

MAINE TURNPIKE AUTHORITY

MAINE TURNPIKE

CONTRACT DOCUMENTS

CONTRACT 2018.21

INTERSTATE 195 CULVERT LININGS
SACO, MAINE

NOTICE TO CONTRACTORS

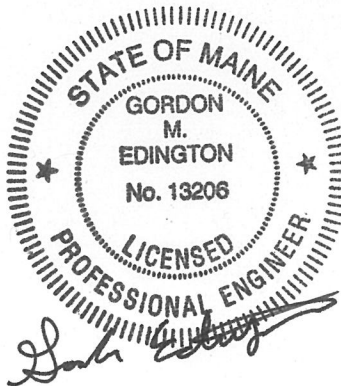
PROPOSAL

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.

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MAINE TURNPIKE AUTHORITY

NOTICE TO CONTRACTORS

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

CONTRACT 2018.21

INTERSTATE 195 CULVERT LININGS
SACO, MAINE

at the office of the Maine Turnpike Authority, 2360 Congress Street, Portland, ME, until 10:00 a.m., prevailing time as determined by the Authority on July 24, 2018 at which time and place the Proposals will be publicly opened and read. Bids will be accepted from Contractors **prequalified** by the Maine Department of Transportation for Bridge or Highway Construction Projects. All other bids may be rejected. This Project includes a wage determination developed by the State of Maine Department of Labor.

The work consists of lining two existing culverts under Interstate 195 in the city of Saco, Maine. The 42" diameter Goosefare Brook culvert is located approximately 0.25 miles west of the I-195 toll booths where the southbound entry and exit lanes cross Goosefare Brook. The 36" diameter unnamed tributary to Goosefare brook culvert is located approximately 200 feet west of the I-195 toll booths. The work includes lining of the existing culverts with a UV light cured-in-place pipe (CIPP), placement of riprap armoring, filling an existing erosion hole, 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. **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 questions shall be submitted by 5:00 p.m. on July 19, 2018 to be considered.** A final addendum, if necessary, will be issued not later 5:00 p.m. on July 20, 2018.

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.

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 2018.21

INTERSTATE 195 CULVERT LININGS
SACO, MAINE

MAINE TURNPIKE AUTHORITY

PROPOSAL

CONTRACT 2018.21

INTERSTATE 195 CULVERT LININGS

SACO, MAINE

TO MAINE TURNPIKE AUTHORITY:

The work consists of lining two existing culverts under Interstate 195 in the city of Saco, Maine. The 42” diameter Goosefare Brook culvert is located approximately 0.25 miles west of the I-195 toll booths where the southbound entry and exit lanes cross Goosefare Brook. The 36” diameter unnamed tributary to Goosefare brook culvert is located approximately 200 feet west of the I-195 toll booths. The work includes lining of the existing culverts with a UV light cured-in-place pipe (CIPP), placement of riprap armoring, filling an existing erosion hole, 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 2018.21 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. 2018.21**

**I-195 CULVERT LININGS
SACO, MAINE**

Item No	Item Description	Units	Approx. Quantities	Unit Prices in Numbers		Bid Amount in Numbers	
				Dollars	Cents	Dollars	Cents
203.24	Common Borrow	Cubic Yard	90				
509.203	Culvert Lining - 36" Diameter Pipe	Lump Sum	1				
509.204	Culvert Lining - 42" Diameter Pipe	Lump Sum	1				
511.071	Cofferdam: Culvert Lining (36" Diameter Pipe)	Lump Sum	1				
511.071	Cofferdam: Culvert Lining (42" Diameter Pipe)	Lump Sum	1				
610.08	Plain Riprap	Cubic Yard	20				
615.07	Loam	Cubic Yard	25				
618.14	Seeding Method Number 2	Unit	2				
619.1201	Mulch	Unit	2				
659.10	Mobilization	Lump Sum	1				
TOTAL:							

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

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

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

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

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

_____ (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)

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)

SURETY

_____ (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)

The Supplemental Specifications are available on the Maine Turnpike Authority Website at <http://www.maineturnpike.com/Projects-Planning/Construction-Contracts.aspx>

MAINE TURNPIKE AUTHORITY

SPECIFICATIONS

PART II – SPECIAL PROVISIONS

PART II - SPECIAL PROVISIONS

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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 lining two existing culverts under Interstate 195 in the city of Saco, Maine. The 42" diameter Goosefare Brook culvert is located approximately 0.25 miles west of the I-195 toll booths where the southbound entry and exit lanes cross Goosefare Brook. The 36" diameter unnamed tributary to Goosefare brook culvert is located approximately 200 feet west of the I-195 toll booths. The work includes lining of the existing culverts with a UV light cured-in-place pipe (CIPP), placement of riprap armoring, filling an existing erosion hole, maintenance of traffic and all other work incidental thereto in accordance with the Plans and Specifications.

Plans

The drawings are included as an appendix to these Contract Documents, and referred to as the Plans, show the general character of the work to be done under this Contract. 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

New Years

103.4 Notice of Award

The following sentence is added:

The Maine Turnpike Authority Board is scheduled to consider the Contract Award on July 26, 2018.

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 MRSA §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 2018.21-Interstate 195 Culvert Sliplinings

Location of Project -- Saco, York County

**2018 Fair Minimum Wage Rates
Highway & Earth York County-Revised-**

<u>Occupation Title</u>	<u>Minimum Wage</u>	<u>Minimum Benefit</u>	<u>Total</u>	<u>Occupation Title</u>	<u>Minimum Wage</u>	<u>Minimum Benefit</u>	<u>Total</u>
Asphalt Raker	\$16.00	\$0.44	\$16.44	Ironworker – Ornamental	\$23.13	\$4.80	\$27.93
Backhoe Loader Operator	\$20.00	\$2.23	\$22.23	Ironworker - Reinforcing	\$24.79	\$10.60	\$35.39
Boom Truck (Truck Crane) Operator	\$21.66	\$6.86	\$28.52	Ironworker - Structural	\$21.80	\$4.88	\$26.68
Bulldozer Operator	\$22.00	\$4.17	\$26.17	Laborer (Includes Helper-Tender)	\$14.50	\$0.94	\$15.44
Carpenter	\$21.00	\$2.36	\$23.36	Laborer - Skilled	\$17.00	\$2.24	\$19.24
Cement Mason/Finisher	\$17.00	\$0.56	\$17.56	Line Erector-Power/Cable Splicer	\$26.00	\$7.59	\$33.59
Crane Operator =>15 Tons)	\$26.00	\$5.97	\$31.97	Loader Operator - Front-End	\$19.25	\$3.37	\$22.62
Crusher Plant Operator	\$17.50	\$2.01	\$19.51	Mechanic- Maintenance	\$21.00	\$3.15	\$24.15
Diver	\$28.50	\$1.48	\$29.98	Painter	\$17.00	\$0.00	\$17.00
Driller -Rock	\$18.38	\$2.60	\$20.98	Paver Operator	\$18.38	\$1.73	\$20.11
Earth Auger Operator	\$22.97	\$6.17	\$29.14	Pipelayer	\$18.00	\$3.16	\$21.16
Electrician - Licensed	\$26.00	\$4.67	\$30.67	Pump Installer	\$21.00	\$3.73	\$24.73
Electrician Helper/Cable Puller (Licensed)	\$17.00	\$2.84	\$19.84	Reclaimer Operator	\$19.13	\$2.98	\$22.11
Elevator Constructor/Installer	\$19.25	\$1.62	\$20.87	Roller Operator - Earth	\$16.00	\$1.89	\$17.89
Excavator Operator	\$21.13	\$3.36	\$24.49	Roller Operator - Pavement	\$18.03	\$2.19	\$20.22
Fence Setter	\$17.25	\$1.72	\$18.97	Screed/Wheelman	\$18.60	\$3.68	\$22.28
Flagger	\$12.00	\$0.00	\$12.00	Truck Driver - Light	\$17.83	\$3.74	\$21.57
Grader/Scraper Operator	\$21.33	\$5.65	\$26.98	Truck Driver - Medium	\$18.00	\$1.89	\$19.89
Highway Worker/Guardrail Installer	\$16.50	\$0.79	\$17.29	Truck Driver - Heavy	\$16.38	\$1.61	\$17.99
Hot Top Plant Operator	\$23.00	\$3.90	\$26.90	Truck Driver - Tractor Trailer	\$19.00	\$3.18	\$22.18

