



Department of Conservation and Recreation

PART I

INSTRUCTIONS TO BIDDERS

CONTRACTS FOR PUBLIC WORKS PROJECTS
AND
FOR BUILDING PROJECTS ESTIMATED TO
COST MORE THAN \$25,000 BUT NOT MORE THAN \$100,000
SUBJECT TO THE PROVISIONS OF M.G.L. CH. 30 SEC. 39M

**NOTICE TO CONTRACTORS – M.G.L. C. 30, sec. 39M CONSTRUCTION
ADVERTISEMENT OF INVITATION FOR BIDS
COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION AND RECREATION
10 PARK PLAZA, SUITE 6620, BOSTON, MA 02116
PHONE: 617-626-1250
www.mass.gov/dcr**

Contract No. P26-3666-C2A
Title: Western MA Mountain Road Culvert Improvements
Location: Mount Greylock State Reservation & Pittsfield State Forest
Berkshire County.

GENERAL BID proposals shall be submitted on a form furnished by the Department and will be received until **12:00 PM on Thursday, April 30, 2026** through DCR's E-bid room at www.bidexpress.com/businesses/36765/home.

Individual sets of contract documents will only be available on DCR's E-bid room at www.bidexpress.com/businesses/36765/home.

If any addenda are issued throughout the open period for this project, DCR will distribute these addenda via Bid Express, which will also email identified prospective at the time plans and specifications are issued.

A pre-bidding conference for prospective bidders will be held **Tuesday April 14, 2025, at 1:00 PM** in person at the Ski Lodge within Pittsfield State Forest, 1041 Cascade Street, Pittsfield, MA 01201.

<https://maps.app.goo.gl/m12ZrjTwGR169aq56>

The project consists of the replacement of two existing culverts within Mount Greylock State Reservation and two within Pittsfield State Forest (four culvert replacements total) to improve drainage capacity and structural integrity. The upgrades will enhance resilience to increased stormwater flows from future rainfall events, reduce erosion and flooding risks, and alleviate existing safety hazards affecting access to both mountain road systems. The designs for both locations incorporate climate-resilient principles to ensure long-term durability and environmental stability within these critical areas.

The estimated project cost is **\$ 4,700,000.00**

The work is to be accomplished within 730 calendar days of notice to proceed. Liquidated damages in the amount of \$100.00 per day will be assessed if the work is not completed in accordance with the provisions of the contract within the time specified (as extended by any authorized extension of time granted in accordance with the contract provisions).

Bidders must be prequalified by the Massachusetts Dept. of Transportation (MassDOT) Highway Division in **BRIDGE - CULVERT** to bid on the above project. An award will not be made to a Contractor who is not pre-qualified by MassDOT prior to the opening of Proposals.

The Proposed contract includes a requirement of 6% for MBE (Minority Business Enterprise) 10% for WBE (Women Business Enterprise) and 3% VOBE requirement (Veteran-Owned Business Enterprise).

The applicable local minority workforce utilization percentage is a minimum goal of 15.3%. The applicable local women workforce utilization percentage is a minimum goal of 6.9%.

Each bid must be accompanied by a bid deposit, in the form of a bid bond, cash, certified check, or a treasurer's or cashier's check issued by a responsible bank or trust company, payable to the Department of Conservation and Recreation in the amount of 5% of the bid.

Each bid must be submitted through DCR's E-Bid room at www.bidexpress.com/businesses/36765/home. Please ensure that your bid is complete and marked as responsive when submitting through DCR's Bid room. Any bids found to be incomplete and/or marked unresponsive will be rejected by DCR and will not be considered when awarding the project.

Bids are subject to the provisions of M.G.L. Ch. 30, Sect. 39F, G, H and M inclusive. Wages are subject to minimum wage rates as per M.G.L. Ch. 149, sections 26 to 27D inclusive. The Department reserves the right to waive any informalities in or to reject any and all bids if it be in the public interest to do so.

Nicole LaChapelle, Commissioner
Massachusetts Department of Conservation and Recreation



**COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION AND RECREATION**

**PART I
INSTRUCTIONS TO BIDDERS**

CONTRACTS FOR PUBLIC WORKS PROJECTS
SUBJECT TO THE PROVISIONS OF M.G.L. C. 30. SEC. 39M

Awarding Authority:

Department of Conservation and Recreation
10 Park Plaza, Suite 6620,
Boston, MA 02116
Telephone: 617-626-1250

DCR Contract No.: P26-3666-C2A

Title: Western MA Mountain Road Culvert Improvements

Project Scope: The project consists of the replacement of two existing culverts within Mount Greylock State Reservation and two within Pittsfield State Forest (four culvert replacements total) to improve drainage capacity and structural integrity. The upgrades will enhance resilience to increased stormwater flows from future rainfall events, reduce erosion and flooding risks, and alleviate existing safety hazards affecting access to both mountain road systems. The designs for both locations incorporate climate-resilient principles to ensure long-term durability and environmental stability within these critical areas.

Deadline for filing general bids is 12:00 P.M. on April 30, 2025.

The minimum wage rate and truck rate requirements for this Contract are located www.bidexpress.com/businesses/36765/home.

Bid forms for this Contract are located @ www.bidexpress.com/businesses/36765/home.

The Minority, Women & Veterans Business Enterprise participation for this Contract are to be found in the Notice to Contractors section (Part I - Page 2/3).

The time for completion of the Work is specified in Article 2 of the Department of Conservation and Recreation - Contractor Agreement. Liquidated damages for failure to complete on time are as stated in Article 8 of the Department of Conservation and Recreation - Contractor Agreement.

As used herein, capitalized terms shall have the meaning assigned to them in the General Conditions of the Contract and the Department of Conservation and Recreation - Contractor Agreement unless the context clearly indicates otherwise.

SECTION 1 - BIDDER'S REPRESENTATION

1.1 Each bidder (hereinafter sometimes referred to as "Bidder") by making a bid (hereinafter sometimes referred to as "Bid") represents and warrants that Bidder has visited and examined the Site and the Contract Documents; that Bidder is familiar with the local conditions under which the Work is to be performed; that Bidder has correlated personal observations with the requirements of the Contract Documents; and that where the Contract Documents require, in any part of the Work, a given result to be produced, the Contract Documents are adequate and that Bidder will produce the required result within the Bid price and that the Bid is made in accordance therewith.

1.2 FAILURE TO EXAMINE THE CONTRACT DOCUMENTS AND THE SITE WILL NOT RELIEVE ANY BIDDER FROM ANY OBLIGATION UNDER THE BID AS SUBMITTED. NEITHER THE COMMONWEALTH NOR THE DESIGNER WILL BE RESPONSIBLE FOR ERRORS, OMISSIONS AND/OR CHARGES FOR EXTRA WORK ARISING FROM BIDDER'S FAILURE TO FAMILIARIZE ITSELF WITH THE CONTRACT DOCUMENTS OR EXISTING CONDITIONS.

1.3 Pre-Bidding Conference

- A. If applicable, a pre-bidding conference for prospective bidders will be held at the date, time and location as specified in the Notice to Contractors section (Part I – page 2/3).
- B. At the conference, the project will be discussed in general. It is desirable that all prospective bidders attend. The Contract, Specifications, Drawings, and any other aspects of this project will be explained in response to questions by those attending. For interpretations of questions requiring legal, administrative, or engineering decision, prospective bidders shall comply with Section 3 herein.

SECTION 2 - GENERAL BIDDERS - QUALIFICATION

2.1 Every Bidder must submit the following documents, as required:

Special certification may be required as required by the Department on a contract-specific basis.

Refer to the Notice to Contractors for the specific qualification requirements of this contract.

SECTION 3 - REQUESTS FOR INTERPRETATION

3.1 Interpretation

A. The Plans and Specifications and other Contract Documents are to be considered together and are intended to be mutually complementary, so that any work shown on the Plans though not specified in the Specifications, and any work specified in the Specifications though not shown on the Plans, is to be executed by the Contractor as a part of this Contract.

B. All things that in the opinion of the Awarding Authority may be reasonably inferred from the Plans, Specifications and other Contract Documents are to be executed by the Contractor. The Awarding Authority shall determine whether the detail Plans conform to the general Plans and Contract Documents.

C. The tables of contents, titles, headings and marginal notes or sub-scripts contained herein are solely to facilitate references, are not intended to be construed as provisions of the Contract, and in no way affect the interpretation of the provisions to which they refer.

D. Where reference is made in the Contract Documents to publications, standards, or codes issued by associations or societies, such reference shall be interpreted to mean the current edition of such publications, standards, or codes, including revisions in effect on the date of the Advertisement, notwithstanding any reference to a particular date. The foregoing sentence shall not apply to the dates, if any, specified with respect to insurance policy endorsement forms.

E. In case of any conflict among the Contract Documents, unless the context clearly otherwise requires, the Contract Documents shall be construed according to the following priorities:

- First Priority: Contract Modifications
- Second Priority: Department of Conservation and Recreation - Contractor Agreement
- Third Priority: General Conditions of the Contract
- Fourth Priority: Drawings - Schedules take precedence over enlarged detail Drawings and enlarged Detail Drawings take precedence over reduced scale Drawings; figured dimensions shall prevail over scale.
- Fifth Priority: Specifications

3.2 Any questions by prospective Bidders concerning interpretation of the Contract Documents must be submitted in writing to the Awarding Authority and should be in its possession at least five working days before the date set for the receipt of Bids. The Awarding Authority will post to Bid Express any addenda or written interpretations that it deems necessary to Bidders who have taken out plans at the address given by them

before the date set for the receipt of affected Bids. Bidders may not rely upon oral communications or interpretations from the Awarding Authority or the Designer, and the Awarding Authority shall not be bound by them.

Written Questions shall be submitted to:

Attn: Cathy Lampiasi
Department of Conservation and Recreation
617-356-4978

Email: Catherine.A.Lampiasi@mass.gov

3.3 It is the sole responsibility of the Bidder to ascertain the existence of any addenda issued by the Awarding Authority, all addendums are posted on Bid Express- www.bidexpress.com/businesses/36765/home. Copies of addenda will be made available for inspection at the locations listed in the Advertisement where the Contract Documents are on file.

3.4 Wherever in the Contract Documents reference is made to Massachusetts General Laws, it shall be construed to include all amendments thereto effective as of the date of the issuance of the invitation to bid on the proposed work.

SECTION 4 - PREPARATION OF BIDS; ALTERNATES

4.1 Bids shall be submitted through the DCR E-Bid room at www.bidexpress.com/businesses/36765/home?agency=true.

4.2 All Bids submitted thru Bid Express must be deemed responsive by Bid Express to be considered

4.3 Where so indicated on the Bid Form, sums shall be expressed in both words and numerals. Where there is a discrepancy between the Bid sum expressed in words and the Bid sum expressed in figures, the Bid sum expressed in words shall control unless the intention of the Bidder clearly is otherwise as determined by the Awarding Authority in its sole discretion.

4.4 Each Bidder shall acknowledge all required alternates in Section C on the Bid Express by entering the dollar amount of addition or subtraction necessitated by the alternate(s).

4.5 If an alternate includes work within the Bidder's scope of work and does not involve a change in the cost of the Bid, the Bidder shall so indicate by writing "No Change" or "N/C" or "0" in the space provided for that alternate.

4.6 The lowest Bidder will be determined based on the sum of the base Bid and the accepted alternates.

4.7 Each bid must be accompanied by a bid deposit, payable to the Department of Conservation and Recreation in the amount of 5% of the bid. Bid Bonds must be

submitted electronically, please ensure your company and your bonding agent's company register with one of the Bid Bond agencies affiliated with Bid Express: If you need additional assistance, please call the Bid Express Customer Support Team at [888-352-2439](tel:888-352-2439), available Monday - Friday from 7:00am – 8:00pm (EST). You can also email the team at support@bidexpress.com

4.8 The amount of such bid deposit shall be **5% five per cent** of the value of the Bid.

SECTION 5 - SUBMISSION OF BIDS

5.1 Each bid, **including the bid deposit**, shall be submitted via DCR's Bid room at www.bidexpress.com/businesses/36765/home?agency=true

5.2 All Bids must be received by the Awarding Authority no later than the applicable date and time specified on page 1 of these Instructions to Bidders. Any Bid not received by the applicable deadline will not be accepted.

SECTION 6 - WITHDRAWAL OF BIDS; REJECTION OF BIDS

6.1 Any Bid may be withdrawn prior to the specified deadline for the receipt of Bids provided that the withdrawal shall be made by a written request signed by a person having the authority to bind the Bidder. The written request must be hand delivered or otherwise delivered to Robert Boncore, Director of Contracts and Procurement, at 10 Park Plaza, Suite 6620, Boston, MA 02116 or through email at Robert.Boncore@Mass.Gov, and must be received on or before the date and time appointed as the deadline for the receipt of Bids.

6.2 A Bidder may withdraw its Bid without penalty at any time up to the time of Award as defined below in subsection 9.1 only upon demonstrating to the satisfaction of the Awarding Authority that a death or disability has occurred, or a bona fide clerical error or mechanical error of a substantial nature was made during the preparation of the bid. Failure to demonstrate conclusively that a bona fide clerical error or mechanical error of a substantial nature was made may result in forfeiture of the Bid deposit

6.3 The Awarding Authority reserves the right to waive any informality in or to reject any and all Bids if it is in the public interest to do so. Without limiting the foregoing, the Awarding Authority reserves the right to reject unit prices which it deems unduly high or unduly low as unbalanced.

SECTION 7 – INSURANCE

7.1 Insurance Generally

A. The Contractor shall take out and maintain the insurance coverages listed in this Section with respect to the operations as well as the completed operations of this Contract. The insurance requirements stipulated shall cover all damage to property, whether above or below ground, and shall apply to all the Work to be performed under this Contract. This insurance shall be provided at the Contractor's expense and shall be in full force and effect for the full term of the Contract or for such longer period as this Article requires.

B. All policies shall be written on an occurrence basis and be issued by companies authorized to write that type of insurance under the laws of the Commonwealth and rated in Best's Insurance Guide (or any successor thereto or replacement thereof) as having a general policy holder rating of "A" or better and a financial rating of at least "9" or otherwise acceptable to the DCR.

C. The Contractor shall submit two originals of each certificate of insurance, acceptable to the DCR, simultaneously with the execution of this Contract. Certificates shall include:

DCR Contract Number /Project Name & *DCR is an additional insured as to all policies of insurance, with the exception of workmen's compensation. In addition, none of the above-referenced insurance coverages shall be cancelled, terminated, or materially modified in any way unless and until 10 (Ten) days advance written notice is given to the DCR. Contractor has paid all premiums.

The Contractor shall submit updated certificates prior to the expiration of any of the policies referenced in the certificates so that the DCR shall at all times possess certificates indicating current coverage. Certificates shall indicate the contractual liability coverage, and the Contractor's Protective Liability coverage is in force. Certificates shall include specific acknowledgment that the coverages set forth in this Section 7 are included in the policies.

7.2 Types and Amounts of Insurance

Contractor's Commercial General Liability

Bodily Injury &	<u>500,000.00</u> each occurrence
Property Damage	<u>1,000,000.00</u> general aggregate, per project

This policy shall include coverage relating to explosion, collapse, and underground property damage if blasting operations constitute part of the Work to be performed under this Contract.

If the Contract work includes work to be performed within fifty feet of a railroad, any exclusion for liability assumed under contract for work within fifty feet of a railroad shall be deleted.

Vehicle Liability

The Contractor shall provide the following minimum coverage with respect to the operations of any employee, including coverage for owned, non-owned, and hired vehicles:

Combined Single Limit: 1,000,000.00

Worker's Compensation

The Contractor shall provide the following coverage in accordance with M.G.L. c. 149, sec. 34A and M.G.L. c. 152 as amended, unless a higher coverage is specified below:

Part One	Provide Statutory Minimum
Employer's Liability	\$500,000.00 each accident
Part Two	\$500,000.00 disease per employee
	\$500,000.00 disease policy aggregate

SECTION 8 – MBE, WBE AND VOB PARTICIPATION

8.1 The apparent low Bidder's compliance with the requirements of this Section 8 is a prerequisite for receiving the Award of the Contract. The MBE, WBE and VOB participation for this Contract are as set forth on the first page of these Instructions to Bidders

8.2. The Awarding Authority reserves the right to reduce or waive the MBE or WBE participation established for this Contract upon written request made by a Bidder. Requests to reduce or waive the MBE,WBE & VOB participation for this Contract should be received by the Awarding Authority no later than Ten (10) working days before the date set for the receipt of general Bids. **THE AWARDING AUTHORITY RESERVES THE RIGHT TO REJECT ANY REQUEST TO REDUCE OR WAIVE THE MBE,WBE & VOB REQUIREMENTS FOR THIS CONTRACT THAT IS RECEIVED AFTER THESE DEADLINES.** Such written request must demonstrate to the satisfaction of the Awarding Authority that it is not feasible for a non-MBE or non-WBE general Bidder to meet the percentage established for this Contract based upon any or all of the following: (i) actual MBE,WBE & VOB availability, (ii) the geographic location of the project to the extent related to MBE,WBE & VOB availability, (iii) the scope of the work, (iv) the percentage of work available for subcontracting to MBE,WBE & VOBs and/or (v) other relevant factors, including a **documented** inability by the prospective Bidder to obtain commitments from MBE,WBE & VOB subcontractors sufficient to meet the MBE,WBE & VOB requirements after having made a diligent, good faith effort to do so. All the foregoing documentation shall

accompany the Bidder's request for a reduction or waiver of the MBE,WBE & VOB participation requirements. Such documentation shall include, at a minimum, the following:

- A list of all items of work under the Contract that the Bidder made available for subcontracting to MBE,WBE & VOBs. The Bidder shall identify all items of work that the Bidder did not make so available and shall state the reasons for not making such work available for subcontracting to MBE,WBE & VOBs. The Bidder shall also demonstrate that, where commercially reasonable, subcontracts were divided into units capable of being performed by MBE,WBE & VOBs.
- Evidence that the Bidder sent written notices soliciting Bids or proposals to perform the items of work made available by the Bidder for subcontracting to all MBE,WBE & VOBs qualified to perform such work. The Bidder shall identify (i) each solicited, and (ii) each MBE,WBE & VOB listed in the Massachusetts Supplier Diversity Office ("SDO" formerly "SOMWBA") directory under the applicable trade category that was not solicited and reasons, therefore. The Bidder shall also state the dates that notices were mailed and provide a copy of the written notice(s) sent.
- Evidence that the Bidder made reasonable efforts to follow up the written notices sent to MBE,WBE & VOBs with telephone calls or personal visits to determine with certainty whether the MBE,WBE & VOBs were interested in performing the work. Phone logs or other documentation must be submitted.
- A statement of the response received from each solicited, including the reason for rejecting any MBE,WBE & VOB who submitted a bid or proposal.
- Evidence of efforts made to assist MBE,WBE & VOBs that needed assistance in obtaining bonding or insurance, or lines of credit with suppliers if the inability of MBE,WBE & VOBs to obtain bonding, insurance, or lines of credit is the reason given for the Bidder's inability to meet the requirements.

The Bidder may also submit any other information supporting its request for a waiver or reduction in the MBE,WBE & VOB participation, including without limitation evidence that the Bidder placed advertisements in appropriate media and trade association publications announcing the Bidder's interest in obtaining bids or proposals from MBE,WBE & VOBs, and/or sent written notification to MBE,WBE & VOB economic development assistance agencies, trade groups and other organizations notifying them of the Contract and the work to be subcontracted by the Bidder to MBE,WBE & VOBs. The Bidder shall also submit any other information requested by the Awarding Authority to show that the Bidder has taken all actions that could be expected to achieve the MBE,WBE & VOB participation.

8.3 Any reduction or waiver of the MBE,WBE & VOB participation for this Contract will be made by written addendum via Bid Express to all persons who have taken out plans for the project.

8.4 No later than five (5) working days after the opening of Bids, the apparent low Bidder shall submit the following documents to the Awarding Authority's Contract Officer listed in subsection 5.1: (i) a completed Schedule for Participation by Minority/Women Business Enterprises ("Schedule for Participation") in the form provided by the Awarding Authority showing participation in amounts equal to or exceeding the MBE,WBE & VOB requirements for this Contract, (ii) a completed Letter of Intent in the form provided by the Awarding Authority for each MBE,WBE & VOB listed in the Schedule for Participation, and (iii) a current SDO certification letter for each MBE,WBE & VOB listed in the Schedule of MBE,WBE & VOB Participation showing that the MBE,WBE & VOB is certified in the area of work for which it is listed on the Letter of Intent.

8.5 Each Letter of Intent shall identify and describe the work to be performed by the named (the "MBE,WBE & VOB Work") with enough specificity to permit the Awarding Authority to identify the items of contract work that the MBE,WBE & VOB will perform for participation credit. The Awarding Authority reserves the right to reject any Letter of Intent if the price to be paid for the MBE,WBE & VOB Work does not bear a reasonable relationship to the value of such work under the Contract as determined by the Awarding Authority.

8.6 Within five (5) working days after receipt of the Schedule For MBE,WBE & VOB Participation, Letters of Intent, and SDO certification letters, the Awarding Authority shall review and either approve or disapprove the apparent low Bidder's submissions. If the apparent low Bidder has not submitted an appropriate Schedule For MBE,WBE & VOB and appropriate Letters of Intent and SDO certification letters establishing that the MBE,WBE & VOB participation for the project will be met, the apparent low Bidder may be considered ineligible for Award of the Contract and the Awarding Authority will Award the Contract to the second lowest Bidder, subject to said Bidder's compliance with these conditions.

8.7 The Contractor is required to submit to the Awarding Authority signed subcontracts with all subcontractors prior to the commencement of work to be performed under these contracts, and/or a purchase order or invoice from each material supplier and/or manufacturer listed on the Schedule For MBE,WBE & VOB Participation of the issuance of the Notice to Proceed by the Awarding Authority.

SECTION 9 - CONTRACT AWARD

9.1 "Award" means the determination, selection, and notification of the lowest, responsible, and eligible Bidder by the Awarding Authority.

9.2 The Contract will be awarded to the lowest responsible and eligible Bidder as determined by the Awarding Authority. Bidders will be required to hold firm their respective bids for thirty (30) days, Saturdays, Sundays, and legal holidays excluded, after the opening of the Bids.

9.3 As used herein, the term "lowest responsible and eligible Bidder" shall mean the Bidder whose Bid is the lowest of those Bidders who, in the Awarding Authority's opinion, are ready, willing and able to comply with all requirements of the Contract Documents and demonstrably possess the skill, ability, and integrity necessary for the faithful performance of the Work, based on the determination of past performance and financial soundness under M.G.L. c. 30, sec. 39M, (ii) the rules, regulations, orders, guidelines and policies promulgated from time to time by the Commissioner of the Department of Conservation and Recreation and (iii) any other relevant criteria that the Awarding Authority may prescribe.

9.4 The Bid price shall be the price set forth in paragraph C of the Bid Form.

9.5 Should the Contract Documents require submission of special data to accompany the Bid, the Awarding Authority reserves the right to rule the Bidder's failure to submit such data an informality and to receive said data subsequently within a reasonable time as set by the Awarding Authority, provided that no such ruling shall result in an unfair advantage to the Bidder.

9.6 Should the Contract Documents require submission of special data to accompany the Bid, the Awarding Authority reserves the right to rule the Bidder's failure to submit such data an informality and to receive said data subsequently within a reasonable time as set by the Awarding Authority, provided that no such ruling shall result in an unfair advantage to the Bidder. **In addition**, the Department reserves the right to waive minor defects in documents or time limits

SECTION 10 - EXECUTION OF CONTRACTS

10.1 Upon receipt of the Award, the Bidder awarded the Contract shall submit two (2) properly executed originals of each of the following documents prior to execution of the Contract by the Awarding Authority. All such documents shall be in the form prescribed by the Awarding Authority and received within five working days from receipt of the Award.

- Department of Conservation and Recreation-Contractor Agreement
- Certificate of Corporate Vote
- Joint Venture Authorization (if appropriate)
- Performance and Payment Bonds with power of attorney
- Certificates of Insurance evidencing coverages in amounts required by the Contract Documents.
- Any other documents that the Awarding Authority may require in connection with the Contractor's execution of the Contract.

10.2 Please note that no part of the Contractor's work may be subcontracted

without the prior written approval of the Awarding Authority. The Contractor must complete a minimum of 51% of the scope of this contract by his own work force. If the Contractor desires to subcontract any part of the Work, the Contractor must promptly forward to the Awarding Authority a list in duplicate designating the work to be performed and the name of each proposed subcontractor. Approved subcontractors are eligible for direct payments under M.G.L. 30, sec. 39F, as amended. Material suppliers not involving site labor need not be submitted for approval.

SECTION 11 - RETURN OF BID DEPOSITS

11.1 All Bid deposits of Bidders, except those of the three (3) lowest responsible and eligible general Bidders, shall be returned within five days, Saturdays, Sundays, and legal holidays excluded, after the opening of the Bids. The Bid deposits of the three (3) lowest responsible and eligible Bidders shall be returned upon the execution and delivery of the Contract, or if no award is made; except that, if any Bidder fails to perform its agreement to execute the Contract and furnish performance and payment bonds as stated in its Bid, then said Bidder's Bid deposit shall become the property of the Commonwealth as liquidated damages; provided that the amount of the Bid deposit that becomes the property of the Commonwealth shall not exceed the difference between the Contractor's Bid price and the Bid price of the next lowest responsible and eligible Bidder; and provided further that, in the case of death, disability, bona fide clerical or mechanical error of a substantial nature, or other similar unforeseen circumstances affecting the Bidder, such Bidder's Bid deposit shall be returned.

11.2 In addition to the provisions for the return of Bid deposits as provided above, upon receipt of a Bid Bond in an amount not less than the amount of the required Bid deposit, the Awarding Authority shall return any Bid deposit of a Bidder forthwith after the public opening of Bids.



**COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION & RECREATION
STANDARD CONSTRUCTION CONTRACT
For Projects Subject to M.G.L. c. 149 or M.G.L. c. 30, sec. 39M**

PART II

**DEPARTMENT OF CONSERVATION AND RECREATION -
CONTRACTOR AGREEMENT**

Awarding Authority: The Massachusetts Department of Conservation and Recreation

Department Code: DCR

This agreement ("Contract") is made by and between the Commonwealth of Massachusetts, acting by and through the Awarding Authority identified above with a principal place of business at 10 Park Plaza, Suite 6620, Boston, MA 02116, and hereinafter called the "Contractor".

Terms used in this Department of Conservation and Recreation - Contractor Agreement, which are defined in the General Conditions of the Contract, shall have the meanings designated therein.

The Awarding Authority and the Contractor agree as follows:

Article 1. Scope of Work. The Work under this Contract is defined as all work required by the Contract Documents for the construction of Contract No: in accordance with and as described in the Plans and Specifications prepared by and as modified by Addenda () included herein.

Article 2. Time for Completion. The Contractor shall commence the Work under this Contract on the date specified in the written "Notice to Proceed," and shall within Days after such date, bring the Work to Substantial Completion and to the point at which a Certificate of Agency Use and Occupancy may be issued, and shall bring the Work to Final Acceptance within 10 days after the date specified for Substantial Completion.

Article 3. Contract Price. The Awarding Authority shall pay the Contractor, in current funds, for the performance of the Work, subject to additions and deductions by Approved Change Order(s), the Contract Price of Dollars and Zero Cents (\$.00). The Unit Prices, if any, approved by the Awarding Authority are those included in the Contractor's General Bid. The following Alternates have been accepted, and their costs are included in the Contract Price:

Article 4. Approved Subcontractors. The filed Subcontractors listed in the Contractor's General Bid submitted by the Contractor have been approved for the performance of the specified portions of the Work subject to the Commonwealth's verification that they have complied with state corporation and partnership registration laws. No other filed Subcontractors and no non-filed Subcontractors shall be used for these or any other portions of the Work without the prior written approval of the Awarding Authority.

Article 5. Certifications. Pursuant to M.G.L. c. 62C, sec. 49A, the individual signing this Contract on behalf of the Contractor hereby certifies, under the penalties of perjury, that to the best of his or her knowledge and belief the Contractor has complied with all applicable state and federal tax laws. The individual signing this Contract on behalf of the Contractor further certifies under penalties of perjury that the Contractor is not presently debarred from doing public construction work in the Commonwealth under the provisions of M.G.L. c. 29, sec. 29F, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder and is not presently debarred from doing public construction work by any agency of the United States.

Article 6. The Contract Documents: The following documents form the Contract are incorporated by reference herein, and are referred to as the "Contract Documents:"

- The Instructions to Bidders
- The General Bid submitted by the Contractor
- This Department of Conservation and Recreation – Contractor Agreement
- The General Conditions of the Contract
- The Special Conditions [Note: the term "Special Conditions" may also refer to Division 1 of the Specifications.]
- The Plans and Specifications, including Addenda identified in Article 1 above
- All Approved Change Orders issued after execution of this Department of Conservation and Recreation - Contractor Agreement

Article 7. Minority Business Enterprise, Women Business Enterprise and Veteran-Owned Business Enterprises Participation requirements and Minority/Women and Veteran-Owned Business Enterprises Workforce Utilization Percentages: The applicable requirements, if any, for minority business enterprise and women business enterprise participation, as well as those for minority and women workforce utilization percentages established for this Contract are to be found at the Notice to Contractors for this project, at Part I – Instructions to Bidders, and are incorporated by reference herein.

Article 8. Liquidated Damages. For the purposes of Article VI of the General Conditions of the Contract, liquidated damages for delay are to be found at the Notice to Contractors for this project at Part I – Instructions to Bidders and are incorporated by reference herein.

Article 9. Insurance Requirements. The insurance requirements are set forth in the Instructions to Bidders and are incorporated herein.

In witness whereof, the parties hereto have caused this instrument to be executed in duplicate under seal as of the date set forth above.

Forms Used During Contract Award and Execution

PAYMENT BOND

PERFORMANCE BOND

CERTIFICATE OF CORPORATE VOTE OF AUTHORITY

CERTIFICATE OF COMPLIANCE WITH STATE TAX LAWS AND WITH UNEMPLOYMENT

COMPENSATION CONTRIBUTION REQUIREMENTS

CERTIFICATE OF LIABILITY INSURANCE

A. SEE PART I, SECTION 7 – ARTICLE 7.1 C.

B. ADDING IN THE DESCRIPTION **DCR AS ADDITIONAL INSURED.**

SCHEDULE FOR WOMEN AND MINORITY BUSINESS ENTERPRISE

LETTER OF INTENT – MINORITY AND WOMEN BUSINESS PARTICIPATION

SCHEDULE FOR VETERAN-OWNED BUSINESS ENTERPRISE

LETTER OF INTENT – VETERAN-OWNED BUSINESS ENTERPRISE

EXECUTIVE ORDER 546 – CONTRACTOR CERTIFICATION - VOB POLICY OF THE COMMONWEALTH

EXECUTIVE ORDER 481 – CONTRACTOR CERTIFICATION - UNDOCUMENTED WORKERS POLICY OF THE COMMONWEALTH

EQUAL EMPLOYMENT OPPORTUNITY COMPLIANCE FORM

IF APPLICABLE FORM OF SUBCONTRACTOR(S)

IN WITNESS WHEREOF, said Contractor has caused these presents to be signed in its name and its behalf under seal by its officers, duly authorized to do so, and the said Commonwealth has executed these presents by the Commissioner of said Department, or its authorized agent, as prescribed by law, who shall not incur any personal liability by reason of the execution of these presents or of anything herein contained, and who hereby certifies under penalties of perjury that all applicable provisions of M.G.L. c. 149, sec. 44J, have been complied with.

(Executed in duplicate under Seal)

CONTRACTOR:

By: _____ SIGNATURE & SEAL

Name: _____

Title: _____

Date: _____

**COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION AND RECREATION**

By: _____

Name: _____ Nicole LaChapelle

Title: _____ Commissioner

Date: _____

PAYMENT BOND

BOND No. _____

Know all men by these presents, that

as principal and _____
as surety are held and firmly bound unto the Commonwealth of Massachusetts in the sum of _____
Dollars and Zero Cents (\$.00) in lawful money of the United States of America, to be paid to the
Commonwealth of Massachusetts, for which payments, well and truly to be made, we bind
ourselves, our respective heirs, executors, administrators, successors, and assigns, jointly and
severally, firmly by these presents.

Whereas the said principal has made a Contract with the Commonwealth acting through its
Department of Conservation and Recreation ("Awarding Authority") the construction of _____.

Now the condition of this obligation is such that if the principal shall pay for all labor performed or
furnished and for all materials used or employed in said Contract and in any and all duly authorized
modifications, alterations, extensions of time, changes or additions to said Contract that may hereafter
be made, notice to the surety of such modifications, alterations, extensions of time, changes or additions
being hereby waived, the foregoing to include any other purposes or items set out in, and to be subject
to, the provisions of Massachusetts General Laws, Chapter 30, Section 39A, and Chapter 149, Section
29, as amended, then this obligation shall become null and void; otherwise it shall remain in full force
and virtue.

In witness whereof we hereunto set our hand and seals this ____ day of _____, _____

(Print Name of General Contractor) (Seal)

(Print Name of Surety) (Seal)

By _____
(Signature – Title)

By _____
(Signature – Title)

Surety Address _____

PERFORMANCE BOND

BOND No. _____

Know all men by these presents, that

_____ as principal and _____ as surety are held and firmly bound unto the Commonwealth of Massachusetts in the sum of (\$,000.00) in lawful money of the United States of America, to be paid to the Commonwealth of Massachusetts, for which payments, well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

Whereas the said principal has made a Contract with the Commonwealth acting through its Department of Conservation and Recreation ("Awarding Authority") the construction of .

Now the condition of this obligation is such that if the principal shall well and truly keep and perform all the undertakings, covenants, agreements, terms and conditions of said Contract and any extensions thereof that may be granted by the Commonwealth, with or without notice to the surety, and during the life of any guarantee required under the Contract, and shall also well and truly keep and perform all the undertakings, covenants, agreements, terms and conditions of any and all duly authorized modifications, alterations, changes or additions to said Contract that may hereafter be made, notice to the surety of such modifications, alterations, changes or additions being hereby waived, then this obligation shall become null and void; otherwise it shall remain in full force and virtue.

In the event that the Contract is abandoned by the Contractor or is terminated by the Commonwealth under the provisions of said Contract, said surety shall, if requested in writing by the Commonwealth, take such action as is necessary to complete the Contract.

In witness whereof we hereunto set our hand and seals this _____ day of _____, _____

_____(Seal)
(Print Name of General Contractor)

_____(Seal)
(Print Name of Surety)

By _____
(Signature – Title)

By _____
(Signature – Title)

Surety Address _____

CERTIFICATE OF CORPORATE VOTE

I hereby certify that I am the ____ clerk, ____ assistant clerk, of

____ (the "Corporation") and that at a
(Name of Corporation)

duly authorized meeting of the Board of Directors of the Corporation held on

____ in ____ at which a quorum was
(Date) (Location)

present and voting it was voted to authorize ____
(Name)

____ of the Corporation to execute
(Officer Title)

and deliver on behalf of the Corporation Contract, and to act as principal to execute bonds in connection therewith,

I further certify that ____ is the duly qualified and acting
(Name of Corporate Officer)

____ of the Corporation and that said vote has not been
(Officer Title)

Repealed, rescinded, or amended.

Name

Print Name

Date

(CORPORATE SEAL)

SUBSCRIBED AND SWORN TO THIS ____ DAY OF _____, 20 ____ BEFORE ME

Notary Public

My Commission Expires: _____

CERTIFICATE OF LLC VOTE

_____, 2026

I hereby certify, warrant and represent that I am the _____ of
the _____ (the "LLC") and that
(Name of LLC)

I am fully and unconditionally authorized, pursuant to the Operating Agreement of the LLC to execute and deliver on behalf of the LLC a contract and all amendments thereto, and to act as principal and to execute bonds in connection therewith:

Mass. State Project No. _____

Project Title: _____

I further certify under the penalties of perjury that I, _____ am the duly qualified and acting member and principal of the LLC for all purposes.

□

Name _____

Print Name

Date _____

SUBSCRIBED AND SWORN TO THIS _____ DAY OF _____ BEFORE ME

Notary Public

My Commission Expires: _____

CERTIFICATE OF COMPLIANCE WITH STATE TAX LAWS AND WITH UNEMPLOYMENT
COMPENSATION CONTRIBUTION REQUIREMENTS

Pursuant to MGL, c. 62C, s. 49A and MGL, c. 515A, s. 29A, I,

_____ authorized signatory for

_____ whose principal place of business is at

_____ do hereby certify

under penalties of perjury that _____ has filed all

State tax returns and paid all taxes as required by law and has complied with all state laws

pertaining to contributions to the unemployment compensation fund and to payments

in lieu of contributions.

The Business Organization Social Security Number or Federal Identification Number is

_____.

Signed under the penalties of perjury the _____ day of _____ 20_____

Signature: _____

Name and Title: _____

Schedule for Participation by Minority Business Enterprise
(To be completed and submitted within five calendar days from bid opening)

NOTE I: Participation of a Minority-owned enterprise may be counted in only one category.

Minority Business Enterprise Participation in the work

Name & address of MBE Requirement 6%	Dollar Value of Participation	Nature of Participation
1. _____ _____		
2. _____ _____		
3. _____ _____		
4. _____ _____		
5. _____ _____		
6. _____ _____		

Total MBE Commitment: _____

Participation (divide Total Commitment by Total Bid Price)= _____ Percentage MBE

The bidder agrees to furnish implementation reports as required by the Department to indicate the MBE(s) which it has used or intends to use. Breach of this commitment constitutes a breach of contract.

Name of bidder: _____

Date: _____ By: _____

Letter of Intent – Minority Business Enterprise Participation

(To be completed by W or MBE and Submitted by the Low Bidder within five calendar days of bid opening)

Project Number: _____

MBE

Project Location: _____

To: _____

Name of General Bidder

1. My company has been certified by SDO (Supplier Diversity Office) and it has not changed its minority ownership, control, or management without notifying SDO within thirty (30) calendar days of such a change.
2. My company understands that if your company is awarded the contract, your company intends to enter into an agreement with my company to perform the activity described below for the prices indicated. My firm also understands that your firm, as General Bidder, will make substitutions and quantity changes as allowed or required by the provisions of the contract with the Commonwealth.
3. This firm understands that under the terms of Article XIII of the contract, only work **performed** by an MBE will be credited toward MBE participation requirements, and this firm **cannot assign or subcontract out any of its work** without prior written approval of the DCR Compliance Office, and that any such assignment or subcontracting will not be credited toward MBE participation requirements.

W or MBE PARTICIPATION

Contract Item	Description of Activity (with Notation such as "Labor Only", "Material Only", etc.)	Quantity	Unit Price	Total Amount

_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

Total Dollar Value: _____

(Additional copies of this form shall be prepared by the Contractor in the quantity necessary to comply with the contract.)

Name of MBE

Firm _____ Authorized Signature _____

Business Address _____

Print Name _____ Title _____

Telephone No. _____ Cell: _____ Date _____

Schedule for Participation by Women Business Enterprise
(To be completed and submitted within five calendar days from bid opening)

NOTE I: Participation of a Woman-owned enterprise may be counted in only one category.

Women Business Enterprise Participation in the work

Name & address of WBE 10%	Dollar Value of Participation	Nature Participation
1. _____ _____		
2. _____ _____		
3. _____ _____		
4. _____ _____		
5. _____ _____		
6. _____ _____		

Total WBE Commitment: _____

Percentage WBE Participation (divide Total Commitment by Total Bid Price) = _____

The bidder agrees to furnish implementation reports as required by the Department to indicate the WBE(s) which it has used or intends to use. Breach of this commitment constitutes a breach of contract.

Name of bidder: _____

Date: _____ By: _____

Letter of Intent – Women Business Enterprise Participation

(To be completed by WBE and Submitted by the Low Bidder within five calendar days of bid opening)

Project Number: _____

WBE

Project Location: _____

To: _____

Name of General Bidder

4. My company has been certified by SDO (Supplier Diversity Office) and it has not changed its women ownership, control, or management without notifying SDO within thirty (30) calendar days of such a change.
5. My company understands that if your company is awarded the contract, your company intends to enter into an agreement with my company to perform the activity described below for the prices indicated. My firm also understands that your firm, as General Bidder, will make substitutions and quantity changes as allowed or required by the provisions of the contract with the Commonwealth.
6. This firm understands that under the terms of Article XIII of the contract, only work **performed** by a WBE will be credited toward WBE participation requirements, and this firm **cannot assign or subcontract out any of its work** without prior written approval of the DCR Compliance Office, and that any such assignment or subcontracting will not be credited toward WBE participation requirements.

W or MBE PARTICIPATION

Contract Item	Description of Activity (with Notation such as "Labor Only", "Material Only", etc.)	Quantity	Unit Price	Total Amount

Total Dollar Value: _____

(Additional copies of this form shall be prepared by the Contractor in the quantity necessary to comply with the contract.)

Name of WBE Firm_Authorized Signature_____

Business Address_____

Print Name_____Title_____

Telephone No._____Cell:_____Date_____

**COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION AND RECREATION
VETERAN OWNED BUSINESS ENTERPRISE POLICY
AND CONTRACTOR CERTIFICATION**

In accordance with Executive Order No. 546, it is the policy of the Commonwealth and its executive agencies to promote self-reliance among veterans by offering such veterans who own and control business enterprises the opportunity to participate in state contracting activity, as well as to assist and encourage the participation of businesses owned and controlled by veterans in all areas of state procurement contracting, including contracts for public construction, design services, and commodities and services.

The Massachusetts Executive Office of Administration and Finance has therefore established the Veteran-Owned Business Enterprise (VOBE) Program (the "Program") to oversee the inclusion of business enterprises owned and controlled by veterans in all areas of state procurement contracting, including contracts for construction, design and professional services, and commodities and services. For more information on this Order, see:
<http://www.mass.gov/governor/legislationeeexecorder/executiveorder/executive-order-no-546.html>.

DCR Requires Contractors to acknowledge this policy and the requirements as provided in the contract by signing this certification as well as the Contract Documents.

CONTRACTOR CERTIFICATION

As evidence by the signature of the Contractor's Authorized Signatory below, the Contractor certifies under the pains and penalties of perjury that the Contractor acknowledges the above-referenced policy as set forth in Executive Order 546, has read Executive Order 546, and will abide the requirements concerning the policy and order as set forth in the referenced Contract. The Contractor acknowledges that if the Contractor has not submitted an appropriate Schedule for VOB Participation and appropriate Letters of Intent establishing that the VOB participation requirements for the project will be met, the Contractor may not be considered eligible for Award of the Contract unless he/she requests a waiver by completing and submitting the waiver form to the Contracts Administrator/DCR and that request is approved. The Contractor also understands and agrees that a breach of any of these terms during the period of the Contract may be regarded as a material breach, subjecting the Contractor to sanctions, including but not limited to monetary penalties, withholding of payments, contract suspension and /or termination.

Contractor Authorizing Signature

Date:_____

Print Name

Title:_____

Telephone:_____

Cell:_____

Email:_____

Schedule for Participation by Veteran-Owned Business Enterprise

(To be completed and submitted within five (5) calendar days from bid opening)

NOTE: Participation of a Veteran-Owned Enterprise may be counted in only one category; the same participation cannot be used in computing the percentage of DBE/MBE/WBE participation.

Veteran-Owned Business Enterprise Participation in the work

Name & address of VOB 3%	Dollar Value of Participation	Nature Participation
1. _____		

2. _____		

3. _____		

4. _____		

5. _____		

6. _____		

Total VOB Commitment: _____

Percent VOB Participation (divide Total Commitment by Total Bid Price)= _____

The bidder agrees to furnish implementation reports as required by the Department to indicate the VOB(s) which it has used or intends to use. Breach of this commitment constitutes a breach of contract.

Name of bidder: _____

Date: _____ By: _____

Letter of Intent – Veteran-Owned Business Enterprise Participation

(To be completed by VOB and Submitted by the Low Bidder within five (5) calendar days of bid opening; use and prepare extra forms as needed)

DCR Contract/ Project Number: _____

Project Location: _____

To: _____

VOBE

Name of General Bidder

My company has been certified by the Department of Veterans Affairs and or [Supplier Diversity Office](#) (SDO). It has not changed its veteran ownership, control, or management without notifying the Department of Veterans Affairs within thirty (30) calendar days of such a change.

1. My company understands that if your company is awarded the contract, your company intends to enter into an agreement with my company to perform the activity described below for the prices indicated. My firm also understands that your firm, as General Bidder, will make substitutions and quantity changes as allowed or required by the provisions of the contract with the Commonwealth.
2. This firm understands that under all relevant terms of the contract, only work **performed** by a VOB will be credited toward VOB participation requirements, and this firm **cannot assign or subcontract out any of its work** without prior written approval of the DCR Compliance Office, and that any such assignment or subcontract will not be credited toward VOB participation requirements.

VOBE PARTICIPATION

Contract **Description of Activity** (with Item Notation such as "Labor Only", Quantity, Unit Price, Total Amount, "Material Only", etc.):

Activity	Labor or Material Only?	Quantity Unit Price	Total Dollar Value

VOBE Firm Name _____

Authorized Signature _____

Printed Name _____ Title _____

Telephone No. _____ Cell No. _____

E-mail: _____ Date _____

INSTRUCTIONS:

Executive Order 481 applies to all state agencies in the Executive Branch, including all executive offices, boards, commissions, agencies, departments, divisions, councils, bureaus, and offices, now existing and hereafter established. As it is the policy of the Executive Branch to prohibit the use of undocumented workers in connection with the performance of state contracts, all contracts entered after February 23, 2007, require that contractors, as a condition of receiving Commonwealth funds under any Executive Branch contract, make the following certification:

CONTRACTOR CERTIFICATION:

As evidenced by the signature of the Contractor's Authorized Signatory below, the Contractor certifies under the pains and penalties of perjury that the Contractor shall not knowingly use undocumented workers in connection with the performance of all Executive Branch contracts; that pursuant to federal requirements, the Contractor shall verify the immigration status of all workers assigned to such contracts without engaging in unlawful discrimination; and that the Contractor shall not knowingly or recklessly alter, falsify, or accept altered or falsified documents from any such worker(s). The Contractor understands and agrees that breach of any of these terms during the period of each contract may be regarded as a material breach, subjecting the Contractor to sanctions, including but not limited to monetary penalties, withholding of payments, contract suspension or termination.

Contractor Authorizing Signature

Date: _____

Print Name

Title: _____

Telephone: _____

Cell: _____

Email: _____

EQUAL EMPLOYMENT OPPORTUNITY COMPLIANCE FORM

Contractor's Certificate

A contractor shall not be eligible for award of a contract unless such a contractor has submitted the following certification to the Awarding Authority, said certification shall be deemed a part of the resulting contract:

Contractor's Certification

X

(Contractor)

certifies that it intends to use the following listed **certification trades** in the work subject to this contract.

X

and, further, that it will comply with the minority manpower ratio and specific affirmative action steps contained herein; and will obtain from each of its subcontractors and submit to the Awarding Authority prior to the award of any subcontract under this contract, the subcontractor certification required by these bid conditions.

X

(Signature of authorized representative of contractor)

Subcontractor's Certification

Prior to the award of any subcontract, regardless of tier, the prospective subcontractor must execute and submit to the general contractor the following certification, which shall be deemed a part of the resulting subcontract:

(Subcontractor)

certifies that: it intends to use the following listed construction trades in the work under the subcontract

and, further, it will comply with the manpower ratio and specific affirmative action steps contained herein and will obtain from each of the subcontractors prior to the award of any subcontract under this subcontract, the subcontractor certification required by these bid conditions.

(Signature of authorized representative of subcontractor)

To ensure that said subcontractor's certification becomes a part of all subcontracts under the general contract, no subcontract shall be executed unless or until an authorized representative of the Awarding Authority administering this contract has determined, in writing, that said certification has been incorporated in such subcontract, regardless of tier. Any subcontract executed without such written approval shall be void.

Exhibit A
Executive Order 504 Contractor Certification Form

BIDDER/CONTRACTOR LEGAL NAME:

BIDDER/CONTRACTOR VENDOR/CUSTOMER CODE:

Executive Order 504: For all Contracts involving the Contractor's access to personal information, as defined in M.G.L. c. 93H, and personal data, as defined in M.G.L. c. 66A, owned or controlled by Executive Department agencies, or access to agency systems containing such information or data (herein collectively "personal information"), Contractor certifies under the pains and penalties of perjury that the Contractor (1) has read Commonwealth of Massachusetts Executive Order 504 and agrees to protect any and all personal information; and (2) has reviewed all of the Commonwealth of Massachusetts Information Technology Division's Security Policies available at www.mass.gov/ITD under Policies and Standards.

Notwithstanding any contractual provision to the contrary, in connection with the Contractor's performance under this Contract, for all state agencies in the Executive Department, including all executive offices, boards, commissions, agencies, departments, divisions, councils, bureaus, and offices, now existing and hereafter established, the Contractor shall:

(1) obtain a copy, review, and comply with the contracting agency's Information Security Program (ISP) and any pertinent security guidelines, standards, and policies; (2) comply with all of the Commonwealth of Massachusetts Information Technology Division's Security Policies ("Security Policies") available at www.mass.gov/ITD under Policies and Standards.

(2) communicate and enforce the contracting agency's ISP and such Security Policies against all employees (whether such employees are direct or contracted) and subcontractors.

(3) implement and maintain any other reasonable appropriate security procedures and practices necessary to protect personal information to which the Contractor is given access by the contracting agency from the unauthorized access, destruction, use, modification, disclosure, or loss.

(4) be responsible for the full or partial breach of any of these terms by its employees (whether such employees are direct or contracted) or subcontractors during or after the term of this Contract, and any breach of these terms may be regarded as a material breach of this Contract.

(5) in the event of any unauthorized access, destruction, use, modification, disclosure or loss of the personal information (collectively referred to as the "unauthorized use"): (a) immediately notify the contracting agency if the Contractor becomes aware of the unauthorized use; (b) provide full cooperation and access to information necessary for the contracting agency to determine the scope of the unauthorized use; and (c) provide full cooperation and access to information necessary for the contracting agency and the Contractor to fulfill any notification requirements.

Breach of these terms may be regarded as a material breach of this Contract, such that the Commonwealth may exercise all contractual rights and remedies, including without limitation indemnification under Section 11 of the Commonwealth's Terms and Conditions, withholding of payments, contract suspension, or termination. In addition, the Contractor may be subject to applicable statutory or regulatory penalties, including and without limitation, those imposed pursuant to M.G.L. c. 93H and under M.G.L. c. 214, § 3B for violations under M.G.L. c. 66A.

Bidder/Contractor Name: _____

Bidder/Contractor Authorized Signature: _____

Print Name and Title of Authorized Signatory: _____

Date: _____

This Certification may be signed once and photocopied to be attached to any
Commonwealth Contract that does not already contain this Certification Language and shall be interpreted to be incorporated by reference
into any applicable contract subject to Executive Order 504 for this Contractor.



COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION & RECREATION
STANDARD CONSTRUCTION CONTRACT

PART III

GENERAL CONDITIONS OF THE CONTRACT

FOR PROJECTS SUBJECT TO M.G.L. CH. 149 OR
M.G.L. CH. 30, SEC. 39M

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ARTICLE I: DEFINITION OF TERMS

The following words shall have the following meanings as used in this Contract:

Advertisement: The Advertisement or Notice Inviting Bids or Proposals for the Work identified in Article 1 of the Department of Conservation and Recreation - Contractor Agreement.

Approval: (or approved): An approval in writing signed by the authorized signatory of the Awarding Authority.

As directed (As permitted, as required, as determined or words of like effect): The direction, permission, requirement, or determination of the Awarding Authority. Similarly, *approved, acceptable, satisfactory* or words of like import shall mean approved by or acceptable or satisfactory to the Awarding Authority.

Awarding Authority: The Department of Conservation and Recreation, the public agency awarding and administering this Contract, as identified in the Department of Conservation and Recreation - Contractor Agreement. Where the Awarding Authority is an agency of the Commonwealth, references to the Awarding Authority shall also include the Commonwealth and its agencies.

Building Code: All applicable rules and regulations to which the Awarding Authority is subject, and which are contained or referenced in the code authorized by M.G.L. c. 143, sec. 93 et seq., including all amendments thereto.

Change Order: (1) A written order not requiring the consent of the Contractor, signed by the Project Engineer, and designated as a Change Order, directing the Contractor to make changes in the Work within the general scope of the Contract, or (2) any written or oral order from the Project Engineer that causes any change in the Work, provided that the Contractor has given the Awarding Authority written notice stating the date, circumstances, and source of the order and that the Contractor regards the order as a Change Order.

Contract: The Contract formed by the Contract Documents as defined in Article 6 of the Department of Conservation and Recreation - Contractor Agreement.

Contract Documents: The documents listed in Article 6 of the Department of Conservation and Recreation - Contractor Agreement.

Contract Modification: Any alteration of the Contract Documents accomplished by a written agreement properly executed by the parties to this Contract.

Contract Price: The Contract Price stated in Article 3 of the Department of Conservation and Recreation - Contractor Agreement, which is the total sum, owed to the Contractor for all the Work.

DCR: The Department of Conservation and Recreation, the public agency awarding and administering this Contract.

Designer: The architect or engineer who prepared the plans and specifications for the work, identified as the Designer in Article 1 of the Department of Conservation and Recreation - Contractor Agreement.

Dispute Review Board: A panel of three experienced impartial reviewers organized and agreed upon by the DCR and Contractor. The Board members are provided with project plans and Specifications and become familiar with project procedures and participants. The Board meets on the job site regularly to encourage the resolution of disputes at the job level and renders non-binding recommendations on the resolution of the dispute.

Drawings: The Drawings are the graphic and pictorial portions of the Contract Documents, wherever located and whenever issued, showing the design, location, and dimensions of the Work, generally including Plans, elevations, sections, details, schedules, and diagrams.

Engineer: The Project Engineer, except that the term "Resident Engineer" shall have the meaning otherwise specified herein.

Final Acceptance: The written determination by the Awarding Authority that the Work has been 100% completed, except for the Contractor's indemnification obligations, warranty obligations, obligations to continue to maintain insurance coverage for the time periods provided in the Contract Documents, and any other obligations which are intended to survive Final Acceptance and/or the termination of the Contract.

General Bid: The completed bid form submitted by the Contractor in accordance with the requirements of either M.G.L. c. 149 or M.G.L. c. 30, sec. 39M.

Laws: All applicable statutes, regulations, ordinances, codes, laws, orders, decrees, approvals, certificates, and

requirements of governmental and quasi-governmental authorities.

Neutral: An impartial third party not having an interest in the Owner, DCR, the Contractor or the Project.

Notice to Proceed: The written notice provided by the Awarding Authority to the Contractor which authorizes the Contractor to commence the Work as of a date specified therein and complete the entire Work of the Contract by a date specified therein.

Or equal (or words of like import): Equal in the opinion of the Awarding Authority, determined pursuant to the provisions of M.G.L. c. 30, sec. 39M and the provisions of these General Conditions of the Contract.

Owner: The Commonwealth of Massachusetts or political subdivision thereof, authority, or other instrumentality that will own the Work.

Plan(s): Drawing(s).

Product Data: Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor or its Subcontractors and suppliers to illustrate materials or equipment for some portion of the Work. Product data also include any such information or instructions produced by the manufacturer or distributor of such materials or equipment and made readily available by said manufacturer or distributor.

Progress Schedule: The progress schedule Approved by the Awarding Authority in accordance with Article VI of these General Conditions of the Contract.

Project: The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner, the Department of Conservation and Recreation, or by separate contractors.

Project Engineer: The Awarding Authority's representative assigned to the Project.

Punch List: A list of items determined by the Awarding Authority to be minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the Work for its intended purpose.

Resident Engineer: The On-Site representative of the Awarding Authority.

Samples: Samples are physical examples that illustrate materials, equipment, or workmanship and establish standards by which the Work will be judged.

Schedule of Values: The schedule Approved by the DCR pursuant to Article VIII of these General Conditions of the Contract which allocates the Contract Price to the various portions of the Work and is used as a basis for payments to the Contractor.

Shop Drawings: Drawings, diagrams, details, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate a portion of the Work.

Site: The land and, if any, building(s), space within any such building(s), or other structures on which or in which the Contractor is to perform the Work.

Specifications: The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards, and workmanship for the Work and performance of related services.

Subcontractor: Person or entity with whom the Contractor contracts to perform the Work, except as otherwise specifically provided or required herein or by Law.

Substantial Completion: For work subject to M.G.L. c. 30 sec. 39K, "substantial completion" shall occur when (1) the Contractor fully completes the Work or substantially completes the Work so that the value of the Work remaining to be done is, in the estimate of the DCR, less than one percent of the original contract price, or (2) the Contractor substantially completes the Work and the DCR takes possession for occupancy, whichever occurs first. For work subject to M.G.L. c. 30 sec. 39G, "substantial completion" shall mean either that the work required by the Contract has been fully completed, completed except for work having a Contract Price of less than one percent of the then adjusted total Contract Price, or substantially all of the Work has been completed and opened to public use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the Work.

Superintendent: The licensed construction supervisor who is an employee of the Contractor designated to be in full-time attendance at the Site throughout the prosecution and progress of the Work and who shall have complete authority to act for the Contractor.

Work: The Work defined in Article 1 of the Department of Conservation and Recreation - Contractor Agreement, Article II, Section 2 of these General Conditions of the Contract and otherwise in the Contract Documents.

Working Hours: 7:00 a.m. to 5:00 p.m., but not more than eight hours per day, Monday through Friday, unless

otherwise specified by applicable Laws or deemed necessary by the DCR for traffic considerations or to minimize another contract impacts to the public.

All terms that this Contract defines may be used with or without initial capital letters. Other terms, abbreviations and references are defined as they appear herein. Words and abbreviations that are not defined in the Contract Documents, but which have recognized technical, or trade meanings are used in accordance with those meanings. For additional definitions of terms, abbreviations and references refer to the *Special Conditions or Specifications*.

ARTICLE II: EXECUTION OF THE CONTRACT, SCOPE OF WORK, INTERPRETATION OF CONTRACT DOCUMENTS

1. Execution.

The execution of the Department of Conservation and Recreation – Contractor Agreement by the Contractor is a representation that the Contractor has visited the Site, has become familiar with local conditions under which the Work is to be performed and has correlated personal observations with requirements of the Contract Documents.

2. Scope of Work.

The Work consists of the Work identified in the Contract Documents. The Work comprises the completed construction required by the Contract Documents and includes all labor, tools, materials, supplies, equipment, permits, approvals, paperwork, calculations, submittals, and certificates necessary to develop, construct and complete the Work in accordance with all Laws, and all construction and other services required to be supervised, overseen, performed or furnished by the Contractor or that the Contract Documents require the Contractor to cause to be supervised, overseen, performed or furnished. The Contractor shall provide and perform for the Contract Price all the duties and obligations set forth in the Contract Documents.

3. Interpretation.

A. The Plans and Specifications and other Contract Documents are to be considered together and are intended to be mutually complementary, so that any work shown on the Plans though not specified in the Specifications, and any work specified in the Specifications though not shown on the Plans, is to be executed by the Contractor as a part of this Contract.

B. All things that in the opinion of the Project Engineer may be reasonably inferred from the Plans, Specifications and other Contract Documents are to be executed by the Contractor. The Project Engineer shall determine whether the detail Plans conform to the general Plans and Contract Documents, except as may be otherwise determined by the DCR.

C. The tables of contents, titles, headings and marginal notes or sub-scripts contained herein are solely to facilitate references, are not intended to be construed as provisions of the Contract, and in no way affect the interpretation of the provisions to which they refer.

D. Where reference is made in the Contract Documents to publications, standards, or codes issued by associations or societies, such reference shall be interpreted to mean the current edition of such publications, standards, or codes, including revisions in effect on the date of the Advertisement, notwithstanding any reference to a particular date. The foregoing sentence shall not apply to the dates, if any, specified with respect to insurance policy endorsement forms.

E. In case of any conflict among the Contract Documents, unless the context clearly otherwise requires, the Contract Documents shall be construed according to the following priorities:

- Priority: Contract Modifications
- Second Priority: Department of Conservation and Recreation - Contractor Agreement
- Third Priority: General Conditions of the Contract
- Fourth Priority: Special Conditions of the Contract
- Fifth Priority: Drawings -- Schedules take precedence over enlarged detail Drawings, and enlarged Detail Drawings take precedence over reduced scale Drawings; figured dimensions shall prevail over scale.
- Sixth Priority: Specifications

4. Distribution of Work.

The distribution of the Work is intended to be described under the appropriate trades and, except for filed sub-bid work, may be redistributed, except as directed herein, provided that such redistribution shall cause no controversy among the trades and no delay in the progress of the Work.

