning fuel system, and all other incidentals such as excavation for trenching and providing for and installation of any aggregates necessary to complete the work in accordance with the Plans and these specifications. All labor, materials and equipment required will be incidental to this item. Pavement is paid for separately under other appropriate items.

Payment will be made under:

800.02	Underground Tank Installation (Gas and Diesel)	Lump Sum

END OF SECTION 23 13 13

SECTION 23 13 23
FUEL ABOVEGROUND STORAGE TANKS

PART 6 - GENERAL

SUMMARY

Contractor is responsible for full design of the entire fuel storage and dispensing systems. Designs shall be stamped and signed by licensed Professional Engineers in the State of Maine. Contractor is responsible for all installation, testing and commissioning work for complete and operational aboveground and underground storage and dispensing fuel systems.

This section also includes:

Aboveground Fuel Tanks and Fuel Dispensers (Temporary Fuel System) – Owner-Furnished Equipment, picked up from the MTA Crosby Maintenance Facility in Portland, delivered to site and installed, and relocated back to the Crosby Maintenance Facility by the Contractor.

RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

RELATED SECTIONS

23 11 13 – Facility Fuel Piping

23 12 00 – Fuel Dispensing Equipment

23 15 00 – Fuel System Demolition

REFERENCES

American Society of Mechanical Engineers (ASME):

Welding processes and operators in accordance with ASME “Boiler and Pressure Vessel Code,” Section IX, “Welding and Brazing Qualifications.”

Maine Department of Environmental Protection (DEP):

Chapter 691 – Rules for Underground Oil Storage Facilities.
Chapter 695 – Rules for Underground Hazardous Substance Storage Facilities.

National Fire Protection Associate (NFPA):

NFPA 30 – Flammable and Combustible Liquids Code.
NFPA 30A – Code for Motor Fuel Dispensing Facilities and Repair Garages.
NFPA 31 – Standard for the Installation of Oil-Burning Equipment.

Underwriters Laboratories (UL):

UL 917 – Standard for Nonmetallic Underground Piping for Flammable Liquids.

UL 1316 – Standard for Fibre Reinforced Underground Tanks for Flammable and Combustible Liquids.

SUBMITTALS

Contractor shall develop design details for the complete new fuel systems, including but not limited to mechanical, electrical, and civil components, and make a minimum of two submittals for review, comment and approval prior to any operations on site; approximately at 90% and at 100% development. Construction shall not begin until approval is received from Maine Turnpike Authority.

Product Data: Submit manufacturer's data sheets on each product to be used, including, but not limited to, the following:
Preparation instructions and recommendations.
Storage and handling requirements and recommendations.
Installation manual and operating guidelines.

Shop drawings: Tank manufacturer shall submit the following for review and approval prior to fabrication of the tanks:
Detailed shop drawings of each tank complete with all accessories supplied by the manufacturer.
Detailed shipping, handling and installation instructions.

QUALITY ASSURANCE

Tank installations in the United States:
Regulatory Requirements: Comply with applicable requirements of the laws, codes, ordinances, and regulations of Federal, State, and local authorities having jurisdiction.

DELIVERY, STORAGE, AND HANDLING

General: Comply with tank manufacturer's Installation and Operating Guidelines recommendations for delivery, storage, and tank handling.

WARRANTY

Warranty: Provide manufacturer's standard limited warranty.

PART 7 - PRODUCTS

ABOVEGROUND FUEL TANKS (TEMPORARY FUEL SYSTEM):

Contractor to review Owner-Furnished Equipment, assess any missing components, include missing items in the final design for review by Owner and provide those items to complete the installation of this system.

PART 8 - EXECUTION

Refer to Section 23 13 13 Fuel Underground Storage Tanks for work sequencing, installation and decommissioning of the Aboveground Fuel Storage Tanks.

PART 9 - COMPENSATION

Method of Measurement

The Aboveground Diesel Tank Installation, but not limited to: off-loading, setting, electrical and communications supply and connection, point-of-sale coordination, testing, commissioning, decommissioning, loading, transporting, and downloading a complete functioning temporary fuel system.