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.

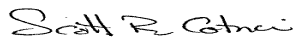
Posting of Schedule - Posting of this schedule is required in accordance with 26 MRSA §1301 et. seq., by any contractor holding a State contract for construction valued at \$50,000 or more and any subcontractors to such a contractor.

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-131-2018

A true copy

Filing Date: June 29, 2018

Attest: 

Expiration Date: 12-31-2018

**Scott A. Cotnoir
Wage & Hour Director**

BLS(Highway & Earth York)

104.4.7 Cooperation With Other Contractors

This Subsection is amended by the addition of the following:

Adjacent contracts currently scheduled for the 2018 construction season include:

MTA Contract 2018.03 – Exit 44 On-ramp Widening, MM 44

MTA Contract 2018.13 – Guide Sign Modifications, Phase III, MM 32 to 44

MTA Contract 2017.08 – Guide Sign Modifications, Phase II, MM 23.3 to 73

105.8.2 Permit Requirements

The Project is being constructed under the Maine Department of Environmental Protection (DEP) Natural Resources Protection Act maintenance and repair exemption for existing stream crossings (§480-Q. Activities for which a permit is not required. 2-D. Existing crossings).

The Project is being permitted in accordance with Section 404 of the Clean Water Act, through a Category 2 Pre-Construction Notification under the U.S. Army Corps of Engineers Maine Programmatic General Permit. The Project is subject to the General Conditions of Category 2 Authorization of the Maine Programmatic General Permit. A signed copy of the Start Work Notification Form must be sent to the Army Corps Maine Project Office at least two weeks before work commences. **Final permit authorization is anticipated by September 1, 2018. The Contractor may not begin any in-water work until the final permit authorization is received.**

The Project's limit of disturbance will be less than one acre in area, and therefore the Project 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 U.S. Environmental Protection Agency and administered by the DEP. An application for coverage under the Maine Construction General Permit (MCGP) is not required for this project because the limit of disturbance is less than one acre in area. Compliance with the erosion and sedimentation control requirements outlined in this Contract is required by the Contractor to ensure compliance with Maine's Erosion and Sedimentation Control Law.

The Contractor shall comply with the General Conditions outlined in the U.S. Army Corps of Engineers Maine General Permit, any project-specific conditions required by the U.S. Army Corps of Engineers, and Maine's Erosion and Sedimentation Control Law. This Project is also subject to the requirements of the Maine Pollutant Discharge and Elimination System (MPDES) General Permit for the Discharge of Stormwater from MTA's Municipal Separate Storm Sewer Systems (MS4), because it is located within an Urbanized Area (UA) as defined by the most recent census by the U.S. Bureau of the Census. MS4 compliance requires all Contractors to be properly trained in Erosion and Sedimentation Control (ESC) measures (as per Supplemental Specifications Subsections 105.8.1 and 656.07) and implement measures to reduce pollutants in stormwater runoff from construction activities. 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:

All work shall be completed on or before October 31, 2018. The lining at both culverts shall be substantially complete by September 30, 2018.

107.1.1 Substantial Completion

This Subsection is amended by the addition of the following:

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

- All lining at both culverts, as required by the specifications.
- All slope erosion repairs, sink hole filling and channel armoring work.

Supplemental Liquidated damages on a calendar day basis in accordance with Subsection 107.8 shall be assessed for each calendar day that substantial completion is not achieved. Supplemental Liquidated damages will be assessed at a rate of \$1,000 per Calendar Day.

107.4.6 Prosecution of Work

All work shall be done in accordance with the project's environmental permits. All in-stream work at both culverts shall be completed during the July 15 to September 30 low flow work window.

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. The intent of this specification is to minimize the amount of time for the project, while providing the Contractor sufficient time to complete the work in a diligent manner to complete the project as prescribed by the project's Substantial Completion date.

General Notes:

1. All details shall be in conformance with Maine Department of Transportation (MaineDOT) Standard Details for Highways and Bridges with all updates, and MaineDOT Best Management Practices for Erosion and Sediment Control latest revisions unless otherwise noted.
2. The Contractor shall submit his proposed staging area location(s) to the Resident for approval prior to starting work.
3. The Contractor shall prepare a temporary erosion control plan and submit it to the Resident for approval prior to starting work. The plan shall note the type and location of all anticipated erosion control devices. All temporary and permanent erosion control devices shall be installed in accordance with the Maine Department of Transportation Best Management Practices. Payment for preparing the temporary erosion control plan and implementing all temporary erosion control devices shall be considered incidental to the Contract.

4. The Contractor shall take all precautions necessary to avoid impacts beyond what is shown in the Plans to delineated wetland areas.
5. Any clearing required for access to the culvert ends shall be authorized by the Resident prior to beginning any work. All clearing shall be done in accordance with the project's environmental permits. Payment for clearing will be considered incidental to the Contract.
6. Waste materials shall be disposed of off the project site, in accordance with all environmental regulations.
7. At the completion of the project, all disturbed slopes shall be repaired to their pre-construction conditions, as directed by the Resident. 4" of loam and seeding shall be placed on all new or reconstructed slopes.

SPECIAL PROVISION

SECTION 206

STRUCTURAL EXCAVATION

206.02 Construction Methods

The following paragraphs are added:

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

SPECIAL PROVISIONSECTION 509CULVERT LINING509.1 Description

This work shall consist of furnishing a resin impregnated flexible tube that is pulled into the culvert and expanded to fit tightly against the culvert by the use of air pressure. The thermosetting resin system in the tube shall then be cured by exposing the resin saturated tube to a UV-light source that produces the needed intensity and wavelength of light to cause the photo-initiators in the resin to drive the hardening process to a complete cure.