5. Contract Price.

The Contract Price constitutes full compensation to the Contractor for everything to be performed and furnished in connection with the Work and for all damages arising out of the performance of the Work and/or the action of the elements and constitutes the maximum compensation regardless of any difficulty incurred by the Contractor in connection with the Work or in consequence of any suspension or discontinuance of the Work. The costs associated with the requirements of the General Conditions and any required in the Special Conditions or Specifications shall be included in the Contract Price and no direct or separate payment shall be made to the Contractor.

ARTICLE III: CONTROL OF WORK/ADMINISTRATION OF THE CONTRACT

1. DCR.

The Project Engineer shall be responsible for the general administration of the Contract. Except as otherwise specifically provided herein, the Project Engineer shall decide all questions which may arise as to the conduct, quantity, quality, equality, acceptability, fitness, and rate of progress of the several kinds of work and materials to be performed and furnished under this Contract and shall decide all questions which may arise as to the interpretation of the Plans and Specifications and as to the fulfillment of this Contract on the part of the Contractor.

2. Right of Access to Work.

The DCR, and persons designated by it, may for any purpose enter upon the Work, the Site, and premises used by the Contractor, and the Contractor shall provide safe facilities therefor. Other contractors of the DCR may also enter upon the same for the purposes which may be required by their contracts or work. Any differences or conflicts which may arise between the Contractor and other contractors of the DCR with respect to their work shall be initially resolved by the DCR.

3. Inspection No Waiver.

No inspection by the DCR or its employees or agents, and no order, measurement, certificate, approval, payment order, payment, acceptance or any other action or inaction of any of them, shall operate as a waiver by the DCR of any provision of this Contract.

ARTICLE IV: GENERAL PERFORMANCE OBLIGATIONS OF THE CONTRACTOR

The Contractor shall complete for the Contract Price all the Work in a proper, thorough, and workmanlike manner in accordance with the Contract Documents. Without limiting the foregoing and without limiting the Contractor's obligations under any other provision of the Contract Documents, the Contractor shall for the Contract Price perform the following general obligations:

1. Review of Contract Documents and Field Conditions.

A. Before commencing the Work, the Contractor shall carefully study the Contract Documents and carefully compare all Specifications, Plans, Drawings, figures, dimensions, lines, marks, scales, directions of the Project Engineer, and any other information provided by the DCR and shall at once report to the Project Engineer in writing any questions, errors, inconsistencies, or omissions.

B. Before commencing the Work, the Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents and shall at once report to the Project Engineer in writing any questions, errors, inconsistencies, or omissions.

C. Any work performed by the Contractor after the discovery of said discrepancies without the written approval of the DCR shall be at the Contractor's risk and expense.

D. The Contractor shall be responsible for all errors in the Work arising from the Contractor's failure to comply with any of the requirements set forth in this section. The Contractor shall not be entitled to any extra compensation for any work or expense arising from or caused by his/her failure to comply with said requirements.

2. Supervision and Construction Procedures: Coordination: Cutting and Patching.

A. The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and shall have control over, construction means, methods, techniques, sequences, and procedures, and shall be responsible for coordinating all portions of the Work under the Contract.

B. The Contractor shall be responsible for the proper fitting of all work and the coordination of the operations of all trades, subcontractors, and material suppliers engaged upon the Work. The Contractor shall guarantee to each of its subcontractors all dimensions which they may require for the fitting of their work to all surrounding work. Where equipment and lines of piping are shown diagrammatically, the Contractor shall be responsible for the coordination and orderly arrangement of the various lines of embedded piping and conduit included in the Work. The Contractor shall coordinate the work of any Subcontractor and prevent all interferences between the equipment, lines of piping or structural and architectural features, and avoid any unsightly arrangements in exposed work.

C. The Contractor should note that other contractors may be working on or near the Site where the Contractor's Work is being performed. The Contractor shall coordinate his/her work and the operations of all trades, subcontractors, and material suppliers engaged upon the Work so as not to interfere with or hinder the progress or completion of work being performed under another DCR contract.

D. All necessary cutting, coring, drilling, grouting, and patching required to fit together the several parts of the Work shall be done by the Contractor, except as may be specifically noted otherwise under any filed sub-bid section of the Specifications.

E. The Contractor shall be responsible to the DCR for the acts and omissions of the Contractor's employees, agents and Subcontractors, and their agents and respective contractors' employees, and other persons performing portions of the Work or supplying materials therefor.

F. The Contractor shall be responsible for the inspection of portions of the Work already performed under this Contract to determine that such portions are in proper condition to receive subsequent Work.

G. The Contractor shall employ a registered land surveyor to perform any engineering required for establishing grades, lines, levels, dimensions, layouts, and reference points for the trades. The Contractor shall be responsible for maintaining benchmarks and other survey marks and shall replace any benchmarks or survey marks that may have become disturbed or destroyed. The Contractor shall verify the materials shown on the Drawings before laying out the Work and shall be responsible for any error resulting from its failure to exercise this precaution.

H. Unless otherwise required by the Plans and Specifications, or directed in writing by the DCR, Work shall be performed during regular Working Hours. However, if the Contractor desires to carry on the Work outside of regular working hours or on Saturdays, Sundays, or Massachusetts or federal holidays, then the Contractor shall allow ample time to allow satisfactory arrangements to be made for inspecting Work in progress and shall bear the costs of such inspection. The DCR shall bill the Contractor directly for such costs.

I. Work performed outside of regular Working Hours without the consent or knowledge of the DCR shall be subject to additional inspection and testing as directed by the DCR. The cost of this inspection and testing shall be borne by the Contractor whether the Work is found to be acceptable or not. The DCR at its election shall be entitled either to issue a credit Change Order to cover such cost or to withhold such cost from any further payments due the Contractor and/or to receive a payment from the Contractor of the amount of such cost.

3. Superintendent.

A. The Contractor shall employ a Superintendent whose appointment shall be subject to the Approval of the DCR. The Superintendent shall attend the Site full-time during the performance of the Work. The Superintendent shall represent the Contractor. Communications given to and from the Superintendent shall be deemed given to and from the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed upon written request in each case. The Superintendent shall attend each job meeting. The Superintendent shall be responsible for coordinating all the Work of the Contractor and the Subcontractors.

B. The Superintendent shall be a competent employee regularly employed by the Contractor. The Superintendent shall be licensed in accordance with the Building Code, if applicable, and shall have satisfactorily performed similar duties on previous construction projects similar in type, complexity, and scale to the Project. The Superintendent's resume shall be submitted to the DCR prior to commencement of construction together with such other information as the DCR may reasonably require determining whether to Approve of his or her appointment. Any change in the Superintendent shall require the prior consent of the DCR. The Contractor shall establish an emergency telephone line by which the DCR or its agents may contact the Superintendent during non-working hours.

4. Labor.

A. The Contractor shall employ only competent workers. The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. Whenever the DCR shall notify the Contractor in writing that any worker is, in the DCR's opinion, incompetent, unfaithful, disorderly, or otherwise unsatisfactory, such employee shall be discharged from the Work and shall not again be employed on the Project except with the consent of the DCR.

B. The Contractor shall employ enough workers to carry on the Work with all proper speed in accordance with Laws, the requirements of the Contract Documents, and the Progress Schedule.

C. The Contractor shall procure materials from such sources and shall manage its own forces and the forces of its Subcontractors and any sub-subcontractors in such a manner as will result in harmonious labor relations on the Project Site. If union and nonunion workers are employed to perform any part of the Work, the Contractor shall establish and maintain separate entrances to the Site for the use of union and nonunion workers. The Contractor shall cause persons to be employed in the Work who will work in harmony with others so employed. Should the Work be stopped or materially delayed in the DCR's reasonable judgment due to a labor dispute, the DCR shall have the right to require the Contractor to employ substitutes acceptable to the DCR.

D. The Contractor shall bear the entire expense, and no separate or direct payment shall be made by the DCR, because of extra work which may be necessary because of inferior workmanship, or for specific items of work which are normally considered a part of good workmanship in completing any phase of the work.

5. Notices and Permits.

A. The Contractor at its sole cost shall take out and pay for all approvals, permits, certificates and licenses required by Laws, pay all charges and fees, and pay for (or cause the appropriate Subcontractor to pay for) all utilities required for the proper execution of the Work. All permits secured by the Contractor, complete with the application and orders of conditions, shall be kept on file in the Contractor's office and field office with copies submitted to the Project Engineer.

B. The Contractor shall comply with all Laws and shall give all notices required thereby.

C. Except as otherwise specified in this Contract, it is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable Laws. However, if the Contractor observes that portions of the Contract Documents are at variance with the requirements of Laws, the Contractor shall promptly notify the DCR in writing, and necessary changes shall be accomplished by an appropriate Contract Modification.

D. If the Contractor performs work knowing it to be contrary to Laws without giving such notice to the DCR, the Contractor shall bear full responsibility for such Work and all costs attributable thereto, including, without limitation, corrections to the Work.

6. Lines, Marks etc.

The Contractor shall furnish batter boards and stakes and shall cause to be placed and maintained thereon to be easily read, such lines, marks and directions relating to the Work as the Project Engineer shall from time to time direct. The Project Engineer shall establish base lines and benchmarks on the Drawings for the locations of the Work but all other lines and grades in the field shall be determined by the Contractor.

7. Excavation.

The Contractor shall prevent by sheeting and shoring or bracing, if necessary, any caving or bulging of the sides of any excavation made by the Contractor, leaving sheeting, and shoring in place, or if any is removed, filling solid the spaces left thereby.

8. Dewatering/Hoisting/Staging.

The Contractor shall provide pumping, drainage, and disposal of all water and other flows so that no puddle, nuisance, or damage will be caused by water or flooding. If pumping results in contaminated water the Contractor shall take appropriate measures to treat this water prior to discharge and shall seek appropriate permits for discharge of water. The Contractor shall provide all hoisting equipment and machinery required for the proper execution of the Work. The Contractor shall provide all exterior and interior staging required to be over eight feet in height, except as may be otherwise provided in the Contract Documents.

9. Corrections to the Work: Inspection No Bar to Subsequent Corrections.

The DCR's inspection of the Work shall not relieve the Contractor of its responsibilities to fulfill the Contract obligations. Defective work may be rejected by the DCR whether such work and/or materials have been previously overlooked or misjudged by the Resident Engineer or Project Engineer and accepted for payment. If the Work or any part thereof shall be found defective at any time before the Final Acceptance of the whole Work, the Contractor shall forthwith cease the performance of any defective work in progress and, whether such work is still in progress, shall forthwith correct such defect in a manner satisfactory to the Project Engineer. If any material brought upon the Site for use in the Work, or selected for the same, shall be rejected by the Project Engineer as unsuitable or not in conformity with the Contract Documents, or as damaged by casualty or deteriorated due to improper storage at the Site or to any other factor, the Contractor shall forthwith remove such materials from the Site. The Contractor shall pay for the cost of making good all work or property of other contractors, the Owner or of the Department of Conservation and Recreation destroyed or damaged by such removal or replacement; repair any injury, defect, omission, or mistake in the Work as soon as it is discovered; finish and immediately make good any defect, omission, or mistake in the Work; and complete and leave the Work in perfect condition.

10. Sanitary Facilities.

The Contractor shall provide and maintain sanitary facilities for all persons employed on the Work, beginning with the first worker at the Site. Said facilities shall meet the following requirements unless otherwise specified in the Special Conditions or Specifications.

A. There shall be no fewer facilities than the number required by applicable Laws.

B. Facilities shall be always kept in a clean sanitary condition and shall be adequately screened to be inaccessible to flies. (**Note:** If existing sanitary facilities at the Site are to be used by the Contractor, this requirement will be modified accordingly in the Special Conditions or Specifications.)

11. Temporary Offices.

A. Contractor's Field office. The Contractor shall erect a temporary field office at or near the Site of the Work at which the Contractor's authorized representative shall be always present while the Work is in progress. Instructions, notices, and other communications delivered there by the DCR shall be deemed delivered to the Contractor. The Contractor shall adequately furnish and maintain this office in a clean, orderly condition.

B. Resident Engineer's Office. The Contractor shall erect an Office for the Resident Engineer if, and as required by the Special Conditions or Specifications of the Contract.

12. Telephones.

A. The Contractor shall provide and maintain telephone service in the Contractor's field office. The Contractor shall pay for all calls and costs relating to this service. The DCR and its employees and authorized agents shall always be allowed the use of this telephone service without charge. Telephone service and equipment shall meet the requirements, if any, of the Special Conditions or Specifications.

B. The Contractor shall also provide and maintain telephone service in the Resident Engineer's Office, when the Contractor is required to erect such office, for the use of the DCR and its employees and authorized agents. The Contractor shall pay for all calls and costs relating to this service. Telephone service and equipment shall meet the requirements, if any, of the Special Conditions or Specifications.

13. Project Sign.

A. The Contractor shall furnish and erect at a suitable location, Approved by the Project Engineer, at the start of the work, a sign having dimensions of at least eight (8) feet long by four (4) feet high, bearing the words: Massachusetts Department of Conservation and Recreation. Also included may be the project title, expected completion date, and facility name.

B. The Contractor shall submit the design of the sign to the Project Engineer for review and approval prior to posting.

14. Contract Documents and Samples at the Site.

The Contractor shall maintain at the Site for the use and information of the DCR one record copy of the Drawings, Specifications, Addenda, Change Orders, Approved Shop Drawings, Product Data, Samples, updated Progress Schedule, and all other submittals, all in good order and marked currently to record changes and selections made during construction. These shall be available to the DCR and shall be delivered to the DCR upon completion of the Work.

15. Safety Laws, Regulations, and Practices.

- A.** The Contractor shall comply with all health and safety Laws applicable to the Work. Without limitation,
- (1) If the Contractor uses or stores toxic or hazardous substances it shall comply with M.G.L. c. 111F, sec. 2, the "Right to Know" law and regulations promulgated by the Department of Public Health, 105 CMR 670, the Department of Environmental Protection, 310 CMR 33, and the Department of Labor and Workforce Development, 441 CMR 21; and shall post a Workplace Notice obtainable from the Department of Labor and Workforce Development.
 - (2) The Contractor shall comply with the Federal Resource Conservation and Recovery Act, the Federal Comprehensive Environmental Response, Compensation and Liability Act, M.G.L. c. 21C, M.G. L. c. 21E, and any other Laws affecting toxic or hazardous materials, solid, special, or hazardous waste (collectively "Hazardous Materials Laws"). Should the Contractor discover unforeseen materials subject to Hazardous Materials Laws at the Site, the Contractor shall immediately notify the DCR of such discovery.
 - (3) The Contractor shall be responsible for the location of all utilities in connection with the Work. Without limiting the foregoing, the Contractor shall comply with Dig Safe Laws. Dig Safe is the Utility Underground Plant Damage Prevention System established pursuant to M.G.L. c. 164, sec. 76D. This System is operated by Dig Safe Systems, Inc., located at 331 Montvale Avenue, Woburn, MA 01801, whose toll-free telephone number is 1-888-DIG-SAFE (1-888-344-7233). The Contractor shall notify Dig Safe of contemplated excavation, demolition, or explosive work in public or private ways, and in any utility company right of way or easement, by certified mail, with a copy to Department of Environmental Protection (DEP). This notice shall be given at least 72 hours prior to the work, but not more than sixty days before the work is to be done. Such notice shall state the name of the street or the route number of the way and shall include an accurate description of the location and nature of the proposed work. Dig-Safe is required to respond to the notice within 72 hours of receipt by designating the location of pipes, mains, wires, or conduits at the Site. The Contractor shall not commence work until Dig-Safe has responded. The work shall be performed in such manner and with reasonable precautions taken to avoid damage to utilities under the surface at the work location. The Contractor shall provide the Superintendent with current Dig-Safe regulations, and a copy of M.G.L. c. 82, sec. 40. Any costs related to the services performed by Dig-Safe shall be borne by the Contractor.
 - (4) The Contractor shall comply with Public Law 92-596, "Occupational Safety and Health Act of 1970" (OSHA), with respect to all rules and regulations pertaining to construction, U.S. Code Title 29, sections 651 et seq. including Volume 36, numbers 75 and 105 of the Federal Register as amended, and as published by the U.S. Department of Labor.
 - (5) The Contractor shall comply with M.G.L. c. 149, sec. 129A, relative to shoring and bracing of trenches.

B. The Contractor shall take reasonable precautions to prevent damage, injury, or loss to persons (whether under his management, DCR staff, or the public) or property. Nothing herein shall relieve Subcontractors of their responsibility for the safety of persons and property, and for compliance with all Laws applicable to the Work and their activities in connection therewith. Without limitation, the Contractor shall take all reasonable precautions for the safety of, and the prevention of injury or damage to (1) all agents and employees and contractors on the Work and all other persons who may be affected thereby including the general public, (2) all the Work and all materials and equipment to be incorporated therein, whether in storage on or off the Site, under the care custody or control of the Contractor or any of its Subcontractors or any contractors directly or indirectly contracting through any of them, and (3) other property at the Site or adjacent thereto, including but not limited to trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of the Work. The Contractor shall promptly remedy all damage or loss to any such property caused in whole or in part by the Contractor, any Subcontractor, or anyone directly or indirectly contracted or employed by any of them or by anyone for whose acts any of them may be liable. Without limiting the foregoing, the Contractor shall:

- (1) post and maintain adequate danger signs and other warnings against hazards.
- (2) promulgate safety regulations and give appropriate notices to the DCR and users of adjacent utilities and property.

- (3) ensure the adequate strength and safety of all scaffolding, staging and hoisting equipment, temporary shoring, bracing, and tying.
 - (4) protect adjoining private or public property.
 - (5) provide barricades, temporary fences, and covered walkways required by prudent construction practices, Laws and/or the Contract Documents.
 - (6) furnish approved hard hats and other personal protective equipment, furnish approved first aid supplies, furnish the name of the first aid attendant, and maintain a posted list of emergency facilities.
 - (7) provide proper means of access to property where the existing access is cut off by the Contractor, including maintaining traffic over, through or around the Work included in this contract, with the maximum safety, and practicable convenience to such traffic suspended temporarily.
 - (8) maintain from the beginning of any darkness or twilight through the whole of every night sufficient lights on or near any obstruction to guard or protect travelers from injury from such obstruction.
 - (9) maintain adequate security at the Site so as not to expose the Work, the materials to be incorporated in the Work, DCR's materials stored or otherwise located upon the Site, and surrounding property to vandalism or malicious mischief.
 - (10) provide adequate fire protection procedures during the use of cutting torches, welding equipment, plumbers' torches and other flame and spark producing apparatus.
 - (11) take prompt action to correct any dangerous or hazardous conditions.
- C. Use of Explosives:** The use of explosives will not be permitted in the Work unless specifically authorized in the technical Specifications, Special Conditions and/or Drawings or approved by the DCR in writing. If such approval is given, the Contractor shall comply with all Laws and obtain all permits, approvals, and certificates required in connection with the same and shall exercise best efforts, including but not limited to the employment and supervision of properly qualified personnel, to prevent damage, injuries, and accidents involving said explosives.
- D.** Written notice shall be given by the Contractor to all public service corporations or officials owning or having charge of public or private utilities of his/her intention to commence operations affecting such utilities at least seventy-two (72) hours exclusive of Saturdays, Sundays, and legal Holidays in advance of the start of such operations, and the Contractor shall at the same time file a copy of said notice with the DCR.
- E.** When necessary, the Contractor shall cooperate with representatives of public service companies to avoid damage to their structures by furnishing and erecting suitable supports, props, shoring or other means of protection. Fire hydrants adjacent to the work always shall be readily accessible to fire apparatus and no materials or other obstructions shall be placed within a radius of 10 feet of a fire hydrant.
- F.** Although the drawings may indicate the approximate location of existing subsurface utilities in the vicinity of the work, the accuracy and completeness of the information is not guaranteed by the DCR. Before commencing any work, or operations which may endanger or damage any subsurface structures, the Contractor shall carefully locate all such structures and conduct his/her operations in such manner as to avoid damage thereto. He/she shall not interrupt live services until new services have been provided. All abandoned services shall be plugged or otherwise made secure.
- G.** If the Contractor wishes to have any utilities temporarily relocated for his/her convenience, other than those specified by DCR, he/she shall submit such a request in writing to the Project Engineer. If the DCR approves this request, the Contractor shall pay for the cost of the relocation at his/her sole expense.
- H.** Land monuments and property markers shall be carefully protected. If is necessary to remove land monuments and/or property markers to perform the contract Work, the Contractor shall do so only at the DCR's direction and after an authorized agent of the DCR has referenced their location.
- I.** The Contractor shall not injure or remove trees or shrubs without authorization from the DCR.
- J.** Disturbance or damage to any above- or below-ground structures, conduits, cables, or the like, caused by any act of omission, neglect or misconduct in the execution or non-execution of work thereof by the Contractor shall be repaired, and/or replaced by the Contractor to the satisfaction of the DCR and at no additional expense to the DCR.
- K.** Disturbance or damage to any structure shall be replaced or repaired by the Contractor to the satisfaction of the DCR and at no additional expense to the DCR.
- L.** The Contractor shall receive no extra compensation for protection and restoration of property unless said compensation is authorized in writing by the DCR, as specified under Article VI I of the Contract General Conditions.
- M.** The Contractor shall not permit cutting or welding in or immediately adjacent to existing property of the Department of Conservation and Recreation or of anyone else without the DCR's prior approval in each instance.
- N.** The Contractor shall designate by notice to the DCR a responsible member of its organization at the Site whose duties shall include preventing accidents.

O. The Contractor shall submit to the DCR without delay verbal and written reports of all accidents involving bodily injury or property damage arising in connection with the Work.

P. In any emergency affecting the safety of persons or property the Contractor shall immediately act in the exercise of reasonable judgment to prevent threatened damage, injury, or loss. The Contractor shall immediately notify the DCR of such emergency.

16. Environmental Protection

A. The DCR shall secure the required environmental permits required under M.G.L. Chapters 131 and 91, including the National Pollutant Discharges Elimination System (NPDES) Construction General Permit and those issued by the Army Corps of Engineers under Section 404 of the Clean Water Act (33 U.S.C. 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403). The Contractor is obligated to conform to all the requirements of the permits and subsequent requirements issued by the governing agencies.

B. Contractors operating under a DEP permit shall post on the Site a sign in a format consistent with that enclosed.

C. Prevention of Water Pollution:

1. The Contractor shall take such precautions in the conduct of the Work as may be necessary to avoid contaminating water in adjacent watercourses, water resources or wetlands. All earthwork, moving of equipment, water control for excavation or foundation areas, and other operations likely to create silting shall be conducted to avoid pollution of watercourses, water resources and wetlands.

2. Erosion Control: The Contractor shall utilize such methods as may be necessary to effectively prevent erosion and sediment from entering nearby waterways.

3. Control of Surface Water Runoff: The Contractor shall keep the rate of runoff from the Site at a minimum, and control it by constructing diversion ditches, trenches, and berms, and taking any other necessary action to retard and divert runoff to protect watercourses. The Contractor shall inspect said Site controls regularly, after significant storm events (greater than one-half inch over a 24-hour period) and in accordance with a site-specific storm water pollution prevention plan (SWPPP) prepared by the Contractor. The Contractor shall repair any damage to Site controls to prevent discharge of sediments or pollutants.

4. The Contractor shall construct silt retention basins in areas of the Work adjacent to streams, or rivers, as directed by the DCR. These basins shall be removed upon completion of the Work. Water used during the Work which has become contaminated with oil, bitumen, harmful or objectionable chemicals, sewage or other pollutants shall be discharged in accordance with all Laws to avoid affecting nearby waters.

5. Under no circumstances shall the Contractor discharge pollutants into any watercourse, water resource, or wetland. When water from adjacent natural sources is used in the contract work, intake methods shall be such as to avoid contaminating the source of supply.

D. Protection of Land Resources

1. Prevention of Landscape Defacement: The Contractor shall not deface, injure, remove, cut, or destroy trees or shrubs, without authority from the DCR. No ropes, cables, or guys shall be fastened to or attached to any existing nearby trees for anchorages unless specifically approved by the DCR. Where such activity is permitted, the Contractor shall adequately wrap the tree with burlap or rags over which softwood slats shall be tied. The Contractor shall be responsible for any damage resulting from such use. Where trees may possibly be defaced, bruised, injured, or otherwise damaged by equipment, dumping, or other operations, the Contractor shall protect such trees by placing boards, planks or approved protective fencing around them.

2. Restoration of Landscape Damage: Any trees or other landscape feature scarred or damaged by equipment or operations shall be restored as nearly as possible to the original condition, as approved by DCR. All trimming or pruning shall be performed in an approved manner by licensed arborists with saws or pruning shears. Trimming with axes will not be permitted.

3. Plant Pest Control: If the Work under this contract requires the use of soil moving equipment in an area with plant infestation, the Contractor shall be subject to applicable plant quarantine regulations. In general, these regulations require the thorough cleaning of soil from equipment before such equipment is moved from regulated areas to area's noninfected

E. Noise Control: The Contractor shall use every effort and every means possible to minimize noise caused by his/her operations which the DCR may consider objectionable. Each Contractor shall provide working machinery and equipment designed to operate with the least possible noise, and when gearing is used, such gearing shall be of a

type designed to reduce noise to a minimum. Compressors shall be equipped with silencers on intake lines. All gas or oil operated equipment shall be equipped with silencers or mufflers on intake and exhaust lines. Electricity shall be used for power to reduce noise. Dumping bins, hoppers and trucks used for disposal of excavated materials shall be lined with wood or other sound-deadening material if required. Where required by agencies having jurisdiction, certain noise-producing work may have to be performed during specified periods only.

E. Air Pollution Control: The Contractor shall conduct his/her operations to comply with all Laws pertaining to air pollution, including Section 142B of Chapter 111 of the Massachusetts General Laws.

1. Diesel Equipment Emission Controls

a.) All motor vehicles and construction equipment shall comply with all pertinent local, state, and federal regulations covering exhaust emission controls and safety.

b.) All Contractor and Sub-Contractor diesel-powered non-road construction equipment with engine horsepower (HP) ratings of 50 and above, which are used on the Project Site for a period more than 30 calendar days over the course of the construction period on the Project Site, shall be retrofitted with Emission Control Devices to reduce diesel emissions.

c.) The reduction of emissions of volatile organic compounds (VOCs); carbon monoxide (CO) and particulate matter (PM) from diesel-powered equipment shall be accomplished by installing Retrofit Emission Control Devices.

d.) Acceptable Retrofit Emission Control Devices for the Project shall consist of oxidation catalysts that are (1) included on the US Environmental Protection Agency (EPA) *Verified Retrofit Technology List* and/or the California Air Resources Board (CARB) *Currently Verified Technologies List*; and (2) are verified by EPA, CARB, or certified by the manufacturer to provide a minimum emissions reduction of 50 percent for VOCs, 40 percent for CO and 20 percent for PM. Attainment of the required reduction in PM emissions can also be accomplished by using less polluting Clean Fuels. Verified technologies can be identified on the following websites:

EPA: <http://www.epa.gov/otaq/retrofit/retroverifiedlist.htm>

CARB: <http://www.arb.ca.gov/diesel/verdev/verifiedtechnologies/cvt.htm>

e.) The emission control equipment can be procured through the Statewide Contract #VEH71 that has fixed costs associated with retrofitting of diesel emission control devices.

f.) Construction shall not proceed until the Contractor has submitted a certified list of the non-road diesel-powered construction equipment subject to this provision which either are or will be retrofitted with emission control devices. The list shall include (1) the equipment number, type, make, and Contractor/Sub-Contractor name; and the emission control device make, model, and EPA verification number. Contractors shall also submit a receipt or other documentation from a manufacturer or installer that verifies that appropriate equipment has been installed. The Contractor shall also identify any vehicles that will use Clean Fuels. Equipment that has been retrofitted with an emission control device shall be stenciled or otherwise clearly marked as "Low Emission Equipment".

g.) The Contractor shall submit monthly reports, updating the same information stated in Paragraph f above, including the quantity of Clean Fuel utilized. The addition or deletion of non-road diesel equipment shall be indicated in the report.

h.) The Contractor shall use methods to control nuisance odors associated with diesel emissions from construction equipment including but not limited to the following: (1) turning off diesel combustion engines on construction equipment not in active use and on trucks that are idling for five minutes or more; and (2) locating diesel equipment away from the public and sensitive receptors.

i.) All costs associated with implementation of the diesel equipment emissions control shall be borne by the

respective Contractor or subcontractor and included in their cost for performing the work of the Contract.

2. Dust Control.

A. The Contractor is placed on notice that blowing dust from un-stabilized earth areas of the work under his/her control will be considered a nuisance. He/she shall, by spraying with water or by other approved means, dampen the soil to hold down the dust. The use of calcium chloride as a wetting agent will not be permitted. During working hours and before leaving the work for the evening, for weekends, or for a more extended period, the Contractor shall assess the moisture content of the soil and dampen it to the extent necessary to hold down the dust. While work is suspended, he/she shall return to work, if so, directed by the DCR, to maintain the dust control.

17. Debris, Excavated Material and Chemical Waste.

A. The Contractor shall not permit the accumulation of interior or exterior debris. The Contractor shall always keep the Work area clean. Without limitation, garbage shall be removed daily. Where no disposal area is shown on the Drawings, the Contractor shall remove and legally dispose of all materials off land owned by the Commonwealth to a location approved by the DCR. Documentation certifying proper disposal shall be submitted to the DCR.

B. The Contractor shall, at his/her own expense, and in accordance with all Laws, arrange for the waste of materials from excavations that are unacceptable for use in the refill or that are more than the refill materials required, in spoil banks off the lands owned by the Commonwealth of Massachusetts. Materials, if any, which cannot be placed at once in permanent positions may be deposited in storage piles at locations designated, but materials re-excavated from such storage piles shall not again be paid for as excavation.

C. The Contractor shall properly classify and remove debris and waste from the Site and transport and dispose of it, all in accordance with Laws, employing a qualified and properly licensed transporter, at any landfill, disposal or recycling facility licensed under applicable Laws, including without limitation, hazardous materials laws. The Contractor shall make all arrangements and give and obtain all notices, communications, documentation, permits, certificates, and approvals necessary for said disposal from the owner or officials in charge of such landfills, disposal, or recycling facilities. The Contractor shall bear all fees and costs in connection with such classification, removal, transportation, disposal, and storage, except as otherwise specifically provided or required by the Special Conditions or other Contract Document. The Contractor shall not permit any storage of debris or waste except in accordance with Laws.

D. The Contractor shall not permit any open fire on the Site.

E. Chemical Waste: Chemical waste shall be identified and labeled properly, stored in appropriate Department of Transportation approved containers in a secure location, removed from the Site, and disposed of not less frequently than monthly unless more frequently required by Laws, including without limitation hazardous materials laws, or by the Special Conditions or Specifications. Disposal of chemical waste shall be performed in accordance with requirements of the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP). Stockpiles of contaminated soils will be placed on a protective surface and covered to prevent migration or erosive loss by wind or water. Fueling and lubricating of vehicles and equipment shall be conducted in a manner that affords the maximum protection against spills and evaporation. Lubricants shall be disposed of in accordance with procedures meeting all applicable Laws. The Contractor shall immediately notify the DCR of any hazardous materials release large enough to require reporting under applicable Laws. The Contractor shall be responsible for immediately containing and cleaning up in accordance with Laws any oil or hazardous materials releases resulting from his/her operations. Any costs incurred in cleaning up any such releases shall be borne by the Contractor.

18. Nuisances.

The Contractor shall strictly prohibit and take all necessary measures to prevent the committing of nuisances on the land of the Commonwealth and adjacent properties.

19. Weather Protection (M.G.L. c. 149, sec. 44G and 44F(1)).

A. For all building projects, the Contractor shall furnish and install "weather protection," which means temporary protection of that Work adversely affected by moisture, wind and cold. Weather protection shall be achieved by covering, enclosing and/or heating working areas such that a minimum temperature of 40 degrees Fahrenheit is maintained at the working surface during the months of November through March to permit construction to be carried on during such period in accordance with the Progress Schedule. After the building or portion thereof is completely enclosed by either permanent

construction or substantial temporary materials having a resistance comparable to the specified permanent construction, the Contractor shall provide heat therein of not less than 55 degrees Fahrenheit nor more than 75 degrees Fahrenheit. The foregoing provisions do not supersede any specific requirements for methods of construction, curing of materials and the like. Concrete, masonry, plaster, and all other materials that require special considerations in temperatures below 40 degrees Fahrenheit shall be installed, applied, and cured in accordance with the specific requirements for cold weather protection as defined in the project specifications.

B. The general contractor may, with the approval of the Engineer, elect to utilize the permanent heating system for temporary heat after the building is enclosed and after it has been tested and ready to operate. It shall, however, be his responsibility to thoroughly clean and restore to first-class condition any portion of the permanent heating system used for heating during construction to the satisfaction of the Engineer.

C. The Contractor shall furnish and install one thermometer for every 2,000 square feet of floor space or fraction thereof.

D. Installation of weather protection and heating devices shall comply with all safety regulations including provisions for adequate fire protection devices. Approved methods of heating should also provide for adequate ventilation to prevent exposing people and materials to carbon monoxide, carbon dioxide and other noxious fumes.

E. Within 30 calendar days after the award of this contract, the general contractor shall submit in writing to the Engineer three (3) copies of his proposed methods for "Weather Protection" for approval.

F. The Contractor shall give adequate notification to the Engineer and all subcontractors prior to the erection and removal of temporary protective enclosures.

G. Such weather protection shall be consistent with the Progress Schedule, shall permit the continuous progress of the Work necessary to maintain an orderly and efficient sequence of construction operations and shall meet such additional requirements as may be specified by the Special Conditions or Specifications.

20. Furnishings and Equipment.

When, in the opinion of the DCR, any portion of the Work is in a reasonable condition to receive fittings, furniture, or other property of the Department of Conservation and Recreation not covered by this Contract, the Contractor shall allow the DCR to bring such fittings, furniture, and/or other property into such portions of the Work and shall provide all reasonable facilities and protection thereof. No such occupancy shall be construed as interfering with the provisions relating to time of completion, or as constituting an acceptance of the whole or any part of the Work. Any furniture or fittings so installed shall be placed in the Work at the risk of the DCR except that the Contractor shall be liable for damages or losses to such furniture or fittings to the extent such damages or losses arise in whole or in part from the negligence or intentional misconduct of Contractor, Subcontractors, their agents and/or employees, or anyone for whose acts the Contractor is responsible.

21. Form for Sub-contract.

The Contractor when subcontracting with sub-bidders filed pursuant to M.G.L. c. 149, sec. 44F shall use the form for sub-Contract in M.G.L. c. 149, sec. 44F(4)(c). The Contractor shall not interpret paragraph 3 of the statutory form of Subcontract to require such sub-bidders to provide insurance with limits higher than the limits that are required by the Contract Documents, if the term "Contractor" refers to the sub-bidder and that the term "Contract Price" refers to the sub-bidder's price stated in paragraph 1 of the statutory form of Subcontract.

22. Sales Tax Exemption and Other Taxes.

All building materials and supplies as well as the rental charges for construction vehicles, equipment and machinery rented exclusively for use on the Site, or while being used exclusively for the transportation of materials for the Work are entitled to an exemption from sales taxes under M.G.L. c. 64H, sec. 6(f). The Contractor shall take all action required to obtain the benefit of such sales tax exemption. The Contractor shall bear the cost of any sales taxes that the Contractor incurs in connection with the Work and the DCR shall not reimburse the Contractor for any such taxes. The exemption number assigned to the Contractor as an exempt purchaser shall be provided to the Contractor by the DCR upon the written request of the Contractor.

23. Final Cleaning.

At the completion of the Work, the Contractor shall remove all waste materials, rubbish, tools, equipment, machinery,

and surplus materials, and professionally clean all sight-exposed surfaces so that the Work is clean and ready for occupancy and/or use. After installation of DCR furniture, telephones, and equipment, the Contractor shall provide such additional cleaning as may be necessary to remove any soil resulting from installation of such furniture, telephones, and equipment. The costs of the required cleaning are included in the Contract price.

All permanent drainage structures such as catch basins, permanent detention or retention basins, drainage conveyances, piping, sumps, and particle separators will be cleaned of sediments and debris prior to acceptance of the Work. Any sediments or debris accumulated during construction shall be removed and disposed in accordance with local and state requirements.

24. Maintenance Data.

Subject to such additional requirements as may be provided in the Special Conditions or Specifications, the Contractor shall compile 3 complete and identical binders of operating and maintenance data for the entire Work. The Contractor shall submit record maintenance data to the DCR for approval and shall instruct and train the DCR's personnel in proper inspection and maintenance procedures.

25. Drainage Specifications.

Subject to such additional requirements as may be provided in the Special Conditions or Specifications, where construction involves replacement or construction of new storm water drainage systems including but not limited to catch basins, roof drains, recharge to groundwater systems and outfall structures, the Contractor shall provide drawings and electronic records in a form acceptable to the DCR that provides specifications and a site plan that identifies locations of the drainage system components and cleanout, if applicable.

26. Closeout Procedures.

The Contractor shall take all actions and submit all items required for Final Acceptance as specified in the Contract Documents.

27. Risk of Loss.

The Contractor shall bear all risk of loss to the Work during the term of the Contract except for any portion of the Work as to which the DCR has given final acceptance. Nothing herein shall limit the Contractor's responsibilities under Article IX or XV of these General Conditions of the Contract.

28. Photographs.

A. At the request of the DCR, the Contractor shall furnish the DCR suitable 4" X 6" color photographs and/or digital image files of the construction area, and any related work areas.

B. If the DCR requires the Contractor to provide photographs of the Work, the areas to be photographed and the locational reference point from which they are to be taken will be designated by the DCR, and shall be taken according to the following schedule:

- a. Before construction operations have been started.
- b. Each month during the performance of the Work.
- c. After construction has been completed.

C. Each photograph shall have permanently written on its face a legible description or title indicating date, location, direction from which taken, project title and item of work photographed.

D. Upon completion of all work under this contract, the Contractor shall deliver all negatives, clearly identified, to the DCR. Photographs will be placed in acetate sleeves and bound in three booklet form.

E. The cost of furnishing photographs shall be included in the prices bid for the various items scheduled in the Proposal.

ARTICLE V: MATERIALS AND EQUIPMENT

1. Materials Generally.

A. Unless otherwise specifically provided in the Contract Documents, the Contractor shall provide and pay for materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether incorporated or to be incorporated in the Work.

B. Materials and equipment to be installed as part of the Work (both or either of which are hereinafter referred to

as "materials") shall be new, unused, of recent manufacture, assembled, and used in accordance with the best construction practices. The Contractor shall inform himself/herself as to, and shall comply with, the provisions of M.G.L. c. 7, sec. 23A, as amended, and shall abide by the same and all applicable rules, regulations, and orders made thereunder in relation to the purchase of supplies and materials in the execution of the Work, including the provisions of M.G.L. c. 7, sec. 22, paragraph 17, which provides that there be *"a preference in the purchase of supplies and materials, other considerations being equal, in favor, first, of supplies and materials manufactured and sold within the Commonwealth, and, second, of supplies and materials manufactured and sold elsewhere within the United States."*

C. All materials furnished by the DCR to the Contractor for installation in the work will be delivered by freight train, truck, or other means of common carrier to the nearest convenient public railroad siding, freight station, trucking terminal or such other designated delivery point of which he will receive due notification. The Contractor, at his/her own expense, shall do all handling and conveying of such materials at and from the noted deliver site. He shall unload and remove them promptly from the cars, trucks, or terminals upon notification of their arrival and he shall be responsible for any demurrage, delay charges, damage done or loss of materials from the time of delivery to the final acceptance of the work. Materials previously delivered shall be turned over to the Contractor as soon as possible after the date ordered to begin work. He shall make a complete inventory with the Resident Engineer as to content and condition; thereafter he shall be responsible for the care, custody, and handling until the final acceptance of the work.

2. Shop Drawings, Product Data, and Samples.

A. The Contractor shall furnish to the Project Engineer all samples of the materials to be used in the execution of the Work as required by the Contract Documents. The Contractor shall furnish to the DCR in a timely manner all coordination Drawings, shop details, Shop Drawings, and setting diagrams which may be necessary for acquiring and installing materials. These shall be reviewed as required by the DCR. A minimum of six (6) copies shall be submitted for final approval, one of which shall be returned to the Contractor, one given to the Resident Engineer, and four maintained by the DCR. The inspection and approval by the DCR of Shop Drawings, etc. shall be general and shall in no way relieve the Contractor from responsibility for proper fitting, coordinating, construction, and construction sequencing. The Contractor shall furnish to the DCR such information and vouchers relative to the Work, the materials therefore, and the persons employed thereon, as the DCR shall from time-to-time request.

B. Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. The purpose of their submission is to demonstrate for those portions of the Work for which submittals are required the way the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents.

C. The Contractor shall review, approve, and submit to the DCR, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the DCR or of separate contractors. Submittals made by the Contractor which are not required by the Contract Documents, or which do not comply with the Contract Documents may be returned without action. The Contractor's attention is directed to the provisions of Section 4 of this Article V and to the Specifications.

D. The Contractor shall prepare and keep current for the DCR's approval a schedule of submittals which is coordinated with the Progress Schedule and allows the DCR reasonable time to review submittals.

E. The Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings, Product Data, Samples, or similar submittals until the respective submittal has been approved by the DCR. Such Work shall be in accordance with Approved submittals.

F. By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements, and field construction criteria related thereto and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

G. The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the DCR's approval of Shop Drawings, Product Data, Samples, or similar submittals unless the Contractor has specifically informed the DCR in writing of such deviation at the time of submittal and the DCR has given explicit written

approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals by the DCR's actions.

H. The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the DCR on previous submittals.

I. Informational submittals upon which the DCR is not expected to take responsive action may be so identified in the Contract Documents.

J. When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, such certification must be stamped by a registered Massachusetts professional in the discipline required. The DCR shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

K. Materials furnished or used or employed under the Contract must be equal in quality to the samples furnished and be satisfactory to the DCR.

3. Tests.

A. Any material to be used in the Work may be tested or inspected at any time, on or off Site, by or under direction of the DCR, and may be rejected if it fails to comply with specified tests. The Contractor shall test all materials unless specified otherwise in the Special Conditions or Specifications. The Contractor shall also pay for all testing of specified material unless specified otherwise in the Special Conditions or Specifications. If the Contractor requests permission to use a material that was not specified, then the Contractor in all cases shall pay for such testing. The cost of testing of materials that fail the testing criteria shall be borne by the Contractor

B. The Contractor shall notify the DCR of the proposed sources of materials in time to permit all required testing and inspection before the material is needed for incorporation into the Work. The Contractor shall have no claim arising from the Contractor's failure to designate the proposed source or to order the material in time for adequate testing and inspection. Necessary arrangements shall be made to permit the DCR to make factory, shop or other inspection of materials or equipment ordered for the Work in the process of manufacture or fabrication, as required by the Contract Documents. The DCR will not assume any obligation for the sampling and testing of materials other than on the Site, unless so required by the Specifications.

C. Where tests of materials will be made by the DCR or under its direction, the Contractor or his/her suppliers shall furnish such facilities as the DCR may require for collecting and forwarding samples and shall not make use of, nor incorporate into the Work, any material represented by the samples until the required tests have been made and the material accepted, unless otherwise directed. The Contractor in all cases shall furnish the required samples without charge. In the event of failure of materials to meet the Contract Documents, any retesting of new materials or of the same materials after reworking, shall be paid for by the Contractor.

D. The testing of the Work shall not relieve the Contractor of any of his/her obligations to fulfill the terms of the Contract as herein prescribed by the Contract Documents. Failure to reject any defective work or materials shall in no way prevent later rejection when such defect is discovered, notwithstanding that such defective work or materials had been previously overlooked or misjudged by the DCR and accepted or estimated for payment, nor shall such obligate the DCR to make final acceptance thereof. If sampling and testing reveal that the material is unsatisfactory, it will then be the responsibility of the Contractor to remove it from the Work, replace it, or blend it with such other material so that an acceptable material will be produced. The removal, replacement and blending of such material shall be done by the Contractor without additional compensation.

4. "Or Equal" Submissions.

A. Where products or materials are prescribed by manufacturer name, trade name, or catalog reference, the words "or Approved equal" shall be understood to follow. An item shall be considered equal to the item so named or described if in the opinion of the DCR (a) it is at least equal in quality, durability, appearance, strength, and design, (b) it performs at least equally the function imposed in the general design for the Work, and (c) it conforms substantially, even with deviations, to the detailed requirements for the items as indicated by the Specifications. Any structural or mechanical changes made necessary to accommodate products or materials substituted as an "or equal" shall be at the expense of the Contractor. If the cost of the material substituted as an "or equal" is less than the cost of the material specified, such savings in cost shall be credited to the DCR and deducted from the price. "Approved equal" shall mean an item with respect to which the DCR shall have issued a written statement to the Contractor to the effect that the item is, in the DCR's opinion, equal within the meaning of this paragraph to that prescribed in the Contract Documents.

B. The Contractor shall be responsible for providing the DCR with any information and test results that the DCR reasonably requires to determine whether a material is equal to a material named or described in the Contract Documents.

C. The Contractor shall make all requests for substitution of a material named or described in the Contract Documents in writing, and at least thirty (30) days prior to the date the materials will be used in the Work, or immediately upon becoming aware of the following exigencies: (1) the non-availability of the specified material, (2) delay of the delivery of the specified material that will preclude the completion of the Work or any part thereof within the time specified in the Contract or (3) unforeseen field conditions that necessitate the substitution of the specified material. In no event shall the Contractor maintain a claim for delays based upon the DCR's review of such substituted materials if the Contractor failed to submit a written request for such substitution in accordance with the provisions of this paragraph. A written request for a material substitution due to an exigency set forth above shall be accompanied with documentation of the exigency, including but not limited to, a photocopy of a letter from the supplier or manufacturer stating that he/she is unable to furnish the specified materials and the reasons that he/she is unable to furnish the materials, as required by the DCR. If the Contractor's proposed substitution due to an exigency is declined, the DCR shall, at its discretion, specify an "or equal" substitution.

D. The Contractor shall have the burden of proof with respect to any claimed increases in the Contract Price resulting from the improper rejection by the DCR of any material proposed by the Contractor as an equal. No increase in the Contract Price shall be permitted unless the Contractor submits documentary evidence sufficient to prove to the reasonable satisfaction of the DCR that the rejection increased the Contractor's costs over the costs provided for in the Bid pricing documents, net of all savings the Contractor obtained by substituting other "or equal" items. The Contractor shall submit copies of all pricing materials, calculations, plans, Specifications, Drawings, and other design documents that the DCR deems necessary or desirable to evidence such increased costs. In calculating the Contractor's increased costs, a deduction shall be made for all costs that the Contractor would have incurred making structural or mechanical changes to include within the Work the item later found to have been improperly rejected.

5. Delivery and Storage of Materials: Inspection.

A. Materials and equipment shall be progressively delivered to the Site so that there will be neither delay in the progress of the Work nor an undue accumulation of materials that are not to be used within a reasonable time, and stored so that their security, quality, and fitness of the materials for the Work is preserved.

B. Vehicle Weight Limits

1. The Contractor's attention is directed to Chapter 90, Section 19A of the General Laws as amended concerning the weight limits for construction type motor vehicles.
2. No materials supplied for the project shall be accepted in vehicles whose gross weight exceed the legal load limits as determined by the regulatory agencies of the Commonwealth and Federal Government
3. Weight slips that indicate the load exceeding the legal load limit will not be countersigned by the DCR.

C. If the Engineer so requests, the Contractor, at any time before final acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering or removing and the replacing of the covering or making good of the parts removed, will be at the Contractor's expense.

D. Necessary arrangements shall be made to permit the DCR to perform all required inspection and testing of materials or equipment ordered for the Work at the factory or shop during the process of manufacture or fabrication, or in storage on or off Site. The Contractor shall have no claims because of his/her failure to designate the proposed source of the material in time for adequate testing and inspection.

E. Materials stored off Site shall be insured and stored at the expense of the Contractor to guarantee the preservation of their security, quality, and fitness for the Work. Without derogating from the Contractor's responsibilities in the previous sentence, when necessary to avoid deterioration or damage, material (on or off Site) shall be placed on wooden platforms or other hard clean surfaces and not on the ground and shall be properly protected.

F. Expenses for inspection of material by DCR personnel including travel, quarters, and subsistence shall be borne by the Contractor requesting the inspection of material stored outside the Commonwealth of Massachusetts as part of the Contract Price. The policy of the DCR precludes the payment for material stored outside the boundaries of Massachusetts except in extremely limited circumstances with the express written consent of the DCR. If the Contractor requests an inspection of material stored outside the Commonwealth of Massachusetts, the DCR will initially pay for all expenses of inspecting the material incurred by DCR's personnel including travel, quarters, and subsistence. The DCR will then give Contractor an invoice for those costs and the Contractor shall submit a credit Change Order for those expenses.

G. Stored materials either at the Site or at some other location agreed upon in writing shall be so located as to facilitate prompt inspection and even though approved before storage, may again be inspected prior to their use in the Work.

H. Where no inspection of materials is arranged by the DCR and before such materials are incorporated into the work, the Contractor shall be required to submit to the DCR for approval, three copies of the Manufacturer's or Supplier's statement for each kind of material furnished, which shall contain the following information:

1. Work for which the material is consigned.
2. Name of the Contractor to which the material is supplied.
3. Description of material supplied.
4. Quantity of material supplied.
5. Means of identifying the consignment, such as label, marking, seal number, etc.
6. Date and method of shipment.
7. Statement to the effect that the material has been tested and found in conformance with the Contract Documents.
8. Results of all required tests, or in lieu of said results, the Manufacturer's, or Supplier's guarantee that he/she shall maintain said results, and make them available to the DCR for a period of not less than three years from the date of final acceptance of final payment by the Commonwealth.
9. Signature of a person duly authorized to bind the Manufacturer or Supplier.

I. All storage sites shall be restored to their original condition by the Contractor at the Contractor's expense. This shall not apply to the stripping and storing of topsoil, or to other materials salvaged from the work.

J. The Contractor shall take charge of and be liable for any loss of or injury to the materials for his/her use delivered to or in the vicinity of the place where the Work is being done, whether furnished by the DCR or otherwise. The Contractor shall notify the DCR as soon as any such materials are so delivered, allow them to be examined by the DCR, and furnish workers to assist therewith.

K. Private property shall not be used for storage purpose without the written permission of the property owner, and if requested by the DCR copies of such written permission shall be furnished by the Contractor.

6. Defective, Damaged, or Deteriorated Materials and Rejection Thereof.

The DCR may reject materials if the DCR reasonably determines that such materials do not conform to the Contract Documents in any manner, including but not limited to materials that have become damaged or deteriorated from improper storage whether such materials have previously been accepted. The Contractor at its own expense shall remove rejected materials from the Work. No rejected material, the defects of which have been subsequently corrected, shall be used except with the written permission of the DCR. Should the Contractor fail to remove rejected material within a reasonable time, the DCR may, in addition to any other available remedies, remove and/or replace the rejected material, and deduct the cost of such removal and/or replacement from any moneys due or to become due the Contractor. No extra time shall be allowed for completion of Work by reason of such rejection. The inspection of the Work shall not relieve the Contractor of any of its obligations herein prescribed, and any defective Work shall be corrected. Work not conforming to the Contract Documents may be rejected notwithstanding that such Work and materials have been previously overlooked or misjudged by the DCR and accepted for payment. If the Work or any part thereof shall be found defective at any time before Final Acceptance of the whole Work, the Contractor shall forthwith make good such defect in a manner satisfactory to the DCR. Nothing in the Contract shall be construed as vesting in the Contractor any property rights in the materials used after they have been attached or affixed to the Work or the Site; but all such materials shall upon being so attached or affixed become a property of the DCR.

7. Measurement

A. The method of measurement for materials necessary for the proper execution of the Work is set forth at the end of each Section of these Specifications. The computations to be used in determination of quantities of material furnished and of work performed under the Contract shall be selected by the DCR.

B. For the estimating of quantities in which the computations or areas by analytic and geometric methods would be comparatively laborious, it is stipulated and agreed that the planimeter shall be considered an instrument of precision adapted to the measurement of such area.

C. To aid the Resident Engineer in determining the quantities and weights of cement and other materials to be paid for, the Contractor shall, whenever so required, give him access to the proper invoices, bills of lading, etc., and shall provide scales and assistance for weighing, or assistance for measuring, any of the materials.

D. All measurements shall be confirmed by the DCR as they are made to determine the quantities of the various items of work performed. All measurements shall be made according to the United States Standard Units of Measurement.

E. Unless otherwise specified, longitudinal measurements for area computations will be made horizontally. Unless otherwise specified transverse measures for area computations will be the dimensions shown on the Drawings or in writing by the DCR.

F. All items which are measured by the linear foot, including, but not limited to pipe, culverts, guardrail, curbing, will be measured parallel to the base or foundation upon which such structures are placed, unless otherwise shown on the Drawings.

G. In computing volumes of excavation, the average end area method, or other methods acceptable to the DCR will be used.

H. A sworn weigher shall weigh all materials required to be weighed. The weighing of such materials may be witnessed by the DCR.

I. If materials are shipped by rail or trucks, the car weights or quarry weights may be accepted. Weight slips shall be provided for each shipment of material weighed. Each weight slip shall be signed by the sworn weigher, and countersigned, on delivery, by the DCR. Material listed on weight slips that are not countersigned by the DCR shall not be included for payment under the Contract.

J. When requested by the Contractor and approved by the DCR in writing, material specified to be measured in weight may be weighed and converted to volume measurement for payment purposes.

ARTICLE VI: PROSECUTION AND PROGRESS

1. Beginning, Progress Schedule, and Completion of Work.

A. The Contract time shall commence the work upon the date specified in the Notice to Proceed. The Contractor shall begin Work at the Site within ten (10) days of said date unless otherwise ordered in writing by the DCR.

B. Within seven (7) days after the issuance of the Notice to Proceed, Saturdays, Sundays and legal holidays excluded, the Contractor shall submit to the DCR a progress schedule for the term of the Contract as required by the Contract Documents, showing in detail his/her proposed progress for the construction of the various parts of the Work and the proposed times for receiving required materials. Upon approval by the DCR, said schedule shall constitute the Progress Schedule. The Contractor shall at the end of each month, or more often if required, furnish to the DCR a schedule meeting the requirements of the Specifications showing the actual progress of the parts of the Work in comparison with the Progress Schedule.

C. Time is of the essence of this Contract. The Work shall be completed within the time specified in Article 2 of the Department of Conservation and Recreation - Contractor Agreement. Should the Contractor require additional time to complete the Work, the Contractor shall document the reasons therefor and submit a written request for an extension of time within 20 days of the occurrence of the event alleged to be the cause of the delay, as provided in this Article and in Article VII of these General Conditions of the Contract. Failure to submit said written request within the time required by the preceding sentence shall preclude the Contractor from subsequently claiming any time extension due to said delay.

D. If, in the opinion of the DCR, the Contractor fails to comply with the construction schedule as set forth in the Contractor's bid or the Project specifications, the DCR may give the Contractor a notice specifying the time limits and performance standards that the Contractor is failing to meet whereupon (1) the Contractor shall, if the notice requires, discontinue all or any portion of the Work (which discontinuance shall neither terminate the Contract nor give the Contractor any claim for an increase in the Contract Price, damages, or an extension of any completion deadlines); or (2) at Contractor's sole cost increase the work force, equipment and plant, or any of them, employed on the whole or any part of the Work, to the extent required by such notice, and employ the same from day to day until the completion of the Work or such part thereof, or until the failure regarding the rate of progress, in the opinion of the DCR, shall have been sufficiently corrected.

E. If, in the opinion of the DCR, the Contractor fails to comply with the construction schedule, and whether the DCR shall have given the Contractor a notice described in D above, the DCR may (but shall not be required to) give the Contractor notice of such failure and five (5) days to cure the same. Unless the Contractor shall within that five days take all necessary steps to do so (including, if the DCR requires, increasing its forces, equipment and plant) and continue to do so until in the opinion of the DCR the failure is corrected, the DCR may at the Contractor's expense and without terminating this Contract take exclusive or joint possession of all or a portion of the Site and employ and direct the labors of existing or such additional forces, equipment and plant as may in the DCR's opinion be necessary to insure the completion of the Work or such part thereof within the time specified in the Contract Documents or at the earliest possible date thereafter. The DCR may exercise its rights under this Article at any time and from time to time without waiving any of its rights under this Contract, at law or in equity, including, without limitation, the right to deem this Contract terminated or to order the Contractor to discontinue the Work at any time thereafter. The Contractor shall continue to perform the remaining Work under this Contract even if the DCR elects to have another contractor perform a portion of the Work under this Article.

F. The DCR shall deduct the cost of any actions the DCR takes under this Article from any amount then due or which might have become due to the Contractor under this Contract had the Contractor performed as required. On demand, the Contractor shall pay the DCR any amount by which the cost of completing all or any portion of the Work exceeds the amount attributable to that Work under the Contract Documents. The DCR's sole goal will be to complete the Work that it elects to complete within the time limits stated in the Contract or soon thereafter. Consequently, the DCR shall have no obligation to obtain competitive bids or the lowest cost for completing the Work or any part thereof, except when it is required by law. The DCR's election to complete all or part of the Work shall not release the Contractor from any liability for failure to complete the Work as the Contract Documents require and shall not entitle the Contractor to a claim for an increase in the Contract Price or an extension of the time for completing the Work. If the cost that the DCR incurs in completing all or any portion of the Work is less than the amount that the Contract Documents attribute to that Work, the DCR will pay or credit the difference to the Contractor, less any other costs and expenses that the DCR incurs, including the cost of supervision, and attorneys' fees and costs.

2. Failure to Complete Work on Time - Liquidated Damages.

A. If liquidated damages are specified in the Department of Conservation and Recreation - Contractor Agreement, the DCR has determined that its damages because of Contractor's failure to complete the Work fully within the time specified will be difficult or impracticable to ascertain. Accordingly, if the Work is not completed to such point by the date specified in this Contract, the Contractor shall pay to the DCR the sum designated as liquidated damages in the Contract for each calendar day that the Contractor is in default in completing the Work to such point. Such moneys shall be paid as liquidated damages, not as a penalty, to cover losses and expenses to the DCR resulting solely from the fact that the Work is not completed on time.

B. Similarly, if the Contract states that by a specified date a designated portion of the Work shall be fully completed, and if such portion has not been prosecuted to such point by said date, the Contractor shall pay to the DCR the sum designated in the Contract for each calendar day that the Contractor is in default in completing such portion of the Work to such point. Such moneys shall also be paid as liquidated damages, not as a penalty, to cover losses and expenses to the Department of Conservation and Recreation resulting solely from the fact that the Work is not completed on time.

C. The DCR may recover such liquidated damages by deducting the amount thereof from any moneys due or that might become due the Contractor, and if such moneys shall be insufficient to cover the liquidated damages, then the Contractor or the Surety shall pay to the DCR the amount due.

D. Permitting the Contractor to continue and finish the Work or any portion of it after the time fixed in the Contract for its completion shall not be deemed as a waiver of any of the DCR's rights hereunder, at law or in

equity.

E. Liquidated damages or a portion thereof may be waived by the DCR if the Contractor submits evidence satisfactory to the DCR that the delay was caused solely by conditions beyond the control of the Contractor and that the DCR has not suffered any damages because of said delay.

F. Failure by the DCR to specify a sum as liquidated damages in the Department of Conservation and Recreation - Contractor Agreement, or the insertion of "N/A" or "none" in the space provided therein for liquidated damages, shall not be deemed a waiver of the DCR's right to recover actual damages arising from the Contractor's failure to complete the Work on time.

3. Delays: Statutory Provisions (M.G.L. c. 30, sec. 39O).

A. Notwithstanding any provision of this Contract to the contrary, except as otherwise provided by law as set forth in paragraph B below, the Contractor shall not be entitled to increase the Contract Price or to receive damages on account of any hindrances or delays, avoidable or unavoidable; but if any delay is caused in the opinion of the DCR, the Contractor shall be entitled to an extension of time. The length of the extension shall be sufficient in the opinion of the DCR for the Contractor to complete the Work. Although no delay shall increase the Contract Price, the DCR may require that any change in the date by which the Contractor must complete all or any part of the Work be processed on a Change Order form.