The Aboveground Gas Tank, but not limited to: off-loading, setting, electrical and communications supply and connection, point-of-sale coordination, testing, commissioning, decommissioning, loading, transporting, and downloading a complete functioning temporary fuel system.

The Aboveground Tank decommissioning and relocations, for both gas and diesel will not be measured for payment but will be incidental to the appropriate Aboveground Tank Installation pay item; that is the decommissioning on site, loading, and transporting to the MTA Crosby Maintenance Facility in Portland for storage.

Any tank, dispenser, or other Owner-Furnished Equipment lost or damaged by the Contractor shall be replaced by the Contractor at no additional cost to the Authority.

Basis of Payment

Payment will be made under:

800.03	Aboveground Diesel Tank Installation	Lump Sum
800.04	Aboveground Gas Tank Installation	Lump Sum

END OF SECTION 23 13 23

SECTION 23 14 00

FUELING SYSTEM EXCAVATION, BEDDING AND BACKFILL

PART 5 - GENERAL

5.1 SUMMARY

A. Contractor is responsible for full design of the entire fuel storage and dispensing systems. Designs shall be stamped and signed by licensed Professional Engineers in the State of Maine. Refer to Sections 23 13 13 and 23 13 23 for Owner provided equipment. Contractor is responsible for all installation, testing and commissioning work for complete and operational aboveground and underground storage and dispensing fuel systems.

B. This section covers excavation, backfill, disposal, placement, and compaction of all materials within the limits of the work required to install the fuel piping system, underground structures, as well as other areas for drainage, or for other purposes in accordance with these specifications and in conformity to the dimensions and typical section(s) shown on the plans. In addition, this item covers procedures for addressing contaminated soils.

C. This section shall also include all required quality control and material acceptance sampling and testing in accordance with this specification. The Engineer may perform any additional quality assurance testing that is deemed necessary to verify the Contractor's test results and ensure compliance with applicable specifications.

5.2 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Other specifications, which directly relate to the work of this section, include but are not limited to the following:
   1. 23 11 13 – Fuel Piping and Fittings
   2. 23 13 13 – Fuel Underground Storage Tanks
   3. 23 14 00 – Fuel Excavation, Bedding and Backfill

5.3 REFERENCE STANDARDS

A. Applicable Standards
   1. Comply with applicable provisions of the following unless otherwise indicated or specified.

B. American Society for Testing and Methods (ASTM)
   1. ASTM A 234 - 1991 Piping Fittings of Wrought Carbon Steel and for Moderate and Elevated Temperatures.

C. Code of Federal Regulations (CFR):
   1. 29 CFR 1910.120 - Hazardous Waste Operations and Emergency Response
   2. 29 CFR 1910.1200 - Hazard Communication

5.4 QUALITY CONTROL

A. General
   1. The Contractor shall employ a certified independent testing facility to perform all laboratory and field material acceptance sampling and testing. The Contractor shall provide the Engineer with a certification stating that all the testing equipment to be used is properly calibrated and will meet the applicable specifications for the specific test procedures. The independent testing facility and personnel shall be subject to the approval of the Engineer.

B. Testing Requirements:
   1. ASTM D 698 Test for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, using 5.5-pound Rammer and 12-Inch Drop
   2. ASTM D 1557 Test for Moisture-Density Relations of Soils and Soil-Aggregate Mixtures, using 10-pound Rammer and 18-Inch Drop
   3. ASTM D 2167 Test for Density and Unit Weight of Soil in Place by the Rubber Balloon Method