This Work consists of furnishing all labor, tools, materials, equipment, and supervision for installing and testing of the culvert lining. The Work also includes, but is not limited to the pipe cleaning, installation of a pre-liner, quality controls, and quality assurance testing sampling to complete the UV light cured-in-place pipe (CIPP) lining.

509.2 Materials

Reference Standards:

- A. The Reference Standards shown below shall be the most recent version available at the stated time of the bid opening.
- B. American Society for Testing and Materials (ASTM)

ASTM C581 - Standard Practice for Determining Chemical Resistance of Thermosetting Resins Used in Glass Fiber Reinforced Structures, Intended for Liquid Service

ASTM D543- Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents

ASTM D790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials

ASTM D5813 – Standard Specification for Cured-In-Place Thermosetting Resin Drain Pipe

ASTM F1216 - Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube

ASTM F2019 - Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled in Place Installation of Glass Reinforced Plastic (GRP) Cured-in-Place Thermosetting Resin Pipe (CIPP)

Warranty:

The Contractor shall warrant all Work for a period of one (1) year from the date of the acceptance of work by the Maine Turnpike Authority (the Authority).

Submittals:

- A. The Contractor shall submit the following information a minimum of 30 days in advance of commencing the fabrication of the CIPP tubes for this project:

CIPP System Manufacturer's certification that the materials to be used on the project meet the appropriate qualifications based requirements of ASTM D5813 for the type CIPP System proposed. Included in this certification package shall be the Manufacturer's recommendations for the shipping, storage and handling of all the components of the CIPP System throughout the construction process; as well as the Manufacturer's recommended UV- light intensity level(s) and exposure times for the initiator cocktail used and the internal pressure(s) to be used throughout the various phases of the installation process.

CIPP System Manufacturer's product specific data for the resin and initiator cocktail system, including:

Resin trade name with formulation specific numbering.

Resin Infrared Spectrographic documentation.

Resin physical properties testing documentation; Short-term (Initial) Flexural Strength and the Short-term (Initial) and Time Dependent Flexural Modulus obtained in accordance with the appropriate ASTM Standard for the CIPP product being installed.

Material Safety Data Sheets (or MSDS).

CIPP System Manufacturer's product specific data for the glass fiber tube for this project; including the maximum allowable pulling force that will not damage the tube or compromise the physical properties of the finished CIPP.

Tube trade name with fabrication specific numbering

Finished CIPP physical properties testing documentation (results of the qualification based testing) using the resin system above with the proposed tube construction: Short-term (Initial) Flexural Strength and the Short-term (Initial) and Time Dependent Flexural Modulus in accordance with the appropriate ASTM standard.

System Manufacturer's CIPP product specific qualification-based testing to further verify the in-ground performance requirements.

Strain Corrosion Resistance testing documentation using the resin system above for any CIPP product proposed that incorporates a fiber- reinforced tube construction; having a demonstrated minimum retention factor for the design life requirements contained later herein.

Chemical Corrosion Resistance testing documentation per paragraphs 6.4.1 and 6.4.2 of the ASTM standard D5813 for all types of CIPP construction.

Manufacturer's product specific information on the pre-liner or outer polymeric membrane (film) designed to encapsulate the resin system in the tube and provide for a water-tight, styrene emission abatement barrier on this project. Also included shall be specific information on the inner polymeric membrane, whether permanent or temporary, that is designed for the CIPP System's installation process which also has been designed to provide for the abatement of any styrene gas emission during the transportation and installation process.

The Manufacturer's product specific data and instructions for the end sealing materials to be used at the manholes (or other designated mainline access structures) to ensure a long-term, groundwater-tight connection between the host pipe and the new CIPP will be achieved. The sealing material must be shown in the product literature to be compatible with (or formulated for) the environmental service conditions of the pipe being lined and capable of serving for the design life of the CIPP liner installed.

Work Plan: Contractor's CIPP installation site plan including site layout, field verified reach lengths, equipment, access points, termination points for each reach, method of CIPP insertion (e.g. pulled-in-place), hardening method (e.g. UV light), etc.

Design calculations for the reach specific wall thickness designs in accordance with accepted engineering design methodologies for the pipe geometry of the pipe structure. Calculations shall be completed and sealed by an engineer with a demonstrated proficiency in the design of CIPP (i.e. close-fit un-bonded liners) and licensed in the jurisdiction where the CIPP is to be installed. Calculations shall follow the CIPP Design Criteria described later herein.

1. Quality Control Plan (QCP) that includes the following:

A checklist documenting each critical step in the tube's resin saturation process, unhardened CIPP tube's insertion into the subject reach of pipe, hardening (processing) of the CIPP, etc. This reach specific QCP checklist shall have provisions where each critical step is checked off and initialed by the Contractor's designated QCP personnel.

A listing of the defined responsibilities of the key project personnel who are charged with ensuring that all the quality control requirements listed are met.

2. Emergency Plan that includes the following and shall be kept on site during the entire duration of active CIPP installation:

The procedures that will be followed in event of a health and safety emergency, pump failure, drain overflows, service backups, and sewage spillage.

Addresses the dangers associated with drain rehabilitation work.

Identifies the on-site designated Health and Safety Officer.

List of the rehabilitation equipment that shall be inspected on daily basis.

Description of proposed methods and equipment to be used to repair unacceptable CIPP defects and for removing failed CIPP. These shall be as developed by the CIPP System manufacturer to ensure that the required service life of the CIPP will still be achieved after the repair(s) is/are made. The Plan shall also include availability and accessibility of backup equipment such as air compressors, light train components, and lateral cutters.

3. Documentation of the Contractor's pre-construction inspection and post- construction inspection.

The Contractor shall submit to the engineer's on-site construction observer (inspector) the following information for each CIPP reach within fourteen (14) calendar days of installation of the CIPP:

1. Resin Saturation Documentation (Wet-out Report).
2. Hardening Documentation
 1. This documentation shall be in the form of a contemporaneous logging of the light intensity(s) and length of exposure time as the light train moves along the length of the subject reach of pipe. This log shall also be imprinted with the air pressure maintained inside of the liner during the hardening process. The data shall be recorded in a digital format that is tamper proofed.
3. Preliminary inspection of the installed CIPP liner clearly showing the fit and finish of the CIPP immediately after its completion.

The Contractor shall submit the following information prior to Final Acceptance:

1. Documentation demonstrating that the Quality Control Plan for each reach of CIPP installed was properly executed.
2. Documentation of the test results from the Quality Assurance samples taken of the installed CIPP demonstrating compliance with the Manufacturer's stated Short-term Flexural Strength and Flexural Modulus; and with the minimum finished wall thickness required by the Engineer of Record's design calculations.
3. Documentation of any corrective actions that were taken to address any defects and/or cosmetic blemishes to the CIPP that was required of the Contractor following the CIPP System Manufacturer's recommendations and/or that of NASSCO (industry vetted requirements that are included in their CIPP Inspector Training Course).