B. If a suspension, delay, interruption or failure to act of the DCR increases the cost of performance to any Subcontractor, that Subcontractor shall have the same rights against the Contractor with respect to such increase as the Contractor shall have against the DCR by virtue of (a) and (b) of M.G.L. c. 30, s. 39O set forth below, but nothing in provisions (a) and (b) shall alter any other rights which the Contractor or the subcontractor may have against each other. As used in the statutory language of (a) and (b) below, "contract" means this Contract, "general contractor" means the Contractor and "awarding authority" means the DCR:

"(a) The awarding authority may order the general contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the awarding authority; provided, however, that if there is a suspension, delay or interruption for fifteen days or more or due to a failure of the awarding authority to act within the time specified in this contract, the awarding authority shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the general contractor on such increase; and provided further, that the awarding authority shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.

(b) The general contractor must submit the amount of a claim under provision (a) to the awarding authority in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and except for costs due to a suspension order, the awarding authority shall not approve any costs in the claim incurred more than twenty days before the general contractor notified the awarding authority in writing of the act or failure to act involved in the claim."

4. Occupancy and/or Use of Project Prior to Final Acceptance.

A. The Contractor agrees to the occupancy and/or use of the Project or any portion thereof before Final Acceptance of the Work by the DCR.

B. The DCR will cooperate with the Contractor with respect to the completion of the Work by taking such reasonable steps as may be possible to avoid interference with the Contractor's Work if they do not interfere with the proper functioning of the facility.

C. The Contractor shall not be responsible for wear and tear or damage resulting solely from temporary occupancy.

D. Occupancy and/or use of any part of the Work prior to Final Acceptance by the DCR shall not relieve the Contractor from maintaining the required payment and performance bonds and insurance (to the extent that insurance is required to be maintained after Substantial Completion) required by this Contract.

5. Substantial Completion – Punch List.

A. When the Work, or portion thereof which the DCR agrees to accept separately has reached the state of Substantial Completion as shown on an Approved payment request, the Contractor shall develop, with the participation of the DCR, the Punch List identifying those items of unfinished or unacceptable Work that remain to be performed or corrected under the Contract.

B. Before the Work shall be deemed completed to the point where it is ready for the issuance of Final Acceptance, the Contractor shall:

- (1) Provide Contractor's proposed Punch List containing a statement of the reason for each item listed thereon.
- (2) Advise the DCR of proposed changes in insurance in accordance with the provisions of this Contract, and provide to the DCR evidence of the Contractor's Completed Operations insurance coverage to the extent required by the Contract Documents.
- (3) Execute and submit a notarized warranty on a form provided by the DCR meeting the requirements of Article IX of these General Conditions of the Contract, to commence upon the date of the Certificate of Final Acceptance, unless otherwise provided in the Certificate of Final Acceptance.
- (4) Submit signed special warranties and warranties of longer than one year as required by the Contract Documents.
- (5) Submit signed maintenance agreements for all portions of the Work specified to receive maintenance after the issuance of the Certificate of Final Acceptance.
- (6) Submit all preliminary record Drawings to the DCR and documents and framed data in the forms required by the Contract Documents.
- (7) Complete all items required to be completed by the Department of Public Safety and obtain a Certificate of Occupancy from the Department of Public Safety and similar releases which permit the full and unrestricted use of the areas claimed to be ready for occupancy.
- (8) Deliver specified maintenance stocks of materials, required spare parts, and all special tools furnished by manufacturers to persons designated by the DCR and obtain written receipts for same.
- (9) Make final changes of lock cylinders or cores and advise the DCR of the change of project security responsibility.
- (10) Complete start-up of systems, and instruct DCR personnel on proper operation and routine maintenance of all systems and equipment.
- (11) Remove all remaining temporary facilities that are no longer needed, surplus materials, and debris; (the Contractor shall not remove construction offices and trailers without the prior Approval of the DCR).
- (12) Submit final utility meter readings and similar information and advise the DCR of the change of responsibility for utility charges and payments upon occupancy and/or use,
- (13) Complete final clean-up of all Work, restoration of damaged land and property, including finishes, and replacement of all damaged and broken glass not listed on the Contractor's Punch List.
- (14) Complete such other items as may be called for in the Special Conditions, if any, or Specifications.

C. After completing the items specified in subsection A above, the Contractor shall make a written request for the DCR's inspection for a Certificate of Final Acceptance in accordance with the Contract Documents. The DCR shall review the submittals and the Work and shall either 1) sign a Certificate of Final Acceptance or 2) notify the Contractor of incomplete and/or incorrect Work that must be completed and corrected prior to the issuance of the Certificate of Final Acceptance. The DCR shall notify the Contractor of any additions to the Punch List. In connection with the execution of the Certificate of Final Acceptance, the DCR shall assign dollar values to each item on the Punch List. Failure to include any incomplete or defective item on the Punch List shall not relieve the Contractor of the obligation to complete all Work in accordance with the Contract Documents.

6. Final Acceptance of the Work.

A. Prerequisites for Final Acceptance. After the Contractor has completed all the Work required by this Contract, including Change Orders and Punch List Items, the Contractor shall submit the following completed items to the DCR together with such additional items as may be specified in the Contract Documents:

- (1) A final request for payment showing a final accounting of all changes in the Work.
- (2) Certification and satisfactory evidence that all taxes, fees, and similar obligations have been paid.
- (3) Consent of the Surety to Final Payment executed by applicable bonding companies.
- (4) Certified copy of the Punch List stating that the Contractor has completed or corrected every item listed.
- (5) Evidence of the Contractor's continuing Completed Operations Insurance coverage to the extent required by the Contract Documents.
- (6) All final record Drawings and documents in the forms specified by the Contract Documents.
- (7) A notarized certification that all purchases made under the tax exemption certificate were legitimate and entitled to exemption.

(8) Written certifications from the Department of Public Safety and/or the DCR, where required, to the effect that: a) the Work has been inspected for compliance with the Contract Documents and has satisfied the Department of Public Safety; b) all equipment and systems included in the Work have been tested in the presence of the DCR and are operational and satisfactory; c) the Work is completed and ready for final inspection.

(9) Such other items as may be required by the Contract Documents.

B. Reinspection; Final Acceptance. After notification from the Contractor that all remaining contract exceptions, omissions, and incompletions have been completed (except for the Contractor's continuing warranty, insurance, indemnification, and such other obligations as are intended by the terms of the Contract Documents to extend beyond the date of Final Acceptance), the DCR shall inspect the Work to verify the completion of the same. If the Work is satisfactory, the DCR shall prepare a Certificate of Final Acceptance or shall notify Contractor of items which remain to be completed prior to Final Acceptance.

7. One-Year Warranty Repair List and Inspection.

Approximately 30 days prior to the expiration of the comprehensive one-year warranty period, the Contractor shall schedule an appointment with the DCR for a re-inspection of the Work with the DCR and shall thereafter inspect the Work at the time scheduled. Based on this inspection and on prior inspections, the DCR shall issue a "Warranty Repair List" of items to be corrected by the Contractor. The Contractor shall make the repairs and/or replacements listed within 30 days of the issuance of the Warranty Repair List unless otherwise agreed by the DCR in writing.

ARTICLE VII: CHANGES IN THE WORK

1. Change Orders Generally.

A. The DCR may, pursuant to the provisions of M.G.L. c. 30, sec. 39K, authorize in writing, alterations in the line, grade, plans, form, dimensions or materials of the work, or any part thereof, either before, or after the commencement of construction. If such alterations diminish or increase the quantity included to be done and paid for at a unit price, or work substituted for the work specified is of a different cost and quality, the parties shall be governed by the aforesaid provisions of Law. No changes in the Work shall be made in absence of a Change Order defined in Article I of these General Conditions of the Contract, directing the Contractor to perform such changes. A request for a change in the provisions of this Contract may be submitted to the DCR by the Contractor, Project Engineer or Resident Engineer. The request must be made in writing and in accordance with the provisions of this Contract, Laws, and the procedures of the DCR. The DCR reserves the right to increase or decrease quantities, to eliminate portions of the work or add work of similar nature, and to direct the commencement and order of prosecution of various portions of the work.

B. A Change Order may be issued by the DCR for changes in the Work within the scope of the Contract, including but not limited to, changes in: (1) the Plans and Specifications; (2) the method or manner of performance of the Work; (3) the DCR-furnished facilities, equipment, materials, services, or Site; (4) the schedule for performance of the Work.

C. The Contractor shall immediately perform any Change Order work that is ordered by the DCR.

D. Whenever a Change Order is issued and said Change Order will cause a change in the Contractor's cost, the Contractor or the DCR may request an equitable adjustment in the Contract Price. A request for such an adjustment shall be in writing and shall be submitted by the party making such claim to the other party before commencement of the pertinent work or as soon thereafter as possible.

E. The DCR and the Contractor shall negotiate in good faith an agreement on an equitable adjustment in the Contract Price, and/or time if appropriate, before commencement of the pertinent work or as soon thereafter as is possible. In the absence of an agreement for an equitable adjustment, the DCR shall unilaterally determine the costs attributable to the change and provide the Contractor with a written notice to that effect. The determination of the DCR shall be final as to all questions of the amount and value of extra work, where the Contractor does not appeal said decision pursuant to the process set forth in this paragraph. The Contractor may appeal the decision of the DCR within thirty days of receipt of said notice, to the Commissioner of the DCR or his designee. The Contractor shall have the right to such further appeal as is provided in M.G.L. c. 30, sec. 39Q set forth in Section 4.D of this Article VII. However, if the Contractor shall exercise its rights to appeal the decision of the DCR as

aforesaid, the Contractor shall be required to engage in the mediation procedures set forth in Section 5 of this Article VII, should the DCR require such mediation.

F. During the negotiation of an equitable adjustment in the Contract Price, the Contractor shall, if requested, provide the DCR with all cost and pricing data used by him in computing the amount of the equitable adjustment, and the Contractor shall certify that the pricing data used was accurate, complete, and current. If the DCR subsequently determines that the data submitted by the Contractor was incomplete, incorrect, or not current, the DCR may exclude such data from consideration under the equitable adjustment request.

2. Methods of Computing Equitable Adjustments.

A. Equitable adjustments in the Contract Price shall be determined according to one of the following methods, or a combination thereof, as determined by the DCR: (1) fixed price basis, provided that the fixed price shall be inclusive of items (a) through (e) below and shall be computed in accordance with those provisions; (2) estimated lump sum basis to be adjusted in accordance with Contract unit prices or other agreed upon unit prices provided that the unit prices shall be inclusive of all costs related to such equitable adjustment; (3) time and materials basis to be subsequently adjusted on the basis of actual costs (but subject to a predetermined "not to exceed limit") calculated as follows:

(a) the direct cost (or credit) for labor at the minimum wage rates established for this Contract pursuant to M.G.L. c. 149, sections 26-27H, and the direct cost for material and use of equipment.

(b) plus (or minus) the cost of Workmen's Compensation Insurance, Liability Insurance, Federal Social Security and Massachusetts Unemployment Compensation, or as an alternative the Contractor may elect to use a flat 30% of the total labor rate computed in accordance with subparagraph (a) above.

(c) plus, an allowance equal to 20% of the amount of (a) above for overhead, superintendence, and profit; (In the case of Item 1 work, which is the work of the Contractor and all his non-filed Subcontractors, said 20% allowance shall be paid to the Contractor and the Contractor and said non-filed Subcontractors shall agree upon the distribution of this amount as a matter of contract between them. In the case of Item 2 work, which is work performed by a Subcontractor filed pursuant to M.G.L. c. 149, sec. 44F, said 20% allowance shall be paid to the filed Subcontractor, it being understood that this provision does not apply to other Subcontractors including sub-Subcontractors listed under paragraph E of the form for sub-Bid).

(d) plus, for work performed by a Subcontractor filed pursuant to M.G.L. c. 149, sec. 44F, an additional allowance equal to 7% of the sum of (a) through (c) above as full compensation to the Contractor for processing forms and assuming full responsibility for the faithful performance of such work by said filed Subcontractor(s).

(e) plus (or minus) the actual direct additional premium costs and expenses incurred because of collective bargaining agreements or other agreements between organized labor and employers, and plus (or minus) the actual direct premium cost of payment and performance bonds required of the Contractor and filed Subcontractors for this Contract.

B. If the net change is an addition to the Contract Price, it shall include the Contractor's overhead, superintendence, and profit. On any change that involves a net credit, no allowance for overhead, superintendence and profits shall be included. For any change that does not include labor performed or materials installed in the Project, there will be no markup for the Contractor's overhead, superintendence, and profit, even though there may be a net increase in the Contract Price. Charges for small tools known as "tools of the trade" are not to be computed in the amount of any change in the Contract Price.

C. Statutory Contract adjustments made under the provisions of M.G.L. c. 149, sec. 44F shall not be considered Change Orders and shall not entitle the Contractor to any adjustments for overhead, profit, and superintendence, although the DCR may require that such Contract adjustments be processed on standard Change Order and equitable adjustment forms.

3. Work Performed Under Protest.

The Contractor agrees to perform all Work as directed by the DCR, and if the Project Engineer determines that certain Work that the Contractor believes to be or to warrant a Change Order under this Article does not represent a change in the Work, the Contractor shall perform said Work. The Contractor shall be deemed to have concurred with the Project Engineer's determination as aforesaid unless the Contractor shall perform Work under protest in compliance with the following sub-paragraphs (1) and (2) below:

(1) If the Contractor claims compensation for a change in the Work that is not deemed by the Project Engineer to be a change or to warrant additional compensation as claimed by the Contractor, the Contractor shall within one week after the commencement of any such work or the sustaining of any such damage submit to the Resident Engineer a written statement of the nature of such work or claim. The Contractor shall not be entitled to additional compensation for any work performed or damage sustained for which written notice is not given within the time limit specified in the preceding sentence, even though similar in character to work or damage with respect to which notice is timely given.

(2) On or before the fifteenth day of the month succeeding that in which any such extra work shall have been done or any such damage shall have been sustained, the Contractor shall file to the extent possible with the Resident Engineer, itemized statements of the details and costs of such work performed, or damage sustained. If the Contractor shall fail to make such statement to the extent possible, then the Contractor shall not be entitled to additional compensation for any such work or damages.

4. False Claims. Statutory Provisions Regarding Changes.

A. Criminal Penalties: The Contractor's attention is directed to M.G.L. c. 30, sec. 39I which provides criminal penalties for unauthorized deviations from the Plans and Specifications, and to M.G.L. c. 30, sec. 39J, and if performing work on a capital facility project, M.G.L. c. 7, sec. 42E-42I. The Contractor's attention is also directed to M.G.L. c. 266, sec. 67B which provides criminal penalties for false claims by Contractor under this Contract:

"Whoever makes or presents to any employee, department, agency or public instrumentality of the commonwealth, or of any political subdivision thereof, any claim upon or against any department, agency, or public instrumentality of the commonwealth, or any political subdivision thereof, knowing such claim to be false, fictitious, or fraudulent, shall be punished by a fine of not more than ten thousand dollars or by imprisonment in the state prison for not more than five years, or in the house of correction for not more than two and one-half years, or both."

B. Differing Site Conditions (M.G.L. c. 30, sec. 39N): *"If, during the progress of the work, the contractor or the awarding authority discovers that the actual subsurface or latent physical conditions encountered at the Site differ substantially or materially from those shown on the plans or indicated in the contract documents either the contractor or the contracting authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing Site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the contracting authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly."*

C. Timely Decision by Awarding Authority. (M.G.L. c. 30, sec. 39P): *"Every contract subject to section thirty-nine M of this chapter or section forty-four A of chapter one hundred forty-nine which requires the awarding authority, any official, its architect or engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, shall require that the decision be made promptly and, in any event, no later than thirty days after the written submission for decision; but if such decision requires extended investigation and study, the awarding authority, the official, architect or engineer shall, within thirty days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision will be made."*

D. Change Order / Contract Interpretation Appeal Procedure (M.G.L. c. 30, sec. 39Q): The following provisions apply to every contract awarded by any state agency as defined by M.G.L. c. 7, sec. 39A for the construction, reconstruction, alteration, remodeling, repair, or demolition of any capital facility as defined by the aforesaid section 39A:

"(a) Disputes regarding changes in and interpretations of the terms or scope of the contract and denials of or failures to act upon claims for payment for extra work or materials shall be resolved according to the following procedures, which shall constitute the exclusive method for resolving such disputes. Written notice of the matter in dispute shall be submitted promptly by the claimant to the chief executive official of the state agency which awarded the contract or his designee. No person or business entity having a contract with a state agency shall delay, suspend, or curtail performance under that contract because of any dispute subject to this section. Any

disputed order, decision or action by the agency or its authorized representative shall be fully performed or complied with pending resolution of the dispute.

"(b) Within thirty days of submission of the dispute to the chief executive official of the state agency or his designee, he shall issue a written decision stating the reasons therefore and shall notify the parties of their right of appeal under this section. If the official or his designee is unable to issue a decision within thirty days, he shall notify the parties to the dispute in writing of the reasons why a decision cannot be issued within thirty days and of the date by which the decision shall issue. Failure to issue a decision within the thirty-day period or within the additional time specified in such written notice shall be deemed to constitute a denial of the claim and shall authorize resort to the appeal procedure described below. The decision of the chief executive official or his/her designee shall be final and conclusive unless an appeal is taken as provided below.

"(c) Within twenty-one calendar days of the receipt of a written decision or of the failure to issue a decision as stated in the preceding subparagraph, any aggrieved party may file a notice of claim for an adjudicatory hearing with the division of hearing officers or the aggrieved party may file an action directly in a court of competent jurisdiction and shall serve copies thereof upon all other parties in the form and manner prescribed by the rules governing the conduct of adjudicatory proceedings of the division of hearing officers. In the event an aggrieved party exercises his option to file an action directly in court as provided in the previous sentence, the twenty-one-day period shall not apply to such filing and the period of filing such action shall be the same period otherwise applicable for filing a civil action in superior court. The appeal shall be referred to a hearing officer experienced in construction law and shall be prosecuted in accordance with the formal rules of procedure for the conduct of adjudicatory hearings of the division of hearing officers, except as provided below. The hearing officer shall issue a final decision as expeditiously as possible, but in no event more than one hundred and twenty calendar days after conclusion of the adjudicatory hearing, unless the decision is delayed by a request for extension of time for filing post-hearing briefs or other submissions assented to by all parties. Whenever, because an extension of time has been granted, the hearing officer is unable to issue a decision within one hundred and twenty days, he shall notify all parties of the reasons for the delay and the date when the decision will issue. Failure to issue a decision within the one-hundred-and-twenty-day period or within the additional period specified in such written notice shall give the petitioner the right to pursue any legal remedies available to him without further delay.

"(d) When the amount in dispute is less than ten thousand dollars, a contractor who is party to the dispute may elect to submit the appeal to a hearing officer experienced in construction law for expedited hearing in accordance with the informal rules of practice and procedure of the division of hearing officers. An expedited hearing under this subparagraph shall be available at the sole option of the contractor. The hearing officer shall issue a decision no later than sixty days following the conclusion of any hearing conducted pursuant to this subparagraph. The hearing officer's decision shall be final and conclusive and shall not be set aside except in cases of fraud."

5. Mediation.

In the case of every dispute where the dollar amount in dispute (or the estimated dollar value of the extension of time in dispute) is \$50,000 or more and the Contractor appeals the decision of the DCR or his designee described in Section 4.B above, the DCR shall retain the option at its sole discretion of initiating a process whereby the DCR and the Contractor shall engage in good faith in a non-binding mediation process, which process shall be concluded within sixty days from the date that the Contractor files an appeal from said decision as provided in Section 4.B above.

ARTICLE VIII: PAYMENT PROVISIONS

1. Schedule of Values.

Before the first application for payment the Contractor shall submit to the DCR a schedule of values allocated to various portions of the Work in sufficient detail to reflect the various major components of each trade (with filed Subcontractors as well as MBE/WBE noted), including quantities when requested, aggregating the total Contract Price, and divided so as to facilitate payments for work under each section of the Specifications. The schedule shall be prepared in such form and supported by such data to substantiate its accuracy as the DCR may require. Each item in the schedule shall include its proper share of overhead and profit. When approved by the DCR, it shall constitute the Schedule of Values and shall be used only as a basis for the Contractor's requests for payments.

2. Payment Liabilities of Contractor.

A. The Contractor shall pay to the DCR all expenses, losses, and damages, as determined by the DCR, incurred in consequence of any default, defect, omission or mistake of the Contractor or his/her employees or Subcontractors or the making good thereof.

B. If the Work (or a portion thereof) is not completed to Substantial Completion and the Contractor has not fully completed the Work by the date specified in Article 2 of the Department of Conservation and Recreation - Contractor Agreement, the Contractor shall pay to the DCR liquidated damages as provided in Article VI, Section 2 of these General Conditions of the Contract.

3. Retention of Moneys by the DCR.

A. The DCR may keep any moneys which would otherwise be payable at any time hereunder, and apply the same, or so much as may be necessary therefor, to (1) the DCR's expenditures for the Contractor's account, (2) to secure the DCR's remedies against the Contractor for the Contractor's breach of its obligations under this Contract or the breach of any person performing any part of the Work and (3) the payment of any expenses, losses or damages incurred by the DCR as a result of the failure of the Contractor to perform its obligations hereunder. The DCR may retain, until all claims are settled, such moneys as the DCR estimates to be the fair value of the DCR's claims against the Contractor, and of all claims for labor performed or furnished and for materials used or employed in or in connection with the Work and for the rental of vehicles, appliances and equipment employed and for the employment of substitute contractors and labor in connection with the Work, in accordance with M.G.L. c. 30, sections 39A and 39F. The DCR may make such settlements and apply thereto any moneys retained under this Contract.

B. The Contractor shall each week examine all claims so filed, and if the same are in any respect incorrect or do not correctly show the amount due from the Contractor to the claimant for such labor and materials, the Contractor shall forthwith file with the DCR a separate written statement of all inaccuracies in each claim and of the correct amount due from the Contractor to each claimant therefor, and shall immediately file a statement of all payments thereafter made to such claimants. Each such statement shall be sworn to and contain a detailed breakdown as required by M.G.L. c. 30 s. 39F(d). Unless such statements are so filed by the Contractor the amount shown by the claims filed shall at the option of the DCR be conclusively deemed to be the accurate amount due from the Contractor therefor in all accounting with the DCR. If the moneys retained under this Contract are insufficient to pay the sums found by the DCR to be due under the claims for labor and materials filed as aforesaid, the DCR may, at its discretion, pay the same, and the Contractor shall repay to the DCR all sums paid out. The DCR may also at its discretion use any moneys retained, due or to become due under this Contract, for the purpose of paying for both labor and materials used or employed in the Work for which claims have not been filed with the DCR.

C. No moneys retained under the provisions of this Article shall be held to be statutory security for the payment of claims filed in accordance with the provisions of M.G.L. c. 149, sec. 29, as amended, for which security is provided by bond.

4. Applications for Payment.

A. The Contractor shall, once in each month on the day of the month corresponding to the day of the month specified in the Notice to Proceed referenced in Article 2 of the Department of Conservation and Recreation - Contractor Agreement, in writing and in the manner prescribed by the DCR, submit to the Resident Engineer a statement showing the total amount of Work done to the time of such estimate and the value thereof as approved by the Resident Engineer and the Project Engineer. It shall be the sole responsibility of the Contractor to deliver or cause to be delivered to the Resident Engineer said periodic estimate in proper form, approved as provided above and arithmetically correct. All periodic estimates shall contain such certifications and other evidence supporting the Contractor's right to payment as the DCR may require, including without limitation, lien waivers and other evidence, on such forms as the DCR may require, establishing that title to the equipment or materials is unencumbered and has been transferred to the Department of Conservation and Recreation. If there is no Resident Engineer assigned to the Contract, the DCR shall designate a person at the project field office or alternatively the home office of the DCR. The Contractor shall include in such periodic estimate only such materials as are incorporated in the Work, except as provided in paragraph C below. The DCR shall retain no more than five percent of such estimated value as part security for the completion of the Work and shall pay to the Contractor while carrying on the Work the balance not retained as aforesaid, subject to the approval of the DCR after deducting therefrom all previous payments and all sums to be kept under the provisions of this Contract.

B. Each periodic estimate shall constitute the Contractor's representation that (1) the payment then requested to be disbursed has been incurred by the Contractor on account of the Work and is justly due to Subcontractors or, to the Contractor in the case of other Work performed by the Contractor on account thereof, (2) the materials, supplies and equipment for which Application for Payment is being submitted have been installed or incorporated into the Work or have been stored at the Site or at such off Site storage locations as the DCR shall have Approved, (3) the materials, supplies and equipment are insured in accordance with the provisions of this Contract, (4) the materials, supplies and equipment are owned by the Department of Conservation and Recreation and are not subject to any liens or encumbrances, (5) the Work which is the subject of such periodic estimate has been performed in accordance with the Contract Documents and (6) that all due and payable bills with respect to the Work have been paid to date or shall be paid from the proceeds of such periodic estimate. The Contractor's attention is directed to the criminal penalties for false claims referenced in paragraph A above.

C. The Contractor may include in a periodic estimate the value of materials or equipment delivered at the Site (or at some location agreed to in writing) only upon delivery to the DCR of: (1) an acceptable transfer of title on the form provided by the DCR; (2) written certification by the Contractor (or applicable subcontractor) on the form provided by the DCR that the Contractor (or the Subcontractor which executed the transfer of title) is the lawful owner and that the materials or equipment are free from all encumbrances, accompanied by receipted invoices or other acceptable proof of encumbrance-free ownership if such proof is deemed necessary by the DCR; (3) a stored materials insurance binder that covers the materials for which payment is requested, that names the Department of Conservation and Recreation as an insured party should the stored materials be subjected to any casualty, loss, or theft prior to their inclusion in the Work. The material(s) or equipment must, in the judgment of the DCR (1) meet the requirements of the Contract, including prior drawing, product data, and sample approval, (2) be ready for use, and (3) be properly stored by the Contractor and be adequately protected until incorporated into the Work. See also Article V.5.C of these General Conditions of the Contract concerning the cost of inspections.

D. The DCR may make changes in any periodic estimate submitted by the Contractor in accordance with M.G.L. c. 30, sec. 39K for building projects (see below), and in accordance with M.G.L. c. 30, sec. 39G for public works projects (see below), and the payment due shall be computed in accordance with the changes so made. The provisions of said section 39K shall govern payments for building projects on which the DCR has made changes, and the provisions of said section 39G shall govern payments for public works projects on which the DCR has made changes.

E. No certificate for payment and no progress payment shall constitute acceptance of Work that is not in accordance with the Contract Documents.

F. The Contractor and all Subcontractors furnishing labor on this Contract agree to furnish certified payroll reports if requested to do so, at no additional expense to the DCR. The DCR may at all reasonable times audit such reports.

5. Periodic Payments (M.G.L. c. 30, sec. 39K) for Building Projects.

For building contracts, the DCR shall make payment to the Contractor in accordance with M.G.L. c. 30, sec. 39K, which provides as follows:

" Within fifteen days (30 days in the case of the commonwealth, including local housing authorities) after receipt from the contractor, at the place designated by the awarding authority if such a place is so designated, of a periodic estimate requesting payment of the amount due for the preceding month, the awarding authority will make a periodic payment to the contractor for the work performed during the preceding month and for the materials not incorporated in the work but delivered and suitably stored at the site (or at some location agreed upon in writing) to which the contractor has title or to which a subcontractor has title and has authorized the contractor to transfer title to the awarding authority upon certification by the contractor that he is the lawful awarding authority and that the materials are free from all encumbrances, but less (1) a retention based on its estimate of the fair value of its claims against the contractor and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and less (3) a retention not exceeding five percent of the approved amount of the periodic payment. After the receipt of a periodic estimate requesting final payment and within sixty-five days after (a) the contractor fully completes the work or substantially completes the work so that the value of the work remaining to be done is, in the estimate of the awarding authority, less than one percent of the original contract price, or (b) the contractor substantially completes the work and the awarding authority takes possession for occupancy, whichever occurs first, the awarding authority shall pay the contractor the entire balance due on the Contract less (1) a retention based on its estimate of the fair value of its claims against the

contractor and of the cost of completing the incomplete and unsatisfactory items of work and less (2) a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, or based on the record of payments by the contractor to the subcontractors under this contract if such record of payment indicates that the contractor has not paid subcontractors as provided in section thirty-nine F. If the awarding authority fails to make payment as herein provided, there shall be added to each such payment daily interest at the rate specified in in G.L. c. 29, §29C , commencing on the first day after said payment is due and continuing until the payment is delivered or mailed to the contractor; provided, that no interest shall be due, in any event, on the amount due on a periodic estimate for final payment until fifteen days (twenty-four days in the case of the commonwealth) after receipt of such period estimate from the contractor, at the place designated by the awarding authority if such a place is so designated. The contractor agrees to pay to each subcontractor a portion of any such interest paid in accordance with the amount due each subcontractor.

The awarding authority may make changes in any periodic estimate submitted by the contractor and the payment due on said periodic estimate shall be computed in accordance with the change so made, but such changes or any requirement for a corrected periodic estimate shall not affect the due date for the periodic payment or the date for the commencement of interest charges on the amount of the periodic payment computed in accordance with the changes made, as provided herein; provided, that the awarding authority may, within seven days after receipt, return to the contractor for correction, any periodic estimate which is not in the required form or which contains computations not arithmetically correct and, in that event, the date of receipt of such periodic estimate shall be the date of receipt of the corrected periodic estimate in proper form and with arithmetically correct computations. The date of receipt of a periodic estimate received on a Saturday shall be the first working day thereafter. The provisions of section thirty-nine G shall not apply to any contract for the construction, reconstruction, alteration, remodeling, repair, or demolition of any public building to which this section applies.

All periodic estimates shall be submitted to the awarding authority, or to its designee as set forth in writing to the contractor, and the date of receipt by the awarding authority or its designee shall be marked on the estimate. All periodic estimates shall contain a separate item for each filed sub-trade and each sub-sub-trade listed in sub-bid form as required by specifications and column listing the amount paid to each filed subcontractor as of the date of the periodic estimate is filed. The person making payment for the awarding authority shall add the daily interest provided for herein to each payment for each day beyond the due date of receipt marked on the estimate.

A certificate of the architect to the effect that the contractor has fully or substantially completed the work shall, subject to the provisions of section thirty-nine J, be conclusive for the purposes of this section.

Notwithstanding the provisions of this section, at any time after the value of the work remaining to be done is, in the estimation of the awarding authority, less than 1 per cent of the adjusted contract price, or the awarding authority has determined that the contractor has substantially completed the work and the awarding authority has taken possession for occupancy, the awarding authority may send to the general contractor by certified mail, return receipt requested, a complete and final list of all incomplete and unsatisfactory work items, including, for each item on the list, a good faith estimate of the fair and reasonable cost of completing such item. The general contractor shall then complete all such work items within 30 days of receipt of such list or before the contract completion date, whichever is later. If the general contractor fails to complete all incomplete and unsatisfactory work items within 45 days after receipt of such items furnished by the awarding authority or before the contract completion date, whichever is later, subsequent to an additional 14 days' written notice to the general contractor by certified mail, return receipt requested, the awarding authority may terminate the contract and complete the incomplete and unsatisfactory work items and charge the cost of same to the general contractor and such termination shall be without prejudice to any other rights or remedies the awarding authority may have under the contract. The awarding authority shall note any such termination in the evaluation form to be filed by the awarding authority pursuant to the provisions of section 44D of chapter 149."

6. Payment of Subcontractors (M.G.L. c. 30, sec. 39F).

The Contractor shall make payments to Subcontractors in accordance with the provisions of M.G.L. c. 30, sec. 39F, which is quoted in this section below, where applicable. (M.G.L. c. 30, sec. 39F requires that subparagraphs (a) through (h) be set forth in contracts awarded under M.G.L. c. 30, sec. 39M and M.G.L. c. 149, sections 44A-44H; said statute requires that subparagraph (i) be set forth in contracts awarded under M.G.L. c. 149, sections 44A-44H).

"1(a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general Contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the Plans and Specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring such payment and less any amount claimed due from the subcontractor by the general contractor.

(c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of that subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (1) and (2) the awarding authority shall act upon the demand as provided in this section.

(d) If, within seventy days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, the subcontractor may demand direct payment of that balance from the awarding authority. The demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract and a statement of the status of completion of the subcontract work. Any demand made after substantial completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement to or sent by certified mail to the awarding authority and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

(e) Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work, (ii) specified in any court proceedings barring such payment, or (iii) disputed by the general contractor in the sworn reply; provided that the awarding authority shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority shall make further direct payments to the subcontractor forthwith after the removal of the basis for deduction from direct payments made as provided in parts (i) and (ii) of this subparagraph.

(f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (5) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demand for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (6) shall be made out of amounts payable to the general

contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the General contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.

(h) The awarding authority shall deduct from payments to a General contractor amounts which, together with the deposits in interest bearing accounts pursuant to subparagraph (6) are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.

(i) If the subcontractor does not receive payment as provided in subparagraph (1) or if the general contractor does not submit a periodic estimate for the value of the labor or materials performed or furnished by the subcontractor and the subcontractor does not receive payment for same when due less the deductions provided for in subparagraph (1), the subcontractor may demand direct payment by following the procedure in subparagraph (4) and the general contractor may file a sworn reply as provided in that same subparagraph. A demand made after the first day of the month following that for which the subcontractor performed or furnished the labor and materials for which the subcontractor seeks payment shall be valid even if delivered or mailed prior to the time payment was due on a periodic estimate from the general contractor. Thereafter the awarding authority shall proceed as provided in subparagraph (e), (f), (g) and (h).

(2) Any assignment by a subcontractor of the rights under this section to a surety company furnishing a bond under the provisions of section twenty-nine of chapter one hundred forty-nine shall be invalid. The assignment and subrogation rights of the surety to amounts included in a demand for direct payment which are in the possession of the awarding authority, or which are on deposit pursuant to subparagraph (6) shall be subordinate to the rights of all subcontractors who are entitled to be paid under this section and who have not been paid in full.

(3) "subcontractor" as used in this section (l) for contracts awarded as provided in sections forty-four A to forty-four L, inclusive, of chapter one hundred forty-nine shall mean a person who files a sub-bid and received a subcontract as a result of that filed sub-bid or who is approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, (ii) for contracts awarded as provided in paragraph (1) of section thirty-nine M of chapter thirty shall mean a person approved by the awarding authority in writing as a person performing labor or both performing labor and furnishing materials pursuant to a contract with the general contractor, and (iii) for contracts with the commonwealth not awarded as provided in sections forty-four A to forty-four L, inclusive, of chapter one hundred forty-nine shall also mean a person contracting with the general contractor to supply materials used or employed in a public works project for a price in excess of five thousand dollars.

(4) A general contractor or a subcontractor shall enforce a claim to any portion of the amount of a demand for direct payment deposit as provided in subparagraph (6) by a petition in equity in the superior court against the other and the bank shall not be a necessary party. A subcontractor shall enforce a claim for direct payment or a right to require a deposit as provided in subparagraph (6) by a petition in equity in the superior court against the awarding authority and the general contractor shall not be a necessary party. Upon motion of any party the court shall advance for speedy trial any petition filed as provided in this paragraph. Sections fifty-nine and fifty-nine B of chapter two hundred thirty-one shall apply to such petitions. The court shall enter an interlocutory decree upon which execution shall issue for any part of a claim found due pursuant to sections fifty-nine and fifty-nine B and, upon motion of any party, shall advance for speedy trial the petition to collect the remainder of the claim. Any party aggrieved by such interlocutory decree shall have the right to appeal therefrom as from a final decree. The court shall not consolidate for trial the petition of any subcontractor with the petition of one or more subcontractors or the same general Contract unless the court finds that a substantial portion of the evidence of the same events during the course of construction (other than the fact that the claims sought to be consolidated arise under the same general contract) is applicable to the petitions sought to be consolidated and that such consolidation will prevent unnecessary duplication of evidence. A decree in any such proceeding shall not include interest on the disputed amount deposited more than the interest earned for the period of any such deposit. No person except a subcontractor filing a demand for direct payment for which no funds due the general contractor are available for direct payment shall have a right to file a petition in court of equity against the awarding authority claiming a demand for direct payment is premature and such subcontractor must file the petition before the awarding authority has made a direct payment to the subcontractor and has made a deposit of the disputed portion as provided in part (iii) of subparagraph (5) and in subparagraph (6).

(5) In any petition to collect any claim for which a subcontractor has filed a demand for direct payment the court shall, upon motion of the general contractor, reduce by the amount of any deposit of a disputed amount by the awarding authority as provided in part (iii) of subparagraph (5) and in subparagraph (6) any amount held under a trustee writ or pursuant to a restraining order or injunction."

7. Contracts for Public Works Governed by M.G.L. c. 30, sec. 39G:

The following statutory provision applies only to contracts for public works governed by M.G.L. c. 30, sec. 39G: "Upon substantial completion of the work required by a Contract with the Owner, or any agency or political subdivision thereof, for the construction, reconstruction, alteration, remodeling, repair or improvement of public ways, including bridges, and other highway structures, sewers and water mains, airports and other public works, the contractor shall present in writing to the awarding authority its certification that the work has been substantially completed. Within twenty-one days thereafter, the awarding authority shall present to the contractor either a written declaration that the work has been substantially completed or an itemized list of incomplete or unsatisfactory work items required by the Contract sufficient to demonstrate that the work has not been substantially completed. The awarding authority may include with such a list a notice setting forth a reasonable time, which shall not in any event be prior to the Contract completion date, within which the contractor must achieve substantial completion of the work. If the awarding authority fails to respond, by presentation of a written declaration or itemized list as aforesaid, to the contractor's certification within the twenty- one-day period, the contractor's certification shall take effect as the awarding authority's declaration that the work has been substantially completed.

Within sixty-five days after the effective date of a declaration of a substantial completion, the awarding authority shall prepare and forthwith send to the contractor for acceptance a substantial completion estimate for the quantity and price of the work done and all but one percent retainage of that undisputed part of each work item and extra work item in dispute but excluding the disputed part thereof, less the estimated cost of completing all incomplete and unsatisfactory work items and less the total periodic payments made to date for the work. The awarding authority also shall deduct from the substantial completion estimate an amount equal to the sum of all demands for direct payments filed by subcontractors and not yet paid to subcontractors or deposited in joint accounts pursuant to section thirty-nine F, but no Contract subject to said section thirty-nine F shall contain any other provision authorizing the awarding authority to deduct any amount by virtue of claims asserted against the Contract by subcontractors, material suppliers or others.

If the awarding authority fails to prepare and send to the contractor any substantial completion estimate required by this section on or before the date herein above set forth, the awarding authority shall pay to the contractor interest on the amount which would have been due to the contractor pursuant to such substantial completion estimate at the rate of three percentage points above the rediscount rate then charged by the Federal Reserve Bank of Boston from such date to the date on which the awarding authority sends that substantial completion estimate to the contractor for acceptance or to the date of payment therefor, whichever occurs first. The awarding authority shall include the amount of such interest in the substantial completion estimate.

Within fifteen days after the effective date of the declaration of substantial completion, the awarding authority shall send to the contractor by certified mail, return receipt requested, a complete list of all incomplete or unsatisfactory work items, and, unless delayed by causes beyond his control, the contractor shall complete all such work items within forty-five days after the receipt of such list or before the then Contract completion date, whichever is later. If the contractor fails to complete such work within such time, the awarding authority may, after seven days' written notice to the contractor by certified mail, return receipt requested, terminate the Contract, and complete the incomplete or unsatisfactory work items and charge the cost of same to the contractor.

Within thirty days after receipt by the awarding authority of a notice from the contractor stating that all of the work required by the Contract has been completed, the awarding authority shall prepare and forthwith send to the contractor for acceptance a final estimate for the quantity and price of the work done and all retainage on that work less all payments made to date, unless the awarding authority's inspection shows that work items required by the Contract remain incomplete or unsatisfactory, or that documentation required by the Contract has not been completed. If the awarding authority fails to prepare and send to the contractor the final estimate within thirty days after receipt of notice of completion, the awarding authority shall pay to the contractor interest on the amount

which would have been due to the contractor pursuant to such final estimate at the rate hereinabove provided from the thirtieth day after such completion until the date on which the awarding authority sends the final estimate to the contractor for acceptance or the date of payment therefore, whichever occurs first, provided that the awarding authority's inspection shows that no work items required by the Contract remain incomplete or unsatisfactory. Interest shall not be paid hereunder on amounts for which interest is required to be paid in connection with the substantial completion estimate as hereinabove provided. The awarding authority shall include the amount of the interest required to be paid hereunder in the final estimate.

The awarding authority shall pay the amount due pursuant to any substantial completion or final estimate within thirty-five days after receipt of written acceptance for such estimate from the contractor and shall pay interest on the amount due pursuant to such estimate at the rate hereinabove provided from that thirty-fifth day to the date of payment. Within 15 days, 30 days in the case of the commonwealth, after receipt from the contractor, at the place designated by the awarding authority, if such place is designated, of a periodic estimate requesting payment of the amount due for the preceding periodic estimate period, the awarding authority shall make a periodic payment to the contractor for the work performed during the preceding periodic estimate period and for the materials not incorporated in the work but delivered and suitably stored at the Site, or at some location agreed upon in writing, to which the contractor has title or to which a subcontractor has title and authorized the contractor to transfer title to the awarding authority, upon certification by the contractor that he is the lawful owner and that the materials are free from all encumbrances. The awarding authority shall include with each such payment interest on the amount due pursuant to such periodic estimate at the rate herein above provided from the due date. In the case of periodic payments, the contracting authority may deduct from its payment a retention based on the estimate of the fair value of its claims against the contractor, a retention for direct payments to subcontractors based on demands for same in accordance with the provisions of section thirty-nine F, and a retention to secure satisfactory performance of the contractual work not exceeding five per cent of the approved amount of any periodic payment, and the same right to retention shall apply to bonded subcontractors entitled to direct payment under section thirty-nine F of chapter thirty; provided that a five per cent value of all items that are planted in the ground shall be deducted from the periodic payments until final acceptance.

No periodic, substantial completion or final estimate or acceptance or payment thereof shall bar a contractor from reserving all rights to dispute the quantity and amount of, or the failure of the awarding authority to approve a quantity and amount of, all or part of any work item or extra work item.

Substantial completion, for the purposes of this section, shall mean either that the work required by the Contract has been completed except for work having a Contract Price of less than one percent of the then adjusted total Contract Price, or substantially all of the work has been completed and opened to public use except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the work required by the contract"

8. Liens

Neither the final payment nor any part of the retained percentage shall become due until the Contractor, if required, delivers to the DCR a complete release of all liens arising out of this Contract, or receipts in full in lieu thereof and, if required in either case, an affidavit that so far as he/she has knowledge or information, the releases and receipts include all labor and material for which a lien could be filed; but the Contractor may, if any Subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the DCR, to indemnify him against any lien. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the DCR, all moneys that the latter may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

9. Final Payment: Release of Claims by Contractor.

Upon Final Acceptance of the Work the Contractor shall be entitled to payment of the balance of the Contract Price. Final payment shall be as provided in this Article above and in accordance with any process set forth in the Special Conditions. The Contractor agrees to execute a Certificate of Final Inspection, Release (with Contractor's own exceptions listed thereon) and Acceptance as a condition precedent to Final Payment. The acceptance by the Contractor of the Final Payment made as aforesaid, or the execution of the Certificate of Final Acceptance by the Contractor, shall constitute a release of the Department of Conservation and Recreation, and every member and agent of it, from all claims of and liability to the Contractor for anything done or furnished for or relating to the

Work, or for any act or neglect of the Department of Conservation and Recreation, or of any person relating to or affecting the Work, except the claim against the Department of Conservation and Recreation for the remainder, if any there be, of the amounts set forth by the Contractor in the Certificate of Final Inspection, Release and Acceptance. Final Acceptance shall not relieve the Contractor of the requirements of Articles IX, XIV, and XV of these General Conditions of the Contract, or of other provisions of this Contract, to the extent that the same are intended to survive Final Acceptance.

ARTICLE IX. GUARANTEES AND WARRANTIES

1. General Warranty.

If at any time during the period of one (1) year from the date of Final Acceptance, any part of such Work shall in the reasonable opinion of the DCR be defective or require replacing or repairing, or damage to other property of the DCR is caused by any defect in the Work, the DCR shall notify the Contractor in writing to make the required repairs or replacements and repair such damage. If the Contractor shall neglect to commence such repairs or replacements to the satisfaction of the DCR within ten (10) days from the date of the giving of such notice, then the DCR may employ other persons to make the same. The Contractor agrees, upon demand, to pay to the DCR all amounts which it expends for such repairs, replacements, and/or damages. During this one-year guarantee period any corrective work shall be performed under all the applicable terms of this Contract, and if Change Orders are issued in accordance with the terms of this Contract, the Contractor shall be entitled to compensation for special insurance, as required. This one-year guarantee shall not limit any express guaranty or warranty provided elsewhere in the Contract.

2. Special Guarantees and Warranties.

A. The Contractor's obligation to correct Work as set forth in paragraph 1 above is in addition to, and not in substitution of, such guarantees or warranties as may be required in the various sections of the Specifications.

B. Guarantees and warranties required in the various sections of the Specifications must be delivered to the DCR before final payment to the Contractor may be made, or in the case of guarantees and warranties which originate with a subcontractor's section of the Work, before final payment for that sub-trade or for the phase of Work to which the guarantee or warranty relates.

C. The failure to deliver a required guarantee or warranty shall constitute a failure to fully complete the Work in accordance with the Contract Documents.

ARTICLE X: MISCELLANEOUS LEGAL REQUIREMENTS.

1. Contractor to be Informed.

The Contractor shall inform itself of all existing and future Laws in any manner affecting those engaged or employed in the Work, or the materials used or employed in the Work, or in any way affecting the conduct of the Work, and of all orders and decrees of bodies or tribunals having any applicable jurisdiction or authority over the Work.

2. Compliance with all Laws.

The Contractor shall cause all persons employed in the performance of the Work to comply with all existing and future Laws, including but not limited to those set forth below:

A. Corporate Disclosures. The Contractor if a foreign corporation, shall comply with M.G.L. c. 30, sec. 39L.

B. Veterans Preference. In the employment of mechanics and apprentices, teamsters, chauffeurs, and laborers in the performance of Work in the Commonwealth, preference shall first be given to citizens of the Commonwealth who have been residents of the Commonwealth for at least six months at the commencement of their employment and who are veterans as defined M.G.L. c. 4, sec. 7(43), and who are qualified to perform the work to which the employment relates; and secondly, to citizens of the Commonwealth generally who have been residents of the Commonwealth for at least six months at the commencement of their employment, and if they cannot be obtained in sufficient numbers, then to citizens of the United States.

C. Prevailing Wages. The Contractor shall comply with M.G.L. c. 149, sections 26- 27H. The prevailing wage schedule is found in Exhibit A to the Instructions to Bidders, listing the prevailing minimum wage rates that must be paid to all workers employed in the Work. The DCR is not responsible for any errors, omissions, or misprints in said schedule. Such

Schedule shall continue to be the minimum rate of wages payable to workers employed in the Work throughout the term of this Contract, subject to the exceptions provided in M.G.L. c. 149, sections 26-27H. The Contractor shall not have any claim for extra compensation from the Department of Conservation and Recreation if the actual wages paid to workers employed in the Work exceeds the rates listed on the schedule or as otherwise provided by law. The Contractor shall cause a copy of said Schedule to be kept in a conspicuous place at the Site during the term of the Contract. If reserve police officers are employed by the Contractor, they shall be paid the prevailing wage of regular police officers. (See M.G.L. c. 149, sec. 34B).

D. Payroll Records and Statement of Compliance. The Contractor shall comply and shall cause its Subcontractors to comply with Massachusetts General Law c. 149, sec. 27B, which requires that a true and accurate record be kept of all persons employed on a project for which the prevailing wage rates have been provided. The Contractor and all Subcontractors shall keep these records and preserve them for a period of three years from the date of completion of the Contract. Such records shall be open to inspection by any authorized representative of the Department of Conservation and Recreation at any reasonable time, and as often as may be necessary. The Contractor shall, and shall cause its subcontractors to, submit weekly copies of their weekly payroll records to the DCR. In addition, the Contractor and each Subcontractor shall furnish to the Executive Department of Labor within fifteen days after completion of its portion of the Work a signed statement in the form required by the DCR.

E. Vehicle operators. If the Director of the Department of Labor and Workforce Development has established a Schedule of wage rates to be paid to the operators of trucks, vehicles or equipment for the Work, the Contractor shall be obligated to pay such operators at least the minimum wage rate contained on such Schedule. (See M.G.L. c. 149, sections 26-27H).

F. Eight Hour Day. The Contractor shall comply with M.G.L. c. 149, sections 30 and 34, which provide that no laborer, workman, mechanic, foreman or inspector working within the Commonwealth in the employ of the Contractor, subcontractor or other person doing or contracting to do the whole or part of the Work shall be required or permitted to work more than eight hours in any one day or more than forty-eight hours in any one week, or more than six days in any one week, except in cases of extraordinary emergency.

G. Timely Payment of Wages. The Contractor shall comply with and shall cause its Subcontractors to comply with M.G.L. c. 149, sec. 148 which requires the weekly or biweekly payment of employees within six days of the end of the pay period during which wages were earned if employed for five or six days of a calendar week, and within other periods of time under certain circumstances as set forth therein.

H. Lodging, etc. The Contractor shall comply with, and shall cause its Subcontractors to comply with, M.G.L. c. 149, sec. 25 which provides that every employee under this Contract shall lodge, board, and trade where and with whom he elects, and neither the Contractor nor his agents or employees shall, either directly or indirectly, require as a condition of the employment of any person that the employee shall lodge, board, or trade at a particular place or with a particular person.

I. Truck Rates. The use by the Contractor of trucks or other motor vehicles hired from either common or contract motor carriers in the course of performance of this Contract is subject to such minimum rates and charges, and rules and regulations as may from time to time be promulgated by the Department of Public Utilities of the Commonwealth of Massachusetts or other agency of the State or Federal government which may be authorized by law to set rates or otherwise regulate the use of such vehicles. The Contractor expressly assumes the risk of any additional expense that may arise by reason of any change in such minimum rates and charges, and rules and regulations, and shall be entitled to no additional compensation or reimbursement by reason thereof.

J. Anti-Boycott Covenant (Executive Order #130). The Contractor warrants, represents and agrees that during the time this Contract is in effect, neither it nor any affiliated company, as hereafter defined, participates in or cooperates with an international boycott, as defined in Section 999(b) (3) and (4) of the Internal Revenue Code of 1954, as amended, or engages in conduct declared to be unlawful by M.G.L. c. 151E, sec. 2. If there shall be a breach in the warranty, representation or agreement contained in this paragraph, then without limiting such other rights as it may have the DCR shall be entitled to rescind this contract. As used herein, an affiliated company shall be any business entity of which at least 51% of the ownership interests are directly or indirectly owned by the Contractor or by a person or persons or business entity or entities directly or indirectly owning at least 51% of the ownership interests of the Contractor; or which directly or indirectly owns at least 51% of the ownership interests of the Contractor.

K. Contractor's Agreements with Suppliers--Anti-Boycott and Anti-Discrimination Provisions.

(1) The Contractor shall not purchase or rent any materials, equipment, machinery, vehicles or supplies for or in connection with the Work from any person or entity who does not sign, under pains and penalties of perjury, a certificate that recites: "the undersigned warrants, represents and agrees that during the time its agreement with (insert contractor's name) is in effect for materials, supplies or equipment to be used in connection with the Department of Conservation and Recreation Contract No. (insert contract number), neither the undersigned or any affiliated company, as hereafter defined, participates in or cooperates with an international boycott, as defined in Section 999(b)(3) and (4) of the Internal Revenue Code of 1954, as amended, or engages in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws. As used herein, an affiliated company shall be any business entity of which at least 51% of the ownership interests are directly or indirectly owned by the undersigned or by a person or persons or business entity or entities directly or indirectly owning at least 51% of the ownership interests of the undersigned; or which directly or indirectly owns at least 51% of the ownership interests of the undersigned."

(2) The DCR shall not be obligated to pay the Contractor for the cost of any materials, supplies, or equipment purchased or rented from any individual or entity from whom the Contractor has not previously obtained and delivered to the DCR the certificate that the previous paragraph requires. The Contractor will immediately terminate its contract with any supplier who breaches the warranty, representation and agreement contained in the previous paragraph.

(3) The Contractor shall include in the Contractor's agreement with any person or entity from whom the Contractor intends to purchase or rent any materials, equipment, machinery, vehicles or supplies for or in connection with the Work, (a) a notice that this Contract obligates the Contractor to terminate the supply contract upon discovery of such breach of the sworn certificate delivered under subparagraph (1) and such termination shall be without liability to the Contractor or the DCR and (b) a provision which states: "The Governor or his designee, the secretary of administration and finance, and the state auditor or his designee shall have the right at reasonable times and upon reasonable notice to examine the books, records and other compilations of the undersigned vendor which pertain to the performance and requirements of this agreement to provide materials of any nature to the undersigned contractor in connection with DCR Contract No. (insert contract number)."

L. Access to Contractor's Records (Executive Order #195). The Governor or his/her designee, the secretary of administration and finance, and the state auditor or his/her designee shall have the right at reasonable times and upon reasonable notice to examine the books, records, and other compilations of data of the Contractor which pertain to the performance and requirements of this Contract.

ARTICLE XI: CONTRACTOR'S ACCOUNTING METHOD REQUIREMENTS (M.G.L. c. 30, sec. 39R)

1. Definitions.

The words defined herein shall have the meaning stated below whenever they appear in this Article XI:

--"Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a Contract pursuant to M.G.L. c. 30, sec. 39M, and M.G.L. c. 149, sections 44A-H.

--"Contract" means any Contract awarded or executed pursuant to M.G.L. c. 30, sec. 39M, M.G.L. c. 149, sections 44A-H.

--"Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his/her residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the awarding authority.

--"Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.

--"Audit", when used regarding financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a certified opinion thereon, or, in the alternative, a qualified opinion or a declination to

express an opinion for stated reasons.

Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.

2. Record Keeping.

A. The Contractor shall make, and keep for at least six years after final payment, books, records, and accounts that in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor.

B. Until the expiration of six years after final payment, the Inspector General and the DCR shall have the right to examine any books, documents, papers or records of the Contractor and Subcontractors that directly pertain to and involve transactions relating to the Contractor and Subcontractors.

C. The Contractor shall describe any change in the method of maintaining records or recording transactions which materially affects any statements filed with the DCR including the date of the change and reasons therefor and shall accompany said description with a letter from the Contractor's independent certified public accountant approving or otherwise commenting on the changes.

D. The Contractor represents that it has, prior to the execution of the Contract, filed a statement of management on internal accounting controls as set forth in Section 3 below.

E. The Contractor represents that it has, prior to the execution of the Contract, filed an audited financial statement for the most recent completed fiscal year as set forth in section 4 below and will continue to file such statement annually during the term of the Contract.

3. Statement of Management Controls.

A. The Contractor shall file with the DCR a statement of management as to whether the system of internal accounting controls of the Contractor and its subsidiaries reasonably assures that:

- (1) transactions are executed in accordance with management's general and specific authorization.
- (2) transactions are recorded as necessary: (a) to permit preparation of financial statements in conformity with generally accepted accounting principles, and (b) to maintain accountability for assets.
- (3) access to assets is permitted only in accordance with management's general or specific authorization; and
- (4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.

B. The Contractor shall file with the DCR a statement prepared and signed by an independent certified public accountant, stating that the accountant has examined the statement of management on internal accounting controls, and expressing an opinion as to:

- (1) whether the representations of management in response to subparagraph 3 above are consistent with the results of management's evaluation of the system of internal accounting controls; and
- (2) whether such representations of management are reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statement.

4. Annual Financial Statement.

A. Every Contractor awarded a contract under M.G.L. c. 30, sec. 39M or M.G.L. c. 149, sections 44A-44H shall annually file with the Commissioner of the Division of Capital Asset Management and Maintenance during the term of the Contract a financial statement prepared by an independent certified public accountant based on an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statements shall be made available to the DCR upon request.

B. The office of Inspector General and the DCR shall have the right to enforce the provisions of this Article. A Contractor's failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to M.G.L. c. 149, sec. 44C.

5. Bid Pricing Materials.

The Contractor shall save the written calculations, pricing information, and other data that the Contractor used to calculate the bid that induced the DCR to enter this Contract (the "Bid Pricing Materials") for at least six years after the DCR makes final payment under this Contract.

ARTICLE XII: EQUAL EMPLOYMENT OPPORTUNITY, NON-DISCRIMINATION, AND AFFIRMATIVE ACTION PROGRAM.

This Contract includes the provisions of the DCR's "Equal Employment Opportunity, Non-Discrimination, and

Affirmative Action Program," attached as Appendix A to these General Conditions of the Contract and incorporated herein by reference.

ARTICLE XIII: GOALS FOR PARTICIPATION BY MINORITY BUSINESS ENTERPRISES AND WOMEN BUSINESS ENTERPRISES

This Contract includes the provisions of the DCR's "Goals for Participation by Minority Business Enterprises and Women Business Enterprises (Executive Order 390), attached as Appendix B to these General Conditions, and as set forth in Section 8 of the Instructions to Bidders, and incorporates same herein by reference.

ARTICLE XIV: INSURANCE REQUIREMENTS

The Contractor shall carry insurance, in the amounts and types specified in Section 7 of the Instructions for Bidders for this Contract and shall comply with all provisions relating to insurance set forth in said Section 7.

ARTICLE XV: INDEMNIFICATION

1. Generally.

To the fullest extent permitted by law, the Contractor shall indemnify, defend (with counsel subject to the supervision of the Attorney General of the Commonwealth of Massachusetts as required by M.G.L. c. 12, sec. 3) and hold harmless the Commonwealth of Massachusetts, its Department of Conservation and Recreation, and its officers, agents, divisions, employees, representatives, successors and assigns from and against all claims, damages, losses and expenses, including but not limited to court costs and attorneys' fees, arising out of or resulting from the performance of the Work, including but not limited to those arising or resulting from:

- labor performed or furnished and/or materials used or employed in the performance of the Work.
- violations by the Contractor, any subcontractor, or by any person directly or indirectly employed or used by any of them in the performance of the Work or anyone for whose acts any of them may be liable (Contractor, subcontractor and all such persons herein collectively called "Contractor's Personnel") of any Laws.
- violations of any provision of this Contract by any of Contractor's Personnel.
- injuries to any persons or damage to any property in connection with the Work.
- any act, omission, or neglect of Contractor's Personnel.

The Contractor shall be obligated as provided above, regardless of whether such claims, damages, losses and/or expenses are caused in whole or in part by the actions or inactions of a party indemnified hereunder. In all claims by Contractor's Personnel against parties indemnified hereunder, the Contractor's indemnification obligation set forth above shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this Article XV.

2. DCR's Actions.

The obligations of the Contractor under Section 1 above shall not extend to the liability of the DCR, its agents or employees, arising out of (i) the preparation or approval of maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications by the DCR, or (ii) the giving of or the failure to give directions or instructions by the DCR, its agents or employees provided such giving or failure to give is the primary cause of the injury or damage.

3. Survival.

The provisions of this Article XV are intended to survive Final Acceptance and/or any termination of this Contract.

ARTICLE XVI: PERFORMANCE AND PAYMENT BONDS

1. Contractor Bonds.

A. The Contractor shall provide performance and payment (labor and materials) bonds in the form provided by the DCR, executed by a surety licensed by the Commonwealth of Massachusetts Division of Insurance. Each such bond shall be in the amount of the Contract Price.

B. If at any time prior to final payment to the Contractor, the Surety:

- is adjudged bankrupt or has made a general assignment for the benefit of its creditors.
- has liquidated all assets and/or has made a general assignment for the benefit of its creditors.
- is placed in receivership.
- otherwise petitions a state or federal court for protection from its creditors; or
- allows its license to do business in Massachusetts to lapse or be revoked.

then the Contractor shall, within 21 days of any such action listed above, provide the DCR with new performance and payment bonds as described in Paragraph A above. Such bonds shall be provided solely at the Contractor's expense.