5.5 SUBMITTALS

A. Submit to the Engineer for approval complete working drawings showing the method of trench excavation and valve pit excavation, method of excavation support, and dewatering techniques that are proposed to be used. The following is not intended to limit, but to provide, the minimum details that must be included in the submittal.
   1. Structural analyses detailing the design of shoring and bracing. Submittal data shall be complete with calculations and drawings indicating all structural members to be utilized.
   2. Working drawings and design data describing the proposed dewatering system including, but not limited to, the arrangement, locations and depths of dewatering system components, standby equipment and standby power supply, proposed locations of discharge points, and the size and type of dewatering system. The Contractor shall evaluate whether dewatering will cause settlement of the soil outside the excavation, and shall design the dewatering system to minimize such settlements.
   3. Excavation support design submittals and ground water control submittals shall be prepared by a Professional Engineer registered in the jurisdiction.
   4. The Engineer will review submittals with consideration of requirements of the completed work, utilities, and the possibility of unnecessary delays in the execution of the work to be constructed under this contract. Review of the Contractor submittals by the Engineer shall not be construed in any way as relieving the Contractor of his responsibility for the safety of this method or equipment used, or for his responsibility to satisfactorily complete the work in accordance with the plans and specifications.

5.6 WORK CLASSIFICATION

A. Types of Excavation
   1. Trench Excavation
      a. Trench excavation shall consist of excavating a trench to install fuel piping, drainage piping, or electrical ducts in accordance with the details shown on the drawings.

2. Excavation for Underground Structures:
    a. Excavation for underground structures shall consist of excavating a pit of sufficient size to install fuel piping, tanks, manholes, handholes, etc. as shown on the drawings.

B. All materials excavated shall be classified as:
1. Suitable Material
    a. Suitable materials from trench and structure excavation shall be re-used on-site in formation of embankments or disposed of at a site designated by the Owner. Any temporary stockpiling or rehandling of this material required for reuse is considered a subsidiary obligation and no separate measurement or payment shall be made for temporary stockpiling or rehandling suitable trench excavation material. Any excess suitable material from trench or structure excavation not used for other purposes shall be disposed of at Owner designated site.
2. Unsuitable Material
    a. Any material from trench and structure excavations containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for reuse as trench backfill or formation of embankments. Unsuitable excavated material shall be legally disposed of off Authority property.
3. Trench Over-Excavation
    a. Trench over-excavation shall consist of removing unsuitable material below the subgrade lines to build a suitable subgrade for utility lines as directed by the Engineer. Trench over-excavation completed by the Contractor without prior approval by the Engineer will not be measured for payment. The costs associated with any unauthorized over-excavation and subsequent backfill shall be the sole responsibility of the Contractor.
4. Backfill for Trench Over-Excavation
    a. Backfill for trench over-excavation shall consist of placing and compaction of Underdrain Backfill Material in accordance with Table 1 within the trench over-excavation limits.

Table 1.
Gradation Requirements
Foundation Stabilization Material

Sieve Designations (Square Openings)	Percentage by Weight Passing Sieves
1 inch	95-100
½ inch	75-100
No. 4	50-100
No. 20	15-80
No. 50	0-15
No. 200	0-5.0

5.7 JOB CONDITIONS

A. Site and Subsurface Conditions:
1. Dewatering may be required due to the high groundwater table.
2. Remains of foundations and slabs of structures, other miscellaneous rubble, and trash may be present below grade.

5.8 PROTECTION OF UNDERGROUND FACILITIES

A. The Contractor's attention is directed to the necessity of making investigations to assure that no damage to existing structures, drainage lines, navigational signal conduits, electrical ducts, fuel lines, etc. will occur.

5.9 DELIVERY, STORAGE AND HANDLING

A. All excess excavated material, regardless of its nature shall be disposed of legally off property except for potentially contaminated materials which shall be transported to the holding area designated by the Engineer.

B. Temporary storage of excess excavated material may be permitted with prior approval of the Engineer, however, the surface elevation of stockpiled material shall not extend above the surface elevation of adjacent pavement areas unless approved by the Engineer.

PART 6 - PRODUCTS

6.1 MATERIALS

A. Pipe Bedding Material: Bedding material under and around fuel lines shall be natural mineral sand meeting ASTM specification C-33, Fine Aggregate, as shown below.