Materials:

A. General:

1. All components of the CIPP System shall be new and free of defects. The CIPP shall be continuous and of sufficient length to extend from manhole to manhole (or access point to access point).

The CIPP System shall contain no intermediate or encapsulated elastomeric layer(s). No material(s) shall be included in the tube's construction that may cause delamination (or in-plane shear) in the cured CIPP product. No dry or unsaturated layers shall be visually or otherwise evident.

The CIPP System shall be capable of conforming to the irregularities normally found in buried pipes requiring renewal such as offset joints, fractured pipe, and otherwise disfigured pipe sections. It shall be able to stretch to fit these localized and/or global irregular pipe sections; and, when noted in the plans for the subject pipe reaches, negotiate bends.

B. Fabric Tube:

1. The tube's construction shall consist of two or more layers of nonwoven or woven glass fibers capable of transporting the proposed resin system while withstanding the rigors of the installation and hardening processes in accordance with the ASTM standards D5813 or F2019 as applicable. The tube shall be compatible with the resin system to be used on this project. The material shall be able to stretch to fit any irregular pipe sections and negotiate bends as stated above.
2. The tube should be fabricated to a size that, when installed following the CIPP System Manufacturer's written instructions, will tightly fit the internal circumference and the length of the host pipe structure while simultaneously minimizing the creation of any wrinkles or fins on the interior wall surface. Allowances should be made for the normally anticipated longitudinal and circumferential stretching that occurs during placement of the proposed tube into the host pipe structure.
3. The tube shall be constructed to be uniform in thickness around its finished circumference; and when subjected to the Manufacturer's stated installation pressures will meet or exceed the minimum finished wall thickness calculated for the subject reach of pipe.
4. Any plastic film attached to the tube on what will become the interior wall of the finished CIPP shall be compatible with the resin system used, translucent enough that the resin is clearly visible, and shall be firmly bonded to the felt or other material when it is to become a permanent part of the finished CIPP. It shall also be formulated to create an impermeable barrier or membrane against the leaching of any volatile components of the resin system such as styrene prior to resin hardening taking place.
5. The external plastic film shall also provide a barrier to ambient light UV exposure and be robust enough to survive the rigors of the sliding of the tube into its final position in the pipe to be renewed. The tube shall have an allowance for the required circumferential and longitudinal stretching during installation.
6. The wall color of the interior pipe surface of CIPP after installation shall be a light reflective color.

C. Resin System:

1. The resin system shall be a corrosion resistant polyester, vinyl ester, or epoxy and catalyst system that when properly cured meets the minimum requirements given herein or those that are to be utilized in the design of the CIPP System for this project. Thixotropic agents that do not interfere with visual inspection may be added for viscosity control. Resins may contain pigments, dyes, or colors that do not interfere with visual inspection of the resin-impregnated CIPP or its required properties.

Hydrophilic End Seals: The ends of the installed CIPP entering and exiting the manholes or other access structures on this project shall be sealed with a preformed neoprene rubber material that possesses significant expansive properties that are activated by the presence of any water at the Host pipe-CIPP interface to provide for a watertight seal. Hydrophilic caulks, hydraulic cements and quick-set cement products are not acceptable for this application. Acceptable materials shall be those products that have

a demonstrated performance for the environmental service conditions of the host pipe; and are capable of undergoing alternate wet and dry ground conditions without deleterious effects. End seals shall be the Insignia™ Seal as manufactured by LMK Technologies or an approved equal.

CIPP Design Criteria:

CIPP installations in circular pipe shapes may be designed as a "fully deteriorated" pipe in accordance with the non-mandatory design Appendix X1 in the ASTM CIPP installation standard F1216. The Engineer of Record's design submittal shall clearly identify the physical properties of the proposed CIPP System upon which his/her design is based. When the circular pipe is a fractured, rigid pipe exhibiting an ovality equal to or greater than 10% an alternative design approach must be used.

Prior to performing the required wall thickness design calculations and the ordering of the CIPP tube, the internal dimensions, including currently existing variations in the various radii of the existing drain mainlines shall be verified by the Contractor to ensure the CIPP will be designed and constructed using the current site specific dimensions and geometry.

The design parameters for CIPP thickness calculation shall be based on the following:

- a. A minimum service life of 50 years.
- b. All pipes shall be considered fully deteriorated.
- c. A minimum overall safety factor of 2.0 shall be employed in the engineer's calculations to account for seasonal variations in the external hydrostatic pressure, small variations in the wall thickness as defined in the referenced ASTM standards, and minor variations in the size of the annular space.
- d. The elevation (location) of the phreatic surface in the groundwater (i.e. water table) will be determined using site specific information obtained from geotechnical surveys or maintenance repair information for the subject areas in order to arrive at an appropriate estimate of the external hydrostatic load likely to be acting on the proposed CIPP liner.
- e. Any live vehicular loads at the surface are to be accounted for using commonly accepted approaches for the determination of the magnitude of their vertical influence on the horizontal soil plane at the top of the pipe per applicable governing standards for the type of vehicle(s) creating this loading condition. The plans show the live load rating of the paved roadway surfaces (i.e. H10, H15, H20, H25, etc.) The rigid and flexible pavement thicknesses shown on the plans have been taken from as-built drawings and other sources for the Engineer of Record's use is calculating the net impact of the live load at the top of the pipe.
- f. The depth of cover shall be field verified by the Contractor, as determined by the manholes or other access locations on the reach to be lined with the CIPP. The project plans indicate the vertical variations in the cover between the manholes.
- g. An ovality of 1.0% may be assumed for circular shaped pipes up to 12 inches in diameter in rigid host pipe materials exhibiting longitudinal fractures that

are visually indicating some change in shape has occurred. No ovality beyond what is allowed during manufacturing is required for rigid pipes that are not found to be so distressed (i.e. un-cracked and cracked pipes). For larger diameter circular pipe shapes demonstrating fractures and changes in shape, the site specific ovality shall be determined by the Contractor using quantifiable measuring tools such as laser profiling. Man-entry size pipes should be profiled using 3-dimensional profiling tools or other approved methods that allow for the variations in radii around the circumference of the pipe to be captured for use in the wall thickness design.

- h. The minimum short term flexural modulus of elasticity (ASTM D790) for the various types of CIPP (at 73°F) shall be 1,000,000 psi.
- i. The Flexural Modulus of Elasticity of the proposed CIPP System shall have a minimum creep retention factor of 0.60 for an estimated 50-year hydrostatic design loading period. The creep retention factor shall be determined by the CIPP System Manufacturer through long-term, qualification testing lasting a minimum of 10,000 hours at an appropriate stress level. Documentation of the retention factor will be submitted to the Engineer prior to any design calculations being made.
- j. The design calculations shall use this value or the Manufacturer's stated minimal flexural strength value for the CIPP System being supplied for this project.