2. Subcontractor Bonds.

The Contractor is responsible for the costs of the payment and performance bonds of the sub-contractors for the full amount of their respective Subcontracts.

ARTICLE XVII: TERMINATION OF CONTRACT

1. Termination for Cause.

A. The DCR may without prejudice to any other right or remedy deem this Contract terminated for cause if any of the following defaults shall occur and not be cured within five days (5) days after the giving of notice thereof by the DCR to the Contractor and any surety that has given bonds in connection with this Contract:

- (1) The Contractor has filed a petition, or a petition has been filed against the Contractor with its consent, under any federal or state law concerning bankruptcy, reorganization, insolvency or relief from creditors, or if such a petition is filed against the Contractor without its consent and is not dismissed within sixty (60) days; or if the Contractor is generally not paying its debts as they become due; or if the Contractor becomes insolvent; or if the Contractor consents to the appointment of a receiver, trustee, liquidator, custodian or the like of the Contractor or of all or any substantial portion of its assets and such appointment or possession is not terminated within sixty (60) days; or if the Contractor makes an assignment for the benefit of creditors;
- (2) The Contractor refuses or fails, except in cases for which extension of time is provided under this Contract's express terms, to supply enough properly skilled workers or proper materials to perform its obligations under this Contract, or the DCR has determined that the rate of progress required for the timely completion of the Work is not being met.
- (3) The Contractor fails to make prompt payment to Subcontractors or for materials, equipment, or labor.
- (4) All or a part of the Work has been abandoned.
- (5) The Contractor has sublet or assigned all or any portion of the Work, the Contract, or claims thereunder, without the prior written consent of the Department of Conservation and Recreation, except as expressly permitted in this Contract.
- (6) The Contractor has failed to comply with Laws.
- (7) The Contractor fails to maintain, or provide to the DCR evidence of the insurance or bonds required by this Contract, or
- (8) The Contractor has failed to prosecute the Work or any portion thereof to the standards required under this Contract or has otherwise breached any material provision of this Contract.

B. The DCR shall give the Contractor, and any surety notice of such termination for cause, but the giving of notice of such termination shall not be a condition precedent or after the termination's effectiveness. In the event of such termination, and without limiting any other available remedies, the DCR may, at its option:

- (1) hold the Contractor and its sureties liable in damages for a breach of Contract.
- (2) notify the Contractor to discontinue all work, or any part thereof, and the Contractor shall discontinue all work, or any part thereof, as the Department of Conservation and Recreation may designate.
- (3) complete the Work, or any part thereof, and charge the expense of completing the Work or part thereof, to the Contractor.

(4) require the surety or sureties to complete the Work and perform all the Contractor's obligations under this Contract.

If the DCR elects to complete all or any portion of the Work as specified in (3) above, it may take possession of all materials, equipment, tools, machinery, implements owned by the Contractor at or near the Site and finish the Work at the Contractor's expense by whatever means the DCR may deem expedient; and the Contractor shall cooperate

at its expense in the orderly transfer of the same to a new contractor or to the DCR as directed by the DCR. In such case the DCR shall not make any further payments to the Contractor until the Work is finished. The Department of Conservation and Recreation shall not be liable for any depreciation, loss, or damage to said materials, machinery, implements or tools during said use and the Contractor shall be solely responsible for their removal from the Site after the Department of Conservation and Recreation has no further use for them. Unless so removed within fifteen days after notice to the Contractor to do so, they may be sold at public auction, after publication of notice thereof at least twice in any newspaper published in the county where the Work is being performed, and the proceeds credited to the Contractor's account; or they may, at the option of the DCR, be stored at the Contractor's expense subject to a lien for the storage charges.

C. Damages and expenses incurred under paragraph B above shall include, but not be limited to, costs for the DCR's extra services and Project representative services required, in the opinion of the DCR, to successfully inspect and administer the construction contract through final completion of the Work.

D. Expenses charged under paragraph B above may be deducted and paid by the DCR out of any moneys then due or to become due the Contractor under this Contract.

E. All sums, damages, and expenses incurred by the Department of Conservation and Recreation to complete the Work shall be charged to the Contractor. In case the damages and expenses charged are less than the sum that would have been payable under this Contract if the same had been completed by the Contractor, the Contractor shall be entitled to receive the difference. In case such expenses shall exceed the said sum, the Contractor shall pay the amount of the excess to the Department of Conservation and Recreation.

2. Termination For Convenience.

A. The DCR may terminate this Contract for convenience even though the Contractor is not in default by giving notice to the Contractor specifying in said notice the date of termination.

B. In case of such termination without cause, the Contractor shall be paid:

(1) all sums due and owing under this Contract through the date of termination, including any retainage withheld to the date of termination, less any amount which the DCR determines is necessary to correct or complete the Work performed to the date of termination; plus (2) a reasonable sum to cover the expenses which the Contractor would not have incurred but for the early termination of the Contract, such as demobilization of the work force, restocking charges, and termination fees payable to Subcontractors.

C. The payment provided in paragraph B above shall be considered to fully compensate the Contractor, and any consultants, Subcontractors, and suppliers, for all claims and expenses directly or indirectly attributable to the termination, including any claims for lost profits.

3. Contractor's Duties Upon Termination for Convenience.

Upon termination of this Contract for convenience as provided in Section 2 of this Article, the Contractor shall: (1) stop the Work; (2) stop placing orders and Subcontracts in connection with this Contract; (3) cancel all existing orders and Subcontracts; (4) surrender the Site to the DCR in a safe condition; (5) transfer to the DCR all materials, supplies, work in process, appliances, facilities, equipment and machinery of this Contract, and all plans, Drawings, Specifications and other information and documents used in connection with this Contract.

ARTICLE XVIII: MISCELLANEOUS PROVISIONS

1. No Assignment by Contractor.

The Contractor shall not assign by power of attorney or otherwise, or sublet or subcontract, the Work, or any part thereof, without the previous written consent of the DCR and shall not, either legally or equitably, assign any of the moneys payable under this Contract, or Contractor's claims hereunder, unless with the like consent of the DCR, whether said assignment is made before, at the time of, or after the execution of the Contract. The Contractor shall remain responsible for satisfactory performance of all Work sublet or assigned. Consent of the DCR shall not be deemed to constitute a representation or waiver of any right hereunder by the DCR as to the qualifications or the responsibility of the Contractor or Subcontractor(s).

2. Non-Appropriation.

The Commonwealth certifies that at the time of the execution of this Contract, sufficient appropriations exist and shall be encumbered to fund the Contract Price. Payments are subject to appropriation and shall be made only for work performed in accordance with the terms of this Contract. The Contractor shall not be obligated to perform,

and shall not perform, work outside the scope of this Contract without an appropriate amendment to this Contract, and a sufficient appropriation(s) to support such additional work. The Commonwealth may immediately terminate or suspend this Contract if the appropriation(s) funding this Contract is eliminated or reduced to an amount which will be insufficient to support anticipated future obligations under this Contract. Such termination shall be deemed a termination for convenience subject to the provisions of paragraph 2 of Article XVII of this Contract.

3. Claims by Others Not Valid.

No person other than the Contractor and the surety on any bond given pursuant to the terms of this Contract shall acquire any interest in this Contract or any claim against the DCR hereunder, and no claim by any other person shall be valid except as provided in M.G.L. c. 30, sec. 39F of the General Laws.

4. No Personal Liability of Public Officials.

No public official, employee, or agent of the DCR shall have any personal liability for the obligations of the DCR set forth in this Contract.

5. Severability.

The provisions of this Contract are severable, and if any of these provisions shall be held unconstitutional or unenforceable by any court of competent jurisdiction, the decision of such court shall not affect or impair any of the other provisions of this Contract.

6. Choice of Laws.

This Contract shall be governed by the laws of the Commonwealth of Massachusetts for all purposes, without regard to its laws on choice of law. All proceedings under this Contract or related to the Project shall be brought in the courts of the Commonwealth of Massachusetts.

7. Standard Forms.

Unless directed otherwise in writing by the DCR, the Contractor shall use the standard forms in use by the Department of Conservation and Recreation.

8. No Waiver of Subsequent Breach.

No waiver of any breach or obligation of this Contract shall constitute a waiver of any other or subsequent breach or obligation.

9. Remedies Cumulative.

All remedies of the DCR provided in this Contract shall be construed as cumulative and may be exercised simultaneously or in any order as determined by the DCR in its sole discretion. The DCR shall also be entitled as of right to specific performance and equitable relief including the right to an injunction against any breach of any of the provisions of this Contract

10. Notices.

Notices to the Contractor shall be deemed given when hand delivered to the Contractor's temporary field office at or near the Site, or when deposited in the U.S. mail addressed to the Contractor at the Contractor's address specified in the Department of Conservation and Recreation - Contractor Agreement, or when delivered by courier to either location. Unless otherwise specified in writing by the DCR, notices and deliveries to the DCR shall be effective only when delivered to the DCR at the address specified in the Department of Conservation and Recreation - Contractor Agreement and date-stamped at the reception desk or for which a receipt has been signed by the agent or employee designated by the DCR to receive official notices.

APPENDIX A to General Conditions of the Contract

The following provisions from Article XII of the General Conditions of the Contract where DCR is the Awarding Authority.

EQUAL EMPLOYMENT OPPORTUNITY, NON-DISCRIMINATION, AND AFFIRMATIVE ACTION

PROGRAM.

1. Compliance Generally.

For purpose of this Article, “minority” refers to Asians, Blacks, Western Hemisphere Hispanics, Native Americans, and Cape Verdeans; “Commission” refers to the Massachusetts Commission Against Discrimination. During the performance of this Contract, the Contractor and all its Subcontractors (hereinafter collectively referred to as the Contractor) shall comply with all applicable equal employment opportunity, non-discrimination and affirmative action requirements, including but not limited to the following:

2. Non-Discrimination and Affirmative Action.

A. The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, age, handicap, sexual orientation, or sex. The aforesaid provision shall include, but not be limited to, the following: employment rates of pay or other forms of compensation; conditions or privileges of employment; and selection for apprenticeship. The Contractor shall comply with the provisions of MGL, c. 151B and all other applicable anti-discrimination and equal opportunity laws.

B. The Contractor shall comply with the provisions of Executive Order No. 478 entitled Revoking and Superseding Executive Orders Numbers 253 and 452, with respect to affirmative action programs for handicapped individuals, which is herein incorporated by reference and made a part of this Contract.

C. In connection with the performance of the Work, the Contractor shall undertake in good faith affirmative action measures designed to eliminate any discriminatory religious creed, national origin, age, sexual orientation, or sex and to eliminate and remedy any effects of such discrimination in the past. Such affirmative action shall entail positive and aggressive measures to ensure equal opportunity in the areas of hiring, upgrading, demotion or transfer, recruitment, layoff or termination, rate of compensation, and in-service or apprenticeship training programs. This affirmative action shall include all action required to guarantee equal employment opportunity for all persons, regardless of race, color, religious creed, national origin, age, sexual orientation, or sex. A purpose of this provision is to fully ensure possible an adequate supply of skilled tradesmen for future public construction projects.

D. If the Contractor shall use any subcontractor on any work performed under this Contract, the Contractor shall take affirmative steps to negotiate with qualified minority and women subcontractors. These affirmative steps shall cover both pre-bid and post-bid periods. It shall include notification to the State Office of Minority and Women Business Assistance or its designee, while bids are in preparation, of all products, work, or services for which the Contractor intends to negotiate bids. In all solicitations either by competitive bidding or negotiation made by the Contractor either for work to be performed under a subcontract or for the procurement of materials or equipment, each potential subcontractor or supplier shall be notified in writing by the Contractor of the Contractor’s obligations under this Contract relative to non-discrimination and affirmative action.

E. As part of its obligation of remedial action under this Article, the Contractor shall maintain on this project not less than the percent ratio set forth in the Owner – Contractor Agreement of minority employee worker hours to total worker hours in each job category including but not limited to bricklayers, carpenters, cement masons, electricians, ironworkers, operating engineers, and those “classes of work” enumerated in MGL, c. 149, Sec. 44F.

F. In the hiring of minority journeypersons, apprentices, trainees and advanced trainees, the Contractor shall rely on referrals from a multi-employer affirmative action program approved by the Commission, traditional referral methods utilized by the construction industry, and referrals from agencies, not more than three in number at any one time, designated by the Liaison Committee or the Awarding Authority.

3. Liaison Committee, Reports and Records.

A. At the option of the Awarding Authority, there may be established for the term of this Contract a body to be known as the Liaison Committee. The Liaison Committee shall be composed of one

representative each from the Awarding Authority, the Commission and such other representatives as may be designated by the Commission in conjunction with the Awarding Authority. The Contractor (or his agent, if any, designated by him as the on-site equal employment opportunity officer) shall recognize the Liaison Committee as an affirmative action body, and shall establish a continuing working relationship with the Liaison Committee, consulting with the Liaison Committee on all matters related to minority recruitment, referral, employment and training.

B. The Contractor shall prepare projected staffing tables on a quarterly basis. These shall be broken down into projections, by week, of workers required in each trade. Copies shall be furnished one week in advance of the commencement of the period covered, and when updated, to the Awarding Authority and Liaison Committee. The Contractor shall prepare weekly reports in a form approved by the Awarding Authority of hours worked in each trade by each employee, identified as minority or non-minority. Copies of these shall be provided at the end of each such week to the Awarding Authority and to the Liaison Committee.

C. Records of employment referral orders, prepared by the Contractor, shall be made available to the Awarding Authority and to the Liaison Committee on request.

D. A designee of the Awarding Authority and a designee of the Liaison Committee shall each have right to access to the Site.

E. The Contractor shall comply with the provisions of MGL, c. 151B as amended, of the Massachusetts General Laws, both of which are herein incorporated by reference and made a part of this Contract.

F. The Contractor shall provide all information and reports required by the Awarding Authority or the Commission on forms and in accordance with instructions issued by either of them and will permit access to its facilities and any books, records, accounts, and other sources of information which may be determined by the Awarding Authority or the Commission to affect the employment of personnel. This provision shall apply only to information pertinent to the Owner's supplementary affirmative action Contract requirements. Where information required is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the Awarding Authority or the Commission as appropriate and shall set forth what efforts he has made to obtain the information.

4. Sanctions.

A. Whenever the Awarding Authority, the Commission, or the Liaison Committee believes the Contractor, or any Subcontractor may not be operating in compliance with the terms of this Article, the Commission shall directly, or through its designated agent, conduct an appropriate investigation, and may confer with the parties to determine if such Contractor is operating in compliance with the terms of this Article. If the Commission or its agent finds the Contractor or any Subcontractor not in compliance, it may make a preliminary report on non-compliance and notify such Contractor in writing of such steps as will in the judgment of the Commission or its agent bring such Contractor into compliance. If such Contractor fails or refuses to fully perform such steps, the Commission may make a final report of non-compliance and recommend to the Awarding Authority the imposition of one or more of the sanctions listed below. If, however, the Commission believes the Contractor or any Subcontractor has taken or is taking every possible measure to achieve compliance, it shall not make a final report of non-compliance. Within fourteen days of the receipt of the recommendations of the Commission, the Awarding Authority shall move to impose one or more of the following sanctions, as it may deem appropriate to attain full and effective enforcement:

(1) The recovery by the Awarding Authority from the Contractor of 1/100 of 1% of the Contract award price or \$1,000 whichever sum is greater, in the nature of liquidated damages or, if a Subcontractor is in non-compliance, the recovery by the Awarding Authority from the Contractor, to be assessed by the Contractor as a back charge against the subcontractor, of 1/10 of 1% of the sub-contract price, or \$400 whichever sum is greater, in the nature of liquidated damages, for each week that such party fails or refuses to comply.

(2) The suspension of any payment or part thereof due under the Contract until such time as the Contractor or any subcontractor can demonstrate his compliance with the terms of the Contract.

- (3) The termination, or cancellation, of the Contract, in whole or in part, unless the Contractor or any Subcontractor can demonstrate within a specified times his compliance with the terms of the contract.
- (4) The denial to the Contractor or any subcontractor of the right to participate in any future contracts awarded by the Awarding Authority for a period of up to three years.

B. If any time after the imposition of one or more of the above sanctions a Contractor can demonstrate that it follows this Article, the Contractor may request the Awarding Authority, in consultation with the Commission, to suspend the sanctions conditionally, pending a final determination by the Commission as to whether the Contractor complies. Upon final determination of the Commission, the Awarding Authority, based on the recommendation of the Commission, shall either lift the sanctions or reimpose them.

C. Sanctions recommended by the Commission and enumerated under Section 4 above shall not be imposed by the Awarding Authority except after an adjudicatory proceeding, as that term is used in MGL, c. 30A, has been conducted. No investigation by the Commission or its agent shall be initiated without prior notice to the Contractor.

D. Notwithstanding the provisions of 4A-4C above, if the Awarding Authority determines after investigation that the Contractor or any Subcontractor is not in compliance with the terms of this Article, it may suspend any payment or portion thereof due under the Contract until the contractor demonstrates to the satisfaction of the Awarding Authority compliance with the terms of this Article. This temporary suspension of payments by the Awarding Authority is separate from the sanctions set forth in Section 4A-4C of this Article above, which are determined by MCAD and recommend to the Awarding Authority. Payment may be suspended only after the Contractor and any other interested party shall have been given the opportunity to present evidence in support of its position at an informal hearing held by the Awarding Authority, and the Awarding Authority has concluded upon review of all the evidence that such penalty is justified. Payment shall not be suspended if the Awarding Authority finds that the Contractor made its best efforts to comply with this Article, or that some other justifiable reason exists for waiving the provisions of this Article in whole or in part.

APPENDIX B to General Conditions of the Contract

The following provisions from Article XIII of the General Conditions of the Contract where DCR is the Awarding Authority.

GOALS FOR PARTICIPATION BY MINORITY BUSINESS ENTERPRISES AND WOMEN BUSINESS ENTERPRISES (EXECUTIVE ORDER 390, MGL, c. 7, s. 40N)

1. Goals.

A. The goals for minority business enterprise and women business enterprise participation established for this Contracts are as set forth in the Owner – Contractor Agreement.

B. The Contractor and all Subcontractors, sub-subcontractors, and materials suppliers shall comply with all the terms and conditions of this Article, which include the provisions pertaining to M/WBE participation set forth in the Owner – Contractor Agreement to meet the M/WBE participation goals established for this Contract.

2. M/WBE Participation Credit.

A. If the Contractor is itself an MBE or WBE, M/WBE participation credit will be given in an amount equal to the entire Contract Price. If the Contractor is not an MBE or WBE then M/WBE participation credit will be given for the value of the Work that is performed by each MBE or WBE subcontractor or subcontractor.

B. If the Contractor is a joint venture with one or more M/WBE joint venturers, M/WBE participation credit shall be given to the joint venture as follows:

(1) If the joint venture is certified by SOMBWA as an MBE or WBE, M/WBE participation credit shall be given in an amount equal to the Contract Price.

(2) If the joint venture is not certified as an MBE or WBE by SOMBWA, M/WBE participation credit shall be given to the joint venture for the value of the Work that is performed by the M/WBE joint ventures(s), and for the value of the Work that is performed by each MBE or WBE subcontractor or sub-subcontractor.

C. MBE participation credit shall be given for the work performed by MBEs only, and WBE participation credit shall be given for the work performed by WBEs only. MBE participation may not be substituted for WBE participation, nor may WBE participation be substituted for MBE participation.

3. Establishing M/WBE Status.

A. A minority-owned business shall be considered an MBE only if it has been certified as a minority business enterprise by the State Office of Minority and Women Business Assistance (“SOMWBE”).

B. A woman-owned business shall be considered a WBE only if it has been certified as a woman business enterprise by SOMWBA.

C. Certification as a disadvantaged business enterprise (“DBE”), certification as an M/WBE by any agency other than SOMWBA, or submission of an application to SOMWBA for certification as an M/WBE shall not confer M/WBE status on a firm for the purposes of this Contract.

4. Subcontracts with M/WBEs.

Within thirty (30) days after the award of this Contract, the Contractor shall (i) execute a subcontract with each M/WBE Subcontractor which has executed a Letter of Intent approved by the Awarding Authority, (ii) cause its Subcontractors to execute a sub-subcontract with each M/WBE sub-subcontractor, and (iii) furnish the Awarding Authority with a signed copy of each such subcontract and sub-subcontract.

5. Performance of Contract Work by M/WBEs.

A. The Contractor shall not perform with its own organization or subcontract or assign to any other firm work designated to be performed by any W/MBE in the Letters of Intent or Schedule of M/WBE Participation without the prior Approval of the Awarding Authority, nor shall any M/WBE assign or subcontract to any other firm or permit any other firm to perform any of its M/WBE Work without the prior Approval of the Awarding Authority. Any such unapproved assignment, subcontracting, sub-subcontracting, or performances of M/WBE Work by others shall be a change in the M/WBE Work for the purposes of this Contract. The Awarding Authority WILL NOT APPLY TO THE M/WBE PARTICIPATION GOALS(S) ANY SUMS ATTRIBUTABLE TO SUCH UNAPPROVED ASSIGNMENTS, SUB-CONTRACTS, SUB-SUBCONTRACTS, OR PERFORMANCE OF M/WBE WORK BY OTHERS.

B. The Contractor shall be responsible for monitoring the performance of M/WBE Work to ensure that each scheduled M/WBE performs its own M/WBE Work with its own workforce.

C. The Contractor and each M/WBE shall provide the Awarding Authority with all information and documentation that the Awarding Authority determines is necessary to ascertain whether an M/WBE has performed its own M/WBE Work. At the discretion of the Awarding Authority, failure to submit such documentation to the Awarding Authority shall establish conclusively for the purpose of giving M/WBE participation credit under this Contract that such M/WBE did not perform such work.

6. Notification of Changes in M/WBE Work.

A. If any time during the performance of the Contract the Contractor determines or has reason to believe that a scheduled M/WMBE is unable to unwilling to perform its M/WBE Work, or that there has been or will be a change in any M/WMBE Work, or that the Contractor will be unable to meet the M/WBE participation goal(s) for this Contract for any reason, the Contractor shall immediately notify the Awarding Authority Contract Compliance Office in writing of such circumstances.

B. Any notice of a change in M/WBE Work pursuant to subparagraph “A: above shall include a revised Schedule of M/WBE Participation, and additional or amended Letters of Intent and subcontracts.

7. Actions Required if there is a Reduction in M/WBE Participation.

A. In the event there is a change or reduction in any M/WBE Work which will result in the Contractor failing to meet the M/WBE participation goal(s) for this Contract, other than a reduction in

M/WBE Work resulting from a Change Order initiated by the Awarding Authority, then the Contractor shall immediately undertake a diligent, good faith effort to make up the shortfall in M/WBE participation as follows:

(1) The Contractor shall identify all items of the Work remaining to be performed under the Contract that may be made available for subcontracting to W/MBEs. The Contractor shall send a list of such items of work to the Awarding Authority, together with a list of the remaining items of the Work that was not made available to M/WBEs and the reason for not making such work available for subcontracting to M/WBEs.

(2) The Contractor shall send written notices soliciting proposals to perform the items of the Work that may be made available for subcontracting to W/MBEs to all W/MBEs qualified to perform such work. The Contractor shall advise the Awarding Authority of (i) each W/MBE solicited, and (ii) each W/MBE listed in the SOMWBA directory under the applicable trade category who was not solicited and the reasons, therefore. The Contractor shall also advise the Awarding Authority of the dates notices were mailed and provide a copy of the written notice(s) sent.

(3) The Contractor shall make reasonable efforts to follow up the written notices sent to M/WBEs with telephone calls or personal visits to determine with certainty whether the M/WBEs were interested in performing the work. Phone logs or other documentation must be submitted to the Awarding Authority evidencing this effort.

(4) The Contractor shall make reasonable efforts to assist M/WBEs that need assistance in obtaining insurance, bonds, or lines of credit to perform work under the Contract and shall provide the Awarding Authority with evidence that such efforts were made.

(5) The Contractor shall provide the Awarding Authority with a statement of the response received from each M/WBE solicited, including the reason for rejecting any M/WBE who submitted a proposal.

(6) The Contractor shall take any additional measures reasonably requested by the Awarding Authority to meet the M/WBE participation goal(s) established for this Contract, including, without limitation, placing advertisements in appropriate media and trade association publications announcing the Contractor's interest in obtaining proposals from M/WBEs, and/or sending written notification to M/WBE economic development assistance agencies, trade groups and other organizations notifying them of the project and of the work available to be subcontracted by the Contractor to M/WBEs.

B. If the Contractor is unable to meet the M/WBE participation goals for this Contract after complying fully with each of the requirements of paragraph "A" above, and the Contractor is otherwise in full compliance with the terms of this Article, the Awarding Authority may reduce the M/WBE participation goals for this Contract to the extent that such goals cannot be achieved.

8. Suspension of Payment and/or Performance for Noncompliance.

A. If at any time during the performance of this Contract, the Awarding Authority determines or has reason to believe that (1) there has been a change or reduction in any M/WBE Work which will result in the Contractor failing to meet the M/WBE participation goal(s) for this Contract, other than a reduction in M/WBE Work resulting from a change in the Contract work ordered by the Awarding Authority, and (2) the Contractor has failed to comply fully with all of the terms and conditions of paragraphs 1 through 7 above, the Awarding Authority may:

(1) suspend payment to the Contractor of an amount equal to the value of the work which was to have been performed by an M/WBE pursuant to the Contractor's Schedule of M/WBE Participation, but which was not so

performed, to ensure that sufficient Contract funds will be available if liquidated damages are assessed pursuant to paragraph 9 and/or

(2) suspend the Contractor's performance of this Contract in whole or in part.

B. The Awarding Authority shall give the Contractor prompt written notice of any action taken pursuant to paragraph A above and shall give the Contractor and any other interested party, including any M/WBEs, an opportunity to present evidence to the Awarding Authority that the Contractor is in compliance with the requirements of this Article, or that there is some justifiable reason for waiving the requirements of this Article in

whole, or in part. The Awarding Authority may invite SOMWBA and the Massachusetts Commission Against Discrimination to participate in any proceedings undertaken pursuant to this paragraph.

C. Upon a showing that the Contractor is in full compliance with the requirements of this Article, or that the Contractor has met or will meet the M/WBE participation goals for this Contract, the Awarding Authority shall release any funds withheld pursuant to clause A(1) above and lift any suspension of the Contractor's performance under clause A(2) above.

9. Liquidated Damages: Termination.

A. If payment by the Awarding Authority or performance by the Contractor is suspended by the Awarding Authority as provided in paragraph 8 above, the Awarding Authority shall have the following rights and remedies if the Contractor thereafter fails to take all action necessary to bring the Contractor into full compliance with the requirements of this Article, or if full compliance is no longer possible because the default of the Contractor is no longer susceptible to cure, if the Contractor fails to take such other action as may be required by the Awarding Authority to meet the M/WBE participation goals set forth in this Contract:

(1) the Awarding Authority may terminate this Contract, and/or

(2) the Awarding Authority may retain from final payment to the Contractor, as liquidated damages, an amount equal to the difference between (x) the total of the M/WBE participation goals set forth in this Contract, and (y) the amount of M/WBE participation credit earned by the Contractor for M/WBE Work performed under this Contract as determined by the Awarding Authority, the parties agreeing that the damages for failure to meet the M/WBE participation goals are difficult to determine and that the foregoing amount to be retained by the Awarding Authority represents the parties' best estimate of such damages. Any liquidated damages will be assessed separately for MBE and WBE participation.

B. Before exercising its rights and remedies hereunder, the Awarding Authority may, but the Awarding Authority shall not be obligated to, give the Contractor and any other interested party another opportunity to present evidence to the Awarding Authority that the Contractor is in compliance with the requirements of this Article or that there is some justifiable reason for waiving the requirements of this Article in whole or in part. The Awarding Authority may invite SOMWBA and the Massachusetts Commission Against Discrimination to participate in any proceedings undertaken hereunder.

10. Reporting Requirements.

The Contractor shall submit to the Awarding Authority all information or documentation that is necessary in the judgment of the Awarding Authority to ascertain whether the Contractor has complied with any of the provisions of this Article.

11. Awarding Authority's Right to Waive Provisions of this Article in Whole or in Part.

The Awarding Authority reserves the right to waive any provision or requirement of this Article if the Awarding Authority determines that such waiver is justified and in the public interest. No such waiver shall be effective unless in writing and signed by a representative of the Awarding Authority's Compliance Office or the office of its General Counsel. No other action or inaction by the Awarding Authority shall be construed as a waiver of any provision of this Article.

**COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION AND RECREATION**

**SPECIAL GOOD FAITH REQUIREMENTS FOR PARTICIPATION BY VETERAN OWNED
BUSINESS ENTERPRISES**

**(Implementing Executive Order No. 546, Establishing the Veteran Owned Business
Enterprise Program).**

BIDDER'S INSTRUCTIONS

THE APPARENT LOW BIDDER'S COMPLIANCE WITH THE REQUIREMENTS OF THIS SECTION IS A PREREQUISITE FOR RECEIVING THE AWARD OF THE CONTRACT.

1) Participation Goals and Program Operation

In order to be an eligible VOB for the participation goals of this Contract, the business enterprise must be listed as a veteran-owned business within the VetBiz database, located at www.VetBiz.gov, at the time of the bid submission deadline. Only a VOB identified as a veteran-owned small business via the VetBiz database shall count towards meeting the Program participation goal.

The Contractor must demonstrate that VOBs are eligible for the following participation goals via its listing as a veteran-owned small business within the VetBiz database, located at www.VetBiz.gov, at the time said VOB seeks to participate in business provided under this Contract; provided, that it shall also be the responsibility of the Awarding Authority to verify the status of the SDVOB via said VetBiz database prior to the awarding of the Contract.

a) Design Services Contracts – In furtherance of the goals and objectives of the program, commencing July 1, 2013 until such time as the Secretary for Administration and Finance has adopted a new participation goal, the participation goal, which shall be expressed in the form of a benchmark for each design services contract, shall be three (3) percent; provided, that said participation goal may be met by the veteran-owned business enterprise performing as either a general or prime contractor, a subcontractor, or both; provided further, that the awarding agency shall verify the status of business enterprise participation on a design services contract.

b) Public Construction Contracts – In furtherance of the goals and objectives of the Program, commencing July 1, 2013 until such time as the Secretary of Administration and Finance has adopted a new participation goal, the participation goal, which shall be expressed in the form of a benchmark for each public construction contract, shall be three (3) percent; provided, that said participation goal may be met by the veteran-owned business enterprise performing as either a general or prime contractor, a subcontractor, or both; provided further, that the awarding agency shall verify the status of a service veteran-owned business enterprise prior to said business enterprise participation on a public construction contract.

2) Goal Reduction/Waiver

- A) The Awarding Authority reserves the right to reduce or waive the SDVOBE participation goals established for this Contract upon written request made by a Bidder using the VOB E Waiver Request Form provided by the Awarding Authority.
- B) If filed Sub-Bids are solicited for this Contract, requests from prospective general Bidders to reduce or waive the VOB E participation goals for this Contract should be received by the Awarding Authority no later than four (4) working days after the list of filed Sub- Bidders is mailed by the Awarding Authority to persons who have taken out plans for the Contract, using the VOB E Waiver Request Form provided by the Awarding Authority.
- C) If there are no filed sub-Bids solicited for this Contract, requests to reduce or waive the SDVOBE participation goals for this Contract should be received by the Awarding Authority no later than five (5) working days before the date set for the receipt of general Bids. **THE AWARDING AUTHORITY RESERVES THE RIGHT TO REJECT ANY REQUEST TO REDUCE OR WAIVE THE VOB E PARTICIPATION GOALS FOR THIS CONTRACT THAT IS RECEIVED AFTER THESE DEADLINES.** Such written request must demonstrate to the satisfaction of the Awarding Authority that it is not feasible for a non- VOB E or non- VOB E general Bidder to meet the goals established for this Contract based upon any or all the following:
- a) actual VOB E availability.
 - b) the geographic location of the project to the extent related to SDVOBE availability.
 - c) the scope of the work.
 - d) the percentage of work available for subcontracting to VOB Es; and/or
 - e) other relevant factors, including a **documented** inability by the prospective Bidder to obtain commitments from VOB E subcontractors sufficient to meet the VOB E goals after having made a diligent, good faith effort to do so. All the foregoing documentation shall accompany the completed Waiver Request Form. Such documentation shall include, at a minimum, the following:
 - A list of all items of work under the Contract that the Bidder made available for subcontracting to VOB Es. The Bidder shall identify all items of work, other than work to be performed by filed sub-Bidders, that the Bidder did not make so available and shall state the reasons for not making such work available for subcontracting to VOB Es. The Bidder shall also demonstrate that, where commercially reasonable, subcontracts were divided into units capable of being performed by VOB Es.
 - Evidence that the Bidder sent written notices soliciting Bids or proposals to perform the items of work made available by the Bidder for subcontracting to all available VOB Es qualified to perform such work. The Bidder shall identify each VOB E solicited, state the dates that notices were mailed, provide a copy of the written notice(s) sent, and provide a copy of any statement or response received from each VOB E solicited, including the reason for rejecting and VOB E who submitted a bid or proposal.
 - Evidence that the Bidder made reasonable efforts to follow up on the written

notices sent to VOBES with telephone calls or personal visits to determine with certainty whether the VOBES were interested in performing the work. Phone logs or other documentation must be submitted.

- Evidence of efforts made to assist VOBES that needed assistance in obtaining bonding or insurance, or lines of credit with suppliers if the inability of SDVOBE to obtain bonding, insurance, or lines of credit is the reason given for the Bidder's inability to meet the VOBES goals.

D) The Bidder may also submit any other information supporting its request for a waiver or reduction in the VOBES participation goals, including without limitation evidence that the Bidder placed advertisements in appropriate media and trade association publications announcing the Bidder's interest in obtaining bids or proposals from VOBES, and/or sent written notification to VOBES economic development assistance agencies, trade groups and other organizations notifying them of the Contract and the work to be subcontracted by the Bidder to VOBES. The Bidder shall also submit any other information reasonably requested by the Awarding Authority to show that the Bidder has taken all actions that could reasonably be expected to achieve the VOBES participation goals.

- 3) No later than five (5) working days after the opening of general Bids, the apparent low Bidder shall submit the following documents to the Awarding Authority's Contract Officer:
 - (i) a completed Schedule for Participation by VOBES ("Schedule for Participation") in the form provided by the Awarding Authority showing VOBES participation in amounts equal to or exceeding the VOBES participation goals for this Contract; and
 - (ii) a completed Letter of Intent in the form provided by the Awarding Authority for each SDVOBE listed in the Schedule for Participation.
- 4) Each Letter of Intent shall identify and describe the work to be performed by the named VOBES (the "VOBES Work") with enough specificity to permit the Awarding Authority to identify the items of contract work that the VOBES will perform for VOBES participation credit. The Awarding Authority reserves the right to reject any Letter of Intent if the price to be paid for the VOBES Work does not bear a reasonable relationship to the value of such work under the Contract as determined by the Awarding Authority.
- 5) Within five (5) working days after receipt of the Schedule for VOBES Participation and Letters of Intent, the Awarding Authority shall review and either approve or disapprove the apparent low Bidder's submissions. If the apparent low Bidder has not submitted an appropriate Schedule for VOBES Participation and appropriate Letters of Intent establishing that the VOBES participation goal for the project will be met, the apparent low Bidder will be considered ineligible for Award of the Contract and the Awarding Authority will Award the Contract to the second lowest Bidder, subject to said Bidder's compliance with these conditions.
- 6) The Contractor is required to submit to the Awarding Authority signed subcontracts with all subcontractors prior to the commencement of work to be performed under these contracts, and/or a purchase order or invoice from each material supplier and/or manufacturer listed on the Schedule for VOBES Participation within thirty (30) days of the issuance of the Notice to Proceed by the Awarding Authority.
- 7) A filed Sub-Bidder is not required to submit a Schedule for VOBES Participation with its Bid. A filed Sub-Bidder may, at its option, submit a Letter of Intent with its Bid if it is a VOBES. If a filed sub-Bidder intends to sub-subcontract work to a VOBES, and the filed sub-Bidder wishes

that sub-subcontract to be credited toward the participation goals for this Contract, the filed sub-Bidder should submit a Letter of Intent from that VOB E with its Bid. A filed sub-Bidder can subcontract out up to 20% of its work to VOB Es, unless such work is designated as sub-subcontract Paragraph E work in the Bid Documents, in which case the 20% cap does not apply.

This is a:

☐ **Design Contract**

☐ **Construction contract**

The goal for this contract is Three (3 %) percent of the value of the contract unless waived in part or whole by DCR in writing.

**COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION AND RECREATION**

**SPECIAL GOOD FAITH REQUIREMENTS FOR PARTICIPATION BY VETERAN OWNED
BUSINESS ENTERPRISES
(Implementing Executive Order No. 638, Promoting the Equitable Participation of Women
and Underrepresented Groups in Construction)**

BIDDER'S INSTRUCTIONS

THE APPARENT LOW BIDDER'S COMPLIANCE WITH THE REQUIREMENTS OF THIS
SECTION IS A PREREQUISITE FOR RECEIVING THE AWARD OF THE CONTRACT.

Pursuant to Executive Order No. 638: Promoting the Equitable Participation of Women and Underrepresented Groups in Construction ("EO No. 638"), bidders shall include in their bid submission a Plan of the how they plan to:

1. encourage the use of registered apprentices for the performance of the Work.
2. develop strong workforce equity practices.
3. partner with worker-serving organizations with a track record of reaching women and underrepresented groups; and
4. provide support services, including childcare, to facilitate the participation of women and underrepresented groups on the Work to be performed under the contract.

In addition, bidders are hereby notified that the contract shall include, and it shall be a requirement that any subcontract shall include, the following data collection and reporting obligations, at appropriate intervals, required by EO No. 638:

1. workforce needs, which may include the expected number of jobs, job hours, and job hours by occupation.
2. workforce demographics, consistent with but not limited to the requirements of M.G.L. c. 7C, §6 and M.G.L. c. 149, §44A, which may include race, gender, zip code, and other workforce characteristics.
3. benefits and supportive services provided to workers.
4. Hours worked by all employees, including women and people of color, by trade and position; and
5. Apprenticeship participation and pre-apprenticeship program completion statistics.

The Contractor shall submit to the Awarding Authority all information or documentation that is necessary in the judgment of the Awarding Authority to ascertain whether the Contractor has complied with any of the provisions of this Article.

APPENDIX C to the General Conditions of the Contract

INDEX OF THE COMMONLY USED FORMS

(Forms used during bidding are in Attachment B to the Instructions to Bidders)

Contractor's Weekly Workforce Report

Minorities/Women in Contractor's Weekly Workforce Report

Weekly Payroll Report Form and Statement of Compliance

Certification of Payment by Contractor to MBE/WBE and Instructions

Certificate of Completion by Minority/Women Business Enterprise

Certificate of Final Inspection, Release and Acceptance – E-2

CONTRACTOR'S WEEKLY WORKFORCE REPORT
THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION AND RECREATION

DCR Project No. _____ Project Name _____ Project Location _____

Name of General Contractor _____ Minority Goal % _____ Women Goal %

Name of Contractor Filing Report _____ Address _____

Week Ending _____ Report No. _____ Date Work Began _____ Date work completed _____

NOTE: **Min. = Minority** **Wom. = Women** ☐ Check here if this is a final report

Job Category	Number of Employees	Number of Employees Who Are		Total Weekly Workforce Hours	Total Weekly Workforce Hours		Weekly % Workforce Hours		Total Workforce Hours To Date	Total Workforce Hours to Date		% Of Workforce Hours to Date	
		Min.	Wom.		Min.	Wom.	Min.	Wom.		Min.	Wom.	Min.	Wom.
TOTALS:													

Mail with Weekly Payroll report to the assigned Project Manager at:

Department of Conservation & Recreation
Project Manager Name
 10 Park Plaza
 Boston, MA 02116

The undersigned hereby certifies under pains and penalties of perjury that the above information is true and accurate.

Authorized Signature _____ Date _____

Print Name _____ Title _____

Telephone No. _____ FAX No. _____

DCR Part III General Conditions of the Contract

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MINORITIES/WOMEN IN CONTRACTOR'S WEEKLY WORKFORCE REPORT
THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION AND RECREATION

DCR Project No. _____ Project Name _____

Name of General Contractor _____

Project Location _____

Name of Contractor Filing Report _____

Address _____

Week Ending _____ Report No. _____

JOB CATEGORY	NAME OF EMPLOYEE	MINORITY GROUP	GENDER

In contract Article XII, "Minority" refers to: Asian-Americans, Blacks, Western Hemisphere Hispanics, Native Americans, and Cape Verdeans

WEEKLY PAYROLL REPORT FORM
THE COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION AND RECREATION

DCR Project No. _____ Project Name _____

Project Location _____

Name of General Contractor _____

Name of Contractor Filing Report _____

Address _____

Week Ending _____ Date Work Began _____ Date work completed _____

Report No. _____ ☐ Check here if this is a final report

Employee Name & Address	Work Classification	Hours Worked							(A)	(B)	Employer Contributions			(F)	(G)
		S	M	T	W	T	F	S	Total Hours	Hourly Base Wage	(C) Health & Welfare	(D) Pension	(E) Supp. unemployed	[B+C+D+E] Hourly Total Wage (prev.)	[A*F] Weekly Total Amount

NOTE: Every contractor and subcontractor are required to submit a copy of their weekly payroll records to DCR. The undersigned states under the pains & penalties of perjury that the above provided and attached information is a true and accurate record of each person employed on the project and the hours worked and wages paid to each such employee, including payments to the referenced benefits. M.G.L. c. 149 §27B.

Authorized signature _____ Print Name _____

Print Title _____

Mail to: Department of Conservation and Recreation
Project Manager Name
 10 Park Plaza
 Suite 6620
 Boston, MA 02116

WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works construction project for which the enclosed rates have been provided. The ***Weekly Payroll Report Form*** includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the project.

In addition, every contractor and subcontractor are required to submit a copy of their weekly payroll records to the awarding authority. This is required to be done on a weekly basis. Once collected, the awarding authority is also required to preserve those records for three years.

In addition, each such contractor, subcontractor, or public body shall furnish **to the Executive Office of Labor**, within fifteen days after completion of its portion of the work, a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

Date: _____ / _____ / _____

I, _____, _____
(Name of signatory party) (Title)

do hereby state:

That I pay or supervise the payment of the persons employed by

_____ on the _____
(Contractor, subcontractor, or public body) (Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs, and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty-nine of the General Laws.

Signature _____

Title _____

CERTIFICATE OF PAYMENT BY CONTRACTOR/DESIGNER TO MINORITY, WOMEN BUSINESS & VETERAN OWNED BUSINESS ENTERPRISES

TO: Supplier Diversity Reports
 Department of Conservation and
 Recreation ,10 Park Plaza
 Suite 6620,Boston,MA 02116

Reporting Period: Fiscal Year 20__

RE: Project:
 Project Number:

Contract Start Date:

The undersigned hereby certifies under the pains and penalties of perjury that the vendor named below has made the following payments to the named Minority, Women Business and Veteran Owned Enterprises for work performed on the above project:

Firm Name of General Contractor:

Authorized Signature

Date

Print Name

Print Title

Phone Number

Email address

Work performed/payments made (use additional pages if needed):

	Firm Name	Work Performed	Subcontract Amount	Payments This Quarter	FY Payments to date (This fiscal year)	Cumulative Payments (Total payments over the life of the contract)
☐ MBE ☐ WBE ☐ VOB			\$	\$	\$	\$
☐ MBE ☐ WBE ☐ VOB			\$	\$	\$	\$
☐ MBE ☐ WBE ☐ VOB			\$	\$	\$	\$
☐ MBE ☐ WBE ☐ VOB			\$	\$	\$	\$
☐ MBE ☐ WBE ☐ VOB			\$	\$	\$	\$
☐ MBE ☐ WBE ☐ VOB			\$	\$	\$	\$
☐ MBE ☐ WBE ☐ VOB			\$	\$	\$	\$

* MBE, WBE and VOB payment reports are required for each quarter of the fiscal year for each of your DCR projects. Reports are to cover the following three-month periods: 1st quarter, July 1st – September 30th; 2nd quarter, October 1st – December 31st; 3rd quarter, January 1st – March 31st; 4th quarter, April 1st – June 30th. Reports must be submitted within 10 business days of your receipt of this form.

NOTICE: *Intentionally submitting false information in this document may subject the contractor/ designer to criminal prosecution and/ or debarment from public contracting.*

INSTRUCTIONS FOR COMPLETING CERTIFICATE OF PAYMENT

As part of its effort to ensure reliable, up-to-date information concerning the actual payments made to certified MBE, WBE and VOB subcontractors on all DCR projects, we have prepared these instructions to assist you in completing the enclosed form. **PLEASE READ THESE INSTRUCTIONS CAREFULLY. DCR WILL RETURN ANY CERTIFICATION OF PAYMENT THAT IS INCOMPLETE OR INACCURATE.**

PLEASE NOTE: IF THIS PROJECT IS COMPLETE, ON HOLD, OR YOUR FIRM PREVIOUSLY SUBMITTED A **FINAL** CERTIFICATION OF M/WBE/VOBE PAYMENT FOR THIS PROJECT, PLEASE SO, INDICATE ON THE FORM AND RETURN IT TO: SUPPLIER DIVERSITY REPORTS, DEPARTMENT OF CONSERVATION AND RECREATION, 10 Park Plaza, Suite 6620
Boston, MA 02116

PLEASE INCLUDE THE FOLLOWING INFORMATION IN THE DESIGNATED SECTIONS OF THE FORM:

FIRM NAME: Include the M/WBE/VOBEs listed on the project's approved Schedule for Participation and any additional M/WBE/VOBEs that worked on the project. Be sure to check M/WBE/VOBE category for which they are certified. Note that any change in M/WBE/VOBEs participation used to meet the project goals must be pre-approved by the Project Manager or Engineer responsible for this project and a revised M/WBE/VOBE Schedule of Participation will be required. Contact the DCR Supplier Diversity coordinator immediately if you anticipate or have any changes in M/WBE/VOBE participation on this project.

WORK PERFORMED: Include a brief description of the work performed by each subcontractor listed. The description should match the M/WBE/VOBE Letter of Intent and approved Schedule of Participation. M/WBE/VOBEs must be certified in the category of work performed on this project for firms used to meet the project M/WBE/VOBE goals.

SUBCONTRACT AMOUNT: Include the contract or subcontract amounts listed on the M/WBE/VOBE Letters of Intent and approved Schedule of Participation. If the value of an MBE/WBE/VOBE contract or subcontract has decreased or increased for any reason, you must contact the Project Manager or Engineer responsible for this project immediately. If additional M/WBE/VOBE firms not listed on the Schedule for Participation worked on this project list the amount of their subcontracts.

PAYMENTS THIS QUARTER: Include the amount you paid the M/WBE/VOBE subcontractor, either directly or indirectly, for work performed on this project during the three-month period covered by this Certification of Payment. If the amount paid was zero, please indicate that. Do not include payments from previous periods or estimated future payments in this column. Please note that you may be required to submit copies of cancelled checks to verify the amounts reported for firms used to meet the project's M/WBE/VOBE goals.

FY PAYMENTS TO DATE: Include the total amount you paid the M/WBE/VOBE subcontractor, either directly or indirectly, for work performed on this project for all quarters in **this fiscal year**. To ensure accurate reporting, please review the prior Certifications of Payments previously submitted for this project. Where necessary, correct any earlier mathematical or reporting errors and submit revised Certifications of Payment.

CUMULATIVE PAYMENTS: Include the total amount you paid the M/WBE/VOBE subcontractor, either directly or indirectly, for work performed over the entire life of this project (all quarters).

IF YOU HAVE ANY QUESTIONS, CONTACT DCR Supplier Diversity coordinator at 617.626.4925

CERTIFICATE OF COMPLETION
BY MINORITY/WOMEN BUSINESS/VETERAN OWNED BUSINESS ENTERPRISE
DEPARTMENT OF CONSERVATION AND RECREATION

TO: Supplier Diversity Reports
Department of Conservation and
Recreation 10 Park Plaza
Suite 6620, Boston, MA 02116

Reporting Period: Fiscal Year

RE: Project:
Project Number:
General Contractor:

Contract Start Date:

The undersigned hereby certifies under the pains and penalties of perjury that the vendor named below has received the payments to the named Minority, Women Business and Veteran Owned Enterprises for work performed on the above project:

Firm Name of Subcontractor:

Print Name

Print Title

Phone Number

Email address

DESCRIPTION OF WORK (AS SHOWN IN LETTER OF INTENT)

BRIEF DESCRIPTION OF ACTIVITY: (Note "Labor Only," "Material Only," "Material and Labor," "Complete")

Original Subcontract Amount \$ _____

Adjusted Subcontract Amount (Change Orders, etc.) \$ _____

Total Payments Received to Date from Prime Contractor \$ _____

Balance Due from Prime Contractor \$ _____

If the completed activity is different from that listed on the Letter of Intent, please explain: _____

(If more space is needed, continue back of sheet)

The individuals signing below hereby certify under the pains and penalties of perjury that all work listed on the Contract Letter of Intent (or approved changes thereto as explained above) was completed by the MBE/WBE/VOBE firm on _____, 20____ and the above amounts listed for these services are true and accurate.

FOR CONTRACTOR

FOR MBE/WBE/VOBE FIRM

Authorized Signature

Authorized Signature

Print Name

Print Name

NOTE: To be submitted to the DCR Compliance Office within ten (10) days after completion of work by MBE/WBE/VOBE.

**E-2 Final Acceptance
Certificate of Final Inspection, Release and Acceptance**

Title: _____

Location: _____

Contractor: _____

This is to certify that a complete inspection of the above-referenced project was made on _____ by the undersigned, and that the entire work was completed in accordance with the plans and specifications. The undersigned recommends acceptance of the project.

_____	by: _____	Title: _____	Date: _____
Signature	Designer		Authorized

_____	Date	_____	Date
Resident Engineer		Project Manager	
_____	Date		
Project Engineer			

CERTIFICATE OF RELEASE

1.) The undersigned hereby certifies that all work has been completed in accordance with the plans, specifications, and contract documents and that all change orders have been supported pursuant to Article VII of the General Conditions of the Contract.

2.) Contract Award Price: \$	Adjusted Contract Price: \$
Authorized Additions: \$	Paid to Date: \$
Authorized Deductions: \$	Balance Due: \$

3.) The undersigned further certifies that in addition to the amount set forth above, there are outstanding and unsettled the following change orders as submitted to the DCR.

Request No.	Date:	Amount:
Request No.	Date:	Amount:
Request No.	Date:	Amount:

Subject to satisfactory disposition of change orders listed in Item 3 above, the undersigned releases the Commonwealth of Massachusetts from all further claims for wages or payments to subcontractors or suppliers except: (list on attached sheet).

_____	by: _____
Contractor	Authorized Signature
The above-referenced project is accepted as of _____	
	Date

Deputy Commissioner, Engineering
Deputy Director
Project Manager Resident
Engineer
Office of Contract Administration
Contractor



BID PACKAGE

PART V

TECHNICAL SPECIFICATIONS

**WESTERN MA MOUNTAIN ROAD CULVERT IMPROVEMENTS
CONTRACT NO. P26-3666-C2A**

**TECHNICAL SPECIFICATIONS
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Appendix

- Appendix A – Permitting Resources
- Appendix B – Plans
- Appendix C – HMA Inspection Forms

**WESTERN MA MOUNTAIN ROAD CULVERT IMPROVEMENTS
CONTRACT NO. P26-3666-C2A**

ITEMS

All work under this Contract shall conform to the latest versions of the following:

- MassDOT Standard Specifications and Guidelines:
 - o Standard Specifications for Highways and Bridges
 - o Construction Standard Details
 - o Traffic Management Plans and Detail Drawings
 - o Work Zone Safety Temporary Traffic Control
 - o Standard Drawings for Signs and Supports
 - o Guide Sign Policy for Secondary State Highways
 - o Overhead Signal Structure and Foundation Standard Drawings
 - o Standard Drawings for Traffic Signals and Highway Lighting
- Other Applicable Standards:
 - o Manual on Uniform Traffic Control Devices (MUTCD) with Massachusetts Amendments (U.S. DOT)
 - o The American Standard for Nursery Stock

Additionally, the work shall comply with the plans, special provisions and most current amendments/engineering directives.

The General Conditions, Special Conditions and Technical Specifications shall take precedence over the General Requirements of the Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highways and Bridges and all other documents referenced above.

The following items reflect special conditions particular to this Contract. As such, they amend and/or supplement the provisions governing the item as described in the Standard Specifications.

ITEM 101.**CLEARING AND GRUBBING****A**

This work consists of clearing, grubbing, removing, and disposing of vegetation, stumps, roots, brush, and other debris within the designated limits of construction. It also includes the preservation and protection of trees and vegetation as specified in the contract documents. The work shall be performed in accordance with the plans and specifications and in compliance with applicable environmental regulations and permitting requirements.

All erosion and sedimentation control measures shall be installed before beginning any clearing and grubbing operations. Work shall not commence until the limits of work have been verified and authorized by the Engineer.

EQUIPMENT

- The contractor shall provide all necessary machinery and tools to perform clearing and grubbing efficiently. Equipment may include, but is not limited to:
 - o Excavators, dozers, and loaders for vegetation and stump removal
 - o Chippers, grinders, or mulchers for processing cleared material
 - o Trucks for off-site material removal
 - o Chainsaws and hand tools for selective clearing
 - o Erosion control installation tools

All equipment shall be maintained in good working order to minimize environmental impacts such as noise, emissions, and fluid leaks.

MATERIALS

- No specific materials are required for this item. However, the contractor shall furnish and install erosion control measures as necessary, in compliance with the following specifications:
 - o Item 102.521 – Tree and Plant Protection Fence
 - o 767.8 – Bales of Hay for Erosion Control
 - o 767.82 – Dewatering Haybale Basin
 - o 767.83 – Dewatering Filter Bag

Temporary or permanent stabilization measures, including mulching, seeding, or erosion control blankets, shall be applied as necessary to prevent soil erosion and sedimentation.

CONSTRUCTION METHODS

Clearing shall involve the removal of all trees, brush, and vegetation within the project limits unless otherwise specified. Trees designated for preservation shall be protected from damage in accordance with the contract requirements.

Grubbing shall include the removal of all stumps, roots, and buried organic matter greater than 4 inches in diameter to a depth of at least 12 inches below the ground surface. The area shall be left in a condition suitable for further site preparation or construction activities.

Disposal of cleared and grubbed material shall be carried out in an environmentally acceptable manner. This may include chipping, burning (if permitted by local regulations), or off-site removal in accordance

with the project specifications. All disposal activities shall be accomplished in accordance with all applicable Federal, State, and local ordinances.

Erosion control measures shall be implemented to stabilize disturbed areas in accordance with erosion and sediment control requirements. Temporary or permanent stabilization methods, such as mulching, seeding, or erosion control blankets, shall be applied as necessary to prevent soil erosion and sedimentation.

The limits of clearing and grubbing shall be as shown on the plans or as directed by the Engineer. Any areas outside the designated limits that are disturbed or damaged during construction shall be restored at no additional cost to the project.

Due to the varying environmental sensitivity of the projects, all sedimentation and control barriers and other protective measures, as required by the Department and as detailed in 102.511, Roadside Tree Protection – Trunk Wrap, 767.8, Bales of Hay for Erosion Control, 767.82, Dewatering Haybale Basin and 767.83, Dewatering Filter Bag are to be in place prior to the start of all clearing and grubbing operations. Clearing and Grubbing shall be done only upon direction by the Department and after verification of the limits of work.

MEASUREMENT AND PAYMENT

Clearing and grubbing will be measured by the number of acres cleared and grubbed within the designated limits as specified in the contract documents. Measurement shall be based on actual field verification conducted by the Engineer.

Payment will be made at the contract unit price per acre, which shall include all labor, equipment, and incidental costs associated with clearing, grubbing, disposal, and site stabilization. No additional payment will be made for work performed outside the specified limits or for unauthorized clearing.

ITEM 102.511**TREE PROTECTION - ARMORING AND PRUNING****EA**

The work under this item shall conform to the relevant provisions of Section 771 of the MassDOT Standard Specifications and shall consist of furnishing and installing temporary tree trunk protection (armoring) and performing minor limb pruning or removal of lower limbs as required to prevent damage from construction equipment and activities.

Trunk armoring shall be installed where construction activity, including the operation of heavy equipment, occurs in close proximity to existing trees and where shown on the Plans or as directed by the Engineer.

If requested, the Contractor shall provide one copy of the latest edition of ANSI A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance:

- Part 1 – Pruning
- Part 5 – Construction Management

Provision of reference materials shall be incidental to this item.

MATERIALS

Trunk armoring materials shall prevent damage to the tree trunk from construction equipment and shall be installed and removed in a manner that does not damage the tree.

Acceptable materials include:

- 2x4 wood cladding secured with wire or metal strapping; or
- Corrugated plastic pipe secured with duct tape (for construction durations less than three months).

The height of trunk armoring shall extend from the base of the tree, including the root flare, to:

- The bottom of the first branch,
- Eight (8) feet above ground, or
- As directed by the Engineer.

All materials and methods shall be approved by the Engineer.

Alternate materials or methods may be used if approved by the Engineer or by a Contract Arborist, if included in the Contract.

EQUIPMENT

The Contractor shall furnish all tools and equipment necessary to install and remove trunk armoring and to perform pruning in accordance with ANSI A300 standards.

Pruning equipment shall be sharp, clean, and suitable for professional arboricultural work to prevent tearing or damaging tree bark and limbs.

CONSTRUCTION METHODS

Pre-Construction Review

- Prior to construction activities, the Engineer, Contractor, the City's Arborist/Tree Warden, and the Contract Arborist (if included) shall review the trees identified on the Plans for protection.
- Final determination regarding trees to be armored and/or pruned shall be made by the City's Arborist.

Installation of Trunk Armoring

- Trunk armoring shall be installed prior to the commencement of adjacent construction activities.
- Care shall be taken to avoid bark damage during installation.
- Armoring shall:
 - Remain in place and be maintained in effective condition for the duration of adjacent construction operations.
 - Be replaced if damaged or loosened.
 - Be removed immediately upon completion of nearby construction activities.
- Removal shall be performed carefully to prevent injury to the trunk.

Pruning

- Pruning shall conform to the most recent ANSI A300 standards.
- Only limbs identified during the pre-construction review or as directed by the Engineer shall be pruned.
- Cuts shall be clean and made using proper arboricultural techniques.

Damages and Penalties

- If trees designated for protection are damaged, including root damage caused by unapproved entry into the root zone, the Contractor shall, at no additional cost to the Owner, retain an Arborist approved by the Engineer.
- If the Engineer determines that damages are repairable, corrective measures may include:
 - Trunk or limb repair
 - Soil compaction remediation
 - Pruning
 - Watering
- All remediation shall be performed within the appropriate season and in accordance with industry standards.
- If damages are determined to be irreparable, the Contractor shall pay damages in the amount of:
 - \$500.00 per diameter inch at breast height (DBH), per tree.
- If the Engineer determines the tree poses a future safety hazard, the tree shall be removed.
- Tree removal shall include:
 - Removal and disposal of all wood parts
 - Grinding stump to a depth sufficient for replanting
 - Removal of all chips
 - Backfilling with topsoil
- All costs associated with Arborist services, remediation, or removal shall be borne by the Contractor.

METHOD OF MEASUREMENT

Tree Protection – Armoring and Pruning will be measured per each tree armored and pruned, complete in place and accepted.

PAYMENT

Tree Protection – Armoring and Pruning will be paid at the Contract unit price per each tree.

Payment shall constitute full compensation for:

- All labor

- Materials
- Equipment
- Installation and maintenance of armoring
- Pruning
- Removal and disposal of protective materials
- All incidental costs required to complete the work

No separate payment will be made for removal and disposal of trunk protection materials.

Payment Schedule

- Forty percent (40%) of the contract unit price will be paid upon installation of trunk armoring and completion of pruning, if required.
- The remaining sixty percent (60%) will be paid upon completion of construction activities adjacent to the tree and after removal and proper disposal of protective materials.

In the event of repairable damage, final payment shall not be made until remediation measures are completed.

In the event of irreparable damage due to failure to implement proper protective measures, no additional compensation will be made beyond the \$500.00 per diameter inch penalty.