Table 2.
Gradation Requirements
Pipe Bedding Material

Sieve Designation (Square Openings)	Percentage by Weight Passing Sieves
1/2-Inch	100
3/8-Inch	85-100
No. 4	60-100
No. 16	35-80
No. 50	10-55
No. 100	2-10

B. Suitable imported bedding material shall not contain chlorides that could be deleterious to the pipe and/or coatings.

C. Using suitable materials excavated from the trench that are screened to meet the above gradation is an acceptable alternative for pipe bedding. The soil screened for pipe bedding shall not contain topsoil or organic materials of any kind.

D. The Owner will employ quality assurance procedures to ensure the Contractor's compliance with the above-mentioned testing requirements and procedures.

PART 7 - EXECUTION

7.1 GENERAL

A. Before beginning excavation and trenching operations in any area the Contractor shall verify the location of all utilities and notify the Engineer in writing of any discrepancies.

B. The structural suitability of material to be placed as backfill shall be subject to approval by the Engineer based on test results submitted by the Contractor. All unregulated excess suitable/ unsuitable material shall be legally disposed of off property. All temporary stockpile areas shall be graded to allow positive drainage of the area and of adjacent areas. The surface elevation of waste areas shall not extend above the surface elevation of adjacent usable pavement areas unless specified on the plans or approved by the Engineer.

C. If it is necessary to interrupt existing surface drainage, sewers, or under drains, or similar underground utilities, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. The Contractor shall, at his/her own expense, satisfactorily repair or pay the cost of all damage to such utilities or structures which may result from any of the Contractor's operations during the period of the Contract.

D. Perform all excavations in conformance with "OSHA Standards and Interpretations, Subpart P - Excavation, Trenching, and Shoring" and/or as per typical sections shown on the plans, whichever is stricter.

7.2 TRENCH AND STRUCTURE EXCAVATION

A. No excavation shall be started until the work has been staked out by the Contractor and the Engineer has obtained elevations and measurements of the ground surface. All suitable excavated material shall be used in the formation of subgrade or for other purposes shown on the plans.

B. The grade shall be maintained so that the surface is well drained always. When necessary, temporary drains and drainage ditches shall be installed to intercept or divert surface water, which may affect the work.
   1. Undercutting
      a. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for subgrades, roads, or shoulders shall be excavated to a minimum depth of 12 inches or to the depth specified by the Engineer, below the subgrade. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. The excavated area shall be refilled with suitable material obtained from the trenching operations and compacted to specified densities. The necessary refilling will constitute a part of the embankment. Where rock cuts are made, and refilled with selected material, any pockets created in the rock surface shall be drained.
   2. Removal of Utilities
      a. The removal of existing structures and utilities required to permit the orderly progress of work shall be accomplished by the Contractor unless otherwise shown on the plans. All existing foundations shall be excavated for at least 2 feet below the top of subgrade or as indicated on the plans, and the material disposed of as directed. All foundations thus excavated shall be backfilled with suitable material and compacted as specified herein. Backfill is considered incidental to removal of existing structures and utilities and no payment shall be made for this item.

7.3 TRENCH AND STRUCTURE BACKFILL

A. Prepare the bottom of the trench and structure excavation to receive bedding material, pipes, and structures for utilities to be placed in the trenches.

B. Where the trench crosses an existing utility, the Contractor shall support the utility to prevent damage and maintain utility services. Support methods shall be adequate to maintain the existing utility line in its existing position without sagging or vibrating. Contractor to comply with minimum separation distances between utilities per applicable codes requirements.

7.4 TRENCH OVER-EXCAVATION

A. When the material encountered at the bottom of trench is found to be soft and unsuitable to provide a stable subgrade, the Contractor shall remove and replace unsuitable material with Underdrain Backfill Material, Type B in accordance with Table 1, as directed by the Engineer.

7.5 HAUL

A. All hauling will be considered a necessary and incidental part of the work. Its cost shall be considered by the Contractor and included in the contract unit price for the pay items of work involved. No payment will be made separately or directly for hauling on any part of the work.

7.6 PETROLEUM CONTAMINATED SOIL

A. Areas of contaminated soil may exist within the work area. See Section 203 for guidance on treatment of contaminated soils.