509.3 Execution

General:

- A. Contractor shall field verify the length, size, and other geometry information of each pipe scheduled to be lined by inspection and physical measurements of each pipe end.
- B. Contractor shall complete all work in strict accordance with all applicable current OSHA standards. It shall be the Contractor's responsibility to comply with OSHA Standards and Regulations pertaining to all aspects of the work.
- C. Contractor shall submit the proposed work schedule a minimum of seven (7) days prior to all planned work. Contractor shall provide 48 hours advance verbal notice prior to pre- and post-installation inspections. Notice shall include notification of work shifts longer than eight hours and work times planned before 7:00AM or after 4:00PM.

Installation:

- A. The CIPP shall be installed in accordance with the practices given in ASTM F2019. The quantity of resin used for the tube's impregnation shall be sufficient to fill the volume of air voids in the tube (97% < volume of resin actually used < 102%). A vacuum or pressure impregnation process shall be used in conjunction with a roller system to achieve a uniform distribution of the resin throughout the tube.
- B. Curing of the resin system shall be as per the CIPP System Manufacturer's recommendations. For UV-light cured CIPP systems the curing shall proceed at the CIPP System Manufacturer's recommendation for the size and thickness of the

proposed tube and the intensity and duration of the exposure to the photo-initiator's required UV-light wavelength.

- C. Cleaning of Drain Lines: Contractor shall clean all debris and foreign matter from inside of culvert to be renewed; with the end goal being that the culvert shall have no debris prior to the CIPP's installation. Cleaning shall be divided into three categories as delineated by NASSCO based the level of effort required in a reach of pipe.
1. Light Drain Cleaning – is defined as the removal of Deposits Settled (DS) up to a depth of 25% of the rise (vertical diametrical) for pipes up to 12- inches in diameter, up to 15% for 13 to 24-inches in diameter, and 10% for 25 to 30-inches in diameter. This is for an unlimited number of passes with the hydraulic flusher.
 2. Heavy Drain Cleaning – is defined as the removal of obstructions (OB) and DS that exceed the percentage established for light cleaning. This also includes Deposits Attached Grease (DAGS) if they can be removed with a rotating nozzle or other mechanical means.
 3. Deposits Cut – is defined as the removal of Deposits Attached Encrustation (DAE) and DAGS that requires a cutter be employed for their removal. Work done under this item requires substantial effort towards cleaning, cutting, chipping, cutting, grinding, etc. to remove these hardened deposits.
- D. Project Site: Upon acceptance of the installation work and testing, the Contractor shall restore the project area affected by the operations to a condition at least equal to that existing prior to the work taking place.
- E. Obstructions, major:
1. The Contractor shall clear the drain of obstructions, solids, dropped joints, protruding service lines, collapsed pipe, or any other obstruction that might prevent proper insertion of the CIPP. If inspection reveals an obstruction that would prevent successful installation of the CIPP, the Contractor shall make a point repair excavation to uncover and remove or repair the obstruction. Such excavation shall be approved in writing by the Resident Engineer prior to the commencement of the work. The Contractor shall submit an excavation repair plan in accordance to all federal, state, and local regulations, in writing to the Resident Engineer for all excavation work seven (7) days prior.
- F. Delivery, Storage and Handling
1. Contractor shall protect, store, and handle materials during transportation and delivery, while stored on-site, and during installation following Manufacturer's recommendations.
 2. The CIPP shall be maintained at a proper temperature in facilities to prevent premature curing at all times prior to installation. Any CIPP showing evidence of premature curing shall be rejected for use and will be removed from the site immediately.
 3. If any part of the CIPP material becomes damaged before or during insertion, it shall be repaired or replaced at the Contractor's expense before the work may proceed.
- G. Hydrophilic End Seals:

1. The Contractor shall insert continuous hydrophilic end seals to the interior circumference of the existing drain pipes at the inlet and outlet of each manhole along the length of the CIPP liner being installed.

H. Finished Mainline CIPP:

1. The finished CIPP shall be continuous over the entire reach and shall be free of any of the defects described in this Section.
2. The layers of the finished CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or such that the knife blade moves freely between the layers.
3. All layers, after cure, shall form one homogeneous structural pipe wall with no obvious indication that a part of tube was left unsaturated by resin.
4. The CIPP shall fit tightly to the internal circumference of the existing pipe.
5. Wrinkles or fins are undesirable cosmetic defects that may affect the operation of the subject reach of pipe. Where they occur, the engineer will utilize the industry acceptance criteria provided by NASSCO regarding the size and orientation of these defects in order to discern if they can be deemed as commercially acceptable. If they are not deemed acceptable they must be brought into compliance with this standard.
6. Hardened "lifts" in the finished CIPP are unacceptable and must be repaired in accordance with the CIPP Manufacturer's recommendation for the type of CIPP System that was used.
7. All other defects found, cosmetic or otherwise, shall be dealt with following the industry accepted standard practice as given in the NASSCO CIPP Inspector Training Program.

I. Styrene and Temperature Control for the local environment:

1. The Contractor shall take precautions to minimize the release of styrene and mitigate styrene odors generated during the setup and CIPP lining process, and prevent such odors from entering structures, businesses, or other types of establishments, through service connections or other plumbing fixtures.
2. Styrene air emissions shall comply with Federal and District requirements.
3. If the pipe being relined is a stormwater pipe or culvert all conditions of the owners MS4 general permit must be met.

J. Finishing at Ends

1. Final trimming of the CIPP at any manhole/access point shall be done in such a manner as to provide a long-term mechanical connection between the CIPP and the host pipe

QUALITY ASSURANCE TESTING:

- A. The Contractor shall prepare three quality assurance samples for every 3,000 LF of CIPP installed. The samples shall be restrained samples for diameters of CIPP less than 18"; and flat plate samples for diameters of CIPP 18" and larger. UV cured CIPP flat plate samples must be hardened in a fixture on-site using the same light train under a similar exposure of light intensity and time to that which occurred underground. The

samples collected by the Contractor shall be labeled with the date of installation, manhole number, and street address where the sample was taken. All restrained samples, where practical, shall be taken from an intermediate manhole location.