<u>ITEM 103.</u>	<u>TREE REMOVED - DIAMETER UNDER 24 INCHES</u>	<u>EA</u>
<u>ITEM 105.</u>	<u>STUMP REMOVED</u>	<u>EA</u>

The work under these items consists of the removal of individual trees and stumps as designated on the contract plans or as directed by the Engineer. Trees and stumps shall be cut, removed, and disposed of in accordance with applicable state and local regulations.

EQUIPMENT

- Chainsaws and tree-felling equipment
- Excavators with hydraulic thumbs or stump grinders
- Chipping machines for on-site processing
- Trucks for hauling debris off-site

MATERIALS

- Wood chip mulch (if applicable)
- Topsoil and seed (for restoration after stump removal)

CONSTRUCTION METHODS

- Tree Removal:
 - o Trees shall be measured at a height of 3 feet above ground level.
 - o Trees under 2 feet in diameter shall be removed under Item 103.
 - o Trees 2 feet and over in diameter shall be removed under Item 104.
 - o Trees shall be felled in a controlled manner to avoid damage to adjacent structures or vegetation designated for preservation.
- Stump Removal:
 - o Stumps and major root systems shall be completely removed under Item 105.
 - o Backfilling of stump holes shall be performed with suitable material and compacted to match surrounding ground.
- Disposal:
 - o Chipped material may be used on-site if permitted.
 - o All removed trees and stumps shall be disposed of in accordance with state regulations.

METHOD OF MEASUREMENT

- Item 103 Measured as the number of trees removed, counted individually based on diameter.
- Item 105: Measured as the number of stumps removed, including major root systems.

PAYMENT

- Item 103 – Tree Removed (Diameter Under 2 feet): Paid per each tree removed.
- Item 105 – Stump Removed: Paid per each stump removed.
- Payment includes all labor, equipment, and disposal costs.
- No separate payment will be made for preparation and spreading of wood chips.

ITEM 113.1**DEMOLITION OF EXISTING CULVERT****LS**

Work under this item shall conform to the relevant provisions of Subsection 112 of the Standard Specifications and the following:

This work shall consist of furnishing all labor, materials, equipment, and tools necessary to perform the removal and proper disposal of the existing culvert structure as shown on the plans or as directed by the Engineer.

The existing structure is defined as all culvert elements at the crossing, including, but not limited to:

- Corrugated metal pipes
- Headwalls
- Asphalt wearing surface
- Curbs and railings
- Miscellaneous materials incidental to structure demolition

All materials and debris shall become the property of the Contractor and shall be properly disposed of off-site in accordance with applicable local, state, and federal regulations.

The Town does not guarantee that the existing structure materials will coincide exactly with any descriptions contained herein or on the plans. Contractors are responsible for site visits prior to bidding to become familiar with the structure and the scope of demolition.

No additional compensation, beyond the lump sum price bid for this item, will be made for differences between the actual materials or conditions and those inferred from this specification or the plans. All costs for permits, dump fees, sawcuts, and special handling of hazardous materials must be included in the lump sum bid.

MATERIALS

No new construction materials are required under this item. All materials for demolition, handling, containment, and disposal shall be supplied by the Contractor.

Contractor-supplied temporary protective materials such as shielding, barriers, and containment devices must comply with applicable safety standards and shall be included in the lump sum cost.

EQUIPMENT

The Contractor shall provide equipment suitable for demolition operations, including but not limited to:

- Excavators, loaders, and cranes capable of safely removing the structure
- Cutting tools, saws, or grinders for asphalt, concrete, or metal
- Debris handling and hauling equipment

All equipment shall be maintained in good working order and operated in a manner approved by the Engineer. The Engineer may reject any equipment or methods that may cause undue vibration, structural damage, or safety hazards.

CONSTRUCTION METHODS

Submittals:

The Contractor shall submit a detailed plan for the proposed demolition methods to the Engineer for approval at least 7 days prior to starting work. The plan shall include:

- Equipment to be used
- Proposed sequencing and method of demolition
- Any required shielding or protective devices
- Measures to control dust, noise, and debris

Work shall not commence until written approval is received from the Engineer.

Demolition Operations:

- The Contractor shall remove all structural elements as defined in the General section.
- All debris shall be removed from the site and disposed of in accordance with federal, state, and local regulations.
- Dust and noise shall be minimized using water, coverings, or other approved methods.
- Blasting is prohibited unless written permission is obtained from the Owner; such permission is very unlikely.
- Measures shall be implemented to prevent debris, tools, or other materials from entering the waterway or causing hazards to traffic, pedestrians, or private property.

Safety and Protection:

- All demolition operations shall comply with OSHA, MassDOT, and local safety standards.
- The Contractor shall provide barriers, signage, and other protective measures as required to maintain public and worker safety.

METHOD OF MEASUREMENT

Demolition of the existing culvert will be measured on a lump sum basis, complete in place, including all work, labor, materials, equipment, and incidental costs required to remove and dispose of the existing culvert structure satisfactorily.

PAYMENT

Payment for this item will be made at the contract lump sum price, which shall include:

- Labor and supervision
- All equipment, tools, and protective measures
- Disposal of all debris
- Permits and fees
- Sawcuts or special handling of hazardous materials

No separate payment will be made for any of these items, as all costs shall be included in the lump sum bid.

ITEM 120.**EARTH EXCAVATION****CY**

This work shall consist of excavation, removal, and disposal of all materials encountered within the limits of the Contract that are not otherwise removed under separate items, in accordance with the Plans, Standard Specifications, and as directed by the Engineer.

Excavation shall conform to the lines, grades, cross-sections, and thicknesses shown on the Plans or established by the Engineer.

Excavation shall be classified as follows:

- Earth Excavation
- Class A Rock Excavation
- Muck Excavation
- Unclassified Excavation

Materials deemed unsuitable and surplus suitable material remaining after completion of embankments, backfill, shoulders, and related work shall be disposed of outside the Right-of-Way at the Contractor's expense. Waste material shall not be placed in flood channel areas or wetlands.

Existing concrete foundations not interfering with proposed construction may be abandoned in place with approval of the Engineer. Foundations beneath roadway surfaces shall be removed to a minimum depth of 3 feet below finished grade. Foundations outside roadway surfaces shall be removed to a minimum depth of 1 foot below proposed finished grade.

EQUIPMENT

The Contractor shall furnish all equipment necessary to perform the work, including but not limited to:

- Excavators and loaders
- Dozers and graders
- Rock drilling and blasting equipment
- Hydraulic hammers or rippers
- Hauling equipment
- Compaction equipment
- Pumps for dewatering
- Equipment required for presplitting operations

All equipment shall be suitable for the material classification encountered and site conditions.

MATERIALS

Excavated materials suitable for reuse shall be incorporated into embankments, backfill, or other work as directed and in accordance with applicable sections of the Specifications.

Materials deemed unsuitable by the Engineer shall be removed and disposed of off-site in approved disposal areas.

Crushed stone used for presplitting stemming shall conform to MassDOT M2.01.6.

Borrow material required to replace excavated materials used for other contract purposes shall meet applicable specification requirements for the intended use.

CONSTRUCTION METHODS

General

- Excavation operations shall be sequenced to:
 - Maintain traffic safely in accordance with Subsection 7.09
 - Maximize efficient use of excavated materials in embankments
 - Minimize borrow requirements
 - Prevent erosion, sedimentation, and water pollution
- Surface drainage shall be maintained at all times. Excavation lifts shall be visibly crowned to promote drainage.
- Adjacent roads, utilities, and structures shall be protected at the Contractor's expense.

Disposal of Excavated Materials

- Suitable excavated materials shall be used in embankments, shoulders, backfill, loam, or other work as directed.
- Unsuitable materials and surplus materials shall be disposed of outside the Right-of-Way in approved locations. Disposal shall not:
 - Impact wetlands
 - Obstruct streams
 - Impair drainage
 - Encroach upon floodplains without proper authorization
- Written approval from the Engineer is required for disposal outside the Right-of-Way.
- All disposal areas shall be stabilized by grading, drainage, loaming, seeding, and erosion control measures.

Earth Excavation

- Earth Excavation shall consist of all excavation not classified as Class A Rock Excavation, Muck Excavation, or otherwise paid under another item.
- Incidental removal and disposal of debris, abandoned materials, junk cars, signs, fences, guardrail, hot mix asphalt berms, and similar items shall be included.

Class A Rock Excavation

- Class A Rock Excavation shall consist of:
 - Rock requiring blasting or ripping
 - Rock, stone, brick, or concrete masonry measuring 1 cubic yard or more requiring blasting
- Rock shall be stripped of overburden prior to removal. Loose rock fragments hazardous to traffic shall be removed from slopes.

Presplitting

- Presplitting shall be performed in rock cuts 10 feet or more in vertical height where slopes are 1H:4V or steeper.
- Presplitting holes shall:
 - Be 2.5- or 3-inch nominal diameter
 - Be spaced not more than 3 feet on center
 - Be drilled to the required slope plane
 - Not deviate more than 0.5 feet from the slope plane
- Fragmentation blasting shall not penetrate the presplit plane. Stemming shall consist of 3/8-inch crushed stone meeting M2.01.6.
- Presplit charges shall detonate at least 25 milliseconds prior to adjacent fragmentation blasts.

Muck Excavation

- Muck Excavation shall consist of removing saturated or organic materials unsuitable for foundation support.
- Excavation shall extend to the depths shown on the Plans or as required to completely remove unsuitable material.

Unclassified Excavation

- Unclassified Excavation shall consist of all earth, rock, muck, and other materials required for the work where separate classification is not provided.

Topsoil

- Topsoil designated for reuse shall remain on-site unless otherwise approved. Stockpiles shall be neatly placed outside proposed slope limits and stabilized.
- Temporary off-site storage requires Engineer approval. The Contractor shall be responsible for replacement if material is unavailable when needed.

METHOD OF MEASUREMENT

The quantities of excavation and fill to be paid for under these items shall be the volume of material removed or placed in its original position, as determined by the Engineer, and computed using either the Average End Area Method or the Contour Area Method, as applicable to the field geometry and as directed by the Engineer.

PAYMENT

Excavation will be paid at the contract unit price per cubic yard for the applicable classification:

- Earth Excavation
- Class A Rock Excavation
- Muck Excavation
- Unclassified Excavation

Presplitting will be paid at the contract unit price per square yard of exposed rock face.

Payment shall constitute full compensation for:

- Excavation
- Hauling
- Disposal
- Dewatering incidental to excavation
- Protection of adjacent structures
- Equipment, labor, and incidentals

Where excavated materials are used for other contract purposes, payment adjustments shall be made in accordance with contract provisions governing borrow replacement.

No separate payment will be made for incidental debris removal included under Earth Excavation.

ITEM 129.2**OLD PAVEMENT EXCAVATION (FULL DEPTH)****SY**

Work under this item shall consist of the full-depth excavation and removal of existing pavement, including asphalt pavement, concrete pavement, and associated base materials, within the limits shown on the Plans or as directed by the Engineer.

The work shall include breaking, excavation, loading, handling, stockpiling if required, and either reuse on-site or transport and disposal (T&D) of the excavated materials.

Full-depth pavement excavation shall extend through the entire pavement structure, including asphalt or concrete surface courses, binder courses, and underlying base materials, to the depth required for the proposed construction as shown on the Plans or as directed by the Engineer.

MATERIALS

Excavated pavement materials may include, but are not limited to:

- Hot mix asphalt pavement
- Portland cement concrete pavement
- Bituminous treated base
- Gravel base or other pavement foundation materials

Material deemed suitable by the Engineer may be reused on the project for purposes such as:

- Processed gravel or base material
- Temporary construction access
- Shoulder backing
- Embankment fill
- Other uses approved by the Engineer

Materials not suitable for reuse shall be transported and disposed of off-site in accordance with all applicable MassDOT specifications, environmental regulations, and local disposal requirements.

EQUIPMENT

The Contractor shall furnish all equipment necessary to perform the work, including but not limited to:

- Pavement milling machines or pavement breakers
- Excavators and loaders
- Hydraulic hammers or pavement breakers
- Dump trucks for hauling excavated material
- Screening or processing equipment if reuse is required
- Compaction equipment

All equipment shall be maintained in good working condition and suitable for performing controlled excavation operations.

CONSTRUCTION METHODS

Prior to beginning excavation, the Contractor shall identify the limits of pavement removal shown on the Plans or as directed by the Engineer.

Pavement shall be broken, sawcut where required, and excavated to the full depth of the existing pavement structure. Care shall be taken to avoid disturbance to adjacent pavement, utilities, structures, or subgrade materials intended to remain in place.

Excavation shall proceed in a manner that produces uniform edges and stable subgrade conditions.

Excavated materials shall be handled as follows:

- Reuse of Materials
 - o Materials determined by the Engineer to be suitable for reuse may be stockpiled on-site or placed in approved locations for use in construction operations.
 - o Stockpiles shall be placed in locations approved by the Engineer and maintained to prevent contamination or erosion.
- Transport and Disposal (T&D)
 - o Materials not suitable for reuse shall be loaded, transported, and disposed of at approved facilities in accordance with applicable environmental regulations.
 - o Any required permits, disposal documentation, and transportation arrangements shall be the responsibility of the Contractor.
 - o Following pavement removal, the exposed subgrade shall be graded and prepared for subsequent construction operations as shown on the Plans.

METHOD OF MEASUREMENT

Old Pavement Excavation (Full Depth) will be measured by the Square Yard (SY) of pavement removed and accepted.

Measurement shall be based on the horizontal area of pavement excavated, regardless of the depth of pavement removed.

No additional measurement will be made for stockpiling, handling, reuse, or disposal of the excavated material.

PAYMENT

Payment will be made at the contract unit price per Square Yard (SY).

Such payment shall constitute full compensation for all labor, materials, equipment, breaking, excavation, loading, handling, stockpiling, reuse of materials, transport and disposal, and all incidentals necessary to complete the work.

No separate payment will be made for:

- Stockpiling materials on site
- Processing materials for reuse
- Transport and disposal of unsuitable materials
- Sawcutting required to facilitate pavement removal

All such work shall be considered incidental to this item.

ITEM 140.1**BRIDGE EXCAVATION WITHIN COFFERDAM****CY**

This item shall consist of Bridge Excavation performed within a cofferdam constructed for foundation construction below water or groundwater elevation.

The work shall include excavation performed inside the limits of an approved cofferdam.

EQUIPMENT

Equipment shall include cofferdam systems (steel sheet piling, bracing, timbers), dewatering systems, tremie equipment where required, excavation equipment suitable for confined conditions, and compaction equipment.

All equipment shall be suitable for controlled excavation in restricted areas.

MATERIALS

Backfill material obtained from excavation shall be suitable material as determined by the Engineer.

Materials used for cofferdam construction shall conform to the applicable requirements of the Standard Specifications when cofferdam construction is not separately bid.

CONSTRUCTION METHODS

Excavation shall conform to MassDOT Standard Specifications Division II Subsection 140 of the Standard Specifications.

Excavation shall be carried to the elevations shown on the Plans or as directed by the Engineer. Foundations shall not be disturbed below approved bearing elevations.

Where required, the Contractor shall provide sheeting, shoring, bracing, and water control measures in accordance with Subsection 140.60.

Surface pumping will not be permitted unless approved. Water shall be controlled by means of screened sumps, well points, or other approved methods.

Excavation outside the prescribed pay limits shall be at the Contractor's expense.

Cofferdams shall conform to MassDOT Standard Specifications Division II Subsection 140.60.C. Cofferdams shall be safely designed, adequately braced, and sufficiently watertight to permit construction in the dry.

Water control shall conform to Subsection 140.60.E. No pumping shall occur during tremie placement. Tremie seals, when required, shall be placed in accordance with the Standard Specifications.

All cofferdam components shall be removed after completion unless otherwise approved.

METHOD OF MEASUREMENT

Excavation will be measured in cubic yards in its original position by the cross-section method in accordance with Subsection 140.80.

Payment under Item 140.1 shall be limited to the quantity of Bridge Excavation performed within the limits of an approved cofferdam constructed for the structure.

Measurement shall be limited:

Horizontally:

- To vertical planes 12 inches outside and parallel to the neat lines of masonry bases or footings.
- To the vertical limits of crushed stone or gravel borrow for bridge foundation as shown on the Plans.

Vertically:

- From the bottom of roadway excavation or existing ground surface, whichever is lower, to the bottom of required excavation as determined by the Engineer.

Excavation outside these limits or outside the approved cofferdam area will not be measured for payment under this item.

PAYMENT

Bridge Excavation within Cofferdam will be paid for at the Contract unit price per cubic yard.

The unit price shall include all additional labor, equipment, restricted access, and operational constraints associated with excavation inside a cofferdam.

Cofferdam construction and water control will not be paid for separately unless provided as separate pay items.

ITEM 144.**CLASS B ROCK EXCAVATION****CY**

The work under this item consists of the removal and disposal of Class B rock encountered during excavation for structures such as bridges, culverts, pipes, foundations, retaining walls, and other substructure elements. Class B Rock Excavation includes:

- Boulders measuring 1 cubic yard or more
- Solid rock requiring blasting or breaking by hand or mechanical tools before removal
- Masonry from existing drainage structures, reinforced concrete pavements, and bridge substructures

The contractor shall conduct excavation in a manner that prevents damage to adjacent structures and utilities.

EQUIPMENT

- Hydraulic breakers, jackhammers, or mechanical rock splitters
- Excavators with rock buckets or hydraulic hammers
- Blasting equipment (if permitted)
- Dump trucks for material hauling
- Safety barriers and dust suppression equipment.

MATERIALS

- Controlled blasting agents (if required and approved)
- Backfill material (crushed stone, gravel borrow, or approved alternatives)
- Protective sheeting and shoring (if required)

CONSTRUCTION METHODS

- Site Preparation
 - Identify and mark rock excavation areas per project plans.
 - Implement safety measures for blasting (if required) following state and federal regulations.
- Rock Removal
 - Remove boulders and rock using mechanical methods or controlled blasting.
 - Minimize over-excavation beyond specified limits.
- Disposal of Excavated Material
 - If approved, reuse excavated rock for embankments or erosion control.
 - Otherwise, haul and dispose of rock in designated areas.
- Backfilling
 - Replace removed rock with suitable backfill material and compact in layers.

METHOD OF MEASUREMENT

Measured in cubic yards (CY) in its original position using cross-section calculations.

Payment is limited to the specified excavation limits; any additional excavation for contractor convenience will not be measured.

PAYMENT

Payment includes all labor, materials, equipment, and disposal costs.

If controlled blasting, sheeting, or additional dewatering is required but not a separate bid item, it will be considered incidental to this item.

ITEM 146.**DRAINAGE STRUCTURE REMOVED****EA**

This work includes the removal and disposal of existing drainage structures, including but not limited to catch basins, manholes, drop inlets, and other associated appurtenances. Excavation required to access and remove the structure is included in this item; however, backfilling of the resulting void is not included and will be paid for under the appropriate contract item. The removal process shall be conducted in a manner that minimizes disruption to surrounding infrastructure and maintains site stability.

MATERIALS AND EQUIPMENT

No specific materials are required for this item. All work shall be performed in compliance with environmental and safety regulations to prevent damage to adjacent structures, utilities, and roadways. If erosion control measures such as silt fencing, sediment barriers, or temporary stabilization are required, they shall be installed in accordance with MassDOT standards.

The following equipment may be used for drainage structure removal, depending on site conditions and project requirements:

- Excavators (tracked or wheeled) for structure excavation and removal
- Backhoes for smaller excavation areas or confined spaces
- Jackhammers or hydraulic breakers for dismantling concrete or masonry structures
- Dump trucks for hauling removed materials to approved disposal sites
- Skid steers for material handling in restricted areas
- Cranes or lifting devices for removal of large precast structures
- Pumps and dewatering equipment if water removal is necessary before structure removal

All equipment shall be in good working condition, suitable for the intended work, and operated by qualified personnel. The Contractor shall ensure that equipment use does not cause excessive ground disturbance or environmental damage.

CONSTRUCTION METHODS

Prior to removal, the Contractor shall verify the location, type, and dimensions of the existing drainage structure. Any discrepancies between site conditions and contract documents shall be reported to the Engineer before proceeding.

Excavation shall be performed carefully to expose the drainage structure without damaging adjacent utilities, pavement, or other infrastructure. When necessary, structures shall be dismantled in sections to facilitate safe removal. If portions of the structure are below the groundwater table, dewatering methods shall be employed to allow for controlled removal.

Removed materials shall be transported to an approved disposal site unless otherwise specified for salvage or reuse. The Contractor is responsible for ensuring that disposal complies with all applicable environmental regulations. The excavation left by the removed structure shall be secured to prevent hazards until backfill operations commence under a separate contract item.

Erosion and sedimentation control measures shall be implemented before, during, and after removal to protect adjacent areas and prevent sediment discharge. If required, temporary stabilization methods, such as seeding, mulching, or placing geotextiles, shall be installed as directed by the Engineer.

Upon completion, the area shall be inspected to ensure all components of the drainage structure have been fully removed and that the site is left in a safe and stable condition. Any deficiencies shall be corrected before acceptance of the work.

MEASUREMENT AND PAYMENT

Drainage Structure Removed will be measured per each (EA) drainage structure removed. Payment at the contract unit price includes all excavation, removal, handling, and disposal of the structure and its appurtenances. Backfilling of the excavation left by the removal of the structure is not included in this item and shall be paid for under a separate contract item.

ITEM 150.**ORDINARY BORROW****CY**

This work shall consist of furnishing, placing, shaping, and compacting approved Ordinary Borrow material where suitable embankment material is not available from excavation within the project limits.

MATERIALS

Ordinary Borrow shall consist of material satisfactory to the Engineer and not specified as Gravel Borrow, Sand Borrow, Special Borrow, or any other particular type of borrow.

The material shall have the physical characteristics of soils designated as Group A-1, A-2-4, or A-3 under AASHTO M 145. The material shall possess properties such that it may be readily spread and compacted for the formation of embankments in accordance with the Contract requirements.

Processed Glass Aggregate (PGA) meeting the requirements of MassDOT M2.01.8 may be homogeneously blended with the Ordinary Borrow at a rate not exceeding 10 percent by mass, provided:

- The blended material maintains the required AASHTO M 145 soil classification, and
- The material is placed only in areas that will not be exposed in the finished condition.

All material shall be free from organic matter, muck, frozen lumps, debris, and other deleterious substances.

EQUIPMENT

All work shall be performed in compliance with applicable environmental regulations, safety requirements, and erosion and sedimentation control standards to prevent damage to adjacent structures, utilities, roadways, and natural resources.

Where required, erosion control measures such as silt fence, sediment barriers, inlet protection, tracking pads, and temporary stabilization shall be installed and maintained in accordance with MassDOT standards and the Contract Documents.

The following equipment may be used for borrow placement, embankment construction, foundation preparation, and crushed stone installation, depending on site conditions and project requirements:

- Excavators (tracked or wheeled) for excavation, shaping, and material placement
- Bulldozers for spreading and rough grading
- Motor graders for fine grading and shaping
- Front-end loaders for material handling and stockpile management
- Dump trucks for hauling borrow or crushed stone from approved sources
- Scrapers for large-scale earthmoving operations
- Vibratory rollers (smooth drum or padfoot) for embankment compaction
- Pneumatic-tired rollers for granular material compaction
- Plate compactors or trench compactors for confined areas
- Mechanical tampers for backfilling around structures and pipes
- Water trucks for moisture conditioning
- Crushing and screening equipment (if material is processed on-site)

All compaction equipment shall be capable of achieving the density requirements specified in the Construction Methods section.

All equipment shall be maintained in good working condition, suitable for the intended work, and operated by qualified personnel. The Contractor shall ensure equipment use does not result in excessive ground disturbance, instability, or environmental damage.

CONSTRUCTION METHODS

Material shall be placed in uniform lifts not exceeding 12 inches loose thickness and compacted to not less than 95% of maximum dry density (AASHTO T99 unless otherwise directed). Each lift shall be graded to provide proper drainage.

METHOD OF MEASUREMENT

The quantities of excavation and fill to be paid for under this item shall be the volume of material removed or placed in its original position, as determined by the Engineer, and computed using either the Average End Area Method or the Contour Area Method, as applicable to the field geometry and as directed by the Engineer.

No separate payment will be made for moisture conditioning, compaction, shaping, trimming, testing, stockpiling, handling, or rehandling of materials, as these costs shall be included in the contract unit price for the item.

PAYMENT

Payment at the contract unit price for this item shall constitute full compensation for furnishing all labor, materials, equipment, and incidentals necessary to complete the work.

The contract unit price shall include material procurement, testing, delivery, stockpiling, placement, moisture conditioning, compaction, grading, shaping, surveying, and disposal of excess or unsuitable material generated by the work.

No payment will be made for material placed outside the lines, grades, and limits shown on the Plans or as directed by the Engineer, unless such placement is expressly authorized in writing by the Engineer prior to placement.

Additional work, including but not limited to subgrade preparation, removal and disposal of unsuitable material, dewatering, or other work not specifically included in this item, will be paid for under the appropriate separate contract item.

ITEM 151.**GRAVEL BORROW****CY**

This work consists of furnishing and placing Gravel Borrow where shown on the Plans.

MATERIALS

Gravel Borrow shall consist of inert material that is hard, durable stone and coarse sand, free from loam, clay, surface coatings, or other deleterious materials.

Gradation Requirements:

- Gradation shall be determined by AASHTO T 311 and conform to the following:

Sieve Designation	Percent Passing
½ in.	50-85%
No. 4	40-75%
No.50	8-28%
No.200	0-10%

- Maximum Stone Sizes by Type:

Material Type	Maximum Stone Dimension
M1.03.0 Type a	6 in.
M1.03.0 Type b	3 in.
M1.03.0 Type c	2 in.
M1.03.0 Type d	1.5 in.

Processed Glass Aggregate (PGA) Addition:

- PGA meeting the requirements of MassDOT M2.01.8 may be homogeneously blended with the gravel.
- Maximum addition rate: 10% by mass in areas where the subbase material will not be exposed.
- The resulting blend shall meet the physical requirements of the applicable gravel borrow type (a, b, c, or d).

All Gravel Borrow shall be suitable for placement and compaction in embankments, backfills, subbases, or other authorized work as directed by the Engineer.

EQUIPMENT

All work shall be performed in compliance with applicable environmental regulations, safety requirements, and erosion and sedimentation control standards to prevent damage to adjacent structures, utilities, roadways, and natural resources.

Where required, erosion control measures such as silt fence, sediment barriers, inlet protection, tracking pads, and temporary stabilization shall be installed and maintained in accordance with MassDOT standards and the Contract Documents.

The following equipment may be used for borrow placement, embankment construction, foundation preparation, and crushed stone installation, depending on site conditions and project requirements:

- Excavators (tracked or wheeled) for excavation, shaping, and material placement
- Bulldozers for spreading and rough grading

- Motor graders for fine grading and shaping
- Front-end loaders for material handling and stockpile management
- Dump trucks for hauling borrow or crushed stone from approved sources
- Scrapers for large-scale earthmoving operations
- Vibratory rollers (smooth drum or padfoot) for embankment compaction
- Pneumatic-tired rollers for granular material compaction
- Plate compactors or trench compactors for confined areas
- Mechanical tampers for backfilling around structures and pipes
- Water trucks for moisture conditioning
- Crushing and screening equipment (if material is processed on-site)

All compaction equipment shall be capable of achieving the density requirements specified in the Construction Methods section.

All equipment shall be maintained in good working condition, suitable for the intended work, and operated by qualified personnel. The Contractor shall ensure equipment use does not result in excessive ground disturbance, instability, or environmental damage.

CONSTRUCTION METHODS

Placed in layers not exceeding 12 inches loose thickness and compacted to 95% of maximum dry density (AASHTO T99).

Material shall be uniformly graded and free draining.

METHOD OF MEASUREMENT

The quantities of excavation and fill to be paid for under this item shall be the volume of material removed or placed in its original position, as determined by the Engineer, and computed using either the Average End Area Method or the Contour Area Method, as applicable to the field geometry and as directed by the Engineer.

No separate payment will be made for moisture conditioning, compaction, shaping, trimming, testing, stockpiling, handling, or rehandling of materials, as these costs shall be included in the contract unit price for the item.

PAYMENT

Payment at the contract unit price for this item shall constitute full compensation for furnishing all labor, materials, equipment, and incidentals necessary to complete the work.

The contract unit price shall include material procurement, testing, delivery, stockpiling, placement, moisture conditioning, compaction, grading, shaping, surveying, and disposal of excess or unsuitable material generated by the work.

No payment will be made for material placed outside the lines, grades, and limits shown on the Plans or as directed by the Engineer, unless such placement is expressly authorized in writing by the Engineer prior to placement.

Additional work, including but not limited to subgrade preparation, removal and disposal of unsuitable material, dewatering, or other work not specifically included in this item, will be paid for under the appropriate separate contract item.

This work consists of furnishing and placing Gravel Borrow for backfilling around structures and pipes.

MATERIALS

Backfill material for structures and pipes shall consist of suitable material uniformly distributed and thoroughly compacted. When material from excavation is not suitable, the backfill shall consist of approved borrow material as specified herein.

- Gradation Requirements:
 - o Gradation shall be determined by AASHTO T 311 and conform to the following:

Sieve Designation	Percent Passing
½ in.	50-85%
No. 4	40-75%
No.50	8-28%
No.200	0-10%

- Maximum Stone Sizes by Type:

Material Type	Maximum Stone Dimension
M1.03.0 Type b	3 in.
M1.03.0 Type d	1.5 in.

- Processed Glass Aggregate (PGA) Addition:
 - o PGA meeting the requirements of MassDOT M2.01.8 may be homogeneously blended with the gravel.
 - o Maximum addition rate: 10% by mass in areas where the subbase material will not be exposed.
 - o The resulting blend shall meet the physical requirements of the applicable gravel borrow type (b or d).
- Backfill for Structures
 - o Backfill placed behind bridge abutments and wingwalls shall consist of Gravel Borrow conforming to M1.03.0 Type b.
 - o Backfill shall be placed in successive layers not exceeding 6 inches in loose depth, uniformly distributed and thoroughly compacted. No backfill shall be placed against structures, pipes, or masonry until permitted by the Engineer.
- Backfill for Pipes
 - o Material used for backfilling to a point 2 feet above the top of pipe shall:
 - Contain no stones larger than 3 inches in greatest dimension, except as noted below.
 - For corrugated plastic pipe, consist of Gravel Borrow conforming to M1.03.0 Type d to a depth of 2 feet above the top of pipe.
 - o Backfill material shall be placed and compacted in layers not exceeding 6 inches. Material shall be moist at the time of compaction. Puddling or jetting will not be permitted without written approval of the Engineer.

EQUIPMENT

All work shall be performed in compliance with applicable environmental regulations, safety requirements, and erosion and sedimentation control standards to prevent damage to adjacent structures, utilities, roadways, and natural resources.

Where required, erosion control measures such as silt fence, sediment barriers, inlet protection, tracking pads, and temporary stabilization shall be installed and maintained in accordance with MassDOT standards and the Contract Documents.

The following equipment may be used for borrow placement, embankment construction, foundation preparation, and crushed stone installation, depending on site conditions and project requirements:

- Excavators (tracked or wheeled) for excavation, shaping, and material placement
- Bulldozers for spreading and rough grading
- Motor graders for fine grading and shaping
- Front-end loaders for material handling and stockpile management
- Dump trucks for hauling borrow or crushed stone from approved sources
- Scrapers for large-scale earthmoving operations
- Vibratory rollers (smooth drum or padfoot) for embankment compaction
- Pneumatic-tired rollers for granular material compaction
- Plate compactors or trench compactors for confined areas
- Mechanical tampers for backfilling around structures and pipes
- Water trucks for moisture conditioning
- Crushing and screening equipment (if material is processed on-site)

All compaction equipment shall be capable of achieving the density requirements specified in the Construction Methods section.

All equipment shall be maintained in good working condition, suitable for the intended work, and operated by qualified personnel. The Contractor shall ensure equipment use does not result in excessive ground disturbance, instability, or environmental damage.

CONSTRUCTION METHODS

All backfilling operations shall be performed in a manner that prevents displacement, damage, or overstressing of structures and pipes.

No backfill shall be placed against any structure, pipe, or masonry until permission is granted by the Engineer.

- General Placement
 - o Backfill shall be placed in uniform layers not exceeding 6 inches in loose depth and shall be thoroughly compacted prior to placement of subsequent layers.
 - o Material shall be placed in a manner that prevents segregation and ensures full contact with structural surfaces. Mechanical tampers shall be used in trenches and confined areas where rolling equipment cannot operate effectively.
 - o Puddling or jetting will not be permitted except with written approval of the Engineer.
- Backfilling Around Structures
 - o Backfill behind abutments, wingwalls, arches, rigid frames, and similar structures shall:
 - Be placed first at the midpoint of the structure.
 - Then be placed simultaneously toward each end.

- Be maintained at approximately equal elevations on both sides of the structure at all times.
 - o Backfill shall progress uniformly to prevent unbalanced lateral loading.
 - o Backfill limits for measurement shall not extend beyond a vertical plane 1 foot outside the footing unless otherwise directed.
- Backfilling Around Pipes
 - o Backfill below the pipe haunches shall:
 - Be placed in 6-inch layers.
 - Be compacted simultaneously on both sides of the pipe.
 - Be compacted using approved mechanical tampers that shall not come into contact with the pipe.
 - o Backfill above the haunches shall:
 - Be placed in 6-inch layers.
 - Be compacted as directed by the Engineer.
 - Be maintained at equal heights on both sides of the pipe.
 - o For structural plate pipes, pipe-arches, and arches, backfill shall be placed evenly on both sides in layers not exceeding 6 inches and thoroughly tamped for a distance equal to at least the pipe diameter or span.
- Load Restrictions
 - o No load greater than:
 - 8 tons shall pass over a pipe until a minimum of 2 feet of fully compacted backfill is in place.
 - 40,000 lb single wheel load until 3.5 feet of cover is provided.
 - 60,000 lb single wheel load until 4 feet of cover is provided.
 - o The required compacted cover shall extend at least 50 feet on both sides of the pipe crossing.
 - o Compliance with minimum cover requirements does not relieve the Contractor of responsibility for damage to the pipe.

METHOD OF MEASUREMENT

The quantities of excavation and fill to be paid for under this item shall be the volume of material removed or placed in its original position, as determined by the Engineer, and computed using either the Average End Area Method or the Contour Area Method, as applicable to the field geometry and as directed by the Engineer.

No separate payment will be made for moisture conditioning, compaction, shaping, trimming, testing, stockpiling, handling, or rehandling of materials, as these costs shall be included in the contract unit price for the item.

PAYMENT

Payment at the contract unit price for this item shall constitute full compensation for furnishing all labor, materials, equipment, and incidentals necessary to complete the work.

The contract unit price shall include material procurement, testing, delivery, stockpiling, placement, moisture conditioning, compaction, grading, shaping, surveying, and disposal of excess or unsuitable material generated by the work.

No payment will be made for material placed outside the lines, grades, and limits shown on the Plans or as directed by the Engineer, unless such placement is expressly authorized in writing by the Engineer prior to placement.

Additional work, including but not limited to subgrade preparation, removal and disposal of unsuitable material, dewatering, or other work not specifically included in this item, will be paid for under the appropriate separate contract item.

ITEM 156.**CRUSHED STONE****TON**

This work shall consist of furnishing, placing, and compacting crushed stone in accordance with the plans, specifications, and as directed by the Engineer. Crushed stone shall be used for various applications, including but not limited to:

- Noise Barrier Foundations (MassDOT Spec M2.01.2)
- Pipe Bedding (MassDOT Spec M2.01.4)
- Revetment Foundations (MassDOT Spec M2.01.2)

EQUIPMENT

The Contractor shall provide all necessary equipment to ensure proper placement and construction, including but not limited to:

- Excavators (tracked or wheeled) for placement and grading.
- Dump Trucks for material transport and delivery.
- Mechanical or Pneumatic Tampers for compaction where required.
- Loaders & Skid Steers for handling and spreading materials.

MATERIALS

Crushed stone shall meet the requirements of MassDOT Division III Materials Specifications for the intended application. The material shall be durable, clean, and free from organic matter or deleterious substances.

Crushed Stone shall conform to the requirements of M2.01.0: Crushed Stone and shall consist of one of the following:

- Durable Crushed Rock – Angular fragments obtained by breaking and crushing solid or shattered natural rock, free from a detrimental quantity of thin, flat, elongated, or otherwise objectionable pieces. A detrimental quantity shall be considered any amount exceeding 15 percent of the total weight.
- Durable Crushed Gravel Stone – Produced by artificial crushing of gravel boulders or fieldstone having a minimum diameter of 8 inches prior to crushing.

Thin or elongated pieces shall be defined as follows:

- Thin stones: Average width greater than four (4) times the average thickness.
- Elongated stones: Average length greater than four (4) times the average width.

Crushed stone shall be reasonably free from clay, loam, and deleterious materials. Not more than 1.0 percent by weight of material passing the No. 200 sieve shall adhere to the crushed stone. When crushed stone is used for surfacing, not more than 0.5 percent by weight of material passing the No. 200 sieve shall adhere.

The material shall have a maximum loss of 45 percent as determined by the Los Angeles Abrasion Test (AASHTO T 96).

Crushed stone shall be uniformly blended to meet the grading requirements for the respective stone sizes specified in Table M2.01.0-1. Gradation shall be determined by AASHTO T 311 and shall conform to the following percent by weight passing through square opening sieves:

Square Opening Sieve	M2.01.1 & M2.02.2 (1½")	M2.01.3 (1¼")	M2.01.4 (¾")	M2.01.5 (½")	M2.01.6 (⅜")
2½ in.	—	—	—	—	—
2 in.	100	—	—	—	—
1½ in.	95–100	100	—	—	—
1¼ in.	85–100	—	—	—	—
1 in.	35–70	100	—	—	—
¾ in.	0–25	10–40	90–100	—	—
⅝ in.	—	—	—	100	—
½ in.	0–8	10–50	85–100	100	—
⅜ in.	—	0–20	15–45	85–100	100
No. 4	0–5	0–15	20–50	—	—
No. 8	0–5	0–15	—	—	—
No. 16	0–5	—	—	—	—

Crushed stone shall be delivered, handled, and stored in a manner that prevents segregation or contamination. Material not conforming to these requirements shall be rejected.

CONSTRUCTION METHODS

1. Placement & Depth Requirements

- o The minimum total depth of crushed stone shall be 6 inches.
- o For depths up to 1 foot, compaction is not required.
- o For depths greater than 1-foot, crushed stone shall be placed in 6-inch lifts and compacted using mechanical or pneumatic tampers until the stones are firmly interlocked and the surface is unyielding.

METHOD OF MEASUREMENT

- Crushed stone will be measured by the ton, complete in place.
- If stone screenings are used, the volume shall be determined based on a conversion of 2,700 lbs per cubic yard.
- The Engineer shall verify and countersign all weight slips upon delivery. No payment will be made for materials without countersigned weight slips.

PAYMENT

- Crushed stone will be paid for at the contract unit price per ton, complete in place.
- The contract unit price shall include all labor, materials, equipment, transportation, and incidental costs necessary to complete the work.
- No additional compensation will be provided for haul distance or material source.

This work shall consist of shaping, trimming, compacting, and finishing the subgrade; grading and finishing all unpaved shoulders and slopes; and preparing all areas for topsoil, loam, riprap, or slope paving as shown on the plans or as directed by the Engineer. All work shall conform to the lines, grades, and typical cross sections specified in the contract.

EQUIPMENT

The Contractor shall provide all necessary equipment to achieve the specified grading and compaction, including but not limited to:

- Motor graders for shaping and trimming the subgrade
- Vibratory rollers and static rollers for compaction
- Mechanical tampers for compacting areas inaccessible to rollers
- Excavators and bulldozers for removal and placement of materials

MATERIALS

Material specifications shall conform to the requirements of:

- Special Borrow for Special Borrow Material (MassDOT M1.02.0) for embankment areas and unsuitable material replacement
- Gravel Borrow (MassDOT M1.03.0) for subbase in applicable areas

CONSTRUCTION METHODS

1. Subgrade Preparation:
 - o All soft or spongy material below the subgrade shall be removed to a depth determined by the Engineer and replaced with suitable material.
 - o In embankment areas, material within 2 feet below the subgrade shall conform to MassDOT M1.02.0 requirements, contain no stone larger than 6 inches, and be compacted in 8-inch layers.
 - o In cut sections, if existing soil within 2 feet of the subgrade exceeds 14% passing the No. 200 sieve, it shall be excavated and replaced with MassDOT M1.02.0 Special Borrow.
2. Compaction & Tolerances:
 - o The subgrade shall be compacted per MassDOT 150.60 (General) and 150.62 (Embankment Construction).
 - o The finished subgrade shall conform to the required cross section with a tolerance of $\pm\frac{1}{2}$ inch over 50-foot sections while maintaining the required crown.
 - o Areas inaccessible to rollers shall be compacted using mechanical tampers or other approved methods.

METHOD OF MEASUREMENT

Fine grading and compacting of the subgrade shall be measured by the square yard. This includes all work necessary to shape and compact the subgrade in accordance with contract documents.

PAYMENT

- Fine Grading and Compacting – Subgrade Area shall be paid at the contract unit price per square yard.
- Excavation of unsuitable material below subgrade will be paid under MassDOT 120: Excavation.
- Special Borrow or Gravel Borrow required to replace unsuitable material will be paid under their respective MassDOT bid items.
- No separate payment will be made for shaping and compacting the base for replacement material.

<u>ITEM 201.</u>	<u>CATCH BASIN</u>	<u>EA</u>
<u>ITEM 202.</u>	<u>MANHOLE</u>	<u>EA</u>
<u>ITEM 206.</u>	<u>DROP INLET, TYPE A</u>	<u>EA</u>

This work consists of furnishing and constructing manholes, inlets, and basins in accordance with the MassDOT Standard Specifications and as shown on the plans or as directed by the Engineer. Work includes necessary excavation, placement of materials, construction of structures, and installation of castings.

EQUIPMENT

The Contractor shall provide all necessary equipment to ensure proper excavation, placement, and construction, including but not limited to:

- Excavators and Backhoes: For trench and structure excavation.
- Cranes or Lifting Equipment: For handling precast structures and heavy castings.
- Compaction Equipment: Vibratory plate compactors, rollers, or rammers for backfilling operations.
- Concrete Mixers and Pumps: If cast-in-place concrete is required.
- Masonry Tools: For laying brick and block, including trowels, mortar mixers, and pointing tools.
- Surveying Equipment: To establish lines, grades, and alignment of structures.
- Safety Equipment: Shoring systems, trench boxes, and PPE for compliance with OSHA trench safety requirements.

MATERIALS

All materials shall conform to the requirements of MassDOT Division III – Materials, including:

- Concrete: Subsection M4.02.16 (Precast) or 901 (Cast-in-Place)
- Brick and Blocks: Subsections M4.05.1 (Concrete Blocks) and M4.05.2 (Clay Brick)
- Mortar: Subsection M4.02.15
- Reinforcement: Subsection M8.01.1
- Castings (Iron/Steel): Subsections M8.03.0 (Iron) and M8.03.2 (Steel)
- Weep Hole Drainage: Subsection M2 (Aggregates)

CONSTRUCTION METHODS

1. Excavation & Preparation
 - o Excavation shall follow Subsection 140 for structural excavation.
 - o Base preparation shall ensure a stable foundation.
2. Structure Construction
 - o Brick and Blocks: Pre-soaked before placement; mortar-filled joints $\leq \frac{1}{8}$ inch.
 - o Precast Units: Mortar joints wetted and sealed before placement.
 - o Weep Holes: Installed per plan requirements with crushed stone drainage.
3. Placement of Castings
 - o Frames and grates set in full mortar beds, adjusted as needed for traffic or drainage.
 - o Final casting elevation set after base course paving.
4. Backfilling
 - o Conforms to Subsections 120.60 & 150.64, ensuring proper compaction.

- o If borrow material is required, it will be paid separately.

METHOD OF MEASUREMENT

1. Catch Basins, Manholes, and Drop Inlets (Types C and D)
 - o Measured based on a standard unit depth of 6.5 feet, from the top of the grate or cover to the floor (for basins and inlets) or the invert (for manholes).
 - o If the measured depth exceeds 6.5 feet but is ≤ 9 feet, the number of units paid will be proportional to the measured depth.
 - o Depths less than 6.5 feet will be counted as one full unit.
2. Drop Inlets (Types C and D)
 - o Measured based on a standard unit depth of 4 feet 10 inch, from the top of the grate or cover to the floor.
 - o If the measured depth exceeds 4 feet 10 inch but is ≤ 9 feet, the number of units paid will be proportional to the measured depth.
3. Manholes Over 9 Feet in Depth
 - o For depths between 9 and 14 feet, the standard unit depth for measurement is 9 feet.
 - o For depths between 14 and 18 feet, the standard unit depth for measurement is 14 feet.
 - o If bid items for Manholes (9-14 ft Depth) or Manholes (14-18 ft Depth) are not included in the contract, all structures will be measured using the 6.5 ft unit depth.
4. Special Manholes
 - o Measured as complete units, regardless of depth.
5. Gutter Inlets
 - o Each gutter inlet is counted as one full unit.
6. Frames, Grates, and Covers
 - o Measured per complete unit, furnished and delivered to the site.

PAYMENT

- Payment is at the contract unit price per each (EA) structure, including:
 - o Excavation, construction, castings, and installation.
 - o Weep hole drainage stone included in unit price.
 - o Concrete collars included.
- Additional excavation (below the proposed bottom of structure to obtain a stable foundation) paid as Class B Trench Excavation.
- Castings adjusted during construction paid under Item 220 (Adjustment of Drainage Structures).
- Borrow material for backfill, if required, paid separately per cubic yard or ton.

- Frames and grates or covers will be paid for at the contract unit price each under the items for furnishing and delivering new frames and grates or covers.
- Hoods shall be paid at the contract unit price each and shall include furnishing and installation of the hood.

<u>ITEM 221.</u>	<u>FRAME AND COVER</u>	<u>EA</u>
<u>ITEM 222.</u>	<u>FRAME AND GRATE – MASSDOT BAR TYPE</u>	<u>EA</u>
<u>ITEM 222.2</u>	<u>FRAME AND GRATE – MASSDOT DROP INLET</u>	<u>EA</u>

This work consists of adjusting, rebuilding, remodeling, or changing the type of existing drainage structures, including basins, manholes, and inlets, to meet new grades and alignments as per MassDOT specifications. The work includes removal and replacement of masonry, resetting or installing new castings, and ensuring compliance with contract plans and engineer directives.

EQUIPMENT

The Contractor shall provide all necessary equipment to ensure proper excavation, placement, and construction, including but not limited to:

- Excavators and backhoes for structure excavation and removal
- Pneumatic or hydraulic breakers for masonry removal
- Masonry saws and hand tools for precise cutting
- Plate compactors and mechanical tampers for backfilling
- Concrete mixers and vibrators for masonry construction
- Lifting equipment for resetting frames and grates

MATERIALS

All materials shall conform to MassDOT specifications, including:

- Concrete and Masonry Materials: Compliant with Subsection 201
- Gravel Borrow for Backfill: MassDOT M1.03.0
- Frames and Grates: MassDOT standard types
- Castings and Covers: As required per contract specifications

CONSTRUCTION METHODS

- Adjustment of Drainage Structures (≤ 6 inches change)
 - o Remove masonry to a depth directed by the Engineer.
 - o Construct new masonry to match proposed grades and alignments.
 - o Reset casting with a concrete collar and surface with a minimum of 3 inches of hot mix asphalt.
- Rebuilding of Structures
 - o Remove deteriorated masonry and castings.
 - o Construct new masonry, including a brick invert where necessary.
 - o Backfill with suitable material and compact per MassDOT specifications.
- Remodeling of Structures (> 6 inches change)
 - o Remove sloped and vertical masonry as needed.
 - o Construct new masonry in accordance with the proposed design.
- Change in Structure Type
 - o Remove existing structure components as required.
 - o Construct new masonry and install appropriate castings.

- Protection of Work
 - o Contractor is responsible for protecting castings from damage.
 - o Damaged castings shall be replaced at the Contractor's expense.
 - o Proper documentation and inventory of existing castings shall be maintained.

METHOD OF MEASUREMENT

- Except for Drainage Structure Rebuilt, which will be measured per vertical foot of rebuilt masonry, all items will be measured per each unit.

PAYMENT

- Payment will be made per unit of measurement

All work shall conform to MassDOT specifications and contract documents.

<u>ITEM 243.36</u>	<u>36 INCH REINFORCED CONCRETE PIPE CLASS IV</u>	<u>FT</u>
<u>ITEM 252.06</u>	<u>6 INCH CORRUGATED PLASTIC PIPE</u>	<u>FT</u>
<u>ITEM 252.12</u>	<u>12 INCH CORRUGATED PLASTIC PIPE</u>	<u>FT</u>
<u>ITEM 252.15</u>	<u>15 INCH CORRUGATED PLASTIC PIPE</u>	<u>FT</u>

This work consists of constructing culverts, storm drains, sewer pipes (hereinafter referred to as "Pipe"), and flared end sections in accordance with these specifications. All work must conform to the lines and grades shown on the plans or as established by the Engineer.

CONSTRUCTION METHODS

1. Bedding Pipes
 - o Pipe bedding must conform closely to the lower 10% of the pipe's shape.
 - o Recesses must be excavated for bells of bell-and-spigot pipes.
 - o Pipes shall be laid with a firm bearing throughout their length, with bell ends facing uphill.
2. Pipe Joints
 - o Concrete Pipe: Joints shall be caulked with jute or oakum and sealed with cement mortar. The invert must remain smooth and obstruction-free.
 - o Corrugated Metal & Plastic Pipe: These shall be joined firmly with an approved coupling, ensuring a smooth internal grade.
 - o Watertight Joints: Flexible rubber gaskets (M5.01.0) must be used. Any alternative joint design requires Engineer approval.
 - o Open Joints: Certain joints may be left open to allow groundwater entry, as directed.
3. Structural Plate Pipe and Pipe-Arch
 - o Excavation – See Subsection 140.60.
 - o Bedding – Pipe or pipe-arch structures must be placed on a properly shaped foundation to maintain grade. Arches must rest on a galvanized channel embedded in the substructure.
 - o Erection – Structures must be assembled per the manufacturer's instructions, either in place or adjacent to the final location. All bolts must be effectively tightened.
 - o Elongation – Pipes must be fabricated with a 5% vertical diameter increase and a 5% horizontal diameter decrease.
 - o Coating – Pipes must be coated with bituminous material (M7.04.01) before placement.
 - o Backfilling – Backfill must comply with Subsections 120.60 and 150.64.
 - o Flared End Sections – Must be accurately aligned on a prepared bed or compacted gravel fill, as directed by the Engineer.
4. Field Testing of Corrugated Plastic Pipe
 - o Maximum vertical deflection shall not exceed 5% of the base inside diameter.
 - o At least 20% of each pipe size must be tested. The Engineer may require 100% testing if failures occur.
 - o Deflection tests shall be performed no sooner than 30 days after installation.

Testing Methods

1. Mandrel Test (for pipes ≤ 24 inches):
 - A rigid mandrel (minimum 9 legs) must be pulled through the pipe.
 - Mandrels must be steel and stamped with their size.
2. Video Inspection (for pipes > 24 inches):
 - Pipes must be inspected with a mobile video camera and recorded for the Engineer.
3. Hand Measurement (for pipes > 36 inches):
 - Must be conducted in the presence of the Engineer.

Pipes exceeding allowable deflection limits must be uncovered and, if undamaged, may be reinstalled. Damaged pipes must be removed.

5. Strutting of Pipe

- o Strutting must be used as necessary to maintain pipe integrity.
- o Costs associated with strutting are incidental to the item.

METHOD OF MEASUREMENT

- Pipes shall be measured in place, with payment based on actual installed length.
- Measurement limits:
 - o Closed Structures: End of pipe at the inside face of the wall.
 - o Masonry Headwalls: End of pipe at the face of the headwall.
 - o Corrugated Metal Pipe Bends: Measured along the centerline.
 - o Flared Ends & Metal End Sections: Measured per unit each.
- Trench Excavation & Rock Excavation: Measured per Subsection 140.80.
- Corrugated Plastic Pipe Testing: Testing costs are incidental to the item.

PAYMENT

- Pipe Culverts, Drains, and Sewers: Paid per linear foot, complete in place.
- Corrugated Plastic Pipe: Includes Gravel Borrow Type D backfill.
- Reinforced Concrete Pipe Flared Ends & Metal End Sections: Paid per unit each.
- Trench Excavation & Rock Excavation (depth > 5 ft): Paid under Class B Trench Excavation and Class B Rock Excavation.
- Trench Excavation & Backfill (≤ 5 ft depth): Included in pipe items.
- Masonry Ends & Foundations: Paid per cubic yard.

- Gravel Borrow: Paid per MassDOT Subsection 150: Embankment.

<u>ITEM 272.14</u>	<u>14 INCH PIPE REMOVED AND DISPOSED</u>	<u>FT</u>
<u>ITEM 272.42</u>	<u>42 INCH PIPE REMOVED AND DISPOSED</u>	<u>FT</u>
<u>ITEM 272.48</u>	<u>48 INCH PIPE REMOVED AND DISPOSED</u>	<u>FT</u>

This item shall consist of the removal and satisfactory disposal of existing drainage pipe of any type or size, including but not limited to corrugated metal pipe (CMP), reinforced concrete pipe (RCP), high-density polyethylene (HDPE), and polyvinyl chloride (PVC).

The work shall include:

- Excavation around the pipe as necessary for removal
- Cutting, disassembling, or lifting pipe sections
- Handling, transporting, and disposing of pipe at an approved location
- Backfilling the trench in accordance with the Contract Documents and MassDOT Standard Specifications

Incidental vs. Separate Excavation

- Excavation already paid under other items (e.g., 140.1 Bridge Excavation, 141 Class A Trench Excavation) is considered incidental to this item, and no additional payment will be made for that excavation.
- Excavation beyond the limits of those items, required solely to remove the pipe, shall be included in the pipe removal unit price.

This item applies to pipes existing in place and designated for removal, including any trench excavation necessary to safely access the pipe.

EQUIPMENT

Equipment shall be in good working condition and suitable for the work. Typical equipment may include, but is not limited to:

- Excavators or backhoes for trenching and exposing the pipe
- Cutting equipment (saws, torches, pipe cutters)
- Lifting equipment (cranes, forklifts, rigging)
- Trucks or trailers for transporting pipe to approved disposal sites
- Compaction equipment for backfilling trenches

All equipment shall be operated by qualified personnel and used in a manner that protects adjacent utilities, structures, and the environment.

MATERIALS

No specific materials are required for the pipe removal itself. However:

- Backfill material used to restore the trench shall meet the requirements in the contract documents.
- Any erosion or sedimentation control materials, such as silt fencing, turbidity curtains, or geotextiles, shall be provided as required.
- Materials used must be suitable for environmental protection and compaction as specified.

CONSTRUCTION METHODS

- Excavate around the existing pipe as needed for safe removal.

- Remove pipe sections by cutting, disassembling, or lifting, appropriate to pipe material and condition.
- Transport pipe sections and debris to an approved disposal location in accordance with federal, state, and local regulations.
- Backfill the trench using suitable material, compacted as specified in the contract documents.
- Protect adjacent utilities, structures, and features during excavation and pipe removal.
- Maintain all required erosion and sedimentation controls throughout the work.
- If excavation for removal falls within limits already paid under 140.1 or 141, no separate excavation payment applies.

METHOD OF MEASUREMENT

- Work under this item will be measured by linear feet (LF) of pipe removed and satisfactorily disposed, measured along the centerline of the pipe.
- Excavation incidental to pipe removal is included in this measurement if already paid under other items; otherwise, excavation necessary solely for removal is included in the linear foot unit price.

PAYMENT

- Payment will be made at the contract unit price per linear foot, which shall include all labor, equipment, tools, cutting, lifting, handling, transportation, disposal, and trench excavation/backfill necessary to complete the work as specified.
- No separate payment will be made for excavation already paid under other items.

ITEM 415.1**PAVEMENT STANDARD MILLING****SY****ITEM 415.2****PAVEMENT FINE MILLING****SY**

This work consists of milling existing bituminous concrete pavement or bridge deck surfaces to the depth, limits, and tolerances shown on the plans or as directed by the Engineer. Milling is performed to:

- Prepare a uniform surface for hot mix asphalt (HMA) overlay, thin overlay, or micro-surfacing.
- Correct cross slopes, grades, and surface irregularities.
- Remove distressed, rutted, or deteriorated pavement.
- Adjust pavement to meet transitions at curbs, driveways, intersections, and bridge joints.

The specific type of milling, depth, and surface finish shall be as shown on the plans or as directed by the Engineer.

CONSTRUCTION METHODS AND EQUIPMENT

- Milling shall produce neat, vertical longitudinal and transverse edges. Sawcuts may be required at limits, intersections, and joints.
- Milled material (millings) shall become the property of the Contractor unless otherwise specified. Disposal, stockpiling, or reuse shall conform to the Contract requirements.
- Surfaces shall be thoroughly cleaned prior to overlay placement. Loose material, dust, or debris must be removed by mechanical brooming or vacuuming.
- Exposed milled surfaces shall be maintained in a safe condition for traffic. Any irregularities or hazards before overlay placement shall be corrected at no additional cost.
- The maximum length of roadway exposed without overlay shall be as approved by the Engineer. Typically, exposed milled surfaces should not remain unpaved for more than five (5) working days unless otherwise approved.

Milling shall be performed using a self-propelled cold milling machine with:

- Automatic grade and slope controls for longitudinal and transverse alignment.
- Rotary milling drum suitable for the depth and finish required.
- Adjustable cutting teeth appropriate for standard, fine, micro, or bridge milling.

Item	Typical Depth	Purpose / Use	Surface Tolerance	Notes
415.1 – Pavement Standard Milling	1–3 inches (or as specified)	General overlay prep, remove deteriorated pavement	± ¼ inch under 10-ft straightedge	Standard milling for roadway resurfacing
415.2 – Pavement Fine Milling	< 1 inch	Correct minor irregularities, thin leveling courses	± 1/8 inch under 10-ft straightedge	Smooth finish for thin overlay or fine grade correction

Notes for Use of Table:

1. Depths are typical ranges; always follow plan-specified depths or Engineer's direction.
2. Surface tolerance refers to maximum deviation from specified grade measured with a 10-ft straightedge, per MassDOT standards.
3. Purpose/Use column helps distinguish milling type for bid and inspection purposes.
4. Bridge milling requires careful attention to deck conditions, joints, and safety — equipment and methods may differ slightly from roadway milling.

MEASUREMENT AND PAYMENT

Milling will be measured by the actual number of square yards completed.

Payment will include full compensation for all labor, equipment, tools, grade controls, sawcutting, traffic control, cleanup, disposal or handling of millings, and all incidental work necessary to complete the item.

No separate payment will be made for tapering, feathering, cleaning, or protection of the milled surface; such work is included in the contract unit price.

ITEM 452.**ASPHALT EMULSION FOR TACK COAT****GAL**

This work shall consist of furnishing and applying asphalt emulsion for tack coat on existing or newly placed pavement surfaces prior to the placement of hot mix asphalt overlay, in accordance with these specifications, the lines and grades shown on the plans, and as directed by the Engineer.

The tack coat shall provide a uniform bond between pavement layers, prevent slippage, and improve the durability and performance of the asphalt pavement. Work shall comply with environmental and safety regulations, including proper handling and disposal of materials and containment to prevent runoff.

MATERIAL

Asphalt emulsion for tack coat shall conform to M3.02.0 – Asphalt Emulsion, and shall meet the following requirements:

- Type: CSS-1h or SS-1h (cationic or anionic, as directed)
- Viscosity: ASTM D244, 50–150 seconds (Saybolt Furol, 77°F)
- Residue by evaporation: 60–70%
- Penetration (Residue): 85–120 dmm, ASTM D5
- Storage Stability: No separation after 24 hours, ASTM D244
- Temperature for Application: 60–160°F, unless otherwise approved

The emulsion shall be stored, handled, and delivered in accordance with manufacturer recommendations and MassDOT requirements. Use only materials approved by the Engineer prior to placement.

EQUIPMENT

All equipment shall be maintained in good working condition and suitable for the intended purpose. The following equipment may be used, as appropriate:

- Self-propelled distributor truck with pressure and flow control system for uniform application
- Hand spray equipment for edges, joints, and confined areas
- Mechanical or manual brooms for surface cleaning prior to application
- Safety equipment including spill containment and protective gear

The Contractor shall ensure equipment does not damage the pavement surface or surrounding areas.