END OF SECTION 23 14 00

SECTION 23 15 00

FUELING SYSTEM DEMOLITION

PART 8 - GENERAL

8.1 SUMMARY

A. Contractor is responsible for full design of the entire fuel storage and dispensing systems. Designs shall be stamped and signed by licensed Professional Engineers in the State of Maine. Refer to Sections 23 13 13 and 23 13 23 for Owner provided equipment. Contractor is responsible for all installation, testing and commissioning work for complete and operational aboveground and underground storage and dispensing fuel systems.

B. This section includes demolition of the fuel system. Complete demolition shall include, but not be limited to, fuel draining, tank and line cleaning. The fuel system to be demolished is as indicated on the drawings.

8.2 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Other specifications, which directly relate to the work of this section, include but are not limited to the following:
1. 23 11 13 – Fuel Piping and Fittings
2. 23 12 00 – Fuel Dispensing Equipment
3. 23 13 13 – Fuel Underground Storage Tanks
4. 23 14 00 – Fuel Excavation, Bedding and Backfill

8.3 REFERENCE STANDARDS

A. Applicable Standards
1. Comply with applicable provisions of the following unless otherwise indicated or specified.

B. American Society for Testing and Methods (ASTM)
1. ASTM A 234 - 1991 Piping Fittings of Wrought Carbon Steel and for Moderate and Elevated Temperatures.

C. Code of Federal Regulations (CFR):
1. 29 CFR 1910.120 - Hazardous Waste Operations and Emergency Response
2. 29 CFR 1910.1200 - Hazard Communication

8.4 WORK ITEMS

1. Demolition
    a. Demolition does not mean abandon in place, but total removal including disposal or salvage.
    b. The Contractor is required to remove all items within the limits of demolitions as shown on the drawings to be removed unless alternatives are noted, and all items directed by the Engineer.
    c. The removal includes but is not limited:
        1) Buried fuel tanks and concrete support structures.
        2) Buried fuel piping and structures.
        3) Buried electrical conduits for fuel system.
        4) Miscellaneous structures.
    d. The drawings are not inclusive of the items to be demolished. The Contractor is responsible for investigating the site and determining the type and quantity of items to be demolished.

8.5 SUBMITTALS

A. Spill Prevention and Clean-up Plan:
1. The Spill Prevention and Clean-up Plan shall be a submitted in accordance with State of Maine, Department of Environmental Protection, regulatory requirements. The Contractor is responsible for collecting, testing, labeling, and disposing of all waste. The Spill Prevention and Clean-up Plan shall comply with applicable requirements of federal, state and local regulations including 29 CFR 1910.120 and shall address the following:
    a. Spill prevention, containment, and clean-up contingency measures to be implemented.
    b. The name and number of all persons to be notified in case of a spill.
    c. Locations of shut-off valves.
    d. Record of appropriate training of all personnel to be working in an area where a spill can occur.

B. Oily Water and Waste Fuel Disposal Plan:
1. The Contractor shall prepare and submit an Oily Water and Waste Fuel Disposal Plan in accordance with the Special Provisions. The Contractor is responsible for testing, containerizing, labeling and disposing of all waste. The Oily Water and Waste Fuel Disposal Plan shall include the following:
    a. Identification of all waste streams associated with the abandonment of the fuel lines, including a sampling and testing plan, the purpose of each test, and the rationale to evaluate the results. Indicate the sampling methods, testing methods, number of samples, and the name and certification of the testing laboratory.
    b. Proposed method/location of disposal.
    c. List of waste handling equipment to be used in performing the work. Include the equipment used in collection and transporting.
    d. Work plan and schedule for waste removal and disposal.