- B. The Contractor shall maintain responsibility for the chain of custody for the samples.
- C. Testing of the quality assurance samples shall be performed by an independent, certified ISO 17025 testing facility. Each test shall be performed by a laboratory with an American Association for Laboratory Accreditation (A2LA) for the specific test to be performed. Testing shall be in accordance with applicable ASTM test methods as given below:
 - 1. Wall Thickness. The reported finished thickness of the CIPP's wall shall be found in accordance with the appropriate procedure given in the ASTM standard D3567. For restrained circular samples the technician will make a series of at least 8 readings at randomly selected locations that are approximately equally spaced around the circumference.
 - a. For reinforced (full composite) CIPP wall thickness measurements the lab shall employ an optical scale comparator with a 7 to 10X magnification; having a reticle with graduations as stated in paragraph 7.2 of D3567. After making the surface preparation of the cut edge, the reinforced wall thickness and neat resin inner and outer surface layers thicknesses shall be measured.
 - b. When the quality assurance samples are of the flat plate type the Contractor shall be required to obtain the wall thickness measurements of the installed CIPP using the ultrasonic pulse echo method described in paragraph 8.6.1 of the ASTM F1216 standard for both types of CIPP.
 - c. The reported reinforced CIPP wall thickness shall be the calculated average reinforced wall (or composite) thickness.
 - 2. Flexural Properties. The initial tangent modulus of elasticity and flexural strength shall be measured for gravity pipe applications in accordance with the ASTM D790 standard as amended in the appropriate CIPP installation standard and as further amended below. This testing shall be accomplished using test method 1 – procedure A on at least 3 specimens; but 5 specimens are preferred.
 - a. Reinforced (full composite) CIPP test specimens shall be cut in the hoop direction at a minimum width of 2.0 inches (axial direction of the in situ liner). Modifications to the D790 flexural testing shall follow the guidance found in Annex B of the ISO standard 11296-4. The nominal span to depth ratio used in their testing shall be 16 to 1 just as for the non-reinforced CIPP specimen. These modifications address how to derive the true unsupported span length and the radius of curvature of the test piece at its mid-thickness. The datum or zero point for strain measurement shall be established from the point of intersection of the slope of the initial linear portion of the stress- strain curve with the strain axis. Where the testing machine software does not automatically correct for zero errors, the testing lab must follow the procedure described in B.5.3 (of Annex B) for deriving the flexural modulus from uncorrected strain data to find the true strain datum. Reinforced CIPP flexural testing should be terminated when the

maximum strain in the outer-most fiber surface has reached 3.5% or at break if the break occurs prior to reaching this maximum strain.

- b. The flexural properties test report shall include a statement as to the orientation of each test piece (i.e. hoop or longitudinal); the mean composite thickness and the maximum percentage deviation from the mean within the middle third of the test piece; and in the case of curved hoop test pieces: the mean total thickness; the true span length; and the determination of the mean radius. The flexural properties test report shall also include a copy of the stress-strain curve to a scale sufficient to evaluate the nature of the specimens' performance in bending.
- D. The finished CIPP should be watertight throughout its full length. When this is not found to be the case, the allowable water infiltration (or exfiltration) between its termination points shall not exceed 50 gallons per inch of internal pipe diameter per mile per day. Any obvious visual leaks through the CIPP wall shall be repaired by the Contractor using a methodology recommended by the CIPP System manufacturer.
- E. The Contractor shall perform a post-installation video inspection confirming that the CIPP has been properly installed and cured in accordance with this Specification.

ACCEPTANCE:

- A. Acceptance of the CIPP installed on this project shall be based on compliance with this Section as demonstrated with submitted quality control reports, curing logs, post-installation inspection, and laboratory QA test results.
- B. Acceptance of the CIPP shall also be based on a post-installation visual inspection by actual man-entry methods. Inspection results showing defects that exceed the stated accepted tolerance levels as defined in the following table shall be remedied by the Contractor. Should any of the defects be found to occur before the end of the Warranty Period, the Contractor shall be required to repair those defects. The repair method chosen by the Contractor may be the Acceptable Remedy listed in the Table 1 below. The Contractor may also submit an alternative remedy for approval by the Authority and, if the Authority approves the alternative remedy, the Contractor shall install the approved remedy. Defects shall be remedied at no additional cost to the Authority.

Table 1 - Defects

Defect	Accepted Tolerance levels	Acceptable Remedy
Visible leaking through CIPP wall	None	<ul style="list-style-type: none"> • Install internal CIPP spot repair, or • Remove and reinstall CIPP throughout entire reach.
Thickness	All measured thickness values must be $\geq 87.5\%$ of the submitted design wall thickness value	<ul style="list-style-type: none"> • Install internal CIPP spot repair flush to adjacent CIPP.
Blistering / Dimples / Lifts / Foreign Inclusions/Dry Spots	Per NASSCO CIPP Inspector Training Program	<ul style="list-style-type: none"> • Install internal CIPP spot repair flush to adjacent CIPP.
Wrinkles and Fins	Per NASSCO CIPP Inspector Training Program	<ul style="list-style-type: none"> • May be left alone if less than 3% of the pipe I.D. or 0.5 inches; whichever amount is less • Mill down to the industry acceptable height
Cracks	None	<ul style="list-style-type: none"> • For longitudinal crack, install internal CIPP spot repair flush to adjacent CIPP.
Delamination	None	<ul style="list-style-type: none"> • Install 2nd full thickness CIPP.
Flexural Properties and/or the wall Thickness are less than those used in the design calculations	Installed Factor of Safety must be greater than or equal to 2.0	<ul style="list-style-type: none"> • Use the quality assurance sample's test values to recalculate the actual factor of safety for the CIPP as installed. If the actual factor of safety falls below 1.25; install a 2nd full thickness CIPP.

509.4 Method of Measurement

A. CIPP Rehabilitation:

1. Measurement for installation of Cured-in-Place Pipe shall be measured as one lump sum unit at each pipe location and shall include all cleaning, repair and all preparation needed to install the of Cured-in-Place Pipe lining.

509.5 Basis of Payment

A. CIPP Rehabilitation:

1. Payment for installation of Cured-in-Place Pipe shall be paid on a lump sum basis in accordance with the Unit Prices contained in the Schedule of Bid Prices.
2. Payment shall include the installation of a pre-liner, the CIPP lining, infiltration control, spill prevention plan, fuel, potable water, hydrophilic end seals, styrene

odor mitigation, labor, equipment, material, installation, safety, dust/erosion control, Field Quality Control and quality assurance sample testing, site restoration, and all other associated work specified and/or required to provide a completed installation.

- 3. Any item not specified elsewhere shall be considered incidental to this work item. Contractor shall include all incidental costs in the Unit Price.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
509.203	Culvert Lining – 36” Diameter Culvert Pipe	Lump Sum
509.204	Culvert Lining – 42” Diameter Culvert Pipe	Lump Sum

SPECIAL PROVISION

SECTION 511

COFFERDAMS

511.1 Description

This section is amended by the addition of the following:

This work shall consist of the complete design, construction, maintenance and removal of cofferdams and other related work, including dewatering/bypass pumping/flow control and inspection, required to allow for the culvert lining at the two project sites.

511.5 Method of Measurement

Cofferdams will be measured as one lump sum unit, as indicated on the Plans or called for in the Contract.

511.6 Basis of Payment

The accepted quantity of cofferdam will be paid for at the Contract lump sum price for the respective cofferdam items, which price shall be full compensation for design, construction, maintenance, inspection and removal for the cofferdams required at both ends of the culvert pipe.

All costs for sedimentation control practices, including, but not limited to, constructing, maintaining, and removing sedimentation control structures, and pumping or transporting water and other materials for sedimentation control will not be paid for directly, but will be considered incidental to the cofferdam Pay Item(s).

All costs for related temporary soil erosion and water pollution controls, including inspection and maintenance, will be considered incidental to the cofferdam Pay Item(s).

All costs associated with preparation of Working Drawings, design calculations, written procedure for sediment shall be considered incidental to the cofferdam Pay Item(s).