CONSTRUCTION METHODS

Surface Preparation:

- Clean all surfaces of dirt, dust, debris, loose material, oil, or water using brooms, air blasts, or power washing as directed.
- Repair localized areas with pavement patching or leveling course as required.

Application:

- Apply asphalt emulsion uniformly at the rate specified in the plans or as directed by the Engineer. Typical rates: 0.05–0.15 gallons per square yard, depending on surface type and condition.
- Maintain a uniform application without streaks, puddles, or bare spots.
- Apply only under weather conditions suitable for curing (no rain, minimum surface temperature 50°F).

Curing and Placement of Overlay:

- Allow the emulsion to cure and break sufficiently to prevent tracking before placing the asphalt overlay.
- Traffic may be allowed on the tack coat only if approved by the Engineer.

METHOD OF MEASUREMENT

Asphalt emulsion for tack coat will be measured by the gallon of applied emulsion, complete and approved. Measurement will be based on the volume of tack coat actually applied to the surface as verified by field records and Engineer approval.

PAYMENT

Asphalt emulsion for tack coat will be paid for at the contract unit price per gallon of applied tack coat. Payment shall include:

- Sweeping existing surfaces
- Applying the tack coat to all required surfaces at the specified rate in accordance with 450.43.G: Asphalt Emulsion for Tack Coat
- All labor, equipment, and incidentals necessary for proper placement

No separate payment will be made for surface cleaning or minor adjustments unless specifically provided in the contract.

ITEM 460.23
ITEM 460.32

SUPERPAVE SURFACE COURSE - 12.5 (SSC 12.5)
SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC 19.0)

TON
TON

This work shall consist of producing and placing HMA pavement on DCR parkways, sidewalks, driveways, playing courts, and parking lots. The HMA pavement shall be constructed as shown on the plans and as directed on the prepared or existing base in accordance with these specifications and in close conformity with the lines, grades, compacted thickness, and typical cross section as shown on the plans. The work under these items shall conform to the relevant provisions of 2023 MassDOT Standard Specification under the following sections: 460, 700, Division III M3 and Appendix A. The HMA mixtures and plants shall be MassDOT approved. Resurfacing of roads shall be considered Category "D". Sidewalk, playing courts and parking lots and minor contract items shall be considered Category "E". A QC plan shall be submitted for Category "D" work, but only at the request of the DCR Engineer for Category "E" at no cost to the Department.

Each HMA pavement course placed shall be comprised of one of the Warm Mix mixture types below.

HMA Mixture

Surface Course

SUPERPAVE Surface Course – 9.5 – Playing Court - #8 JMF at 43-45%
SUPERPAVE Surface Course – 9.5
SUPERPAVE Surface Course – 9.5 – Polymer
SUPERPAVE Surface Course – 12.5
SUPERPAVE Surface Course – 12.5 – Polymer

Intermediate Course

SUPERPAVE Intermediate Course – 12.5
SUPERPAVE Intermediate Course – 19.0

Base Course

SUPERPAVE Base Course – 37.5

Leveling Course

SUPERPAVE Leveling Course – 4.75
SUPERPAVE Leveling Course – 9.5
SUPERPAVE Leveling Course – 12.5

(If polymer is to be used, the production facility shall be given advance notice to make sure they have PG 64E-28 liquid asphalt available)

Design Traffic Level

Information below shall be utilized as a guide for determining which approved mix design shall be required for each site. DCR reserves the right to deviate from the below guide when selecting the mix that is chosen for any specific location as they see fit. Deviation to the selected mix designs for any specific location shall be considered upon review of the existing conditions and functional operation of the location for optimization of the final product. Any deviations will be communicated by Resident Engineer during the planning stages.

- Level 1- Sidewalks, patching, driveways, low volume fire access roads, parking lots, and playing courts (50 gyrations)

- Level 2 - Secondary Roads and parking lots (75 gyrations)
- Level 3 - High volume, and heavy load roads (75 gyrations and PG64E-28 PGAB)

Control of Grade & Cross Section

The Contractor will provide a longitudinal and transverse reference system, with a maximum spacing of 100 ft, for the purpose of locating and documenting sampling and testing locations and related uses in locations requested by the Engineer. It is the Contractor's responsibility to clearly mark this reference system in the field. Work related to this reference system is incidental and will be included as part of the Contractor's Quality Control system.

The Contractor shall furnish, set, and maintain all line and grade stakes necessary to guide the automated grade control equipment. Where required these control stakes shall be maintained by the Contractor and used throughout the operations, from the grading of the subbase material up to and including the final course of the pavement.

Under normal conditions, where more than one course of HMA is to be constructed, the use of the string line for grade control may be eliminated or discontinued after the construction of the initial course of HMA. For resurfacing projects, where only one course of HMA is to be constructed, the use of the string line for grade control may be eliminated. The use of approved automation may then be substituted for the string line where lines and grades are found to be satisfactory by the Engineer.

Preparation of Curbs, Edging, and Utilities

All curbs or edging shall be installed or reset to the line and grade established on the plans, or as directed by the Resident Engineer if no plans. The surface elevation of all catch basin frames and grates, manholes, utility valve boxes, or other utility structures located in the pavement shall uniformly match the grade and cross-slope of the final pavement riding surface. Adjustment of all curbs, edging, and utilities shall be completed prior to the placement of the HMA Surface Course. Hand placement of HMA along curbs and edging or around utilities after placement and compaction of the Surface Course shall not be permitted.

Preparation of Underlying Surface

HMA mixtures shall be placed only upon properly prepared surfaces that are clean from foreign materials. The underlying surface shall be prepared in accordance with the requirements below, prior to the placement of HMA pavement courses.

A. Subsurface or Reclaimed Base

Prior to the placement of HMA Base Course mixtures, the Contractor shall inspect the prepared subbase or reclaimed base material to ensure that it is in conformance with the required grade, cross-section, and in-place density. Subbase or reclaimed base material that is not in accordance with the plans or specifications shall be reworked or replaced to meet the applicable requirements of 2023 Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highways and Bridges sections: 460, 700, Division III M3 and Appendix A. Subsection 401: Gravel Sub-Base, Subsection 402: Dense Graded Crushed Stone for Sub-Base, or Subsection 403: Reclaimed Pavement for Base Course and/or Sub-Base before the start of HMA placement. The compacted subbase or reclaimed base shall not be frozen or have standing water when placing HMA.

B. Milling – Pavement Fine Milling

Existing HMA pavement in areas designated by the Department shall be milled and removed from the project by the Contractor in accordance with 2023 Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highways and Bridges sections: 460, 700, Division III M3 and Appendix A., Subsection 415: Pavement Milling. Adjustments to milling depth shall be approved by the Engineer and shall be used for consideration of the HMA pavement thickness measurements.

Each vertical face of the milled pavement that will be abutted by new pavement shall be thoroughly coated with a hot poured joint sealer meeting the requirements of 2023 Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highways and Bridges sections: 460, 700, Division III M3 and Appendix A., 460.30: General immediately prior to placing new HMA mixture adjacent to the vertical face.

C. Patching Existing Pavement Courses

Areas of existing HMA pavement courses that are significantly distressed or unsound shall be removed and replaced with patches using new HMA. The location and limits of patching will be as identified in the plans or as directed by the Engineer.

Each existing pavement course determined to be unsound shall be removed to the full depth of the pavement course within a rectangular area. For each patch location equal to or greater than 50 ft² (and having a minimum dimension of 4 ft) where the existing pavement courses are removed down to subbase, the subbase shall be compacted by mechanical means to not less than 95% of the maximum dry density of the subbase material as determined by AASHTO T 99 Method C at optimum moisture content. Each edge of the patch area shall be sawcut or otherwise neatly cut by mechanical means to provide a clean and sound vertical face. The vertical face of each edge shall be thoroughly coated with a hot poured joint sealer meeting the requirements of 460.30: General immediately prior to placing the HMA patching mixture.

Delaminated areas of existing pavement courses resulting from pavement milling shall be cut back neatly by mechanical means to the limits of any unsound material. After removing all unsound material, the underlying pavement surface within the patch limits shall receive a thorough tack coat at a rate of application in accordance with 460.43: Preparation of Underlying Surface, Paragraph G (2) prior to placing the HMA patching mixture.

HMA patching mixture shall be the same mixture type as the existing pavement course being patched or as specified on the plans or as directed by the Engineer. The lift thickness of the patching mixture shall not exceed 4 times the nominal maximum aggregate size of the mixture. The patching mixture will be placed by hand or by mechanical means and shall match the thickness, grade, and cross-slope of the surrounding pavement. The HMA patching mixture shall be compacted using a steel wheel roller. For patch areas not large enough to permit use of a roller, compaction shall be accomplished using a mechanical tamper capable of achieving the required in-place density. The in-place density of the HMA patching mixture shall be not less than 90% of the maximum theoretical density of the mixture as determined by AASHTO T 209 (Method A). When the Contractor and Engineer elect to test the in-place density of a patched area using a calibrated density gauge, the test data for the patched area shall be recorded on NETTCP TRFs.

Sweeping Underlying Surface

The Contractor shall provide a mechanical sweeper equipped with a water tank, spray assembly to

control dust, a pick-up broom, a dual gutter broom, and a dirt hopper. The sweeper shall be capable of removing millings and loose debris from the underlying surface. Prior to opening a milled area to traffic, all milled pavement surfaces shall be thoroughly swept in accordance with the applicable milling specification required by the contract to remove all remaining millings and dust. All pavement surfaces shall be swept clean, free of dust, fines, and slurry immediately prior to application of the tack coat. Any new HMA pavement course that has been open to traffic, or that was placed 30 days or more prior to placement of the subsequent pavement course, shall also be swept immediately prior to application of the tack coat.

Production

All facilities producing HMA must be Mass DOT approved and shall meet the requirements of AASHTO M 156. A list of approved HMA suppliers can be found at the link provided below:

<https://www.mass.gov/lists/qualified-construction-materials-list-qcml>

The dispatching of trucks from the plant shall be continuously coordinated to ensure that all of the HMA mixture planned to be delivered to the field placement site may be placed and compacted before the end of the scheduled workday.

The trucks used to transport HMA to the field placement site shall have tight, clean, smooth metal beds. When necessary to maintain the required HMA temperature, trucks shall be equipped with insulated beds. The truck beds shall be evenly and lightly coated with an approved release agent found on the QCML to prevent HMA mixture adherence. Truck beds shall be kept free of kerosene, gasoline, fuel oil, solvents, or other materials that could adversely affect the HMA mixture. Trucks will be inspected at the start of each shift prior to loading. Trucks not meeting the above requirements will not be allowed on the project.

Trucks shall have working back-up alarms and body lift alarms. Trucks will be inspected randomly during the project, trucks not having working alarms will not be allowed on the project.

Weather Limitations

HMA shall only be placed on dry, unfrozen surfaces and only when the temperature requirements contained in the table below are met. If the temperature requirements contained in the table are not met at any point throughout the paving shift, HMA placement shall cease, except as determined and directed by the Resident Engineer depending upon the necessity and emergency of attendant conditions and weather conditions. The Contractor may continue HMA placement when overtaken by sudden rain, but only with material which is in transit from the HMA production facility at the time, and then only when the temperature of the HMA mixture is within the temperature limits specified and when the existing surface on the roadway is free of standing moisture. The Engineer is not obligated to accept any material that was not already in transit prior to the onset of rain.

HMA PAVEMENT COURSE	LIFT THICKNESS (in)	MINIMUM AIR TEMP (F)	MINIMUM SURFACE TEMP (F)
SURFACE COURSE	<1 3/4	45	50
SURFACE COURSE	1 3/4 OR GREATER	35 (SEE NOTE 1)	40
INTERMEDIATE COURSE	ALL	35 (SEE NOTE 1)	40
BASE COURSE	ALL	35 (SEE NOTE 1)	40
LEVELING COURSE	AS SPECIFIED	45	50
NOTE 1: WHEN THE AIR TEMPERATURE FALLS BELOW 50F, EXTRA PRECAUTIONS SHALL BE TAKEN IN DRYING THE AGGREGATES, CONTROLLING THE TEMPERATURE OF MATERIALS, AND IN PLACING AND COMPACTING THE MIXTURES.			

Tack Coat (or Emulsion) Application Requirements

The tack coat material shall be applied by a pressure distributor. All nozzles on the distributor shall be open and functioning. All nozzles shall be turned at the same angle to the spray bar. The nozzles shall be offset at an angle from the spray bar to prevent the fan from one nozzle from interfering with the fan from another. Proper nozzle angle shall be as determined by the Manufacturer of the distributor spray bar. The spray bar shall be adjusted so that it is at the proper height above the pavement surface to provide a triple overlap spray for a uniform coverage of the pavement surface. A triple lap application requires that the nozzle spray patterns overlap one another such that every portion of the pavement receives spray from exactly three nozzles. Tack coat application rates for specific surface conditions shall be in accordance with the following:

- a) On a new HMA surface, not opened to traffic, the emulsion application rate shall equal 0.06 to 0.08 gal/yd².
- b) On an existing tight smooth pavement, the emulsion application rate shall equal 0.06 to 0.08 gal/yd².
- c) On a milled surface the emulsion application rate shall equal 0.07 to 0.09 gal/yd².
- d) On cement concrete base course, the emulsion application rate shall be equal to spray application for adjacent surface.
- e) On new HMA patches the emulsion application rate shall equal 0.06 to 0.09 gal/yd².

Tack coat shall be applied to cover a minimum of 95% of the pavement surface.

Paving

The Contractor shall ensure that the paver is loaded continuously to keep the placement operation moving. The volume of HMA in the paver receiving hopper shall remain above the paver tunnel during all paving operations. Proper practices shall be utilized to ensure that HMA is not dumped or spilled onto the prepared underlying surface in front of the paver by trucks unloading into the receiving hopper. Any material that falls in front of the paver shall be removed before the paver passes over it. The screed vibrator shall be operated at all times. When the use of a Material Transfer Vehicle (MTV) is required, the paving operations shall be coordinated in such a manner as to allow the paver to operate at a consistent speed without stopping.

Compaction

The number and type of rollers used for breakdown, intermediate, and finish rolling shall be sufficient to achieve the target in-place density and specified course thickness.

Inspection

The compacted HMA pavement course shall be free of mat deficiencies listed below and shall meet Table 460.73-4 of the 2023 Mass DOT 460 specification for hot-mix asphalt pavement, and any other part of the 460 and Supplemental and Special Provisions where applicable.

- a) Material (physical) segregation.
- b) Wavy surface.
- c) Tearing of the mat.
- d) Non-uniform mat texture.
- e) Screed marks.
- f) Poor subbase compaction.
- g) Poor mix compaction.
- h) Poor joints.
- i) Transverse (check) cracking.
- j) Mat shoving under roller.
- k) Bleeding or fat spots in the mat.
- l) Roller marks.
- m) Thickness

Deficiencies shall be corrected or removed and replaced in a timely manner and at no additional cost to the Department as directed by the Resident Engineer.

QC and QA staff shall be North East Transportation Training and Certification Program (NETTCP) qualified or Division of Professional Licensure (DPL) certified, Certified Testing Lab (CTL) Director of Testing Services, Laboratory Supervisor or Field Supervisor.

Third-Party Inspection

In the event that the DCR cannot provide inspection services to represent the Agency either at the plant or on-site, inspection services from an independent third-party shall be required at the request of the Department.

The third-party independent QC and QA staff shall be North East Transportation Training and Certification Program (NETTCP) qualified or Division of Professional Licensure (DPL) certified, Certified Testing Lab (CTL) Director of Testing Services, Laboratory Supervisor or Field Supervisor. The selected establishment shall have no affiliation with the Prime Contractor and shall be included in the QC Plan for review and approval of the Department. The fiduciary responsibilities of the selected establishment shall be to the Commonwealth and paid for under the relevant contract unit pricing.

The services provided shall be on a case-by-case basis and shall be determined by Department only.

The required HMA Inspection forms shall be found in the Appendix of the contract.

Materials

HMA shall be tested at random for each day's production or one test for each 750 tons. HMA lots will be accepted by the Department as specified in Table 460.76-1 of the 2023 Mass DOT 460 specification for hot-mix asphalt pavement.

The Department shall be responsible for testing the temperature, asphalt content and gradation. Contractor or Supplier shall be responsible for testing the volumetric properties. The Contractor or Supplier shall adjust the mix to correct any out of specified range results as quickly as possible. HMA not meeting the specification requirements may be removed and replaced at the Resident Engineers discretion at no cost to the Department.

In-place density shall be tested on all lots over 500 tons in accordance with ASTM D2950 using a nuclear density gauge, or ASTM D7113 using an electronic density gauge. Testing shall be performed by a Private Testing Lab, the Contractor, or the HMA Supplier at no cost to the Department. The Contractor shall submit a nightly report to the Resident Engineer for use and records. HMA not meeting required results may be removed and replaced at the Resident Engineers discretion at no cost to the Department. The density gauge results can, at the Departments discretion by used in the acceptance criteria rather than cores.

Method of Construction

Where existing roadway and bridge deck pavement is to be resurfaced, the hot-mix asphalt shall be placed in one course to the grade and contour approved by the Resident Engineer and having a thickness of 3.5 to 4.5 times the nominal maximum size stone in the mix being placed.

Material Transfer Vehicle

When specified in the contract, and where the speed limit is 40 mph or greater, a MTV will be required. The MTV shall be used to place all intermediate and surface pavement courses.

MTV Equipment Rentals

The MTV shall be self-propelled and capable of remixing and transferring the HMA mixture to the paver so that the HMA mat behind the paver has a uniform homogeneous temperature and appearance. The MTV shall be equipped with the following:

- a) A truck unloading system, capable of maintaining the planned paving production rate, which shall receive HMA from the trucks and independently deliver the mixture from the trucks to the paver.
- b) A paver hopper insert with a minimum capacity of 14 tons shall be installed in the hopper of conventional paving equipment. The paver hopper insert shall be marked to identify the point at which the insert is 50% full.
- c) An internal storage bin with a minimum capacity of 25 tons of mixture and a remixing system in the bottom of the storage bin to continuously blend the mixture as it discharges to a conveyor system; or a dual pugmill system located in the paver hopper insert with two full length longitudinally mounted counter-rotating screw augers to continuously blend and feed the mixture through the paver to the screed.

MTV Operations

The Contractor shall ensure that the MTV is loaded continuously to keep the paver moving. The volume of HMA in the paver hopper insert shall remain above the 25% capacity mark during all paving operations. In the event the MTV malfunctions during HMA placement operations, the Contractor shall continue placement of material until such time there is sufficient HMA placed to maintain traffic in a safe manner. The Contractor may continue placement of HMA until any additional mixture in transit has been placed. Paving Operations may resume only after the MTV has been repaired and is fully operational.

Bridge Loading Restrictions.

The MTV shall be subject to all bridge load restrictions. The Contractor shall verify the sufficiency of the current bridge ratings with the Engineer. In the event that the MTV exceeds the maximum allowable bridge load, the MTV shall be empty when crossing the bridge and shall be moved across without any other Contractor vehicles or equipment being on the bridge. The MTV shall be moved across the bridge in a travel lane and shall not be moved across the bridge on the shoulder. The MTV shall be moved at a speed no greater than 5 mph without any acceleration or deceleration.

Pavers

Each HMA pavement course shall be placed with one or more pavers at the specified grade, cross-slope, and lift thicknesses.

Paver Equipment Requirements

Each paver shall be a self-contained, power propelled unit and shall produce a finished surface of smooth and uniform texture without segregating, tearing, shoving, or gouging the HMA. The pavers shall be equipped with the following:

- a) A receiving hopper having sufficient capacity to ensure a uniform and continuous placement operation.
- b) Automatic feed controls, which are properly adjusted to maintain a uniform depth of material ahead of the screed.
- c) Automatic screed controls with sensors capable of sensing the transverse slope of the screed and providing the automatic signals that operate the screed to maintain grade and transverse slope.
- d) An adjustable vibratory screed with full-width screw augers and heated for the full width of the screed.
- e) Capable of spreading and finishing HMA pavement courses in widths at least 12 in. more than the width of one travel lane.
- f) Capable of being operated at forward speeds to satisfactorily place the HMA.

Paver Operations

The Contractor shall ensure that the paver is loaded continuously to keep the placement operation moving. The volume of HMA in the paver receiving hopper shall remain above the paver tunnel during all paving operations. Proper practices shall be utilized to ensure that HMA is not dumped or spilled onto the prepared underlying surface in front of the paver by trucks unloading into the receiving hopper. Any

material that falls in front of the paver shall be removed before the paver passes over it. The screed vibrator shall be operated at all times.

When the use of an MTV is required, the paving operations shall be coordinated in such a manner as to allow the paver to operate at a consistent speed without stopping.

BASIS OF PAYMENT

All Superpave items shall be paid for at the contract unit price per TON, complete in place, which price shall include all necessary tools, equipment, materials, and labor to complete the installation of hot-mix asphalt per this specification, and to the satisfaction of the Resident Engineer. An addition per TON price for the addition of POLYMER (PG 64E-28 - E Grade Liquid) in the HMA shall also be submitted.

Item 460.9 Sweeping of Underlying Surface shall be paid for at the contract unit price per HOUR.

Item 460.91 Material Transfer Vehicle will be paid for at the contract unit price per TON. Payment shall include the use of a material transfer vehicle during paving operations in accordance with the actual tonnage of HMA that goes through the machine.

Item 460.92 Independent Inspection Services shall be paid for at the contract unit price per HOUR.

ITEM 472.**TEMPORARY ASPHALT PATCHING****TON**

This work shall consist of furnishing, placing, maintaining, and when required removing temporary asphaltic material for use as roadway patches, curbing, berms, sidewalks, temporary transition ramps between paving phases, emergency pothole repair, filling milled rumble strips, and other incidental work performed primarily by hand methods.

This item shall be used only for temporary applications. When the work is intended to be permanent, or is included under another contract item, it shall not be paid under Item 472. Permanent pothole repair shall conform to Item 451 – Hot Mix Asphalt for Patching.

Work shall be performed at the locations shown on the plans or as directed by the Engineer.

MATERIAL

Temporary patching materials shall conform to the patching requirements of Subsection 450 – Hot Mix Asphalt Pavement or Subsection 460 – Hot Mix Asphalt Pavement for Local Streets, as specified in the Contract.

If Hot Mix Asphalt (HMA) is not available, approved Cold Patch material shall be used.

Materials shall meet the requirements of the following sections of Division III – Materials:

- M3.01.0 – Performance Graded Asphalt Binder
- M3.01.4 – Warm Mix Asphalt
- M3.01.5 – Asphalt Anti-Stripping Additive
- M3.01.6 – Asphalt Release Agents
- M3.03.0 – Asphalt Emulsion for Tack Coat
- M3.06.0 – Hot Mix Asphalt
- M3.08.0 – Cold Patch for Temporary Patching
- M3.12.0 – Hot Mix Asphalt Production Facility

All materials shall be obtained from approved sources in accordance with Division III requirements.

EQUIPMENT

Equipment shall be suitable for performing the work primarily by hand methods and shall include, as required:

- Hand tools for placement and finishing
- Mechanical tampers, vibratory plate compactors, rollers, or other approved compaction equipment
- Equipment for sawcutting existing pavement when required
- Equipment for cleaning existing surfaces prior to placement

All equipment shall be maintained in proper working condition and subject to approval by the Engineer.

CONSTRUCTION METHODS

The Contractor shall obtain asphalt patching material of the type specified in the Contract.

Work shall conform to the applicable patching requirements of MassDOT Standard Specification Division II Subsection 450 or Subsection 460, except that formal QC Inspection and Testing will not be

required. The Engineer may waive specific requirements of 450.43.C or 460.43.C depending on the intended temporary application.

Existing distressed or unsound pavement shall be removed prior to placement. Existing temporary patching material shall be completely removed before placement of a new temporary surface.

Surfaces shall be cleaned of loose material, debris, and standing water prior to placement. Tack coat shall be applied where required.

Temporary patching materials shall:

- Be placed to the required thickness
- Be compacted to a stable and satisfactory density
- Be tied into surrounding pavement to provide a smooth transition

Placement is intended primarily for hand methods.

For placement of Hot Mix Asphalt, the Contractor shall notify the Engineer at least 48 hours in advance. The notice shall include:

- Anticipated schedule
- Estimated HMA tonnage
- Mix type
- Mix provider
- Plant location

METHOD OF MEASUREMENT

Temporary Asphalt Patching will be measured for payment by the ton of material placed, complete in place, and accepted by the Engineer.

No separate measurement will be made for sawcutting, removal of existing pavement, cleaning, tack coat, transportation, placement, compaction, or removal and disposal of temporary material, as these costs shall be included in the unit price bid.

PAYMENT

Temporary Asphalt Patching will be paid for at the contract unit price per ton, complete in place.

Payment shall include:

- Sawcutting
- Removal and disposal of existing distressed or temporary material
- Cleaning and surface preparation
- Furnishing and transporting patching material
- Tack coat where required
- Placement and compaction
- Maintenance during the temporary period
- Removal and disposal when required

No additional compensation will be made for incidental work necessary to complete the temporary patching as specified.

ITEM 482.3**SAWCUTTING ASPHALT PAVEMENT****FT**

This work shall consist of sawcutting asphalt and concrete pavements, sidewalks, and trenches where shown on the plans, or as directed by the Engineer. Sawcutting shall provide neat, vertical edges for the placement of new pavement or construction adjacent to existing surfaces. All work shall be performed in accordance with MassDOT Division II and III requirements and in a manner that avoids damage to adjacent pavement, structures, or utilities.

MATERIAL

- Asphalt emulsion tack coat shall conform to Item 452: Asphalt Emulsion for Tack Coat, and shall be applied to sawcut surfaces in asphalt pavement immediately prior to placement of new asphalt overlay.
- No other materials are required for sawcutting, except those incidentals needed for cleanup and equipment operation.

EQUIPMENT

- Saw cutting shall be performed with a saw capable of wet cutting to neat, vertical lines as directed by the Engineer.
- Equipment must be approved by the Engineer prior to the start of work.
- Additional equipment may include:
 - o Hand or walk-behind saws for confined areas
 - o Vacuum or water containment systems to control slurry and debris
 - o Brooms, air blowers, or pressure washers for cleaning sawcut surfaces
- All equipment shall be maintained in good working condition and operated by trained personnel.

CONSTRUCTION METHODS

Sawcutting of Pavement:

- Pavement shall be sawcut through its full depth at all joints between existing and proposed pavement, at utility trenches, and at other locations as directed.
- Sawcuts shall provide a smooth, vertical surface for subsequent construction.
- Sawcut edges that become broken, ragged, or undermined during operations shall be re-cut at no additional cost to the Department.

Surface Preparation for Asphalt Pavement:

- Sawcut surfaces in asphalt pavements shall be sprayed or painted with a thin, uniform coat of asphalt emulsion tack coat immediately prior to placement of new hot mix asphalt.

Limit of Work:

- Sawcuts shall be made at the limits of work as shown on the plans or as required by the Engineer.
- Care shall be taken to prevent damage to adjacent pavement or structures.

METHOD OF MEASUREMENT

- Sawcutting will be measured by the linear foot along the cut line, complete and approved.
- For asphalt pavement sawcuts for box widening, measurement shall be along the full depth sawcut line.
- Sawcuts in trenching for conduit, curb, drainage, or water work shall not be measured separately, as they are included under the respective item.

PAYMENT

Payment will be made at the contract unit prices per foot for the following items, which shall include all labor, materials, equipment, and incidentals necessary to perform the work

Asphalt emulsion tack coat applied to sawcut surfaces shall be paid separately under Item 452: Asphalt Emulsion for Tack Coat.

Sawcuts made for full depth box widening are paid separately; sawcuts made for trenching, curbs, drainage, or water work are included in the respective item and will not be paid separately.

<u>ITEM 620.12</u>	<u>GUARDRAIL, TL-2 (SINGLE FACED)</u>	<u>FT</u>
<u>ITEM 620.13</u>	<u>GUARDRAIL, TL-3 (SINGLE FACED)</u>	<u>FT</u>
<u>ITEM 627.82</u>	<u>GUARDRAIL TANGENT END TRTMENT, TL-2</u>	<u>EA</u>
<u>ITEM 627.93</u>	<u>GUARDRAIL FLARED END TRTMENT, TL-3</u>	<u>EA</u>

Work under these items shall consist of furnishing and installing steel beam guardrail systems, guardrail end treatments, anchorages, transitions, impact attenuators, concrete barrier systems, and related components; and removing, resetting, stacking, or disposing of existing guardrail and barrier elements; complete in place and in accordance with the Contract Plans, these Specifications, the MassDOT Standard Specifications (Divisions II and III), and the latest MassDOT Construction Standard Details.

Guardrail systems shall include single faced and double faced installations, curved rail, deep post installations, trailing anchorages, flared and tangent end treatments, transitions to bridge rail or rigid barrier, and impact attenuators as shown on the Plans.

All systems shall meet applicable FHWA eligibility requirements and crashworthiness criteria (NCHRP 350 or MASH, as applicable to the specified Test Level).

The completed installation shall provide a continuous protective barrier system constructed to the required line, grade, elevation, and offset.

MATERIAL

All materials shall conform to MassDOT Division III requirements and the MassDOT Approved Products List where applicable.

Guardrail Systems (620 & 621 Series)

- Steel beam guardrail panels (W-beam or Thrie beam)
- Single faced and double faced rail elements
- Curved rail sections
- Deep post systems
- Galvanized hardware
- Offset blocks (wood, composite, or approved equal)
- Steel or wood posts

All materials shall be galvanized and free from defects affecting structural performance.

End Treatments and Anchorages (627 Series)

- End treatments (tangent, flared, trailing anchorages, double faced systems) shall:
 - Be approved crashworthy systems
 - Match specified Test Level (TL-2 or TL-3)
 - Be installed in accordance with manufacturer instructions and MassDOT standards

Transitions and Impact Attenuators (628 Series)

- Transitions to bridge rail, rigid barrier, thrie beam, or other systems shall conform to MassDOT Standard Details.
- Permanent and Temporary Impact Attenuators (redirective and non-redirective) shall:

- o Be on the MassDOT Approved Products List
- o Include all required anchorage and foundation components

Concrete Barrier (629 Series)

- Precast concrete barrier
- Cast-in-place single faced and median barrier
- Median barrier cap
- Concrete and reinforcement shall conform to Division III materials requirements.

Removal and Reset Items (630 & 632 Series)

- Existing guardrail, posts, panels, and impact attenuators designated for removal, reset, stacking, or disposal shall be handled to prevent unnecessary damage.
- Materials to be reset shall be suitable for reuse as determined by the Engineer.

EQUIPMENT

All equipment shall be in good working condition and suitable for guardrail and barrier installation.

Equipment may include:

- Post drivers (hydraulic, pneumatic, or drop hammer type)
- Excavators or augers for post holes where driving is not feasible
- Torque-controlled wrenches for hardware installation
- Lifting devices for barrier placement
- Concrete forming and finishing equipment (for cast-in-place barrier)
- Manufacturer-required specialty equipment for impact attenuator installation
- Cutting and drilling equipment for field modifications where permitted

Equipment operations shall not damage adjacent pavement, utilities, or existing structures. Damaged areas shall be restored at no additional cost to the Department.

CONSTRUCTION METHODS

Guardrail Installation (620 & 621 Series)

Posts shall be installed at the spacing and embedment depth shown in the Standard Details.

- Guardrail panels shall:
 - o Be lapped in the direction of traffic
 - o Be secured with approved galvanized hardware
 - o Form a smooth, continuous rail
 - o Maintain required height above finished grade
- Curved rail and deep post installations shall conform to detail requirements.

End Treatments and Anchorages (627 Series)

- End treatments shall be installed exactly in accordance with manufacturer instructions and MassDOT details.
- Orientation, grading, and anchorage shall ensure full crashworthy performance.

Transitions and Impact Attenuators (628 Series)

- Transitions shall be installed to maintain system stiffness progression and structural continuity.
- Impact attenuators shall:

- o Be installed per manufacturer specifications
 - o Be anchored to foundations or pavement as required
 - o Include grading necessary to meet performance criteria
- Temporary attenuators shall be removed or relocated when directed.

Concrete Barrier (629 Series)

- Precast barrier shall be placed on prepared subgrade and aligned properly.
- Cast-in-place barrier shall include:
 - o Formwork
 - o Reinforcement placement
 - o Concrete placement and finishing
 - o Proper curing
- Barrier cap concrete shall be placed and finished in accordance with Division III concrete requirements.

Removal, Reset, Stack, and Disposal (630 & 632 Series)

- Guardrail or barrier designated for removal shall be carefully dismantled.
- Removed and Reset items shall be:
 - o Reinstalled to current standard
 - o Aligned and secured with new hardware where required
- Removed and Stacked items shall be neatly stacked at locations designated by the Engineer.
- Removed and Discarded items shall be disposed of legally off-site.
- Field drilling required under specific pay items shall be performed as approved by the Engineer.

METHODS OF MEASUREMENT

Measurement shall conform to MassDOT Division II and shall be as follows:

Guardrail (620 & 621 Series)

- Measured in linear feet along the centerline of the rail from center to center of end posts, complete in place.

End Treatments and Anchorages (627 Series)

- Measured per each complete and accepted installation.

Transitions and Impact Attenuators (628 Series)

- Measured per each complete system installed and accepted.

Concrete Barrier (629 Series)

- Precast and cast-in-place barrier measured in linear feet.
- Barrier cap measured in cubic yards.

Removal and Reset (630 & 632 Series)

- Highway guard removed and reset, stacked, or discarded measured in linear feet. Individual posts and panels measured per each.

PAYMENT

Payment for guardrail work will be made at the contract unit prices as follows:

1. Guardrail Main Run (linear foot):
 - o Paid at the contract price per linear foot, complete in place, including posts, offset blocks/brackets, panels, and connecting hardware.
2. Individual Components (each):
 - o Guardrail posts, offset brackets, panels, terminal sections, buried ends, and transitions will be paid for at the contract unit price per each.
3. End Treatments (each):
 - o Guardrail end treatments (flared and tangent) will be paid for at the contract unit price per each installed unit.

Payment shall constitute full compensation for all labor, materials, tools, equipment, and incidentals necessary to complete the work as specified, including documentation submittals, compliance with crashworthiness criteria, installation, alignment, connections, hardware, and cleanup.

This work consists of furnishing, installing, maintaining, and removing temporary fencing as required to protect work areas, control pedestrian and vehicular movement, or provide security. The fence shall be installed in accordance with these specifications and as directed by the Engineer.

EQUIPMENT

- The Contractor shall provide all necessary equipment for handling, transporting, installing, and removing temporary fencing, including but not limited to:
 - Post drivers or augers for setting fence posts.
 - Cutting tools for adjusting fence sections.
 - Lifting and handling equipment for fence panels.
 - Stabilization and anchoring tools as required for site conditions.

MATERIALS

Temporary fencing shall consist of durable materials suitable for the intended purpose and shall meet the following requirements:

- Fence Fabric:
 - Chain-link fencing, plastic mesh, or welded wire, as specified in the contract documents.
 - Minimum height: 6 feet, unless otherwise specified.
 - Openings shall not exceed 2 inches for security applications.
- Fence Posts:
 - Metal or wood posts, sized appropriately for fence height and anticipated loads.
 - Minimum post spacing: 8 feet on center, unless otherwise directed.
- Anchoring & Supports:
 - Driven, set in concrete, or weighted bases, as required to maintain stability.
 - Sandbags or ballast may be required for freestanding panels.

CONSTRUCTION METHODS

- Installation:
 - The temporary fence shall be erected along the designated alignment as shown on the plans or as directed by the Engineer.
 - Posts shall be driven or anchored securely to prevent movement under expected site conditions.
 - Fence fabric shall be tightly secured to posts with appropriate fasteners or ties.
 - Gates or access openings shall be installed where necessary and secured properly.
- Maintenance:
 - The Contractor shall regularly inspect and maintain the fence in good condition, repairing any damage promptly.
 - Any fence sections that become displaced, damaged, or ineffective shall be reinstalled or replaced immediately at the Contractor's expense.
- Removal:
 - Upon project completion or when directed by the Engineer, the temporary fence shall be removed, and all materials shall be disposed of or salvaged as required.
 - Any holes left from post removal shall be backfilled and compacted to match surrounding conditions.

METHOD OF MEASUREMENT

- Temporary fencing will be measured by the linear foot of fence installed and maintained in accordance with the contract requirements.

PAYMENT

- The accepted quantity of temporary fencing will be paid for at the contract unit price per linear foot, which shall include all labor, materials, equipment, installation, maintenance, and removal.

ITEM 665.**CHAIN LINK FENCE REMOVED AND STACKED****FT****ITEM 669.****FENCE REMOVED AND STACKED****FT**

This work shall consist of removing existing fences and gates, including all posts, braces, bases, and appurtenances, and either resetting them in new locations or removing and stacking them as shown on the plans or as directed by the Engineer.

Work shall be performed in close conformity with the lines and grades shown on the plans or established by the Engineer. Removal, storage, protection, resetting, stacking, and incidental work necessary to complete the operation shall be included under this Section.

Fence not required to be reset or stacked shall become the property of the Contractor and shall be removed from the project without additional compensation.

EQUIPMENT

The Contractor shall furnish all tools and equipment necessary to carefully remove, transport, store, reset, stack, and protect fences and gates. Equipment shall be suitable to prevent damage to fencing materials and appurtenances.

Equipment used for excavation and backfilling shall be capable of properly compacting backfill material around posts. Concrete mixing and placement equipment shall conform to the requirements for Cement Concrete specified herein.

MATERIALS

Materials removed from the existing fence and gates shall be reused for resetting wherever possible.

If materials are missing, damaged, or lost during or subsequent to removal operations, they shall be replaced by the Contractor without additional compensation.

All new materials required, including replacement posts or bases, shall be equal in quality and design to the materials in the existing fence or gates.

Concrete used for resetting fence posts originally set in concrete shall conform to:

- MASSDOT M4.02.00 – Cement Concrete for 4,000 psi, 1.5-inch, 565 Cement Concrete

CONSTRUCTION METHODS

- Removal
 - o Existing fences and gates, including all posts, braces, bases, and appurtenances, shall be carefully removed. Materials shall be satisfactorily stored and protected until required for resetting or stacking.
 - o Old post holes shall be backfilled with suitable material and properly compacted.
 - o The Contractor shall be responsible for all fencing materials from the time of removal until final acceptance of the work or until responsibility is transferred as specified herein.
- Resetting (Erection)
 - o Fences shall be reset plumb on the new line and grade as required and shall conform to the original fence configuration or as directed by the Engineer.
 - o Backfill around posts shall consist of suitable material satisfactorily compacted.
 - o Where fence posts were originally set in concrete bases, they shall be reset in concrete bases in their new locations conforming to:
 - MASSDOT M4.02.00 – 4,000 psi, 1.5-inch, 565 Cement Concrete

- o If repainting of fences that were originally painted is required, such work shall be performed as directed by the Engineer.
- o Gates shall be reset where and as directed. Painting of gates, if required, shall be performed as directed.
- Stacking
 - o Where fences and gates are designated to be removed and stacked, the fencing, posts, braces, and gates shall be carefully removed and transported to the locations shown on the plans or as directed by the Engineer.
 - o Materials shall be stacked neatly on wooden planks and arranged to be convenient for final removal from the project by the owner.
 - o The Contractor shall be responsible for the fencing materials and any damage thereto prior to final removal by the owner. Responsibility shall cease upon:
 - Final acceptance of the work; or
 - Sixty (60) days after the Contractor sends certified written notice (with copy to the Engineer) to the owner that the materials are available for removal.

METHOD OF MEASUREMENT

Fence removed and reset will be measured in the final position from outside to outside of end posts.

Fence removed and stacked will be measured in its original position from outside to outside of end posts. The quantity paid for shall be the actual length removed and stacked.

Gates with gate posts removed and reset, or removed and stacked, will be measured as a unit, each.

Fence not required to be reset or stacked will not be measured for payment.

Allowance for rock excavation, if not previously paid for, shall be made in accordance with the provisions for Class B Rock Excavation.

Concrete bases for line posts shall be measured and paid under:

- MASSDOT Item 901.3 – 4,000 psi, 1.5-inch, 565 Cement Concrete for Post Foundation, which shall include excavation.

PAYMENT

Fence removed and reset will be paid at the contract unit price per foot, complete in the final position under the respective item.

Fence removed and stacked will be paid at the contract unit price per foot.

Gates with gate posts removed and reset, or removed and stacked, will be paid at the contract unit price per each.

Payment shall constitute full compensation for all labor, materials, tools, equipment, removal, storage, protection, resetting, stacking, backfilling, compacting, replacement of damaged materials, and all incidental work necessary to complete the item.

Separate payment will be made for concrete post foundations under Item 901.3 as specified.

This work consists of furnishing, placing, and securing geotextile fabric for soil stabilization, separation, filtration, or drainage in accordance with these specifications and as directed by the Engineer. The geotextile shall be installed at the locations shown on the plans or as required for site conditions.

EQUIPMENT

- The Contractor shall provide all necessary equipment for handling, transporting, cutting, and installing geotextiles, including but not limited to:
 - o Earthmoving equipment for site preparation.
 - o Cutting tools for fabric trimming.
 - o Anchoring tools such as stakes, staples, or weights.
 - o Compaction equipment for overlying materials.

MATERIALS

- Geotextiles shall conform to MassDOT M9.50.0 and shall meet the following requirements based on intended application:
 - o Separation & Stabilization Geotextile:
 - Non-woven or woven fabric as specified.
 - Minimum tensile strength and puncture resistance per project specifications.
 - o Filtration & Drainage Geotextile:
 - Permeability and opening size appropriate for soil conditions.
 - Resistant to clogging and degradation in submerged conditions.
 - o Anchoring & Overlapping:
 - Overlap minimum 12 inches, or as directed.
 - Secured using staples, pins, or trenching based on site conditions.

CONSTRUCTION METHODS

- Site Preparation:
 - o The placement area shall be cleared of debris, sharp objects, and irregularities that could damage the geotextile.
 - o Subgrade shall be properly graded and compacted as necessary.
- Fabric Installation:
 - o Geotextile shall be laid smoothly without folds or wrinkles.
 - o Adjacent sections shall overlap per project requirements.
 - o If required, anchoring shall be done using stakes, staples, or trench burial.
- Placement of Overlying Materials:
 - o Backfill, aggregate, or soil shall be placed carefully to prevent damage or displacement.
 - o Equipment operating over the geotextile shall be limited to low ground pressure unless otherwise approved.
- Inspection & Repairs:
 - o Any damaged or displaced fabric shall be replaced before covering.
 - o The Contractor shall ensure that the geotextile remains intact during construction activities.

METHOD OF MEASUREMENT

- Geotextile fabric will be measured by the square yard of material satisfactorily placed and accepted. Overlaps and anchoring will not be measured separately for payment.

PAYMENT

- The accepted quantity of geotextile will be paid for at the contract unit price per square yard, which shall include all labor, materials, equipment, and incidental costs necessary to complete the work.

This work consists of removing and resetting existing flagpoles at locations shown on the plans or as directed by the Engineer. Work includes removal of poles, foundations if required, hardware, temporary storage or relocation, reinstallation, and restoration.

EQUIPMENT

Equipment shall be suitable for safe removal and resetting operations and may include:

- Crane truck, boom truck, or lifting device of adequate capacity
- Rigging equipment and lifting straps
- Hand tools for disassembly and hardware removal
- Concrete removal tools (if foundation removal is required)
- Excavation equipment appropriate for foundation work
- Compaction equipment
- Trucks for transport and storage

All lifting operations shall comply with OSHA requirements and industry safety standards.

MATERIALS

Existing poles and components shall be reused unless otherwise specified.

Replacement anchor bolts, hardware, or minor components damaged during removal shall be furnished by the Contractor.

Concrete for new foundations, when required, shall conform to plan requirements.

Backfill shall be suitable material properly compacted.

CONSTRUCTION METHODS

Flagpoles shall be carefully removed to prevent damage to pole sections, halyard systems, truck assemblies, and accessories.

If required, foundations shall be removed and excavations backfilled or new foundations constructed as shown on the plans.

Poles shall be reset plumb and securely anchored in final location. Halyard systems shall be fully operational upon completion.

All disturbed surfaces shall be restored.

METHOD OF MEASUREMENT

Measurement will be by the number of flagpoles removed and reset, each.

PAYMENT

Payment shall constitute full compensation for removal, temporary storage or relocation, resetting, foundation work (unless otherwise paid), hardware replacement, backfill, surface restoration, labor, equipment, and incidentals.

Concrete for new foundations, if separately itemized, will be paid under the applicable concrete item.

ITEM 734.**SIGN REMOVED AND RESET****EA**

This work consists of removing and resetting existing signs at new locations as shown on the plans or as directed by the Engineer. Work includes removal of sign panels, posts, foundations if required, temporary storage, reinstallation, and restoration.

EQUIPMENT

Equipment may include:

- Hand tools for sign and hardware removal
- Post pullers or extraction equipment
- Augers or drilling equipment for new post holes
- Compaction equipment for backfill
- Lifting equipment for large or overhead sign panels
- Trucks for transport and storage

Equipment shall be suitable to prevent bending, scratching, or otherwise damaging sign panels.

MATERIALS

Existing sign panels, posts, brackets, and hardware shall be reused unless otherwise specified.

Replacement hardware, posts, or mounting components damaged during removal shall be furnished by the Contractor.

Backfill material shall be suitable material properly compacted.

CONSTRUCTION METHODS

Signs shall be carefully removed, including posts and foundations if required.

Panels shall be protected during storage and handling.

In final location, signs shall be installed plumb, at proper embedment depth, and in conformance with MUTCD and MassDOT standard details.

Post holes shall be backfilled and compacted. Disturbed surfaces shall be restored.

METHOD OF MEASUREMENT

Measurement will be by the number of signs removed and reset, each, unless otherwise specified.

PAYMENT

Payment shall constitute full compensation for removal, temporary relocation if required, resetting, minor hardware replacement, backfill, compaction, surface restoration, labor, equipment, and incidentals.

Rock excavation, if required and not otherwise included, will be paid under Item 144 – Class B Rock Excavation.

ITEM 748.**MOBILIZATION****LS**

This work consists of preparatory operations necessary for the movement of personnel, equipment, and materials to and from the project site in accordance with these specifications. Mobilization includes establishing field offices, shops, storage areas, other necessary facilities, pre-mobilization contract submittals, Dig Safe markouts/renewals, and, if required, access agreements. Demobilization includes the removal of temporary facilities, cleanup, final documentation of work (as-built survey, swing-ties, material weight slips, disposal documentation, etc.), and restoration of areas disturbed during mobilization.

EQUIPMENT

- The Contractor shall provide all necessary equipment for mobilization and demobilization, including but not limited to:
 - o Trucks and transport vehicles for equipment and materials.
 - o Temporary office trailers, storage containers, and utilities.
 - o Safety and traffic control devices.
 - o Environmental protection measures, as required.

MATERIALS

- Materials required for mobilization may include:
 - o Temporary facilities such as field offices, storage, and sanitary facilities.
 - o Erosion and sedimentation control measures.
 - o Temporary signage, fencing, and security barriers, as required.

CONSTRUCTION METHODS

- Mobilization
 - o Pre-Mobilization Requirements:
 - Submit and obtain approval for all pre-mobilization contract submittals before mobilization begins.
 - Complete Dig Safe markouts/renewals and provide documentation to the Engineer.
 - Secure any required access agreements for staging areas and site access.
 - o Site Preparation:
 - Establish staging areas, field offices, and storage locations per contract documents.
 - Install any necessary temporary utilities, including water, electricity, and sanitation.
 - Implement traffic control and safety measures.
 - o Equipment & Personnel Deployment:
 - Transport and assemble all necessary equipment and materials.
 - Ensure all mobilization activities comply with site access, environmental, and safety regulations.
- Demobilization
 - o Removal of Equipment & Temporary Facilities:
 - Dismantle and remove all temporary structures, storage facilities, and offices.
 - Remove temporary utilities and site access improvements.

- o Site Restoration:
 - Restore all disturbed areas to pre-construction conditions or as required by the contract.
 - Remove debris and waste materials in compliance with environmental regulations.
- o Final Documentation & Closeout:
 - Submit as-built survey, swing-ties, material weight slips, disposal documentation, and other required final records.
 - Obtain final Engineer inspection and approval before final acceptance.

METHOD OF MEASUREMENT

- Mobilization and demobilization will be measured as a lump sum item, with payments as follows:
 - o 50% upon completion of mobilization and approval of required submittals.
 - o 50% upon completion of demobilization, site restoration, and submission of final documentation.

PAYMENT

- Mobilization and demobilization will be paid for at the contract lump sum price, which shall include all labor, materials, equipment, submittals, and incidental costs necessary to complete the work.

ITEM 751.**LOAM FOR ROADSIDES****CY**

This work shall consist of furnishing, testing, and placing loam for use in roadside and lawn areas, in accordance with these specifications and in close conformity with the lines, grades, and thicknesses shown on the plans or established by the Engineer.

EQUIPMENT

- All equipment necessary for excavation, transport, spreading, and grading of loam shall be in good working condition and suitable for the required work. Equipment used shall not cause compaction or contamination of the loam.

MATERIALS

- Loam shall conform to the requirements of M1.05.0 and shall be fertile, friable soil obtained from naturally well-drained areas or from a commercial sand and gravel processing facility. It shall be free of saltwater contamination, foreign matter, and substances harmful to plant growth. The loam shall be free of debris, rocks, clods, and other extraneous materials.
 - o Loam for Roadsides: No material greater than 1 inch in diameter.
 - o Loam for Lawns: No material greater than ½ inch in diameter.
 - o Gradation Requirements:
 - No. 10 sieve: 85–100% passing
 - No. 40 sieve: 35–85% passing
 - No. 200 sieve: 10–35% passing
 - Particles < 20 µm: Less than 5%
- The organic content shall be between 4% and 10%, as determined by the loss on ignition of oven-dried samples. Lawn areas shall have an organic content of at least 4%, while areas with woody plantings shall have an organic content between 7% and 10%. The soil acidity shall be within a pH range of 5.5 to 7.0. Salinity shall not exceed 0.1 S/m.

The contractor shall provide testing submittals per source as follows:

- o One 25-lb representative sample per source.
- o For sources exceeding 1,000 cubic yards, an additional 25-lb sample per each additional 1,000 cubic yards.
- o Five random representative samples of stockpiled loam, collected in the presence of the Engineer.

Testing shall be performed at the contractor's expense, and no loam shall be delivered to the site until approved by the Engineer.

CONSTRUCTION METHODS

- The contractor shall place and spread loam to the required thickness, ensuring a uniform and smooth surface. The loam shall be lightly compacted and fine-graded to remove irregularities. Loam placement shall not occur when the material is excessively wet or frozen.

Soil amendments such as fertilizer, lime, or compost shall be incorporated as directed to achieve the required soil conditions for vegetation growth.

METHOD OF MEASUREMENT

- The quantity of loam to be paid for shall be the number of cubic yards or square yards of material placed and accepted. Measurement shall be based on in-place compacted thickness or truck load tickets verified by the Engineer.

PAYMENT

- Loam will be paid for at the contract unit price per cubic yard or square yard, which shall include all materials, labor, testing, equipment, and incidentals necessary to complete the work. Amendments required to adjust pH, organic content, or structure shall be considered incidental to the work unless specified otherwise.

ITEM 765.6**SEED - WILDFLOWER MIX****SY**

The work under these items consists of furnishing and installing specialized seed mixes for ecological restoration, stormwater management, and conservation purposes. These seed mixes include:

- New England Wetmix
 - A wetland seed mix suitable for various hydrologic conditions.
- New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites
 - Designed for stabilizing soils in detention basins and wetland restoration projects.
- New England Conservation/Wildlife Mix
 - Supports pollinators, birds, and other wildlife in conservation areas.
- New England Wildflower Mix
 - A diverse mix of native wildflowers for enhancing biodiversity and aesthetic value.
- New England Roadside Matrix Upland Mix
 - Designed for use along roads and highways.

All materials and methods shall comply with the project specifications and applicable state and federal environmental regulations.

EQUIPMENT

- Hydro-seeder or broadcast spreader for even seed distribution
- Rakes, harrows, or seed rollers for soil preparation
- Watering equipment for initial establishment
- Erosion control blankets or straw mulch (if specified)

MATERIALS

- New England Wetmix (as per supplier specifications)
- New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites
- New England Conservation/Wildlife Mix
- New England Wildflower Mix
- New England Roadside Matrix Upland Mix
- Soil amendments (if required, such as compost or organic fertilizers)

Seed mixes shall be sourced from New England Wetland Plants, Inc., or an approved equivalent.

CONSTRUCTION METHODS

- Site Preparation:
 - Clear and grade the area to establish a suitable seedbed.
 - Remove debris, compacted soil, and invasive species.
 - Apply soil amendments if necessary.
- Seeding:
 - Evenly distribute seeds using a broadcast spreader, hydro-seeder, or manual application.
 - For wetland sites, ensure appropriate soil moisture before and after seeding.
- Soil Protection & Establishment:

- o Lightly rake or roll seeds into the soil to ensure proper seed-to-soil contact.
- o Apply mulch or erosion control blankets where needed.
- o Water as necessary to support germination and establishment.
- Maintenance & Monitoring:
 - o Monitor germination rates and reseed areas with low coverage.
 - o Control invasive species and provide supplemental watering as needed.
 - o Ensure compliance with specified project requirements.
- Application Rates:

Seed Mix	Application Rate
New England Wetmix	18 lbs/acre
Erosion Control/Restoration Mix for Detention Basins & Moist Sites	35 lbs/acre
Conservation/Wildlife Mix	25 lbs/acre
Wildflower Mix	23 lbs/acre
New England Roadside Matrix Upland Mix	35 lbs/acre

METHOD OF MEASUREMENT

- Measured in square yards (SY) of seeded area.
- Partial areas will be rounded to the nearest square yard.

PAYMENT

- New England Wetmix, New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites, New England Conservation/Wildlife Mix, and New England Wildflower Mix will be paid per SY.
- Payment includes material supply, site preparation, seeding, and initial watering.
- Erosion control blankets, mulching, and soil amendments will be paid under separate items if required.

ITEM 765.8**SEED MIX – UPLAND SEED MIX****SY****ITEM 765.9****SEED MIX – BANK SEED MIX****SY**

This work shall consist of preparing the ground surface and furnishing and applying native seed mixes and a seasonal cover crop to disturbed areas as shown on the Plans or as directed by the Engineer.

Two seed mix types shall be used depending on site conditions:

- Upland Seed Mix for general disturbed upland areas
- Bank Seed Mix for slopes, banks, and areas requiring additional stabilization

The Bank Seed Mix is specifically designed for erosion control and establishment on sloped or bank environments.

All work shall be performed in accordance with the Contract Documents and these specifications.

EQUIPMENT

The Contractor shall utilize equipment suitable for hand broadcasting seed. Equipment may include hand-held or chest-mounted crank spreaders or similar manual distribution devices capable of ensuring uniform seed distribution.

Equipment shall be suitable for working on both flat areas and sloped bank surfaces where mechanized equipment may be impractical.

All equipment shall be maintained in good working condition and operated in a manner that prevents uneven seed application or disturbance of prepared soil surfaces.

MATERIALS

All seed shall be fresh, clean, and delivered in new, unopened, and labeled containers.

Upland Seed Mix

The Upland Seed Mix shall conform to the following composition:

Scientific Name	Common Name	Seed Mix Composition (%)
<i>Andropogon gerardii</i>	Big Bluestem	35
<i>Panicum virgatum</i>	Switchgrass	27
<i>Elymus virginicus</i>	Virginia Wildrye	21
<i>Sorghastrum nutans</i>	Indian Grass	10
<i>Chamaecrista fasciculata</i>	Partridge Pea	3
<i>Heliopsis helianthoides</i>	Oxeye Sunflower	1.5
<i>Coreopsis tinctoria</i>	Plains Coreopsis	1
<i>Asclepias syriaca</i>	Common Milkweed	0.5
<i>Monarda fistulosa</i>	Wild Bergamot	0.5
<i>Desmodium canadense</i>	Showy Ticktrefoil	0.5

Bank Seed Mix

The Bank Seed Mix shall conform to the following composition:

Scientific Name	Common Name	Seed Mix Composition (%)
<i>Elymus virginicus</i>	Virginia Wildrye	25
<i>Panicum virgatum</i>	Switchgrass	20
<i>Andropogon gerardii</i>	Big Bluestem	20
<i>Schizachyrium scoparium</i>	Little Bluestem	15
<i>Panicum clandestinum</i>	Deertongue	5
<i>Elymus riparius</i>	Riverbank Wildrye	5
<i>Juncus effusus</i>	Common Rush	5
<i>Carex vulpinoidea</i>	Fox Sedge	5

Cover Crop

The seasonal cover crop shall be applied as follows:

Seeding Period	Cover Crop
January 1 – July 31	Grain Oats
August 1 – December 31	Grain Rye

CONSTRUCTION METHODS

Surface Preparation

Prior to seeding, all disturbed areas shall be cleared of weeds, debris, stones, and other objectionable material.

The soil surface shall be loosened to a depth of approximately 1 to 2 inches to provide a suitable seedbed.

For bank areas and slopes, preparation shall be performed in a manner that minimizes erosion and soil displacement.

Application Rates

Seed shall be applied at the following rates:

Native Seed Mix	Application Rate
Upland Seed Mix & Bank Seed Mix	20 lbs/acre
Cover Crop	30 lbs/acre

Seeding Method

Seed shall be applied by hand broadcasting. To promote uniform distribution, the seed should be divided into two equal portions and applied in two passes in perpendicular directions.

Additional care shall be taken when seeding slopes and bank areas to ensure complete and uniform coverage.

Seed Incorporation

Following broadcasting, the seeded area shall be lightly raked, rolled, or otherwise worked to ensure adequate seed-to-soil contact without burying the seed excessively.

On steep slopes or bank areas, the Contractor may be required to install erosion control matting or other stabilization measures as shown on the Plans or as directed by the Engineer.

METHOD OF MEASUREMENT

Native Seeding will be measured by the Square Yard (SY) of completed and accepted work.

Measurement shall be based on:

- Horizontal area for upland seeding
- Actual surface area for bank seeding, including slope

No measurement will be made for overlaps or areas seeded outside the designated limits shown on the Plans.

PAYMENT

The accepted quantities of Native Seeding will be paid for at the contract unit price per Square Yard (SY).

The contract unit price shall include:

- Furnishing and applying the appropriate native seed mix
- Furnishing and applying cover crop
- Surface preparation
- Labor
- Equipment
- All materials and incidentals necessary to complete the work

The work under this item shall conform to the relevant MassDOT provisions of Subsections 670, 751 and 767 of the Standard Specifications and shall include the furnishing and placement of a sediment control barrier. Sediment control barrier shall be installed prior to disturbing upslope soil.

The purpose of the sediment control barrier is to slow runoff velocity and filter suspended sediments from storm water flow. Sediment barrier may be used to contain stockpile sediments, to break slope length, and to slow or prevent upgradient water or water off road surfaces from flowing into a work zone. Contractor shall be responsible for ensuring that barriers fulfill the intent of adequately controlling siltation and runoff.

Twelve-inch diameter (after installation) compost filter tubes with biodegradable natural fabric (i.e., cotton, jute, burlap) are intended to be the primary sedimentation control barrier. Photo- biodegradable fabric shall not be used.

For small areas of disturbance with minimal slope and slope length, the Engineer may approve the following sediment control methods:

- 9-inch compost filter tubes
- Straw bales which shall be trenched

No straw wattles may be used. Additional compost filter tubes (adding depth or height) shall be used at specific locations of concentrated flow such as at gully points, steep slopes, or identified failure points in the sediment capture line.

When required by permits, additional sediment barrier shall be stored on-site for emergency use and replacement for the duration of the contract.

Where shown on the plans or when required by permits, silt fence shall be used in addition to compost filter tubes and straw bales and shall be incidental to the item.

Sediment control barriers shall be installed in the approximate location as shown on the plans and as required so that no excavated or disturbed soil can enter mitigation areas or adjacent wetlands or waterways. If necessary to accommodate field conditions and to maximize effectiveness, barrier locations may be shifted with approval from the Engineer. Barriers shall be in place prior to excavation work. No work shall take place outside the barriers.