C. Health and Safety Plan:
1. The Contractor shall submit a Health and Safety Plan in accordance with the Special Provisions. The Health and Safety Plan shall be prepared, reviewed and signed and sealed by a Certified Industrial Hygienist. The safety plan shall meet OSHA requirements and shall include the following:
    a. Identification and evaluation of the hazards and risks associated with each work task, including precautionary measures to be followed by workers.

b. Names and qualifications of each Contractor's representative(s) in charge of the work and present at the job site when draining pipeline and filling work will be performed.
c. Identification of supervisory personnel and alternates responsible for site safety/response operations.
d. Determination of levels of personnel protection to be worn for various site operations.
e. List of equipment with adequate nomenclature by item, that will be used at the job site and the date and location where this equipment can be inspected by the Engineer.
f. Establishment of emergency procedures, such as: escape routes, fire protection, signals for withdrawing work parties from site, emergency communications, wind indicators, including facility notification.
g. Identification and arrangements with nearest medical facility for emergency medical care for both routine-type injuries and toxicological problems. Submit name, location, and telephone number of this medical facility.
h. Identification of training plan to be instituted, including contents of 29 CFR 1910.1200 and 29 CFR 1910.134, its training contents and instructor with appropriate training certification.
i. Establishment of a hazard communication program (20 CFR 1910.1200).

D. Fuel Tank and Line Cleaning Plan:
1. Submit to the Engineer a detailed description of the fuel tank and piping cleaning procedures required prior to demolition. The Contractor is responsible for providing all equipment necessary as well as the potable water.

PART 9 - PRODUCTS

9.1 MATERIALS

A. Materials to be provided by the Contractor for fuel equipment demolition are as follows:
1. Fuel Truck:
a. The Contractor shall provide a clean, uncontaminated truck for removal, collection and transportation of fuel
2. Water:
a. Water shall be potable with a pH range of 5 to 8 and shall be free of deleterious materials.

PART 10 - EXECUTION

10.1 GAS FREE CONDITIONS

A. Clean fuel tanks and piping to be demolished in a Gas Free Condition.

10.2 DEMOLITION

A. Demolish and remove existing work where noted on the Drawings and/or where new work is indicated. Take care to prevent damage to active utilities. Contractor shall be responsible for repairing all damage to active utilities not scheduled for removal, at Contractor’s expense.

10.3 FUEL REMOVAL AND DRAINING

A. This section describes the procedures to be used on the existing fuel system to be taken out of service. The Contractor shall provide all labor, equipment, and materials necessary to remove fuel from the system.

B. The Contractor shall submit in writing a request at least ten (10) days prior to scheduling his work and shall have the approval of the Engineer as to the time and date for isolating any fuel line to be drained. Work shall be completed within the time frame specified. Arrangements shall be made for the appropriate fire protection measures to be present during any of the fuel handling procedure. Coordination with the appropriate fuel operator is required. Any requirements to work hours other than what might be considered normal working hours (0800 1700) shall be done without any increase to contract cost.

C. The Contractor shall obtain all appropriate Hot Work permits from the Fire Department.

D. The Contractor shall locate and identify the proper low point valves associated with the fuel line to be drained. If the pipe section to be drained does not have a low point drain, the Contractor shall provide for the installation of a temporary drain connection. The Contractor shall use a vacuum truck to remove fuel from each tank and line. The Contractor shall provide all labor, materials, and equipment for venting and draining the sections of fuel tank and lines.

E. The Contractor shall provide clean, uncontaminated vacuum tank trucks for collecting and transporting the fuel. The Contractor shall provide testing of the drained fuel to ascertain its quality, and the quality shall be approved by the Engineer for reuse. Any fuel that is not acceptable for return to storage shall be removed and disposed of by the Contractor.

PART 11 - COMPENSATION

11.1 GUARANTEE

A. The Contractor shall provide guarantees and warranties in accordance with the requirements of the General Conditions.

11.2 Method of Measurement

A. Removal of Underground Tanks (Gasoline and Diesel) – Gas and Diesel will be measured as one lump sum, but not limited to: removal of existing underground storage tanks, fuel draining, tank and line cleaning and all incidentals necessary to remove the tanks and appurtenances completely.

11.3 Basis of Payment

A. Payment will be made under:

800.01	Removal of Underground Tanks (Gasoline and Diesel)	LS

END OF SECTION 23 15 00