All costs for cofferdams and related temporary soil erosion and water pollution controls, including inspection and maintenance, will be considered incidental to related Pay Items, when a specific Pay Item for cofferdams is not included in the Contract.

Payment will be made under:

<u>Pay Item</u>		<u>Pay Unit</u>
511.071	Cofferdam: Culvert Lining	Lump Sum

SPECIAL PROVISION

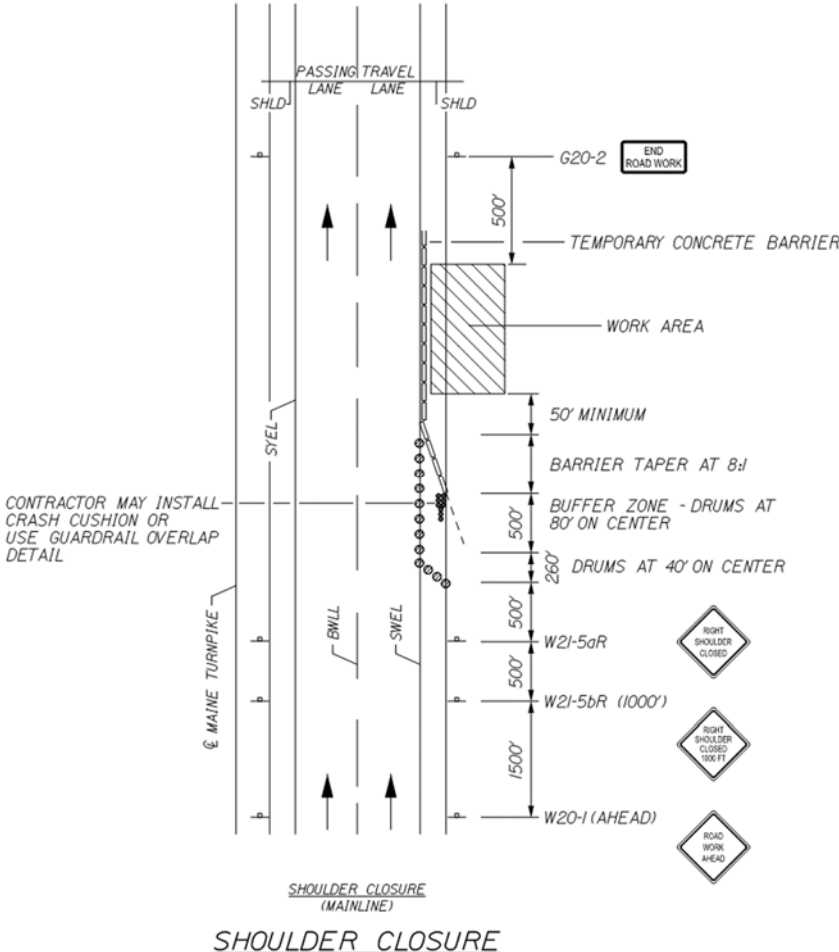
SECTION 652

MAINTENANCE OF TRAFFIC

(Specific Project Maintenance of Traffic Requirements)

This Specification describes the specific project maintenance of traffic requirements for this Project.

The Authority will provide all required Maintenance of Traffic at no cost to the Contractor including signs, drums, temporary concrete barrier and crash cushions. The Authority will also remove and reset any guardrail as required to access the project sites. At each location, the Maintenance of Traffic will generally consist of a shoulder closure to provide access to the project sites shall generally be in accordance with the Shoulder Closure detail below. Note that vehicles and equipment will not be permitted to enter or exit the shoulder closure between 7:00-9:00 a.m. or 4:00-6:00 p.m.



APPENDIX A

Project Locus Map and Plans



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Project Location

Goosefare Brook and Unnamed Tributary Culvert Rehabilitation Sites

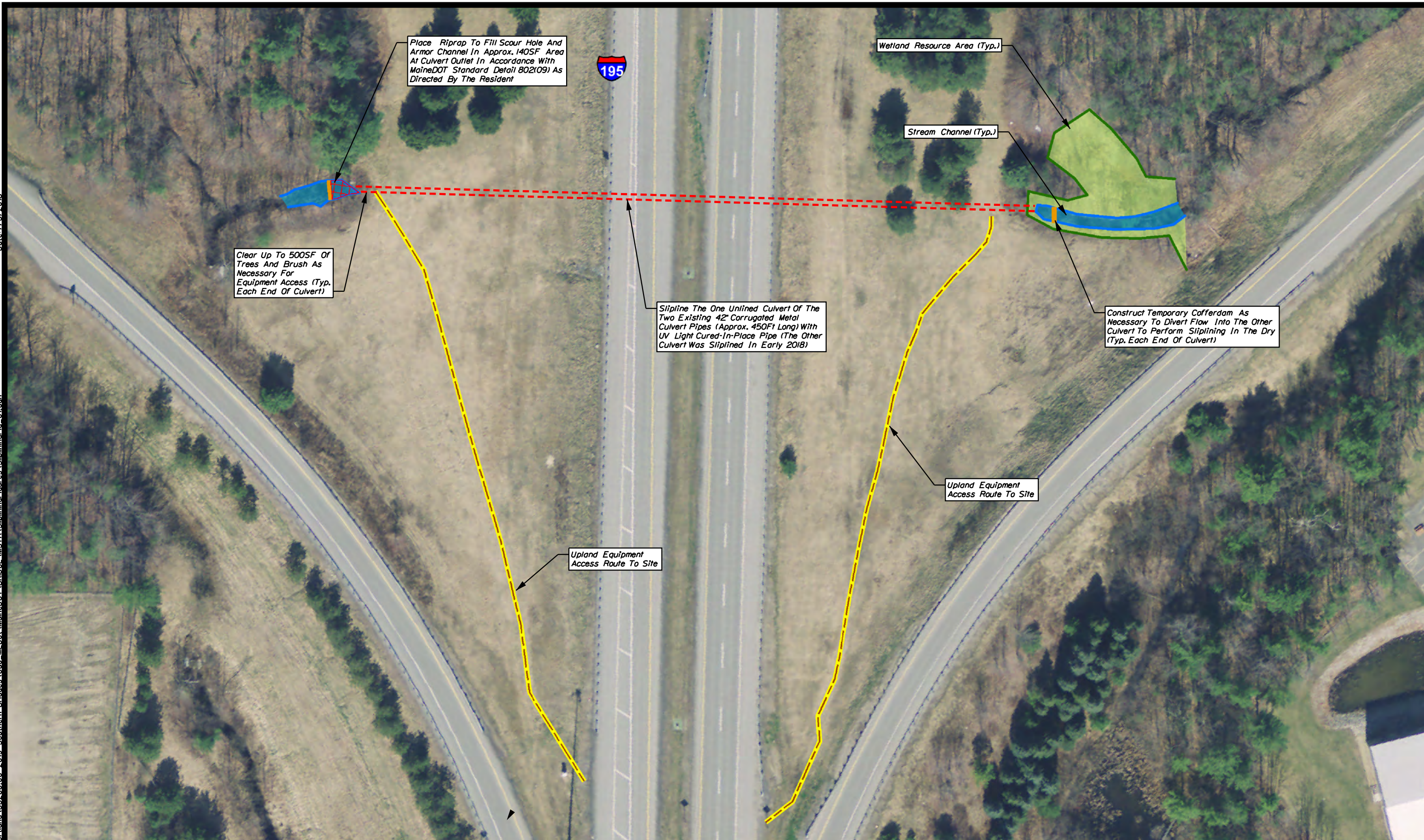
Saco, Maine

Locus Map

Source: VHB, ArcGIS Online

Date: 7/3/2018

Filename: \\vnh\vol\ar\SP\Portland\55200.00_2019_Southern_Bridges\Cad_MEDot\MaineDOT\BRIDGE\WSTA\Siplining\Courses\Siplining\Ca_01.dwg