MATERIALS AND CONSTRUCTION

Prior to initial placement of barriers, the Contractor and the Engineer shall review locations specified on the plans and adjust placement to ensure that the placement will provide maximum effectiveness.

Barriers shall be staked, trenched, and/or wedged as specified herein and according to the Manufacturer's instructions. Barriers shall be securely in contact with existing soil such that there is no flow beneath the barrier.

Prior to installation the Contractor shall supply the Manufacturer's information for the proposed sediment control barrier which shall include material composition and installation instructions to the Engineer for review and approval.

Compost Filter Tube

Compost material inside the filter tube shall meet MassDOT standard M1.06.0, except for the following: no peat, manure or bio-solids shall be used; no kiln-dried wood or construction debris shall be allowed; material shall pass through a 2-inch sieve; and the C:N ratio shall be disregarded.

Outer tube fabric shall be made of 100% biodegradable materials (i.e., cotton, hemp or jute) and shall have a knitted mesh with openings that allow for sufficient water flow and effective sediment capture.

Tubes shall be tamped, but not trenched, to ensure good contact with soil. When reinforcement is necessary, tubes shall be stacked as shown on the detail plans.

Straw Bales

Straw bales shall be used if shown on the plans or when specified by Orders of Condition or other permit requirements.

Bales should be placed in a single row, lengthwise on the contour, with ends of adjacent bales tightly abutting one another. All bales should be either wire-bound or string-tied. Straw bales should be installed so that bindings are oriented around the sides (rather than along the tops and bottoms) of the bales in order to prevent deterioration of the bindings.

The barrier should be entrenched and backfilled. A trench should be excavated the width of a bale and the length of the proposed barrier to a minimum depth of 4 inches. The trench must be deep enough to remove all grass and other material which might allow underflow. After the bales are staked and chinked (filled by wedging), the excavated soil should be backfilled against the barrier. Backfill soil should conform to the ground level on the downhill side and should be built up to 4 inches against the uphill side of the barrier.

Each bale should be securely anchored by at least 2 stakes or re-bars driven through the bale. The first stake in each bale should be driven toward the previously laid bale to force the bales together. Stakes or re-bars should be driven deep enough into the ground to securely anchor the bales. For safety reasons, stakes should not extend above the bales but should be driven in flush with the top of the bale.

The gaps between the bales should be chinked (filled by wedging) with straw to prevent water from escaping between the bales. Loose straw scattered over the area immediately uphill from a straw bale barrier tends to increase barrier efficiency. Wedging must be done carefully in order not to separate the bales.

When used in a swale, the barrier should be extended to such a length that the bottoms of the end bales are higher in elevation than the top of the lowest middle bale to assure that sediment-laden runoff will flow either through or over the barrier but not around it.

Sedimentation Fence

Materials and Installation shall be per Section 670.40 and 670.60 of the MassDOT Standard Specifications and the following:

Sedimentation fence shall only be used if shown on the plans or when specified by Orders of Condition or other permit requirements.

When used with compost filter tubes, the tube shall be placed on a minimum of 8 inches of folded fabric on the upslope side of the fence. Fabric does not need to be trenched.

When used with straw bales, an 8-inch deep and 4-inch-wide trench or V-trench shall be dug on the upslope side of the fence line. One foot of fabric shall be placed in the bottom of the trench followed by backfilling with compacted earth or gravel. Stakes shall be on the down slope side of the trench and shall be spaced such that the fence remains vertical and effective.

Width of fabric shall be sufficient to provide a 36-inch-high barrier after fabric is folded or trenched. Sagging fabric will require additional staking or other anchoring.

MAINTENANCE

Maintenance of the sediment control barrier shall be per Section 670.60 of the MassDOT Standard Specifications or per the Stormwater Pollution Prevention Plan (SWPPP), whichever is more restrictive.

The contractor shall inspect the sediment barrier in accordance with relevant permits. At a minimum, barriers shall be inspected at least once every 7 calendar days and after a rain event resulting in 0.25 inches or more of rainfall. Contractor shall be responsible for ensuring that an effective barrier is in place and working effectively for all phases of the Contract.

Barriers that decompose such that they no longer provide the function required shall be repaired or replaced as directed. If the resulting berm of compost within the fabric tube is sufficiently intact and continues to provide effective water and sediment control, barrier does not necessarily require replacement.

DISMANTLING & REMOVING

Barriers shall be dismantled and/or removed, as required, when construction work is complete, and upslope areas have been permanently stabilized and after receiving permission to do so from the Engineer.

Regardless of site context, nonbiodegradable material and components of the sediment barriers, including photo-biodegradable fabric, plastic netting, nylon twine, and silt fence, shall be removed and disposed off-site by the Contractor.

For naturalized areas, biodegradable, natural fabric, and material may be left in place to decompose on-site. In urban, residential, or other locations where aesthetics is a concern, the following shall apply:

- Compost filter tube fabric shall be cut and removed, and compost shall be raked to blend evenly (as would be done with a soil amendment or mulch). No more than a 2- inch depth shall be left on soil substrate.

- Straw bales shall be removed and disposed off-site by the Contractor. Areas of trenching shall be raked smooth and disturbed soils stabilized with a seed mix matching adjacent seeding or existing grasses (i.e., lawn or native grass mix).
- Silt fence, stakes, and other debris shall be removed and disposed off-site. Site shall be restored to a neat and clean condition.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 767.121 will be measured and paid for at the contract unit bid price per FOOT of sediment control barrier which price shall include all labor, equipment, materials, maintenance, dismantling, removal, restoration of soil, and all incidental costs required to complete the work.

Sedimentation fence, when used in conjunction with compost filter tubes or straw bales, will be incidental to this item.

Additional barrier, such as double or triple stacking of compost filter tubes, will be paid for per foot of tube installed.

Barriers that have been driven over or otherwise damaged by construction activities shall be repaired or replaced as required by the Engineer at the Contractor's expense.

ITEM 767.9**JUTE MESH****SY**

Work under this item shall consist of furnishing and installing temporary, degradable jute mesh erosion control matting at locations as shown on the Plans or as directed by the Engineer. Installation shall conform to the relevant provisions of MassDOT Standard Specifications Section 700 and the manufacturer's recommendations.

MATERIALS

Temporary, degradable matting shall meet the following requirements:

- Composed of a core of coconut fiber or straw enclosed between two external confining meshes of non-degradable material.
- Minimum manufacturer's suggested design life: 12 months.
- Acceptable products include:
 - o "C125 BN" – North American Green
 - o "ECS-2B" – East Coast Erosion Control
 - o "EXCEL SS-2" – GeoSolutions, Inc.
 - o Approved equal as determined by the Engineer

All materials shall be delivered in new, unopened containers, and stored to prevent contamination or damage prior to installation.

EQUIPMENT

The Contractor shall furnish all equipment necessary for proper placement, securing, and anchoring of the jute mesh, including but not limited to:

- Hand tools for staking and anchoring
- Rollers or light tamping devices for soil contact (if required)
- Scissors or knives for trimming

All equipment shall be in good working order and suitable for the intended work.

CONSTRUCTION METHODS

- Install jute mesh in accordance with manufacturer's installation guidelines and project details.
- Mesh shall be installed taut, in direct contact with the soil, and securely anchored at edges and overlaps to prevent displacement by water, wind, or construction activity.
- Placement shall be coordinated with other erosion control measures, such as silt fences or sediment barriers.
- Any damaged or improperly installed matting shall be removed and replaced at the Contractor's expense.

METHOD OF MEASUREMENT

Jute mesh will be measured for payment by the square yard (SY) of material completely installed and accepted in place. Measurement shall include all overlaps, trimming, and anchoring required for proper installation.

PAYMENT

Payment for jute mesh will be made at the Contract unit price per square yard (SY), which shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals required to complete the work.

ITEM 768.**COIR LOG AND STAKES****FT**

Work under this item shall consist of furnishing and installing coir fiber logs along stream banks or slopes as shown on the Plans or as directed by the Engineer. Installation shall conform to the riprap slope stabilization detail, the manufacturer's recommendations, and the requirements of this specification.

Coir logs are machine-fabricated cylindrical rolls of natural coir fiber with a knotted outer netting of coir twine, designed to provide erosion control and support for vegetation establishment.

MATERIALS

Coir logs shall meet the following requirements:

- Dimensions: 12 inches in diameter and 10 feet in length (or as shown on the Plans).
- Density: Packed to no less than 7 lbs/cubic foot.
- Features: Provide pre-drilled holes for tubeling or plug plantings, or logs may be hand-drilled by the Contractor.
- Acceptable Products:
 - o North American Green – Product 12CN7
 - o RoLanka International, Inc. – BioD-Roll 30L
 - o Nedia Enterprises, Inc. – 12" KoirLog (ND Series)
 - o Approved equal, as determined by the Engineer
- Stakes: Provide wooden or biodegradable stakes of sufficient length and strength to anchor the logs securely in place per manufacturer's guidelines.

All materials shall be fresh, free from foreign materials, and suitable for installation in streambank or slope environments.

EQUIPMENT

The Contractor shall furnish all equipment necessary for:

- Transporting and placing coir logs on slopes or streambanks
- Anchoring logs securely to the subgrade
- Hand tools for drilling, planting, or securing logs
- Light compaction tools or tampers (if required for placement)

All equipment shall be in good working order and suitable for the intended work.

CONSTRUCTION METHODS

- Subgrade Preparation: Prepare the subgrade prior to coir log installation. Surfaces must be smooth, free of debris, sharp objects, or organic material, and provide a firm, unyielding foundation with no abrupt breaks in grade. Standing water or excessive moisture is not allowed.
- Placement: Install coir logs in accordance with manufacturer's guidelines and the project Plans. Logs shall be securely anchored using stakes as specified, with proper spacing to prevent displacement.
- Vegetation: Seed the subgrade around logs, hydroseed over logs, and plant native plug plantings in the logs as shown on the Plans. Select species appropriate for zone, sun exposure, soil conditions, and planting season.
- Logs shall remain functional until vegetation is established and erosion control is achieved.

METHOD OF MEASUREMENT

Coir logs will be measured for payment by the foot (FT) of material completely installed and accepted in place. Measurement shall be along the longitudinal axis of the installed log.

PAYMENT

Payment for coir logs will be made at the Contract unit price per foot (FT), which shall be full compensation for furnishing all materials (including stakes), labor, equipment, tools, anchoring, planting, seeding, and incidentals necessary to complete the work.

- No separate payment will be made for maintenance plantings in the coir logs; all costs associated with planting shall be included in the Contract unit price bid.

ITEM 769.**PAVEMENT MILLING MULCH UNDER GUARDRAIL****FT**

Work under this item shall consist of furnishing and installing pavement milling mulch under guardrail, including placement of geotextile stabilization fabric and a 4-inch layer of pavement millings, at locations shown on the Plans or as directed by the Engineer.

The mulched area is intended to provide a stable surface beneath guardrail installations and minimize vegetation growth and maintenance.

MATERIALS**Pavement Milling Mulch**

- Pavement milling mulch shall conform to the requirements of MassDOT Standard Specifications M1.10.0 – Pavement Milling Mulch.

Geotextile Fabric

- Geotextile fabric shall conform to MassDOT Standard Specifications M9.50.0 – Geotextile Fabrics for Stabilization Fabric.

All materials shall be clean, free of debris, and suitable for the intended purpose.

EQUIPMENT

The Contractor shall furnish all equipment necessary to complete the work, including but not limited to:

- Excavation and grading equipment
- Equipment for transporting and placing pavement millings
- Hand tools for cutting and positioning geotextile fabric
- Rakes, grading tools, or small compaction equipment for shaping and leveling the mulch

All equipment shall be maintained in good working order and suitable for the work being performed.

CONSTRUCTION METHODS**General**

- The mulched area shall generally be 3 feet in width, beginning at the back of berm, sloped edging, curb, or edge of roadway pavement, unless otherwise shown on the Plans.
- In guardrail end treatment areas, where the guardrail is offset from the roadway edge, the mulch shall extend from the edge of pavement to 6 inches behind the back of the guardrail posts.
- The Contractor shall place geotextile fabric directly on the prepared ground surface, followed by 4 inches of pavement millings.

New Guardrail Installation

- Where milling mulch is installed with new guardrail construction, the geotextile fabric and pavement millings shall be placed prior to guardrail installation.
- Where guardrail posts are to be driven:
 - Millings shall be temporarily moved aside near the post location.
 - Geotextile fabric shall be cut to allow post installation.
 - Posts shall be driven through the fabric.
 - Pavement millings shall then be replaced and raked tightly around the posts.

Existing Guardrail Installation

- Where milling mulch is installed at existing guardrail locations:
 - o Geotextile fabric shall be placed on both sides of the guardrail posts.
 - o Fabric shall be cut at the posts so it lays flat between them.
 - o Adjacent fabric sections shall overlap a minimum of 1 foot.
 - o Pavement millings shall then be placed and raked closely around the posts.
- The finished surface shall be evenly graded and compacted as necessary to provide a stable and uniform mulch layer.

METHOD OF MEASUREMENT

Pavement Milling Mulch Under Guardrail will be measured for payment by the linear foot (FT) based on actual measurements made along the guardrail alignment, complete in place and accepted by the Engineer.

PAYMENT

Payment for Pavement Milling Mulch Under Guardrail will be made at the Contract unit price per linear foot (FT).

This price shall be full compensation for furnishing and placing geotextile fabric, supplying and placing pavement millings, excavation, grading, trimming around guardrail posts, labor, equipment, tools, and all incidentals necessary to complete the work.

No separate payment will be made for excavation, grading, or post adjustments required to install the mulch.

**ITEM 775.405 FLOWERING DOGWOOD – CORNUS FLORIDA 1-1.25 INCH
CALIPER**

EA

ITEM 783.045 SERVICEBERRY - SHADBLOW 3-4 FEET

EA

This work shall consist of furnishing, planting and/or transplanting specified trees, shrubs, vines, and groundcover at locations shown on the Plans and/or as directed by the Engineer.

The work shall include excavation of planting pits and beds; furnishing and placing backfill mixture; soil testing and amendments; fertilizing; mulching; watering; staking and guying; wrapping for transport; pruning; seeding; weeding; plant care; maintenance; establishment; and replacement of unsatisfactory plants during the life of the Contract.

The Contractor performing work under this Section shall have a minimum of five (5) years continuous experience in large-scale ornamental landscape construction. The site foreman shall have at least five (5) years' experience, be able to read and interpret plans, and be present on-site during all planting operations.

All work shall conform to:

- ANSI Z60.1 – American Standard for Nursery Stock
- ANSI A300 Part 1 – Pruning
- ANSI A300 Part 6 – Planting and Transplanting

EQUIPMENT

Equipment shall be of sufficient size, type, and condition to properly perform the work and shall include, but not be limited to:

- Excavation equipment for plant pits and beds
- Soil mixing equipment
- Watering equipment including tanks, hoses, or drip irrigation bags
- Moisture meters capable of reading soil moisture at 6-inch depth (minimum two provided to Engineer)
- Soil pH testing equipment
- Compaction equipment suitable for planting areas
- Pruning tools suitable for professional arboricultural work
- Equipment for transport and protection of plant materials
- Equipment for staking and guying installation

All equipment shall be operated in a manner that prevents damage to plant materials and surrounding improvements.

MATERIALS

Materials shall conform to applicable MassDOT Division III requirements, including but not limited to:

- MassDOT M1.05.0 – Loam Borrow
- MassDOT M1.06.0 – Organic Soil Additives
- MassDOT M6.01.0 – Inorganic Amendments
- MassDOT M6.02.0 – Fertilizer
- MassDOT M6.04.3 – Wood Chip Mulch
- MassDOT M6.04.5 – Aged Pine Bark Mulch
- MassDOT M6.06.0 – General Planting

- MassDOT M6.06.1 – Nursery Stock – General
- MassDOT M6.07.1 – Wrapping for Transport
- MassDOT M6.08.0 – Materials for Guying and Staking
- MassDOT M6.09.0 – Water for Irrigation

All plants shall:

- Be northern-grown nursery stock
- Be B&B or containerized unless otherwise specified
- Be tagged with botanical name and cultivar
- Meet ANSI Z60.1 standards

Backfill mixture shall consist of:

- 1 part loam borrow
- 1 part organic material
- 2 parts existing subsoil

Soil testing shall be performed and amendment recommendations submitted to the Engineer for approval prior to planting.

Certificates of compliance and nursery shipping lists shall be submitted for each load of plant material.

CONSTRUCTION METHODS

Examination and Submittals

- The Contractor shall:
 - o Submit nursery availability lists within 30 days of preconstruction meeting
 - o Submit watering schedule 120 days prior to planting
 - o Submit tagging schedule 60 days prior to planting
 - o Submit soil testing and amendment recommendations
 - o Provide moisture gauges and ANSI Z60.1 reference copy
 - o Provide Massachusetts Certified Arborist certification where required

No plant material shall be ordered until submittals are approved.

Planting Seasons

- Planting shall conform to seasonal guidelines unless otherwise approved in writing by the Engineer:
 - o Spring – Deciduous: March 21 – June 15
 - o Spring – Evergreen: April 15 – June 1
 - o Fall – Deciduous: October 1 – December 1
 - o Fall – Evergreen: August 15 – October 15

Plant Delivery and Storage

- Plants shall be delivered only when planting pits are ready.
- Plants shall be planted within five (5) days of delivery.
- B&B root balls not planted immediately shall be covered and irrigated.
- Bare root plants shall be heeled-in if not planted same day.
- All emergency storage is at Contractor risk.

Damaged or desiccated plants may be rejected.

Planting Operations

- Plant pits shall be:
 - Three (3) times the width of the root ball
 - Depth equal to root ball height to root flare
 - Scarified to prevent glazing
- For B&B plants:
 - Remove rope and wire basket
 - Remove burlap from top and sides
- For container plants:
 - Score or butterfly root ball
 - Remove all non-degradable containers
- Mulch shall:
 - Be applied after first watering
 - Be placed at specified depth
 - Not cover stem flare

Backfill shall be placed in 6-inch lifts and watered to settle soil.

Water immediately after planting.

Staking and Guying

- Staking shall only be used where required by site conditions.
 - Small trees: one stake
 - Medium trees: two stakes
 - Large trees (>3-inch caliper): three anchor guy system

Use biodegradable cloth webbing only.

No wire or hose permitted.

Protect flowering cherries and flowering crabs with rodent guards.

Pruning

- Pruning shall be performed by a Massachusetts Certified Arborist.
 - Remove dead, broken, or damaged branches
 - Do not cut leader
 - Do not reduce size by more than one-third

Watering

- Watering requirements:
 - Twice weekly when average temp > 55°F and rainfall < 1 inch
 - Trees: minimum 10 gallons per watering
 - Shrubs: minimum 5 gallons per watering

Maintain watering log for final payment.

Maintenance Period

Minimum 60 days following completion of planting or until Conditional Acceptance.

- Contractor responsible for:
 - o Watering
 - o Weeding (weeds shall not exceed 6 inches)
 - o Pruning
 - o Re-mulching
 - o Adjusting stakes
 - o Replacing defective plants

Establishment Period

One full growing season and one full winter.

- At completion:
 - o Plants must exhibit healthy growth on 75% of terminal stems
 - o Stakes and guying removed
 - o Unacceptable plants replaced

METHOD OF MEASUREMENT

Plants will be measured by the number of living trees, shrubs, vines, and groundcover plants furnished, planted, and accepted.

Mulch for tree pits and planting beds shall be incidental to plant items.

Mulch for other areas shall be measured by cubic yard in place at specified depth and paid under the applicable mulch item (e.g., Item 767.6 – Aged Pine Bark Mulch).

PAYMENT

Plants will be paid at the contract unit price per each for the type, species, and size specified.

Payment shall include full compensation for:

- Furnishing and delivering plant material
- Backfill mixture
- Soil amendments and fertilizers
- Excavation of plant pits
- Planting
- Pruning
- Staking and guying
- Mulching
- Watering
- Weeding
- Maintenance and establishment
- Replacement of unsatisfactory plants
- All labor, equipment, tools, and incidentals

Mulch for vines and groundcovers shall be paid under the specified mulch item if separately listed.

No separate payment will be made for work incidental to planting operations.

ITEM 850.**OPERATIONS FOR TEMPORARY TRAFFIC CONTROL****LS**

Work under this item shall consist of providing, implementing, operating, maintaining, and removing all temporary traffic control operations necessary for the protection of the traveling public and project personnel during construction operations.

Work shall include implementing the Temporary Traffic Control Plan (TTCP) and coordinating all traffic control devices and personnel required under Section 850.

All work shall conform to:

- MassDOT Standard Specifications Section 850
- Manual on Uniform Traffic Control Devices (MUTCD)
- Construction Standard Details
- Approved Temporary Traffic Control Plan

The Contractor shall provide all labor, supervision, and coordination required to safely control traffic throughout the duration of the project.

MATERIALS

Traffic control devices shall meet the applicable requirements of MassDOT Division III Materials and MUTCD standards.

Devices required under this item need not be new but must be in first-class condition and acceptable to the Engineer.

All devices shall meet the ATSSA Quality Standards for Work Zone Traffic Control Devices.

EQUIPMENT

The Contractor shall furnish all equipment necessary to implement traffic control operations including but not limited to:

- Traffic control devices and supports
- Vehicles used for traffic control operations
- Communication equipment
- Lighting and warning devices
- Maintenance equipment for traffic control devices

All construction vehicles operating within the travelway shall be equipped with amber flashing warning lights meeting the following requirements:

- Minimum 40 cd intensity
- Flash frequency 50–60 flashes per minute
- Mounted on the cab roof or highest practical point

CONSTRUCTION METHODS

Traffic control operations shall be conducted in accordance with the approved Temporary Traffic Control Plan.

The Contractor shall:

- Install traffic control devices prior to beginning construction activities.
- Maintain all devices in proper operating condition.

- Adjust traffic control as required by construction phasing.
- Remove or cover conflicting signs when not applicable.
- Replace damaged or missing devices immediately.

Traffic control devices shall be repositioned as necessary to maintain safe traffic flow and to accommodate changes in construction operations.

The Contractor shall be responsible for ensuring safe passage of vehicles and pedestrians at all times.

METHOD OF MEASUREMENT

Operations for Temporary Traffic Control will be measured on a Lump Sum (LS) basis.

PAYMENT

Payment will be made at the Contract Lump Sum price for Operations for Temporary Traffic Control.

The price shall include all labor, supervision, equipment, coordination, and incidentals required to implement the Temporary Traffic Control Plan, including installation, adjustment, maintenance, and removal of traffic control operations.

Payment for individual traffic control devices will be made under their respective bid items.

ITEM 852.**SAFETY SIGNING FOR TRAFFIC MANAGEMENT****SF**

Work under this item shall consist of furnishing, installing, positioning, repositioning, maintaining, covering or uncovering, and removing regulatory, warning, and guide signs used for traffic management during construction operations.

All work shall conform to MassDOT Section 850, the MUTCD, and the approved Temporary Traffic Control Plan.

MATERIALS**Sign Panels**

Sign panels shall be fabricated from:

- 5/8-inch Exterior MDO plywood, or
- 0.080-inch aluminum Type A panels, or
- Approved equal.

All sign faces shall be retroreflective.

Retroreflective sheeting shall conform to M9.30.0 Retroreflective Sheeting.

Background sheeting for construction warning signs shall be fluorescent orange meeting the spectral radiance factors of ASTM E991.

Roll-up signs shall be fabricated from vinyl microprismatic retroreflective material.

EQUIPMENT

Equipment necessary for sign installation may include:

- Portable sign supports
- Breakaway sign supports
- Hand tools for installation and adjustment
- Vehicles for transporting and repositioning signs

Additional supports required due to site conditions shall be incidental to this item.

CONSTRUCTION METHODS

Signs shall be installed in accordance with:

- MUTCD mounting requirements
- Approved Temporary Traffic Control Plan
- Direction of the Engineer

The Contractor shall:

- Maintain signs in clean, legible condition
- Replace damaged or missing signs immediately
- Remove, cover, or turn away signs that are not applicable to the current traffic pattern

Roll-up signs shall only be used for single shift work operations.

Signs and supports shall not be left in the traveled way when traffic control setups are removed.

METHOD OF MEASUREMENT

Safety Signing for Traffic Management will be measured by the square foot (SF) of sign area installed.

Each sign will be measured only once, regardless of how many times it is repositioned during the project.

PAYMENT

Payment will be made at the Contract unit price per square foot (SF).

The price shall include furnishing, installing, maintaining, repositioning, and removing signs and supports, and all labor, equipment, and incidentals required to complete the work.

ITEM 853.1**PORTABLE BREAKAWAY BARRICADE TYPE III****EA**

Work under this item shall consist of furnishing, installing, repositioning, maintaining, and removing Portable Breakaway Barricades Type III at locations shown on the Plans or as directed by the Engineer.

Barricades shall conform to MUTCD requirements and MassDOT Standard Specifications Section 850.

MATERIALS

Barricades shall include:

- Reflectorized sheeting conforming to M9.30.0 Type VIII
- PVC pipe rails conforming to ASTM D2241 SDR 21 or SDR 26
- PVC or ABS fittings conforming to ASTM D2665 or ASTM D2661

Barricade rails shall have:

- 6-inch alternating orange and white diagonal stripes
- Stripes sloping 45 degrees toward the direction traffic shall pass
- Barricades blocking traffic shall use vertical orange and white striping.

EQUIPMENT

Equipment may include:

- Vehicles for transporting barricades
- Hand tools for assembly and placement
- Ballast as necessary to stabilize barricades

CONSTRUCTION METHODS

Barricades shall be installed at locations shown on the Plans or as directed by the Engineer.

The Contractor shall:

- Maintain barricades in good condition
- Move barricades as required during construction operations
- Replace damaged barricades immediately

Barricades shall remain clearly visible and properly oriented toward traffic at all times.

METHOD OF MEASUREMENT

Portable Breakaway Barricades Type III will be measured per unit (EA) regardless of barricade size.

PAYMENT

Payment will be made at the Contract unit price per each (EA).

The price shall include furnishing, installing, maintaining, repositioning, and removing barricades, and all labor, materials, equipment, and incidentals required to complete the work.

ITEM 853.2**TEMPORARY BARRIER (TL-2)****FT**

Work under this item shall consist of furnishing, installing, maintaining, adjusting, and removing temporary barrier systems meeting Test Level 2 (TL-2) as shown on the Plans or directed by the Engineer.

The barrier system shall provide positive protection between traffic and construction operations.

MATERIALS

Materials shall conform to:

- M4.09.0 Precast Concrete Products
- M10.16.0 Temporary Barrier
- M10.16.2 Delineators for Temporary Barrier

Temporary barrier systems shall meet MASH TL-2 crash testing requirements.

Delineators shall be installed at 20-foot intervals along the barrier run.

EQUIPMENT

Equipment may include:

- Cranes or lifting equipment
- Transport trucks
- Barrier alignment tools
- Equipment for anchoring systems (if required)

CONSTRUCTION METHODS

Temporary barrier shall be installed according to:

- Approved Plans
- Manufacturer's instructions
- Approved Traffic Management Plan

The Contractor shall:

- Submit Shop Drawings within 30 days of Notice to Proceed
- Install barrier segments with proper alignment and connection
- Ensure barrier ends are shielded during installation
- Replace damaged segments immediately

Barrier shall not be placed on unpaved surfaces unless shown on the Plans.

METHOD OF MEASUREMENT

Temporary Barrier (TL-2) will be measured by the linear foot (FT) installed.

PAYMENT

Payment will be made at the Contract unit price per linear foot (FT).

The price shall include fabrication, delivery, installation, delineation, maintenance, adjustment, and final removal of the barrier system.

All costs for shop drawings, delineators, and pavement repair associated with anchors shall be incidental to the item.

ITEM 856.12**PORTABLE CHANGEABLE MESSAGE SIGN****DAY**

Work under this item shall consist of furnishing, positioning, operating, maintaining, and removing Portable Changeable Message Signs (PCMS) for traffic management during construction.

Messages shall be displayed only with the approval of the Engineer.

MATERIALS

The PCMS shall meet the following requirements:

- LED or hybrid LED/flip-disk display
- Minimum 6 ft height and 8 ft width
- Capable of displaying three lines of 18-inch characters
- Minimum 8 characters per line
- Display color: fluorescent yellow or ITE amber

The unit shall operate within -31°F to 165°F ambient temperature.

EQUIPMENT

The PCMS shall include:

- Controller with minimum 32K memory
- Storage capacity for 50 messages
- NTCIP-compatible communication modem
- Lockable weatherproof operator interface
- Trailer-mounted system with leveling jacks
- Solar, generator, or battery power supply

CONSTRUCTION METHODS

The sign shall be:

- Positioned in accordance with the Temporary Traffic Control Plan
- Visible from at least 900 feet
- Installed with a minimum 30° viewing angle

The Contractor shall:

- Maintain the sign in proper working condition
- Replace defective units immediately
- Store the unit in a secure location when not in use

METHOD OF MEASUREMENT

Portable Changeable Message Signs will be measured by the day.

Each 24-hour period or portion thereof during which the sign is deployed will be measured as one day.

PAYMENT

Payment will be made at the Contract unit price per day.

The price shall include furnishing, positioning, repositioning, operating, maintaining, and removing the sign, including all labor, materials, equipment, power supply, and incidentals required to complete the work.

ITEM 860.106 **6-INCH REFLECTORIZED WHITE LINE (PAINTED)** **FT**

ITEM 861.106 **6-INCH REFLECTORIZED YELLOW LINE (PAINTED)** **FT**

Work under these items shall consist of furnishing and applying reflectORIZED pavement markings and High Friction Surface Coatings (HFS) at locations shown on the Contract Drawings or as directed by the Engineer.

Work includes, but is not limited to:

- 6-inch and 12-inch white and yellow longitudinal lines (painted and thermoplastic)
- Pavement arrows and legends (paint, tape, thermoplastic)
- High Friction Surface Coatings (green and tan)
- Preformed thermoplastic green back arrows and legends
- Recessed pavement markings where required

High Friction Surface Coatings (HFS) may consist of:

- Green Friction Surface (GFS) for bicycle lanes, bike boxes, intersections, and approaches
- Tan Friction Surface (TFS) for pedestrian areas such as curb extensions, refuge islands, and daylighting

Green coloration shall conform to “Bike Lane Green” per the current MUTCD.

All materials shall be on the current MassDOT Approved Materials List or approved equal.

MATERIALS

Waterborne Traffic Paint (860 / 861 / 864 Painted)

- Fast-drying white or yellow waterborne paint conforming to MassDOT Division III
- Applied at 15 mils wet film thickness
- Glass beads meeting AASHTO M 247 Type 1
- Bead rate: 6 lb per gallon

Thermoplastic Pavement Markings (866 / 867 / 864 Thermoplastic)

- Liquid thermoplastic conforming to MassDOT Division III
- Applied at 125–188 mils thickness
- Application temperature: 400°F–425°F
- Drop-on beads at 1 lb per 10 square feet

Preformed Pavement Marking Tape

- Surface-applied or inlay type
- Reflective elements integral
- Installed per manufacturer requirements

High Friction Surface Coatings (Items 864.21–864.24)

- Colorized coatings shall:
 - o Be long-lasting and color stable
 - o Provide anti-slip properties
 - o Increase friction without creating trip hazards
 - o Exhibit strong adhesion and flexibility
 - o Resist cracking, peeling, and flaking
 - o Be chemical resistant and impervious to gasoline, oil, and de-icing agents

- Item 864.21 – Paint-Based HFS
 - o Multi-coat paint system
 - o Embedded high-friction aggregate
- Item 864.22 – Epoxy, Resin or MMA-Based HFS
 - o Multi-component binder system
 - o Broadcast calcined bauxite or approved high-friction aggregate
- Item 864.23 – Linear Preformed Thermoplastic HFS
 - o Preformed thermoplastic friction surface with integral aggregate
- Item 864.24 – Green Back Arrows and Legend Preformed Thermoplastic
 - o MUTCD-compliant symbols
 - o Green friction background

EQUIPMENT

The Contractor shall furnish equipment suitable for proper installation, including:

- Truck-mounted striping machine (for lines)
- Thermoplastic melting kettle and applicator
- Mixing equipment for resin systems
- Mechanical or manual aggregate broadcast equipment
- Surface preparation equipment (air lance, broom, grinder if required)
- Temperature monitoring devices
- Retroreflectometer (for markings)

All equipment shall conform to manufacturer recommendations and be approved by the Engineer.

CONSTRUCTION METHODS

Layout

- A pavement marking and HFS layout plan shall be submitted 7 days prior to installation.
- All markings shall follow established reference lines. Misaligned markings shall be removed and replaced at no additional cost.

Surface Preparation

- All surfaces shall be:
 - o Clean
 - o Dry
 - o Free of dust, oil, grease, debris, and contaminants
- HFS shall not be placed:
 - o Over existing pavement markings
 - o Over rumble strips
- Conflicting markings shall be removed by approved methods.
- New HMA pavement shall cure:
 - o Minimum 30 days with traffic
 - o Minimum 60 days without traffic
 - o Or per manufacturer recommendation
- Adjacent markings and structures shall be protected.

Application

- Pavement Markings
 - o Markings shall be applied at specified temperatures and thicknesses.
 - o Glass beads shall be uniformly applied immediately after placement.
 - o Traffic shall not cross markings until sufficiently dry.
 - o Recessed markings, where required, shall be installed in grooves meeting specified depth requirements.
- High Friction Surface Coatings
 - o HFS shall be applied in accordance with manufacturer recommendations.
 - o Application may be mechanical or manual.
 - o Binder and aggregate shall be uniformly distributed.
 - o Weather conditions shall meet manufacturer requirements.
 - o A Control Section of at least one square yard shall be installed and approved prior to production work.
 - o HFS shall cure for the minimum duration recommended by the manufacturer. During curing, treated areas shall remain closed to traffic.
 - o Loose aggregate shall be removed without damaging the surface.
 - o The completed HFS shall achieve a friction value not less than the surrounding pavement surface.

Quality Control

- The installer shall have completed a minimum of three HFS installations within the past three years or be manufacturer-certified.
- A Quality Control Plan shall be submitted 30 days prior to installation detailing:
 - o Personnel
 - o Equipment
 - o Materials
 - o Temperature monitoring
 - o Installation procedures
 - o Curing procedures
 - o Corrective actions

METHOD OF MEASUREMENT

Measurement shall be as follows:

- Longitudinal lines (painted or thermoplastic): measured in linear feet
- Broken lines: paid at 25% of solid line length unless segments are less than 10 feet
- Arrows and legends: measured in square feet
- High Friction Surface Coatings (Items 864.21–864.24): measured in square feet of installed and accepted surface

Measurement shall include all preparation, layout, and protection.

PAYMENT

Payment will be made at the contract unit price under the respective pay items.

Payment shall constitute full compensation for:

- Surface preparation
- Furnishing all materials (paint, thermoplastic, binders, aggregates, tape)
- Glass beads
- High friction aggregates

- Layout
- Quality control and Control Section
- Equipment
- Protection and curing
- Removal of excess aggregate
- Replacement of damaged adjacent markings
- Traffic control incidental to the work

No separate payment will be made for corrective work required due to improper installation.

ITEM 983.**DUMPED RIPRAP****TON****ITEM 986.2****MODIFIED ROCKFILL****CY**

This work shall consist of furnishing and constructing revetment for slope and channel protection of the required type at the locations shown on the Plans and in close conformity with the lines, grades, and cross sections shown or as directed by the Engineer.

Revetment work includes preparation of subgrade, excavation of toe trenches, placement of required foundation material, furnishing and placing stone or concrete paving, grouting where required, and all incidental work necessary to provide complete and stable slope protection.

Revetment types under this Section include:

- Dumped Riprap
- Riprap
- Slope Paving
- Slope Paving Under Bridges
- Channel Paving
- Grouted Channel Paving
- Modified Rockfill

EQUIPMENT

Equipment shall be suitable for excavation, grading, handling, and placing of stone and concrete materials and may include:

- Excavators and loaders
- Bulldozers and grading equipment
- Cranes or lifting devices for stone placement
- Dump trucks
- Vibratory compactors where required
- Hand tools for chinking and fitting stone
- Concrete mixing and placement equipment
- Grouting equipment

All equipment shall be operated to prevent segregation of materials, displacement of prepared subgrade, and damage to adjacent structures.

MATERIALS

Materials shall conform to applicable MassDOT Division III requirements, including but not limited to:

- MassDOT M2.01.1 – Crushed Stone for Drainage Foundation
- MassDOT M2.02.0 – Riprap
- MassDOT M2.02.2 – Dumped Riprap
- MassDOT M2.02.4 – Modified Rockfill
- MassDOT M2.06.0 – Slope Paving
- MassDOT M2.06.2 – Channel Paving
- MassDOT M3.05.2 – Hot Applied Crack Sealer
- MassDOT M3.05.5 – Preformed Bituminous Joint Filler
- MassDOT M4 – Cement Concrete and Related Materials
 - o MassDOT M4.02.0 – Concrete Produced by Stationary and Truck Mixers
 - o MassDOT M4.03.0 – Concrete Produced by Volumetric Mixers

- o MassDOT M4.04.0 – Cementitious, Grout, Mortar, and Concrete Products
- o MassDOT M4.06.1 – Conventional Concrete (4,000 psi, 1.5-in., 565 lb.)
- o MassDOT M4.06.7 – Exterior Slab Concrete
- MassDOT M8.01.0 – Reinforcing Steel

Where shown on the Plans, foundation material shall consist of gravel borrow or crushed stone placed to a minimum thickness of 12 inches.

CONSTRUCTION METHODS

General Preparation

- Areas to receive revetment shall be:
 - o Cleared of brush, trees, stumps, and organic material
 - o Dressed to a smooth, stable surface
 - o Cleared of soft or spongy material

Unsuitable material shall be removed to the depth shown on the Plans or as directed and replaced with approved material.

A toe trench shall be excavated as shown on the Plans and maintained until revetment placement.

Where required, a 12-inch foundation layer of gravel borrow or crushed stone shall be placed prior to stone placement.

Protection for structure foundations shall be installed as early as foundation construction permits.

Dumped Riprap

- Dumped Riprap shall:
 - o Be placed to a minimum thickness of 2 feet
 - o Be placed in one operation to full course thickness
 - o Not be placed in layers
 - o Not be dumped in a manner causing segregation

Stone shall form a well-graded mass with minimal voids and conform to MassDOT M2.02.2.

Hand placing or mechanical rearranging may be required to achieve proper distribution.

Embankment shall not exceed 5 feet above placed riprap.

Riprap

- Riprap shall be placed:
 - o On an approved bed of gravel or crushed stone
 - o To lines and grades shown

Each stone shall be carefully placed normal to the slope and firmly bedded.

Larger stones shall be placed tightly together; smaller stones shall fill voids to form a compact mass.

- Slope Paving
 - o Slope paving stones shall:
 - o Have reasonably flat faces
 - o Be placed on approved foundation
 - o Be closely fitted
 - o Be chinked with smaller stones

Exposed surfaces shall be within 6 inches of the designed slope.

Where underwater placement is required, dumped riprap foundation shall be constructed first.

Slope Paving Under Bridges

- Slope paving under bridges shall consist of:
 - o Exterior slab concrete
 - o Placed on an 8-inch gravel foundation
- Finished surface shall:
 - o Be uniform
 - o Be within 3 inches of designed slope

Concrete shall conform to MassDOT Subsection 901 requirements and MassDOT M4.06.7.

Channel Paving and Grouted Channel Paving

- Channel paving stones shall:
 - o Be placed on approved bed
 - o Be tightly fitted
 - o Be securely bedded
 - o Form a continuous uniform surface
 - o Be within 3 inches of design grade
- For grouted channel paving:
 - o Stones shall be wetted prior to grout placement
 - o Grout shall conform to MassDOT M4.04.0
 - o Grout shall be placed after stones are fully set

Modified Rockfill

- Modified Rockfill shall:
 - o Be placed to minimum 1-foot thickness
 - o Be placed in one operation
 - o Form a well-graded mass with minimal voids
 - o Be compact and stable

Hand placing or rearranging may be required.

METHOD OF MEASUREMENT

Dumped Riprap, Riprap, and Modified Rockfill shall be measured by weight (tons).

Slope Paving, Slope Paving Under Bridges, Channel Paving, and Grouted Channel Paving shall be measured in place by the square yard of constructed surface.

PAYMENT

Dumped Riprap, Riprap, and Modified Rockfill will be paid at the contract unit price per ton, complete in place.

Slope Paving, Slope Paving Under Bridges, Channel Paving, and Grouted Channel Paving will be paid at the contract unit price per square yard, complete in place.

- Additional compensation provisions:
 - o Gravel Borrow shall be paid under MassDOT Item 151 – Gravel Borrow.
 - o Crushed Stone for Drainage Foundation shall be paid under the applicable MassDOT crushed stone item (per ton).
 - o Excavation below original ground at toe trenches shall be paid under the applicable MassDOT Item for Class A Trench Excavation.

- o Channel excavation shall be paid under the applicable MassDOT Item for Channel Excavation.
- o Earth Excavation or Bridge Excavation required for revetment shall be paid under the applicable MassDOT Item.

No deduction will be made from excavation quantities for stone obtained from excavation and used in revetment, provided replacement fill is furnished in accordance with MassDOT Subsection 4.09.

Payment shall constitute full compensation for furnishing materials, preparation, excavation, toe trenching, foundation placement, stone or concrete placement, grouting, labor, equipment, tools, and all incidental work required to complete the revetment installation.

ITEM 983.4**STREAMBED MATERIAL****CY**

Work under this item shall conform to the relevant provisions of Section 983 of the MassDOT Standard Specifications and the following.

This work shall consist of excavating existing channel bottom material in areas where the streambed is to be disturbed, including locations required for culvert installation, riprap placement, and cofferdam construction.

Work shall include:

- Excavation of existing streambed material
- Stockpiling and protecting excavated material on-site
- Reinstallation of the streambed material to restore the channel bottom
- Furnishing and placing supplemental streambed material if required
- Disposal of excess or unsuitable material

The final streambed shall replicate the original channel condition and natural substrate to the greatest extent practicable.

MATERIALS**Streambed Material**

Streambed material shall consist of naturally occurring rocks, cobbles, gravel, sand, and clean natural sediments obtained from the existing stream channel.

The material shall:

- Match the gradation and characteristics of the in-situ streambed material
- Be free of contaminants, concrete, asphalt, or foreign debris
- Be free of bedrock fragments or blasted rock

Existing streambed material excavated from the channel may be stockpiled and reused for final channel restoration.

Supplemental Streambed Material

If supplemental streambed material is required, it shall:

- Match the gradation of the existing streambed material
- Be approved by the Engineer prior to placement
- Be free of broken concrete, asphalt, or manufactured material

Material excavated from ledge or large broken boulders will not be accepted.

EQUIPMENT

The Contractor shall furnish all equipment necessary to complete the work, including but not limited to:

- Excavators suitable for stream channel work
- Material handling and hauling equipment
- Equipment for separating and placing streambed material
- Equipment necessary for sediment containment and flow diversion
- Tools for sorting and placing streambed material

Equipment and methods shall minimize disturbance to the stream channel and surrounding wetland areas.

CONSTRUCTION METHODS

Submittals

Prior to excavation, the Contractor shall:

- Obtain a representative sample of the existing streambed material
- Perform laboratory sieve analysis to determine gradation
- Submit the results to the Engineer for review

If supplemental material is proposed, the Contractor shall submit:

- Gradation data
- Material source
- Material specifications

Supplemental material shall not be used until approved by the Engineer.

Stockpile Location

The Contractor shall submit a proposed stockpile location for approval by the Engineer.

The stockpile shall:

- Be located in upland areas
- Minimize disturbance to wetlands and the stream channel
- Remain undisturbed for the duration of construction

The stockpile area shall be:

- Cleared and prepared prior to placement
- Protected with a separation barrier, such as geotextile fabric or polyethylene sheeting
- Covered and protected to prevent erosion or contamination

Sedimentation controls shall be installed as necessary.

Excavation

After clearing and grubbing, the Contractor shall identify the limits of streambed excavation.

Excavation depth shall be determined by visual inspection of the channel bottom and shall not exceed 24 inches, unless otherwise directed by the Engineer.

The streambed material shall be excavated separately from other excavation operations, including roadway, structural, or unsuitable material excavation.

No other excavated or imported material shall be placed in the streambed stockpile.

Placement

Following culvert installation and completion of channel work, the stockpiled streambed material shall be reinstalled in the channel at the locations and thickness shown on the Plans or as directed by the Engineer.

Placement shall:

- Maintain the natural gradation and composition of the material
- Avoid segregation of material sizes
- Replicate the original channel bottom conditions

Placement operations shall include flow diversion or containment measures as necessary to minimize downstream sediment transport.

If the Engineer determines that additional material is required, the Contractor shall provide approved supplemental streambed material matching the existing gradation.

METHOD OF MEASUREMENT

Streambed Material will be measured for payment by the cubic yard (CY) of material installed in the channel, complete in place and accepted by the Engineer.

The Engineer will establish the horizontal limits of payment prior to excavation.

The vertical measurement limit shall extend from the existing channel bottom to the approved excavation depth required for streambed material removal.

Material excavated beyond the approved limits or deeper than the authorized depth will not be measured for payment.

PAYMENT

Payment for this item will be made at the Contract unit price per cubic yard (CY).

The price shall include full compensation for:

- Excavating streambed material
- Stockpiling and protecting material on-site
- Preparing stockpile areas
- Handling, sorting, and placing material
- Furnishing approved supplemental streambed material if required
- Sediment control measures
- Flow diversion during placement
- Disposal of unsuitable or excess material
- All labor, materials, equipment, and incidentals necessary to complete the work

No separate payment will be made for:

- Stockpile preparation
- Hauling or handling materials
- Cleaning or sorting material
- Protection of stockpiled material
- Disposal of unsuitable material
- Sediment control associated with this work

Material may be deemed unsuitable by the Engineer or Owner after inspection of the stockpile and shall be removed and properly disposed of at no additional cost to the Contract.

<u>ITEM 990.1</u>	<u>COFFERDAM STRUCTURE NO. 1</u>	<u>LS</u>
<u>ITEM 990.2</u>	<u>COFFERDAM STRUCTURE NO. 2</u>	<u>LS</u>
<u>ITEM 990.3</u>	<u>COFFERDAM STRUCTURE NO. 3</u>	<u>LS</u>
<u>ITEM 990.4</u>	<u>COFFERDAM STRUCTURE NO. 4</u>	<u>LS</u>

Work under this item shall consist of designing, furnishing, installing, maintaining, modifying as required, and removing a temporary cofferdam system necessary to permit construction of foundations, substructures, culverts, or other structural elements at Structure No. _____ (refer to Bid Sheet for Structure Number) in the dry.

The cofferdam shall provide structural stability against soil and hydrostatic loads and create a safe, dewatered work enclosure conforming to the lines, grades, and limits shown on the Plans or as directed by the Engineer.

The Contractor shall be fully responsible for the structural adequacy and performance of the cofferdam system.

EQUIPMENT

The Contractor shall furnish all equipment necessary for cofferdam construction, including but not limited to:

- Vibratory or impact pile drivers
- Cranes and lifting equipment
- Excavation equipment
- Pumps and standby pumping equipment
- Generators and power supply systems
- Cutting torches and removal tools
- Monitoring equipment for water levels and movement

All equipment shall be suitable for continuous operation under anticipated site and groundwater conditions.

MATERIALS

Materials shall include, but are not limited to:

- Steel sheet piling (if used)
- Timber, steel, or structural bracing members
- Walers, struts, tiebacks, and connectors
- Tremie seals (if required)
- Filter fabric or drainage stone (if required within enclosure)

All materials shall conform to applicable MassDOT Standard Specifications and project requirements.

CONSTRUCTION METHODS

The cofferdam shall be constructed to the limits shown on the Plans and shall:

- Be watertight to the extent necessary to maintain dry working conditions
- Resist lateral earth and hydrostatic pressures

- Prevent undermining of adjacent soils or structures
- Maintain structural integrity during excavation and foundation placement

Sheeting shall be driven to the required depth to achieve stability and cutoff as needed.

Internal bracing and walers shall be installed progressively as excavation proceeds.

Dewatering inside the cofferdam is incidental to this item unless otherwise specified.

The cofferdam shall remain in place until the structure has attained sufficient strength to resist loads.

Upon completion of structural work, the cofferdam shall be removed unless otherwise directed. Voids created by removal shall be properly backfilled.

The Contractor is responsible for any damage caused by cofferdam failure.

METHOD OF MEASUREMENT

Cofferdam for Structure No. _____ (refer to Bid Sheet for Structure Number) will be measured for payment as a Lump Sum.

The lump sum shall include design, installation, maintenance, dewatering within the enclosure, removal, and restoration.

PAYMENT

Payment will be made at the contract Lump Sum price.

Such payment shall constitute full compensation for all labor, materials, equipment, design, maintenance, monitoring, removal, disposal, and incidentals necessary to complete the cofferdam work.

No separate payment will be made for bracing, sheeting, pumping within the cofferdam, or incidental excavation required for installation.

<u>ITEM 991.1</u>	<u>CONTROL OF WATER - STRUCTURE NO. 1&2</u>	<u>LS</u>
<u>ITEM 991.2</u>	<u>CONTROL OF WATER - STRUCTURE NO. 33</u>	<u>LS</u>
<u>ITEM 991.3</u>	<u>CONTROL OF WATER - STRUCTURE NO. 41</u>	<u>LS</u>

Work under this item shall consist of designing, furnishing, installing, maintaining, modifying as required, and removing a temporary cofferdam system necessary to permit construction of foundations, substructures, culverts, or other structural elements at Structure No. _____ (refer to Bid Sheet for Structure Number) in the dry.

The cofferdam shall provide structural stability against soil and hydrostatic loads and create a safe, dewatered work enclosure conforming to the lines, grades, and limits shown on the Plans or as directed by the Engineer.

The cofferdam system may consist of sheet piling, braced excavation systems, sandbag membrane systems, or other approved temporary water control structures designed to isolate the work area from surrounding water.

The Contractor shall be fully responsible for the design, structural adequacy, watertightness, and performance of the cofferdam system, regardless of the type selected.

This work includes all measures necessary to divert, bypass, pump, channel, or otherwise manage water outside of cofferdam limits to allow construction to proceed safely and in compliance with environmental permits.

EQUIPMENT

The Contractor shall furnish all equipment necessary for cofferdam construction, including but not limited to:

- Vibratory or impact pile drivers
- Cranes and lifting equipment
- Excavation equipment
- Pumps and standby pumping equipment
- Generators and power supply systems
- Cutting torches and removal tools
- Sandbag filling equipment
- Membrane deployment equipment
- Monitoring equipment for water levels and movement

All equipment shall be suitable for continuous operation under anticipated site, groundwater, and hydraulic conditions.

MATERIALS

Materials for cofferdam construction may include, but are not limited to:

Structural Cofferdam Systems

- Steel sheet piling
- Timber sheeting
- Steel, timber, or structural bracing members
- Walers, struts, tiebacks, and connectors

Sandbag Membrane Cofferdam Systems

- Sandbags filled with clean sand or approved granular material
- Impermeable membrane liner (such as reinforced polyethylene, PVC liner, or geotextile-backed membrane)
- Filter fabric or geotextile underlayment
- Anchoring systems or ballast as necessary to prevent movement

Other Materials

- Tremie seals (if required)
- Filter fabric or drainage stone within the enclosure (if required)

All materials shall conform to applicable MassDOT Standard Specifications and project requirements.

CONSTRUCTION METHODS

The cofferdam shall be constructed to the limits shown on the Plans and shall:

- Be sufficiently watertight to maintain dry working conditions
- Resist lateral earth pressures and hydrostatic forces
- Prevent undermining of adjacent soils or structures
- Maintain structural integrity during excavation and foundation placement

Sheet Pile or Structural Cofferdams

Where steel sheet piling or structural cofferdams are used:

- Sheeting shall be driven to the required depth to achieve stability and cutoff.
- Internal bracing and walers shall be installed progressively as excavation proceeds.
- Bracing shall be installed to prevent excessive deformation of the cofferdam walls.

Sandbag Membrane Cofferdams

Where sandbag membrane cofferdams are used:

- The work area shall be enclosed by sandbags placed to form a continuous perimeter barrier.
- An impermeable membrane shall be installed on the water side or within the sandbag structure to limit water infiltration.
- Sandbags shall be stacked and keyed together to create a stable barrier capable of resisting hydraulic pressures.
- The membrane shall be securely anchored and protected from puncture or displacement.
- Additional ballast or anchoring shall be provided where necessary to prevent flotation or movement during high flows.

Dewatering

Dewatering within the cofferdam shall be performed as necessary to maintain dry working conditions and is incidental to this item unless otherwise specified.

Pumping systems shall include adequate capacity and standby equipment.

Maintenance

The Contractor shall continuously monitor and maintain the cofferdam system to ensure stability and watertightness during construction.

Removal

The cofferdam shall remain in place until the structure has attained sufficient strength to resist loads.

Upon completion of structural work:

- Cofferdam components shall be removed unless otherwise directed by the Engineer.
- Sandbags, membranes, and structural components shall be properly removed and disposed of.
- Voids created by removal shall be properly backfilled.

The Contractor shall be responsible for any damage resulting from cofferdam instability or failure.

METHOD OF MEASUREMENT

Control of Water for Structure No. _____ (refer to Bid Sheet for Structure Number) will be measured for payment as a Lump Sum.

The lump sum shall include:

- Cofferdam design
- Furnishing materials
- Installation
- Maintenance and monitoring
- Dewatering within the enclosure
- Modification during construction
- Removal and site restoration

PAYMENT

Payment will be made at the contract Lump Sum price.

Such payment shall constitute full compensation for all labor, materials, equipment, design, maintenance, monitoring, removal, disposal, and incidentals necessary to complete the cofferdam work.

- No separate payment will be made for:
- Bracing
- Sheeting
- Sandbags or membrane materials
- Pumping within the cofferdam
- Incidental excavation required for installation

<u>ITEM 995.011</u>	<u>CULVERT STRUCTURE, CULVERT NO. 1</u>	<u>LS</u>
<u>ITEM 995.021</u>	<u>CULVERT STRUCTURE, CULVERT NO. 2</u>	<u>LS</u>
<u>ITEM 995.031</u>	<u>CULVERT STRUCTURE, CULVERT NO. 41</u>	<u>LS</u>

Work under this item shall consist of furnishing all labor, materials, equipment, and incidentals necessary to construct Culvert No. _____ complete in place, in accordance with the Plans, Standard Specifications, applicable Special Provisions, and as directed by the Engineer.

The work shall include removal of the existing culvert (if applicable), excavation, foundation preparation, installation of the new culvert structure, headwalls and wingwalls (if required), bedding and backfill, structural concrete, reinforcement, joint treatment, waterproofing (if specified), and all appurtenant work necessary to complete the structure.

This item is intended to provide full compensation for the complete culvert structure exclusive of items specifically measured and paid for under separate contract items.

EQUIPMENT

The Contractor shall furnish all equipment necessary to complete the work, including but not limited to:

- Excavation equipment suitable for trench and structure excavation
- Lifting equipment for precast units or structural components
- Concrete placement and consolidation equipment
- Vibratory compaction equipment
- Dewatering equipment (if required within structure limits and not otherwise paid)
- Surveying equipment to ensure line and grade compliance
- Temporary support and bracing systems

All equipment shall be suitable for the site conditions and size of the culvert structure.

MATERIALS

Materials shall conform to applicable MassDOT Standard Specifications and project requirements, including but not limited to:

- Reinforced concrete (cast-in-place or precast)
- Reinforcing steel
- Precast concrete culvert units (if specified)
- Structural steel (if applicable)
- Bedding and backfill materials
- Granular foundation material
- Joint sealants and gaskets
- Waterproofing membranes (if specified)
- Crushed stone for drainage foundations
- Mortar and grout

Concrete shall conform to the class and strength specified on the Plans. Reinforcing steel shall conform to MassDOT M8.01.0.

Precast components, if used, shall meet MassDOT structural and fabrication requirements.

CONSTRUCTION METHODS

Excavation and Foundation Preparation

- Excavation shall be performed to the required lines and grades shown on the Plans.
- Unsuitable material encountered below foundation elevation shall be removed and replaced with approved material as directed by the Engineer.
- Foundation preparation shall include placement of gravel borrow or crushed stone foundation material as shown on the Plans.

Installation of Culvert Structure

- The culvert structure shall be constructed in accordance with the Plans and applicable sections of:
 - o Subsection 901 – Cement Concrete
 - o Structural concrete provisions
 - o Precast structure installation requirements (if applicable)
- Precast units shall be set true to line and grade and properly joined and sealed.
- Cast-in-place concrete shall be placed, consolidated, and cured in accordance with MassDOT requirements.
- Wingwalls, headwalls, aprons, cutoff walls, and other appurtenances shall be constructed as shown on the Plans.

Backfilling

- Backfill shall not be placed until the structure has attained sufficient strength.
- Backfill material shall be placed in uniform lifts and compacted in accordance with applicable embankment or structure backfill specifications.
- Special care shall be taken to ensure uniform loading on both sides of the structure.

Finishing and Restoration

- Upon completion of structural work, all disturbed areas shall be restored to the lines and grades shown on the Plans.
- Existing streambed material shall be replaced or reconstructed as specified, where applicable.

METHOD OF MEASUREMENT

Culvert Structure, Culvert No. _____ (refer to Bid Sheet for Culvert Number) will be measured for payment as a Lump Sum.

The Lump Sum quantity shall include all structural components, excavation within structure limits, foundation preparation, installation, backfill, and all incidental work necessary to complete the culvert structure.

Work paid for under separate items (such as Cofferdam, Control of Water, Pavement, Guardrail, or Revetment) will not be included under this item.

PAYMENT

Payment will be made at the contract Lump Sum price.

Such payment shall constitute full compensation for:

- Removal of existing culvert (if included in Plans)
- Excavation within structure limits
- Foundation preparation

- Furnishing and installing structural concrete or precast units
- Reinforcing steel
- Joint materials and sealing
- Headwalls, wingwalls, aprons, and appurtenances
- Backfill and compaction
- Labor, materials, equipment, and incidentals

Rock excavation, if required and not otherwise included, shall be paid under the appropriate Rock Excavation item.

Cofferdam and Control of Water, if included in the Contract as separate items, shall be paid separately and shall not be included in this item.

<u>ITEM 995.15</u>	<u>15-INCH PRECAST CONCRETE HEADWALL</u>	<u>EA</u>
<u>ITEM 995.36</u>	<u>36-INCH PRECAST CONCRETE HEADWALL</u>	<u>EA</u>

Work under this item shall conform to the relevant provisions of Section 995 of the Standard Specifications and the following:

This work shall consist of the design, preparation of shop drawings, fabrication, furnishing, transporting, and installation of a precast concrete headwall for the pipe size shown on the plans, constructed in accordance with these specifications and the details shown on the Contract Drawings.

At least 14 days prior to construction, the Contractor shall submit shop drawings to the Engineer for approval. Shop drawings shall include a detailed layout of the headwall design, reinforcement details, pipe connection details, leveling pad requirements, and all necessary structural calculations for the headwall design, including a global stability analysis of all sections of the headwall installation.

Shop drawings and associated design calculations shall be signed and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts.

The Contractor shall not begin fabrication or installation of the precast headwall until the required shop drawings have been approved by the Engineer.

The precast headwall shall be designed with a live load surcharge in accordance with MassDOT Construction Standard 230.0.3 and AASHTO load factor design for HS-20-44 design live load criteria.

Where specified on the plans, the exposed face of the headwall shall incorporate a form liner texture, subject to approval by the Owner or applicable agency prior to ordering.

EQUIPMENT

Equipment used for excavation, compaction, and placement operations shall be suitable for the work and approved by the Engineer.

Compaction equipment used to compact the subgrade beneath the leveling pad shall include a vibratory roller with a minimum operating weight of 15,000 pounds, or other equipment approved by the Engineer capable of achieving equivalent compaction.

Lifting equipment used for setting the precast headwall shall be adequate to safely handle the precast units without causing damage.

MATERIALS

Precast concrete headwall units shall conform to the requirements of Section M4 of the Standard Specifications.

Crushed stone used for the leveling pad shall conform to Section M2.01.1.

Gravel borrow used for backfill shall conform to Section 151.

Geotextile fabric used for separation shall conform to Section M9.50.0.