Place Riprap To Fill Scour Hole And Armor Channel In Approx. 140SF Area At Culvert Outlet In Accordance With MaineDOT Standard Detail 8021091 As Directed By The Resident

Clear Up To 500SF Of Trees And Brush As Necessary For Equipment Access (Typ. Each End Of Culvert)

Slipline The One Unlined Culvert Of The Two Existing 42" Corrugated Metal Culvert Pipes (Approx. 450Ft Long) With UV Light Cured-In-Place Pipe (The Other Culvert Was Sliplined In Early 2018)

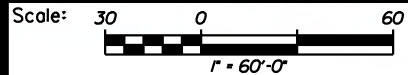
Construct Temporary Cofferdam As Necessary To Divert Flow Into The Other Culvert To Perform Sliplining In The Dry (Typ. Each End Of Culvert)

Wetland Resource Area (Typ.)

Stream Channel (Typ.)

Upland Equipment Access Route To Site

Upland Equipment Access Route To Site



Designed by:



VANASSE HANGEN BRUSTLIN, INC.
 500 Southborough Dr.
 Suite 105B
 South Portland, ME 04106
 TEL (207) 889-3150
 FAX (207) 253-5596



THE GOLD STAR
 MEMORIAL HIGHWAY

I-195 CULVERT LININGS
 GOOSEFARE BROOK
 GENERAL PLAN

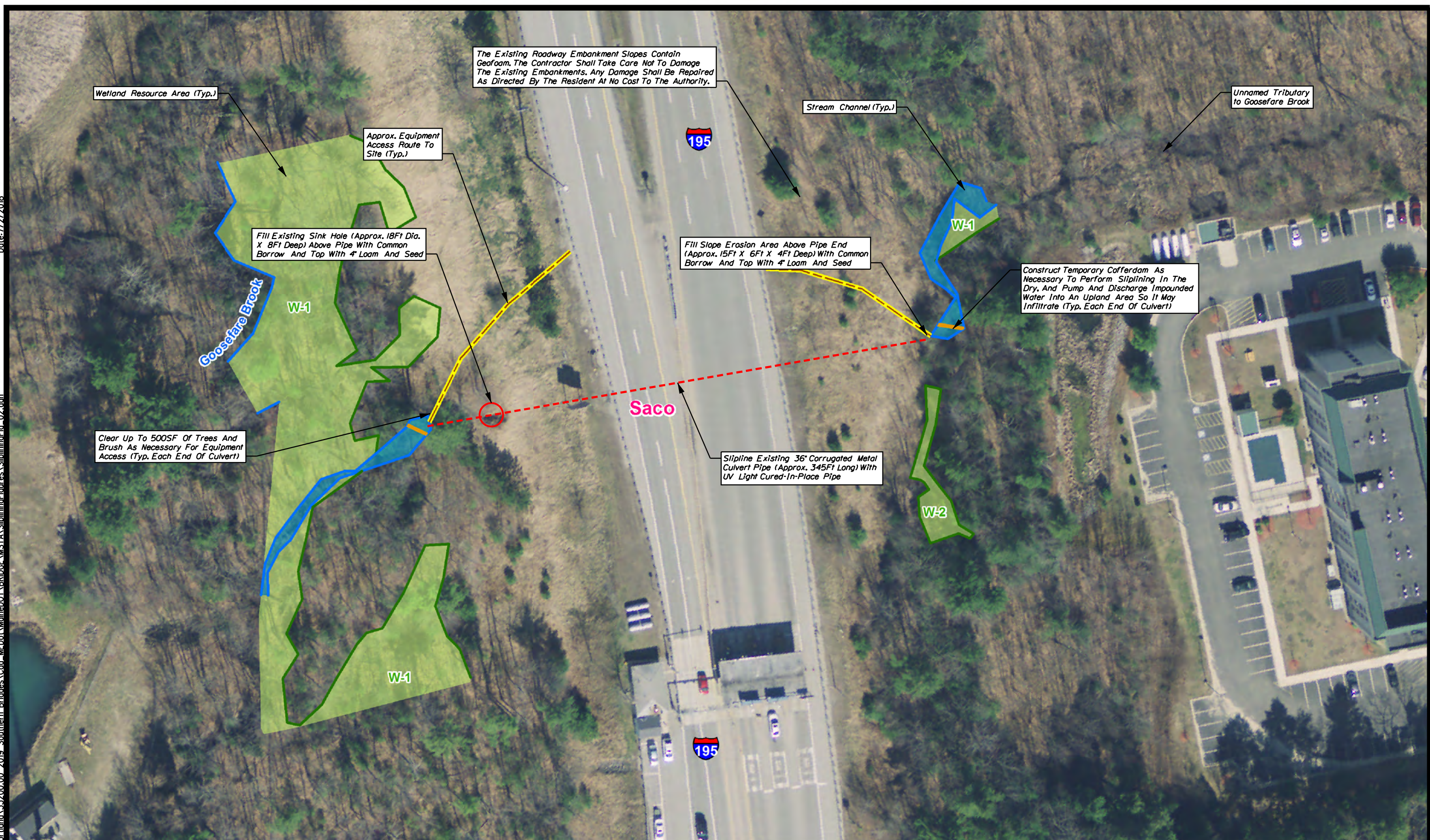
No.	Revision	By	Date

CONSULTANT PROJECT MANAGER: T. Bryant			
	By	Date	
Designed	TSB	07-02-18	Checked GME 07-02-18
Drawn	JAR	07-02-18	In Charge of TSB 07-02-18

VHB: 55200.00
 CONTRACT: 2018.21

SHEET NUMBER: 1

File name: \\vnh\proj\portland\55200.00_2019_Southern_Bridges\Cad_MEDot\MaineDOT\BRIDGE\WSTA\Siplining\Courses\SipliningCa_02.dwg Date: 7/2/2018



Scale: 30 0 60
1" = 60'-0"

No.	Revision	By	Date

Designed by:

CONSULTANT PROJECT MANAGER: T. Bryant

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GENERAL PLAN

VHB: 55200.00
 CONTRACT: 2018.21
 SHEET NUMBER: 2
 2 OF 2