Precast headwalls shall be manufactured to accommodate the pipe diameter shown on the plans.

Upon delivery, the Contractor shall inspect the precast headwall units to ensure that they are free from damage. The Contractor shall prevent excessive mud, groundwater, and cementitious materials from coming into contact with the precast units while stored on site.

The Engineer reserves the right to reject any units exhibiting cracking, chipping, or other visible defects upon inspection.

CONSTRUCTION METHODS

Foundation Preparation

The existing subgrade below the leveling pad shall be graded level and compacted with a minimum of four passes of a 15,000-pound vibratory roller, or approved equivalent compaction equipment, to compact any soils disturbed by excavation.

The leveling pad shall consist of a minimum 12-inch thick layer of crushed stone, compacted in accordance with Section M2.01.1.

As an alternative, the Contractor may install an unreinforced concrete leveling pad, provided the concrete is allowed to cure for a minimum of 24 hours prior to placement of the headwall.

Headwall Installation

The precast headwall shall be set on the prepared leveling pad and aligned with the pipe opening as shown on the plans.

Crushed stone shall be placed a minimum of one (1) foot behind the installed headwall for the full height of the structure.

Gravel borrow backfill in accordance with Section 151 shall be placed behind the headwall extending along an influence line of 1H:1V from the leveling pad to the proposed ground surface.

A geotextile separation fabric conforming to Section M9.50.0 shall be placed between the gravel backfill and the retained native soil.

Backfill shall be placed in lifts not exceeding nine (9) inches and compacted in accordance with the Standard Specifications.

Construction Tolerances

Allowable construction tolerances at the headwall face shall be:

- Vertical alignment: ± 2 degrees
- Horizontal alignment: ± 1 inch in 10 feet

Drainage During Construction

At the end of each day's operation, the Contractor shall slope the backfill material away from the installed headwall to prevent water from flowing toward the headwall.

The Contractor shall ensure that no surface runoff or site drainage is directed toward the headwall during construction.

METHOD OF MEASUREMENT

Precast concrete headwalls will be measured for payment per each, complete in place, including all work necessary to design, fabricate, deliver, and install the headwall.

PAYMENT

Payment for Precast Concrete Headwall will be made at the Contract unit price each, which price shall include all labor, materials, equipment, design, shop drawings, fabrication, transportation, excavation, crushed stone leveling pad, gravel borrow backfill, geotextile fabric, reinforcement, installation, and incidental costs necessary to complete the work.

No separate payment will be made for excavation, crushed stone, gravel borrow backfill, geotextile fabric, reinforcement, leveling pad construction, or survey required for installation, as all costs associated with these items shall be included in the contract unit price for this item.

ITEM 996.01**NATURAL STONE SOLUTIONS WALL (HISTORIC)****EA**

Work under this item shall consist of furnishing and constructing a Natural Stone Solutions® retaining wall system as shown on the Plans and detailed in the Contract Documents.

The wall shall replicate a historic stone wall appearance while meeting structural and durability requirements. Construction shall conform to the manufacturer's installation guidelines, applicable MassDOT Standard Specifications, and these specifications.

Manufacturer:

Natural Stone Wall Solutions®
2352 Main Street, Suite 106
Concord, MA 01742

Phone: 978.461.1777

Email: info@naturalstonewallsolutions.com

Website: www.naturalstonewallsolutions.com

MATERIALS

Materials shall include, but are not limited to, the following:

Natural Stone Facing

Natural stone facing shall be sourced and installed in accordance with the manufacturer's specifications and shall match the historic appearance shown on the Plans.

Concrete

Concrete used for footings and structural components shall have a minimum compressive strength of 5000 psi, unless otherwise indicated on the Plans.

Reinforcement

Reinforcement shall consist of uncoated No. 6 reinforcing bars spaced 12 inches on center, both vertically and horizontally, unless otherwise shown on the Plans.

Drainage System

Drainage provisions shall include:

- 4-inch diameter perforated perimeter drain pipe installed behind the wall
- 2-inch diameter weep holes spaced 2 feet on center through the wall face
- Filter fabric where required to prevent migration of fines

Backfill

Backfill immediately behind the wall shall consist of ¾-inch crushed stone as shown on the Plans.

Remaining backfill and finish grading shall consist of loam or other approved material placed and graded to the lines and grades shown on the Plans.

All materials shall conform to applicable MassDOT Standard Specifications and project requirements.

EQUIPMENT

The Contractor shall furnish all equipment necessary to complete the work, including but not limited to:

- Excavation equipment
- Lifting equipment or cranes for stone placement
- Concrete placement equipment
- Compaction equipment
- Reinforcement installation tools
- Masonry tools for stone placement and alignment

All equipment shall be maintained in good working condition and suitable for performing the work required.

CONSTRUCTION METHODS

The Contractor shall verify existing site conditions, dimensions, and elevations prior to commencing construction.

Subgrade shall be prepared and compacted to provide a stable foundation for the wall footing in accordance with the Plans.

Concrete footings and reinforcement shall be installed as shown on the Plans and allowed to cure in accordance with the applicable specifications.

The wall shall be constructed in accordance with the manufacturer's installation guidelines, project plans, and applicable MassDOT specifications.

The wall face shall maintain a batter of 1 horizontal to 15 vertical, unless otherwise indicated on the Plans.

Drainage systems, including perimeter drain pipe, weep holes, and drainage stone backfill, shall be installed during construction to ensure proper water management behind the wall.

Backfill shall be placed and compacted in lifts to avoid displacement of the wall face.

The Contractor shall coordinate with the Engineer for inspection and approval at key stages of construction, including foundation preparation, reinforcement placement, and wall installation.

All work shall comply with applicable OSHA safety standards and environmental regulations.

MTHOD OF MEASUREMENT

Natural Stone Solutions Wall (Historic) will be measured by Each (EA) for each completed and accepted wall installation.

Measurement shall include the entire wall system, including stone facing, concrete footing, reinforcement, drainage components, backfill, and associated work.

PAYMENT

Payment will be made at the contract unit price per Each (EA).

Such payment shall constitute full compensation for all labor, materials, equipment, tools, subgrade preparation, drainage systems, backfill, finishing, and all incidentals necessary to complete the work as specified.

No separate payment will be made for drainage materials, reinforcement, concrete, or backfill associated with this wall system.

ITEM 999.1**MONTHLY PRICE ADJUSTMENT FOR HMA MIXTURES****ALL**

Work under this item shall consist of providing a monthly price adjustment for Hot Mix Asphalt (HMA) mixtures containing liquid asphalt cement.

This provision applies to all projects using greater than 100 tons of HMA mixtures containing liquid asphalt cement.

The price adjustment shall be based on the variance in price of the liquid asphalt component only, from the Base Price to the Period Price. Transportation, handling, and other associated charges shall not be included.

The adjustment shall be calculated monthly.

PERIOD PRICE

The Period Price of liquid asphalt for each monthly period will be determined by the Massachusetts Department of Transportation (MassDOT) using the average selling price per standard ton of PG64-28 paving grade asphalt binder, FOB manufacturer's terminal, as listed in:

Poten & Partners Asphalt Weekly Monitor
East Coast Market – New England (Boston, Massachusetts Area)

The price published in the issue dated the second Friday of each month shall be used as the Period Price for that month.

BASE PRICE

The Base Price of liquid asphalt for this Contract shall be:

\$625.00 per ton

CALCULATION OF PRICE ADJUSTMENT

The Price Adjustment will be calculated as follows:

Price Adjustment =
(Tons of HMA Placed) × (Liquid Asphalt Content %) × (Period Price – Base Price)

For this Contract the liquid asphalt content shall be 5.5% for all mixes.

METHOD OF MEASUREMENT

Measurement will be based on the actual tons of HMA mixture placed during each monthly period, as measured under the respective contract HMA items.

PAYMENT

The Contract unit price for HMA mixtures will be paid under the respective HMA pay items.

Payment for the Monthly Price Adjustment for HMA Mixtures will be made as a separate allowance item.

The adjustment will be paid only if the variance between the Base Price and Period Price is 5 percent or greater.

Once the threshold is exceeded, the entire variance shall be applied, with no deduction of the 5 percent.

No price adjustment will be made for work performed after the Contract Completion Date, unless an Owner-approved time extension has been granted.

ITEM 999.2**MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL****ALL**

Work under this item shall consist of providing a monthly price adjustment for the diesel fuel component associated with excavation, borrow, and paving operations included in the Contract.

The adjustment shall be based on the variance between the Base Price and Period Price of diesel fuel.

PERIOD PRICE

The Period Price shall be determined as the average price charged to the Commonwealth of Massachusetts, including State tax, for bulk diesel fuel purchases during each month.

BASE PRICE

The Base Price for diesel fuel shall be:

\$2.805 per gallon

CALCULATION OF PRICE ADJUSTMENT

The price adjustment will be determined by multiplying:

- Quantity of work completed during the monthly period
- Fuel usage factors
- Variance between Period Price and Base Price

Fuel usage factors are as follows:

Work Item	Diesel Factor
Excavation & Borrow Work	0.29 gal / CY
Items 120, 141.1, 151	0.29 gal / CY
HMA Surfacing Work	2.90 gal / Ton

METHOD OF MEASUREMENT

Measurement shall be based on the quantities of excavation, borrow, and paving work completed during each monthly period under the respective Contract items.

PAYMENT

Payment will be made as a monthly price adjustment allowance.

Adjustments will only be applied when the variance between Base Price and Period Price is 5 percent or greater.

When the threshold is exceeded, the full variance shall be applied.

No adjustments will be made for work performed after the Contract Completion Date, unless an Owner-approved extension of time has been granted.

ITEM 999.3**MONTHLY PRICE ADJUSTMENT FOR GASOLINE****ALL**

Work under this item shall consist of providing a monthly price adjustment for the gasoline component associated with excavation and borrow work.

PERIOD PRICE

The Period Price shall be the average price charged to the Commonwealth of Massachusetts, including State tax, for bulk gasoline purchases during each month.

BASE PRICE

The Base Price for gasoline shall be:

\$2.145 per gallon

CALCULATION OF PRICE ADJUSTMENT

Fuel usage factors are as follows:

Work Item	Gasoline Factor
Excavation & Borrow Work	0.15 gal / CY
Items 120, 141.1, 151	0.15 gal / CY

Gasoline adjustments do not apply to HMA surfacing work.

METHOD OF MEASUREMENT

Measurement shall be based on the actual quantities of excavation and borrow work completed during the monthly period under the respective Contract items.

PAYMENT

Payment will be made as a monthly price adjustment allowance.

Adjustments will only occur when the variance between the Base Price and Period Price is 5 percent or greater.

No adjustment will be made for work performed after the Contract Completion Date, unless an Owner-approved extension of time is granted.

ITEM 999.4**MONTHLY PRICE ADJUSTMENT FOR PORTLAND CEMENT
IN CONCRETE****ALL**

Work under this item shall consist of providing a monthly price adjustment for the Portland cement component of Portland cement concrete mixtures.

This provision applies to projects containing more than 100 cubic yards of Portland cement concrete.

PERIOD PRICE

The Period Price shall be determined from the latest published price for Portland Cement (Type I) quoted for Boston, Massachusetts in:

Engineering News-Record (ENR) – Construction Economics Section

The price will be posted by MassDOT on the Wednesday following publication.

BASE PRICE

The Base Price for Portland cement shall be:

\$425.13 per ton

CALCULATION OF PRICE ADJUSTMENT

Price Adjustment =

(Cubic Yards of Concrete Placed) × (Portland Cement Content %) × (Period Price – Base Price)

Adjustments apply only to Portland cement content, and not to:

- Fly ash
- Slag cement
- Other cement replacement materials

METHOD OF MEASUREMENT

Measurement shall be based on the cubic yards of Portland cement concrete placed during each monthly period.

PAYMENT

Payment will be made as a separate price adjustment allowance.

Adjustments will only be made when the variance between Base Price and Period Price is 5 percent or greater.

No price adjustments will be made after the Contract Completion Date, unless an approved extension of time is granted.

ITEM 999.5**MONTHLY PRICE ADJUSTMENT FOR STRUCTURAL AND
REINFORCING STEEL****ALL**

Work under this item shall consist of providing a price adjustment for unfabricated structural steel and reinforcing steel used in the Contract.

This provision applies to:

- Rolled structural shapes
- Plate steel
- Sheet piling
- Pipe piles
- Steel castings and forgings
- Reinforcing steel bars

The adjustment applies only to the cost of unfabricated steel material.

PERIOD PRICE

The Period Price shall be determined using the U.S. Bureau of Labor Statistics (BLS) Producer Price Index (PPI):

Series ID: WPU101702

Group: Metals and Metal Products

Item: Semi-Finished Steel Mill Products

BASE PRICE

The Base Price for structural steel and reinforcing steel shall be:

\$1.25 per pound

CALCULATION OF PRICE ADJUSTMENT

Period Price = Base Price × Index Factor

Index Factor =

Period Price Index ÷ Base Price Index

The adjustment amount shall be calculated as:

Adjustment = (Weight of Steel in Pounds) × (Base Price – Period Price)

METHOD OF MEASUREMENT

Measurement shall be based on the weight of unfabricated structural steel and reinforcing steel, supported by fabricator shipping documentation or bill of lading.

The weight used for adjustment shall not exceed the final fabricated shipping weight by more than 10 percent.

PAYMENT

Payment will be made as a price adjustment allowance.

Adjustments will only be made when the variance between Base Price and Period Price exceeds 5 percent.

Price adjustments will not include costs associated with fabrication, shop drawings, coatings, transportation, storage, installation, overhead, or profit.

No adjustments will be made for price changes occurring after the Contract Completion Date, unless an Owner-approved time extension is granted.

END OF SECTION



BID PACKAGE

PART IV

SPECIAL CONDITIONS OF THE CONTRACT

WESTERN MA MOUNTAIN ROAD CULVERT IMPROVEMENTS
CONTRACT NO. P26-3666-C2A

Supplementing Massachusetts Department of Transportation
Standard Specifications and Construction Details

SCOPE OF WORK

The scope of work includes the replacement of two existing culverts within Mount Greylock State Reservation and two within Pittsfield State Forest (four culvert replacements total) to improve drainage capacity and structural integrity. The upgrades will enhance resilience to increased stormwater flows from future rainfall events, reduce erosion and flooding risks, and alleviate existing safety hazards affecting access to both mountain road systems. The designs for both locations incorporate climate-resilient principles to ensure long-term durability and environmental stability within these critical areas.

All work is located within Berkshire County, Massachusetts.

NOTE:

In addition to the aforementioned work, the project will preserve historic features of various roadways and facilities. Historic features to be preserved include retaining walls, culverts and their head/end walls, scenic overlooks, vistas, and other landscape characteristics. All work done under this contract will be completed without damage to historic features without the written approval by the Department.

All work under this Contract shall be done in conformance with the most current versions of MassDOT Standard Specifications for Highways and Bridges, the Construction Standard Details, the Traffic Management Plans and Detail Drawings, MassDOT Work Zone Safety Temporary Traffic Control, the Standard Drawings for Signs and Supports; the Overhead Signal Structure and Foundation Standard Drawings, the Manual on Uniform Traffic Control Devices (MUTCD) with Massachusetts Amendments; the Standard Drawings for Traffic Signals and Highway Lighting; The American Standard for Nursery Stock; the Plans and these Special Provisions.

The General Conditions, Special Conditions and Technical Specifications shall take precedence over the General Requirements of the Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highways and Bridges and all other documents referenced above.

CONTACT INFORMATION

The following is a list of the contact information for Engineering:

Project Manager

Catherine Lampiasi, Section Head of Maintenance Construction Contracts

Catherine.A.Lampiasi@mass.gov

617-356-4978

Ecological and cultural permitting requirements for this contract will be completed by DCR. Cooperation between DCR, Contractor/Subcontractor and DCR hired Consultants is expected. Any permits will be issued to DCR will be provided prior to the start of that work. Any order of conditions issued should be closely reviewed and followed to ensure compliance. In locations where permitting is needed, meetings with the permitting agencies will be required prior to and during the construction process. All meetings and measures utilized to maintain compliance with the issued permits will be considered a part of the various line items and no additional cost will be paid for this work by the Department.

All other permits and licenses required to complete the work specified herein and shown on the drawings shall be arranged and obtained by the Contractor. Any fees not waived shall be paid for by the Contractor.

The Contractor shall supply all lines and grades, to the satisfaction of the Engineer. The cost of providing lines and grades shall be considered as having been included in the prices bid for the contract items.

Email authorization only shall be made by the Project Manager for locations the DCR has approved work with a not to exceed value. No work shall commence in locations that were not authorized by the Agency even if a project summary was provided. No separate payment shall be made for preliminary site visits or preparation of submittals including the project summary.

After the project is completed an updated project summary with quantities utilized will be submitted with the request for payment for that work. All weight slips, truck slips and invoices detailing quantities utilized for the work will be attached to and submitted with the final project summary. Actual quantities measured and utilized will be paid for only.

All work requested and approved to be done by DCR will be paid for at the contract item unit bid prices for this contract. Requests for payment will be prepared and submitted on a monthly basis.

CONSTRUCTION AND WORK SCHEDULE

Road Closures

To complete the project in a timely and cost-effective manner the Department of Conservation and Recreation (DCR) shall require the Contractor to close or restrict access to perform the necessary work activities. The Contractor shall provide necessary access for fire apparatus and other emergency vehicles on short notice. The Contractor will establish traffic control patterns as required by the Engineer within the limits of the contract related to the work areas and in conformance with the sketches included herein and/or as directed by the Engineer. A construction schedule for the proposed work will be submitted to the DCR Project Manager for approval prior to the start of the work. During certain roadway construction operations including milling and paving, road closures may be required as approved by the Department. All work at the end of the day shall be backfilled or plated and the road opened to all traffic. All detour signs shall be covered or removed when the detour is not in effect.

The Administration Buildings and The Visitors Centers shall remain open during the construction period and the Contractor shall provide access at all times.

Work Hours

The Contractor and all Subcontractors shall work on this project within normal eight-hour days and five-day weeks. Any deviation from the normal work hours including nights, weekends or holidays must be requested by the Contractor via email to the Department. Written approval will be granted on a case-by-case basis.

Holidays that occur during the construction period are as follows:

Holiday	2026	2027	2028
New Year's Day	Jan 1, Thu	Jan 1, Fri	Jan 1, Sat (obs Sat))
Martin Luther King Jr. Day	Jan 19, Mon	Jan 18, Mon	Jan 17, Mon
Washington's Birthday	Feb 16, Mon	Feb 15, Mon	Feb 21, Mon
Patriots' Day	Apr 20, Mon	Apr 19, Mon	Apr 17, Mon
Memorial Day	May 25, Mon	May 31, Mon	May 29, Mon
Juneteenth	Jun 19, Fri	Jun 19, Sat (obs Fri)	Jun 19, Mon
Independence Day	Jul 4, Sat (obs Fri)	Jul 4, Sun (obs Mon)	Jul 4, Tues
Labor Day	Sep 7, Mon	Sep 6, Mon	Sep 4, Mon
Columbus Day	Oct 12, Mon	Oct 11, Mon	Oct 9, Mon
Veterans Day	Nov 11, Wed	Nov 11, Thu	Nov 11, sat (obs Sat)
Thanksgiving Day	Nov 26, Thu	Nov 25, Thu	Nov 23, Thu
Christmas Day	Dec 25, Fri	Dec 25, Sat (obs Fri)	Dec 25, Mon

Sunday Holidays: **In the event legal holiday falls on a Sunday, the holiday will be observed on the following Monday.

If the contract end date gets extended for any reason, the above legal holidays will still be honored.

PROPOSED TARGET SCHEDULE

This schedule is provided for planning and sequencing purposes only. All dates are tentative and subject to adjustment based on the timing of contract award and issuance of the Notice to Proceed. The Contractor shall be prepared to mobilize promptly upon issuance of the Notice to Proceed and shall coordinate sequencing with DCR Engineering to minimize operational and visitor impacts, including accommodation of seasonal park operations and facility closures.

June 2026

- Pre-Construction meeting at the beginning of the month
- Mobilization and construction for Greylock South Culvert
- Submittals for Greylock North Culvert and potentially Pittsfield culverts
- Install message boards and signage for Greylock detour plan

July & August 2026

- Commence Greylock detour plan immediately following July 4th weekend through Aug 31
- Mobilization and construction for Greylock North Culvert

September 2026

- Demobilization from Greylock
- Reopen Rockwell Road
- Punchlist activities at Greylock as needed
- Mobilization to Pittsfield

October & November 2026

- Drainage & resurfacing at Pittsfield HQ (could happen earlier in the schedule with multiple crews working concurrently with Greylock)
- Detour plan phase 1, bypass entrance culvert
- Construction of Entrance Culvert
- Remove detour plan phase 1

Winter Shutdown

April through June 2027

- Detour plan phase 2, bypass upstream culvert
- Construction upstream culvert and roadway reconstruction
- Final paving activities
- Remove detour plan phase 2

After June 30, 2027

- Any remaining activities (demobilization, plantings, punch list, etc.)

WINTERIZING THE PROJECT

The Contractor shall inspect and take great care at the end of each construction season to prepare the project work area for severe winter conditions. The Contractor shall not leave any exposed surfaces at the end of each construction season. Exposed surfaces will be defined as areas of the project where the Contractor has removed (and not yet replaced) an existing bituminous concrete surface, all areas disturbed by construction operations and areas prone to erosion due to construction operations.

Temporary Pavement

- All areas of the project where the Contractor has removed (and not yet replaced) an existing asphalt surface, that cannot be paved (roadways to base course and paved waterways to finish) according to MassDOT standards shall be paved with temporary pavement. Temporary pavement shall be a minimum of two (2) inches thick. Temporary hot mix asphalt shall be placed regardless of temperature or other adverse weather conditions, to protect exposed surfaces against severe winter and spring erosion.
- The installation and removal of temporary pavement for "Winterization" shall be considered as incidental to the work being performed under the Contract and there will be **NO** additional compensation.

Temporary Seeding/Stabilization

- All areas of the project where the Contractor has disturbed by construction operations and other areas prone to erosion due to construction operations shall be temporarily seeded, mulched or otherwise stabilized.
- The installation and removal of temporary seeding, mulching or other stabilization measures for "Winterization" shall be considered as incidental to the work being performed under the Contract and there will be **NO** additional compensation.

MANDATORY MEETINGS

As part of this Contract, the Contractor and Subcontractors working at the site shall attend one site meeting for each project proposed prior to the start of work. These meetings shall be utilized to coordinate the proposed work, subcontractors and police detail, if necessary, to review the project scope and to delineate sensitive (environmental and historical) work areas. There will be **NO** additional compensation for attendance at these meetings, it will be considered incidental to all construction items.

ENVIRONMENTAL OVERSIGHT

This section of the Special Conditions is for informational purposes only, to inform the Contractor that environmental oversight will be on-going on the construction sites during the entire construction period by Department, State, and municipal employees. Environmental oversight will provide the following assistance and guidance to the Department:

1. Oversee implementation of mitigation measures prior to, during and after construction.
2. Observe construction activities in the vicinity of rare species populations, wetlands, and exemplary natural communities.

3. Work with Department and Contractor to modify the design, if necessary, of the roadway and mitigation measures as needed to avoid and mitigate disturbance to rare species populations, wetlands, and exemplary natural communities.
4. Recommend to the Engineer to stop any work that may impact rare species populations, exemplary natural communities or wetlands that have not been identified in permitting as unavoidable or rare species populations discovered during construction.

MASSACHUSETTS ENDANGERED SPECIES ACT - PERMIT AND FINES

The Massachusetts Endangered Species Act (M.G.L. c. 131A), referred to as MESA, prohibits the taking of any plant or animal listed as Endangered, Threatened, or Special Concern. Due to unique ecological settings of some of many of the properties, state-listed rare species may occur within the project areas. The Massachusetts Natural Heritage Program will issue a permit for these properties for the take of avoidable impacts to identified listed species at specific locations in the project areas. The Contractor shall take all necessary precautions to avoid unauthorized impacts to known locations of listed species, as well as those which may be discovered during project construction. Penalties for the illegal taking of state-listed rare species include fines of not less than \$500 per individual plant or animal, or part thereof, and/or up to 90 days in jail.

STAGING AREAS

Staging areas will be limited to those areas identified by the Department. Staging areas shall be **restored at the Contractors expense**. The Contractor shall restore all disturbed areas and restoration will consist of four (4) inches of loam borrow and seed mixtures as specified under the appropriate seeding items 765.1 and 765.12 as outlined in the technical specifications.

Prior to usage of all staging areas the contractor must perform the following:

- Delineate the extent of the staging area on the ground with temporary markings for review by the Department. Submit to the Department a schedule of time usage, materials to be stockpiled and a restoration (of the staging area) schedule.
- Receive written approval from the Department as to the extents of the area and other aforementioned questions.
- Install sedimentation barrier, if required, and temporary orange snow fence along the entire perimeter of the staging area save the entrance. The installation and removal of temporary orange snow fence for staging areas shall be considered as incidental to the work being performed under the Contract and there will be **NO** additional compensation.

The Contractor shall perform the following **during and after** the usage of designated staging areas:

- During - Monitor sedimentation barrier.
- After - Restore staging area to pre-construction conditions.

PHOTOGRAPHING PRIOR TO CONSTRUCTION

It shall be the Contractor's responsibility to photograph the designated area within the limits of work in advance of the start of work. It is of utmost importance to show the street line as well as all private and public property defects to minimize any claims of private property damage. It shall be the Contractor's responsibility to prove that such a defect existed prior to the start of the work. If the Contractor cannot prove damage to be a pre-existing condition, the necessary repairs shall be made at the expense of the Contractor. Should the Contractor request and receive approval to use access roads, the Contractor shall photograph the roads as mentioned above.

Photographing shall be considered as incidental to the work being performed under the Contract and there will be no additional compensation. A copy of the photograph must be conveyed to the Department of Conservation and Recreation, Project Manager and Resident Engineer in advance of the start of work.

COOPERATION OF THE CONTRACTOR

(Supplementing Subsections 5.05 and 5.06 of the MassDOT Standard Specifications)

Agents of various public service agencies, municipal Departments, and private site contractors may be entering the work site to remove or repair existing utilities, to construct or place new facilities, to make alterations to existing facilities or to perform various maintenance operations.

The Contractor shall perform the work in cooperation with the various agencies in a manner which causes the least interference with the operations of the aforementioned agencies and shall have no claim for delay which may be due, or result, from said work of these agents.

MONTHLY PRICE ADJUSTMENTS

Price adjustments for this contract shall conform to MassDOT's Special Provision for Liquid Asphalt, Portland Cement Concrete, Diesel Fuel, and Gasoline, structural steel and reinforcing steel. The following link is provided below for MassDOT guidelines, definitions, and instructions for calculating the price adjustments. Also, provided below is a link to the most recent period prices. The base price is found in part I of this contract (based of the month of September 2025).

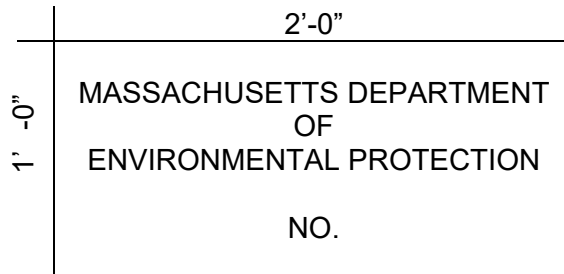
<https://www.mass.gov/service-details/massdot-special-provisions>

<https://www.mass.gov/info-details/massdot-current-contract-price-adjustments>

All price adjustments shall be paid for under the associated allowance item in the contract. All necessary documentation related to the price adjustment shall be provided by the Contractor prior to any payments made by the Agency.

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION FILE NUMBER
SIGN**

This project is subject to Massachusetts General Laws, Chapter 131, Section 40 as amended. Signs shall be in accordance with the latest MassDOT Construction Standards. All costs for the manufacture, erection, maintenance, moving, and removal of the signs shall be absorbed by the contractor with no additional compensation other than the contract unit prices. Signs shall be as follows:



Notes:

1. Contractor is to submit letter size and spacing for the completion of this sign according to the sketch given.
2. Sign plate shall be 3/4" plywood (Marine Grade)
3. The location and method of installation of this sign shall be determined by the department.
4. One (1) sign per each project, if an Orders of Conditions is issued, is required.

**PATENTED DEVICES, MATERIALS AND PROCESSES (Amending Subsection 7.06)
Replace subsection 7.06 of the MassDOT Standard Specifications with the following:**

It is mutually understood and agreed that, without exception, Contract prices are to include all royalties and costs arising from patents, trademarks and copyrights in any way involved in the work. It is the intent that whenever the Contractor is required or desires to use any design, device, material, or process covered by letters patent or copyright, the right for such use shall be provided for by suitable legal agreement with the patentee or owners. A copy of this agreement shall be filed with the Department; however, whether or not such agreement is made or filed as noted, the Contractor and the surety in all cases shall indemnify and save harmless the Party of the First Part from any and all claims for infringement by reason of the use of any such patented design, device, material or process to be involved under the Contract. He, or They, shall indemnify the Party of the First Part for any cost, expenses, and damages which it may be obliged to pay, by reason of any such infringement, at any time during the prosecution or after the completion of the work.

**PUBLIC SAFETY AND CONVENIENCE
(Supplementing Subsection 7.09 of the MassDOT Standard Specifications)**

Sweeping and cleaning of surfaces beyond the limits of the project required to clean up material caused by spillage or vehicular tracking during the various phases of the work shall be

considered as incidental to the work being performed under the Contract and there will be no additional compensation.

The Contractor shall provide necessary access for fire apparatus and other emergency vehicles to abutting properties on short notice.

At the end of each working day where trenches that are in areas of public travel are covered with steel plates, each edge of the plates shall be either beveled or protected by a bituminous concrete ramp at a slope of 2 feet horizontally to 1 inch vertically. Any temporary patching material may be used to construct the ramps. The cost of necessary patching materials, steel plates and their maintenance and removal, will be considered incidental to the item involved with **NO** separate payment.

NOTICE TO OWNERS OF UTILITIES

(Supplementing Subsection 7.13 of the MassDOT Standard Specifications)

Written notice shall be given by the Contractor to all public service corporations or municipal and State officials owning or having charge of publicly or privately owned utilities of his intention to commence operations affecting such utilities at least one week in advance of the commencement of such operations. The Contractor shall, at the same time, file a copy of such notice with the Department.

Before commencing work, the Contractor shall be responsible for contacting the Electric Company servicing the area to obtain construction requirements, standards, and to give adequate notice of commencement of work.

The Contractor shall make their own investigation to assure that no damage to existing structures, drainage lines, traffic signal conduits, and other utilities will occur as a result of construction operations.

The Contractor shall notify "Mass. DIG SAFE" and procure a DIG SAFE number of each project location prior to disturbing ground in any way.

"DIG-SAFE" Call Center: Telephone 1-888-344-7233

PROTECTION OF UTILITIES AND PROPERTY

(Supplementing Subsection 7.13 of the MassDOT Standard Specifications)

The Contractor, in constructing or installing facilities alongside or near storm drains, poles, walls, or other structures shall sustain them securely in place, cooperating with the officers and agents of the various utility companies and municipal departments which control them, so that the services of these structures shall be maintained. The Contractor shall also be responsible for the repair or replacement of any damage to such structures caused by construction and shall leave them in the same condition as they existed prior to commencement of the work. In case of damage to utilities, the Contractor shall promptly notify the utility owner and shall, if requested by the Department, furnish labor and equipment to work temporarily under the utility owner's direction in providing access to the utility. Pipes or other structures damaged by the operation of the Contractor may be repaired by the Department or by the utility owner, which suffers the

loss. The cost of such repairs shall be borne by the Contractor, without compensation, therefore.

If, as the work progresses, it is found that any of the utility structures are so placed as to render it impracticable, in the judgment of the Department, to do the work called for under this Contract, the Contractor shall protect and maintain the services in such utilities and structures and the Department will, as soon thereafter as reasonable, cause the position of the utilities to be changed or take such other actions deemed suitable and proper.

Full compensation for furnishing all labor, materials, tools, equipment, and incidentals for doing all the work involved in protecting or repairing property as specified in this section, shall be considered included in the prices paid for the various Contract items of work and no additional compensation will be allowed, therefore.

SCHEDULE OF OPERATIONS

The Contractor shall submit to the Department a schedule of operations (with item quantities and values) within ten days of receiving a detailed request for work. This ten-day period may be changed or waived with the approval of the Department. The schedule shall show the proposed methods of construction and sequence of work and the time the Contractor proposes to complete the various items of work.

PROVISIONS FOR TRAVEL AND PROSECUTION OF THE WORK **(Supplementing Subsection 8.03 of the MassDOT Standard Specifications)**

Before starting any work at any location under this Contract, the Contractor shall prepare, and submit to the Department for approval, a plan that indicates the traffic routing proposed by the Contractor during the various stages and time periods of the work and the temporary barricades, signs, drums and other traffic control devices to be employed during each stage and time period of the work to maintain traffic and access to abutting properties, if the roadways are to be left open during the construction period.

Particular care shall be taken to establish and maintain methods and procedures that will not create unnecessary or unusual hazards to public safety. Traffic control devices required only during working hour operations shall be removed at the end of each working day.

Signs having messages that are irrelevant to normal traffic conditions shall be removed or properly covered at the end of each work period. Signs shall be kept clean at all times and legends shall be distinctive and unmarred.

WORK ZONE SAFETY

It is the responsibility of the Contractor to install the appropriate temporary traffic control devices in accordance with the Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD) and the Massachusetts Amendments to the MUTCD. The web addresses provided below are for reference material.

<https://mutcd.fhwa.dot.gov/>

<https://www.mass.gov/lists/mutcd-massachusetts-amendments>
<https://www.mass.gov/doc/traffic-management-plans-and-detail-drawings/download>

TEMPORARY ACCESS

(Supplementing Subsections 8.02 and 8.06 of the MassDOT Standard Specifications)

Most of the work will take place on DCR property (i.e., inside the gates); however, some paving operations will be performed outside gated areas. The Contractor shall provide safe and ready means of ingress and egress for Emergency Vehicles, both day and night, for the duration of the project.

MATERIAL REMOVED AND STACKED

The Contractor shall carefully remove, transport and stack these materials on boards at a DCR maintenance yard closest to the project site unless directed otherwise.

DISPOSAL OF SURPLUS MATERIALS

All existing and other materials not required or needed for use on the project, and not required to be removed and stacked, shall become the property of the Contractor, and shall be removed from the site during the construction period and legally disposed of. No separate payment will be made for this work, but all costs in connection therewith shall be included in the prices bid for various Contract items.

CONCRETE FOUNDATIONS

Concrete foundations of items to be removed, if not interfering with the proposed construction, may be abandoned in place with approval of the Department. Foundations left in place under roadway surface shall be removed to a depth of 3 feet below finished grade.

DRAINAGE

The Contractor shall maintain the drainage system in the project areas to provide continual drainage of the travel-ways and construction area.

All pipes and structures installed as part of this Contract shall be left in a clean and operable condition at the completion of the work.

SAWCUTS

Existing pavements to remain shall be sawcut at all joints with proposed full-depth asphalt pavement, as directed by the Department.

ORDER OF CONDITIONS and OTHER RESTRICTIONS

The Department will be responsible for ecological and cultural review and permitting prior to authorizing work in any specific location. Any Order of Conditions or specific direction issued by the Department of Environmental Protection, NHESP, or the Massachusetts Historical Commission for the various projects will be obtained by the Department and incorporated into the scope of work prior to the start of construction. It is the responsibility of the Contractor to minimize impacts and preserve historic features of various Parkways and facilities and to complete all construction activities within the limits of work as directed by the Engineer.

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

Under this contract the Contractor shall be the responsible party on site for protection of water quality in adjacent receiving water during construction of the projects. The Contractor shall prepare the necessary documents, notices, and reports to serve as the required Storm Water Pollution Prevention Plan (SWPPP) in compliance with the NPDES General Permit for Storm Water Discharge from Construction Sites, issued by US EPA. These documents, notices and reports shall be available on the construction site until all construction involving land disturbance is completed and the site is permanently stabilized against erosion and sediment discharge to waters of the United States.

PROJECT OPERATOR AND RESPONSIBILITIES

The responsible "operator", as designated by the Contractor, is that party that has day-to-day operational control of all site work activities necessary to comply with this SWPPP. The operator for this project shall be designated on the USEPA form 3510-9 "Notice of Intent", to be submitted to the USEPA at least 48 hours before any disturbance of the land surface associated with projects under the contract over 1 (one) acre in size.

The Operator shall install, maintain, and replace as necessary all measures for erosion control, sediment control, wetland protection, and water quality protection, throughout the site as is outlined in the environmental permits in accordance with local, state, and federal wetlands and environmental regulations and permits. The Operator shall execute all work in such a manner as to prevent alteration or degradation of wetlands or buffer zones beyond designated work limit lines, including taking temporary or emergency measures as necessary.

The Operator shall assume all responsibility for compliance with NPDES General Permit for Storm Water Discharge from Construction Sites, issued by US EPA, under this contract.

POLICE SERVICES

The Contractor shall be responsible for coordinating and scheduling of detail services as required by the Department. The cost of the police details will be paid for by the Department under the appropriate allowance item. When projects require State Police services the Contractor must utilize the third-party detail management service as outlines in the attached document.

END OF SECTION

Appendix A

Permitting Resources

Mount Greylock State Reservation

RECEIVED

JUN 06 2024

MASS. HIST. COMM

RC.75146

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

APPENDIX A

MASSACHUSETTS HISTORICAL COMMISSION

220 MORRISSEY BOULEVARD

BOSTON, MASS. 02125

617-727-8470, FAX: 617-727-5128

After review of the MHC's files and the materials you submitted, the MHC has determined that the proposed project will have "no adverse effect" on significant historic or archaeological properties.

PROJECT NOTIFICATION FORM

Project Name: Rockwell Road Culverts Project

Brona Simon

7/2/24

Location / Address: Rockwell Road, Mount Greylock State Reservation

Brona Simon

Date

City / Town: New Ashford

Executive Director

State Historic Preservation Officer

Massachusetts Historical Commission

Project Proponent

Name: MA Department of Conservation and Recreation (DCR) c/o Priscilla Geigis

Address: 10 Park Plaza Suite 6620

City/Town/Zip/Telephone: Boston, MA 02116 (617) 626-1250

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

Agency Name

Type of License or funding (specify)

New Ashford Conservation Commission

Order of Conditions

Natural Heritage and Endangered Species Program

Official Determination Letter

United States Army Corps of Engineers

Pre-Construction Notification

Project Description (narrative):

DCR proposes the replacement of two culverts, identified by DCR as CID41 and CID33. Both culverts convey unnamed intermittent streams below Rockwell Road and require replacement to address headwall failures and roadway erosion.

Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.

The Project will not result in the demolition of any buildings, but will include the replacement of two existing culverts

Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.

The Project does not include the rehabilitation of any buildings.

Does the project include new construction? If so, describe (attach plans and elevations if necessary).

The Project includes the replacement of two existing culverts with new culverts. Please refer to the Project Drawings provided in Attachment 3.

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

APPENDIX A (continued)

To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.

The Project is located within the Mount Greylock State Reservation (CHS.C and NAS.B), and is included in the Mount Greylock State Reservation - Roadway System (NAS.908).

What is the total acreage of the project area?

Woodland 0.27 acres
Wetland 0.03 acres
Floodplain 0 acres
Open space 0 acres
Developed 0.17 acres

Productive Resources:
Agriculture 0 acres
Forestry 0 acres
Mining/Extraction 0 acres
Total Project Acreage 0.47 acres

What is the acreage of the proposed new construction? 0 acres

What is the present land use of the project area?

Current land use at the Project Site consists of a public roadway within the Mount Greylock State Reservation. The roadway is primarily used for access to recreational trails and facilities. The proposed Project will not result in any change to land use.

Please attach a copy of the section of the USGS quadrangle map which clearly marks the project location.

Please refer to Figure 1 provided in Attachment 1.

This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.

Signature of Person submitting this form: Priscilla Geigis Date: 6/4/24

Name: Priscilla Geigis, Deputy Commissioner for Conservation and Resource Stewardship, DCR

Address: 10 Park Plaza Suite 6620

City/Town/Zip: Boston, MA, 02116

Telephone: (617) 626-1250

REGULATORY AUTHORITY

950 CMR 71.00: M.G.L. c. 9, §§ 26-27C as amended by St. 1988, c. 254.



Massachusetts Department of Environmental Protection

eDEP Transaction Copy

Here is the file you requested for your records.

To retain a copy of this file you must save and/or print.

Username: **NACC188**

Transaction ID: **1909965**

Document: **WPA Form 5 - OOC**

Size of File: **152.73K**

Status of Transaction: **In Process**

Date and Time Created: **7/9/2025:2:13:18 PM**

Note: This file only includes forms that were part of your transaction as of the date and time indicated above. If you need a more current copy of your transaction, return to eDEP and select to "Download a Copy" from the Current Submittals page.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 5 - Order of Conditions
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File #:235-0021
eDEP Transaction
#:1909965
City/Town:NEW
ASHFORD

A. General Information

1. Conservation Commission	NEW ASHFORD		
2. Issuance	a. ☒ OOC	b. ☐ Amended OOC	
3. Applicant Details			
a. First Name	SARA	b. Last Name	NORTHROP
c. Organization	MA DEPARTMENT OF CONSERVATION AND RECREATION		
d. Mailing Address	70 SOUTH STREET, PO BOX 1433		
e. City/Town	PITTSFIELD	f. State	MA
		g. Zip Code	01202
4. Property Owner			
a. First Name	PRISCILLA	b. Last Name	GEIGIS
c. Organization	MA DEPARTMENT OF CONSERVATION AND RECREATION		
d. Mailing Address	10 PARK PLAZA, SUITE 6620		
e. City/Town	BOSTON	f. State	MA
		g. Zip Code	02116
5. Project Location			
a. Street Address	0 ROCKWELL ROAD		
b. City/Town	NEW ASHFORD	c. Zip Code	01237
d. Assessors	03	e. Parcel/Lot#	01
Map/Plat#			
f. Latitude	42.61856N	g. Longitude	73.19972W
6. Property recorded at the Registry of Deed for:			
a. County	b. Certificate	c. Book	d. Page
NORTHERN BERKSHIRE		614	337
7. Dates			
a. Date NOI Filed : 5/16/2025	b. Date Public Hearing Closed: 6/4/2025	c. Date Of Issuance: 7/8/2025	
8. Final Approved Plans and Other Documents			
a. Plan Title:	b. Plan Prepared by:	c. Plan Signed/Stamped by:	d. Revised Final Date: e. Scale:
ROCKWELL ROAD CULVERT PROJECT	TIGHE & BOND, INC.	Tighe & Bond, Inc	VARIES AS NOTED

B. Findings

1. Findings pursuant to the Massachusetts Wetlands Protection Act

Following the review of the the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act.

Check all that apply:

a. ☐ Public Water Supply	b. ☐ Land Containing Shellfish	c. ☐ Prevention of Pollution
d. ☐ Private Water Supply	e. ☐ Fisheries	f. ☒ Protection of Wildlife Habitat
g. ☒ Ground Water Supply	h. ☒ Storm Damage Prevention	i. ☐ Flood Control



Massachusetts Department of Environmental Protection

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City/Town:NEW ASHFORD

2. Commission hereby finds the project, as proposed, is:

Approved subject to:

- a. ☒ The following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

Denied because:

- b. ☐ The proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**
- c. ☐ The information submitted by the applicant is not sufficient to describe the site, the work or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**

3. ☐ Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310CMR10.02(1)(a).

a. linear feet

Inland Resource Area Impacts:(For Approvals Only):

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. ☒ Bank	420 a. linear feet	b. linear feet	420 c. linear feet	d. linear feet
5. ☒ Bordering Vegetated Wetland	15 a. square feet	b. square feet	15 c. square feet	d. square feet
6. ☒ Land under Waterbodies and Waterways	1325 a. square feet	b. square feet	1325 c. square feet	d. square feet
	90 e. c/y dredged	f. c/y dredged		
7. ☐ Bordering Land Subject to Flooding	a. square feet	b. square feet	c. square feet	d. square feet
Cubic Feet Flood Storage	e. cubic feet	f. cubic feet	g. cubic feet	h. cubic feet
8. ☐ Isolated Land Subject to Flooding	a. square feet	b. square feet		
Cubic Feet Flood Storage				



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	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9. ☐ Riverfront Area				
	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	g. square feet	h. square feet	i. square feet	j. square feet

Coastal Resource Area Impacts:

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. ☐ Land Under the Ocean	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
12. ☐ Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. ☐ Coastal Beaches	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
14. ☐ Coastal Dunes	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
15. ☐ Coastal Banks	a. linear feet	b. linear feet		
16. ☐ Rocky Intertidal Shores	a. square feet	b. square feet		
17. ☐ Salt Marshes	a. square feet	b. square feet	c. square feet	d. square feet
18. ☐ Land Under Salt Ponds	a. square feet	b. square feet		
	c. c/y dredged	d. c/y dredged		
19. ☐ Land Containing Shellfish	a. square feet	b. square feet	c. square feet	d. square feet
20. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
	c. c/y dredged	d. c/y dredged		
21. ☐ Land Subject to Coastal Storm Flowage	a. square feet	b. square feet		



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22. *Restoration/Enhancement (For Approvals Only)*

☐ Restoration/Enhancement (For Approvals Only)

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c & d or B.17.c & d above, please entered the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

23.

☒ Streams Crossing(s)

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

0

2

a. number of new stream crossings

b. number of replacement stream crossings

C. General Conditions Under Massachusetts Wetlands Protection Act

The following conditions are only applicable to Approved projects

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
 - a. the work is a maintenance dredging project as provided for in the Act; or
 - b. the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not exceed the issuance date of the original Final Order of Conditions.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.
8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.
9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work..



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

WPA Form 5 - Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
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eDEP Transaction #:1909965
City/Town:NEW ASHFORD

10. A sign shall be displayed at the site not less than two square feet or more than three square feet in size bearing the words,

" Massachusetts Department of Environmental Protection"
[or 'MassDEP']
File Number : "235-0021"

11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before Mass DEP.
12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
13. The work shall conform to the plans and special conditions referenced in this order.
14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.
16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.
17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.
18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

NOTICE OF STORMWATER CONTROL AND MAINTENANCE REQUIREMENTS

19. The work associated with this Order(the "Project") is (1) ☐ is not (2) ☒ subject to the Massachusetts Stormwater Standards. If the work is subject to Stormwater Standards, then the project is subject to the following conditions;
- a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Construction General Permit as required by Stormwater Standard 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.
- b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that: *i.* all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

WPA Form 5 - Order of Conditions

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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City/Town:NEW ASHFORD

construction period sediment trapped in inlet and outlet control structures; *ii.* as-built final construction BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized; *iii.* any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10; *iv.* all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition; *v.* any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

- c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 19(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement") for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following: *i.*) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and *ii.*) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.
- d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Multi-Sector General Permit.
- e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.
- f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.
- g) The responsible party shall:
 - 1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
 - 2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
 - 3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.
- h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.
- i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.
- j) The stormwater management system approved in the Order of Conditions shall not be changed without the



**Massachusetts Department of Environmental
Protection**

Bureau of Resource Protection - Wetlands

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prior written approval of the issuing authority.

- k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.
- l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

Special Conditions:

DCR TO DEVELOP A OPERATION AND MAINTENANCE PLAN FOR THE (2) STONE LINED SWALES ALONG THE ROADWAY TO CONTROL SEDIMENT. IN ADDITION TO THE STATEMENT "DETAILED METHOD OF DEWATERING, TO BE APPROVED BY THE OWNER PRIOR TO THE START OF CONSTRUCTION.", THE CONSERVATION COMMISSION IS TO BE NOTIFIED OF THIS PLAN AS WELL AS BEING NOTIFIED IF A STORM EVENT EXCEEDS THE 2-YEAR STORM (CID 41 = 18.23 CFS CID 33 = 7.94 CFS) DESIGN.



Massachusetts Department of Environmental Protection

Bureau of Resource Protection - Wetlands

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Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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E. Signatures

This Order is valid for three years from the date of issuance, unless otherwise specified pursuant to General Condition #4. If this is an Amended Order of Conditions, the Amended Order expires on the same date as the original Order of Conditions.

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

9 9/8/2025 235002025
7/8/2025

1. Date of Original Order

8 4 9/8/2025 235002025
2. Number of Signers

Signatures:

Kenneth McInerney

Susan Supranowicz

Helen Majchrowski

☐ by hand delivery on

Date

Date

☐ by certified mail, return receipt requested, on

F. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

G. Recording Information

This Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land



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City/Town:NEW ASHFORD

D. Findings Under Municipal Wetlands Bylaw or Ordinance

1. Is a municipal wetlands bylaw or ordinance applicable? ☐ Yes ☒ No

2. The Conservation Commission hereby (check one that applies):

a. ☐ DENIES the proposed work which cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw specifically:

1. Municipal Ordinance or Bylaw _____

2. Citation _____

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order or Conditions is issued. Which are necessary to comply with a municipal ordinance or bylaw:

b. ☐ APPROVES the proposed work, subject to the following additional conditions.

1. Municipal Ordinance or Bylaw _____

2. Citation _____

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

The special conditions relating to municipal ordinance or bylaw are as follows:



Massachusetts Department of Environmental Protection

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subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

NEW ASHFORD

Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

NEW ASHFORD

Conservation Commission

Please be advised that the Order of Conditions for the Project at:

0 ROCKWELL ROAD

Project Location

235-0021

MassDEP File Number

Has been recorded at the Registry of Deeds of:

County

Book

Page

for:

Property Owner PRISCILLA GEIGIS

and has been noted in the chain of title of the affected property in:

Book

Page

In accordance with the Order of Conditions issued on:

Date

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

Signature of Applicant

Rev. 4/1/2010



MASSWILDLIFE

DIVISION OF FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
[MASS.GOV/MASSWILDLIFE](https://mass.gov/masswildlife)

December 09, 2025

Sara Northrup
MA Department of Conservation & Recreation
740 South Street
Pittsfield MA 01202

RE: Applicant: Sara Northrup, MA DCR
 Project Location: Rockwell Road, Mount Greylock State Reservation
 Project Description: Rockwell Road Culverts Project

NHESP File No.: 24-17324

Heritage Hub Form ID: RC-94555

Dear Applicant:

The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the "Division") received the MESA Project Review Checklist and supporting documentation for review pursuant to the Massachusetts Endangered Species Act (MGL. c. 131A) and its implementing regulations (321 CMR 10.00) (MESA).

PROJECT DESCRIPTION (the "Project")

The project, as currently proposed, includes the replacement of the Rockwell Road Culvert over Mitchell Brook in the Mt. Greylock State Reservation in New Ashford as shown on the Project Plan.

STATE-LISTED SPECIES

The Project as currently proposed will occur within Priority Habitat of the following state-listed species:

<u>Scientific Name</u>	<u>Common Name</u>	<u>Taxonomic Group</u>	<u>State Status</u>
<i>Erora laeta</i>	Early Hairstreak	Butterfly/Moth	Threatened
<i>Solidago macrophylla</i>	Large-leaved Goldenrod	Plant	Special Concern
<i>Ribes lacustre</i>	Bristly Black Currant	Plant	Special Concern
<i>Sorbus decora</i>	Northern Mountain-ash	Plant	Endangered

State-listed species and their habitats are protected in accordance with the MESA.

MASSWILDLIFE

MASSACHUSETTS ENDANGERED SPECIES ACT (MESA)

The MESA is administered by the Division and prohibits the Take of state-listed species, which includes actions that “in reference to animals, means to harass, harm, pursue, hunt, shoot, hound, kill, trap, capture, collect, process, disrupt the nesting, breeding, feeding or migratory activity or attempt to engage in any such conduct, or to assist such conduct, and in reference to plants, means to collect, pick, kill, transplant, cut or process or attempt to engage or to assist in any such conduct. Disruption of nesting, breeding, feeding or migratory activity may result from, but is not limited to, the modification, degradation or destruction of habitat of state-listed wildlife species” (321 CMR 10.02). The purpose of the Division’s review under the MESA regulations is to determine whether a Take of state-listed species will result from the proposed project.

Based on the information provided and the information contained in our database, the Division finds that the Project **must be conditioned** to avoid a prohibited Take of state-listed species (321 CMR 10.18(2)(a)). **To avoid a prohibited Take of state-listed species, the conditions attached to this letter must be met.**

Provided the attached conditions are fully implemented and there are no changes to the project plans, this project will not result in a Take of state-listed species. We note that all work is subject to the anti-segmentation provisions (321 CMR 10.16) of the MESA. This determination is a final decision of the Division of Fisheries and Wildlife pursuant to 321 CMR 10.18. Any changes to the proposed project or any additional work beyond that shown on the site plans may require an additional filing with the Division pursuant to the MESA. This project may be subject to further review if no physical work is commenced within five years from the date of issuance of this determination, or if there is a change to the project.

If you have any questions regarding this letter please contact Tim McGuire, Endangered Species Review Biologist, at timothy.mcguire2@mass.gov, (508) 389-6366.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jesse Leddick', with a stylized, looping flourish at the end.

Jesse Leddick
Assistant Director

cc: Priscilla Geigis

Attachment: List of Conditions

List of Conditions

Applicant: Sara Northrup, MA DCR
Project Location: Rockwell Road, Mount Greylock State Reservation
Project Description: Rockwell Road Culverts Project
NHESP File No.: 24-17324
Heritage Hub Form ID: RC-94555
Approved Plan: NEW ASHFORD, MASSACHUSETTS ROCKWELL ROAD CULVERTS PROJECT PROJECT NO: P20-3361-D12A
Plan date: April 2025 Revised Date: N/A

To avoid a prohibited Take of state-listed species, the following condition(s) must be met:

1. **Limits of Work:** No work or alteration to the soil, surface, or vegetation shall occur outside of the limits of work shown on the site plan unless otherwise approved in writing in advance by the Division.
2. **Restoration or Stabilization:** The Division does not approve of the planting of state-listed species, even if the seeds are sourced outside of Massachusetts. Please carefully review seed mixes at the time of purchase as the specific composition and mixes change within a year (<https://www.mass.gov/info-details/list-of-endangered-threatened-and-special-concern-species#plants>).
3. **Rare Plant Avoidance Measures:** The Applicant shall implement the following state-listed plan avoidance measures.
 - a. Prior to the initiation of work or as otherwise approved by the Division, a qualified Division-approved botanist shall submit written confirmation to the Division that temporary symbolic flagging has been installed to delineate a 10-foot buffer surrounding all identified state-listed plant(s). Flagging shall be maintained in good condition throughout construction and repaired or replaced as necessary.
 - b. Prior to the completion of work or as otherwise approved by the Division, the qualified botanist shall submit written confirmation to the Division (including representative photographs) documenting compliance with the conditions outlined herein and that flagged areas have been avoided and protected during all work-related activities.

Pittsfield State Forest

RECEIVED

DEC 08 2025

MASSACHUSETTS HISTORICAL COMMISSION
220 Morrissey Boulevard
Boston, MA 02125

MASS. HIST. COMM

RC. 24602

PROJECT NOTIFICATION FORM

Project Name: Repaving and Culvert Replacement

Location/Address: Pittsfield State Forest

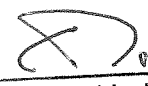
Berry Pond Circuit Road

1041 Cascade Street

City/Town:

Pittsfield, MA

After review of MHC files and the materials you submitted, it has been determined that this project is unlikely to affect significant historic or archaeological resources.

 RC. 24602
Edward L. Bell (9 December 2025) Date
Deputy State Historic Preservation Officer
Massachusetts Historical Commission

Project Proponent

Name: Massachusetts Department of Conservation and Recreation

Address: State Transportation Bldg., 10 Park Plaza, Suite 6620

City/Town/Zip: Boston, MA 02116-3978

Phone: (617) 626-1250

Agency License or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

Agency Name

DCR

Type of License or Funding

Funding

Project Description (narrative)

The Department of Conservation and Recreation proposes road and parking lot repavement and culvert replacement at Pittsfield State Forest located in Pittsfield. The Forest was originally developed by the Civilian Conservation Corps (CCC) in the 1930s, which was responsible for establishing many of the trails, roads, and buildings still present in the Forest today, including Berry Pond Circuit Road, a 5-mile loop road which provided access to a previously remote area. Access to the Forest is primarily via Cascade Street, which runs north-to-south from suburban areas into the Forest. After entering the Forest from the south, Cascade Street forks into Berry Pond Circuit Road and Shamrock Boulevard. Berry Pond Circuit Road provides access to two parking lots that provide trail access to a number of trails within the Forest, including the ADA-compliant Tranquility Trail. A third parking lot is associated with the Forest Headquarters and DCR activities with access available from both streets. The road was upgraded in the 1960s, likely including the addition of the corrugated steel conduits.

Berry Pond Circuit Road, originally a gravel surface, is currently an asphalt road in poor condition exhibiting erosion, dips, cracks, and potholes. The existing paved parking lots are similarly in poor condition.

The existing culverts consist of a corrugated metal conduit under the road with stone headwalls, some of which are mortared and some are dry laid. The corrugated metal conduits are failing and no longer meet stream crossing standards which require larger culverts to handle stormwater. Portions of the headwalls have been washed out and shifted.

The project scope includes the following:

- Repaving of all three parking lots;
- Replacement of two culverts below Berry Pond Circuit Road, associated with Parker Brook; and
- Repaving of the length of Berry Pond Circuit Road between its intersection with Shamrock Boulevard and the access point to the Forest Headquarters parking lot.

The purpose of the proposed project is to make needed repairs to infrastructure and to maintain safe public access to Pittsfield State Forest recreational resources.

Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.

Yes. Proposed demolition includes existing wood guardrail, wingwalls/retaining walls, fencing, and corrugated metal pipe inserts at both culvert locations. Pavement will be milled 2.75" down from the existing surface. Select trees and stumps will be removed.

Does the project include rehabilitation of any existing building? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.

No.

Does the project include new construction? If so, describe (attach plans and elevations if necessary).

Yes. The existing upstream culvert, with an undersized 48" corrugated metal pipe insert, will be replaced with a new 5' high x 10' wide (clearance) x 65' long precast box culvert. The existing downstream stone culvert, with an undersized 42" corrugated metal pipe, will be replaced with a 5' high x 9' wide (clearance) x 32' long precast box culvert. Existing stone wingwalls at both locations will be replaced with cast in place, reinforced concrete wingwalls. All wingwalls will be faced with stone veneer with geogrid reinforcement designed to reproduce the appearance of intact CCC constructed stone wingwalls.

Proposed pavement resurfacing includes:

- Roadway (Shamrock Boulevard and Berry Pond Circuit Road): ~21,500 sf
- Public parking east of Berry Pond Circuit Road (including access roadway): ~7,000 sf

- Public parking west of Berry Pond Circuit Road, at base of Tranquility Trail: ~2,000 sf

Existing guardrail will be replaced with steel backed wood log railing.

Work will utilize existing paved roadways and materials will be staged and stockpiled in the Headquarters parking lot.

To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.

The project area is within the traditional homeland of the Mohican people and likely served as an important resource gathering area in the past. The project impact area is not included in the Inventory of Historic and Archaeological Assets of the Commonwealth. It is situated south of, and just outside the boundary of, the Pittsfield State Forest – Berry Pond Circuit Road (PIT.L). Berry Pond Circuit Road was constructed by the CCC beginning in 1934, including the two culverts with associated wingwalls proposed for replacement due to their deteriorated condition and insufficient size.

Several CCC constructed culverts with stone wingwalls remain intact along Berry Pond Circuit Road, outside of the project impact area, which exhibit CCC craftsmanship and design. As noted above, the proposed replacement wingwalls will incorporate stone veneer designed to match the CCC character of intact wingwalls.

There are no recorded archaeological sites within or near the project impact area and the proposed work is limited to previously disturbed areas. The project area was previously covered in a cultural resources report, and no resources were recorded (Williams Et al. 1976).

In the opinion of cultural resources staff, the project as proposed is unlikely to affect significant historic and archaeological resources.

Williams, Stephen, Laurel Casjens, Stephen Ross, and Joseph Zorzin. 1976. Preliminary Report, Cultural Resources in the Corridor for a National Gas Pipeline to be Constructed through a Portion of Massachusetts. Tennessee Gas Pipeline.

What is the total acreage of the project area? N/A

Woodland _____ acres
Wetland _____ acres
Floodplain _____ acres
Open Space _____ acres
Developed _____ acres

Productive Resources:
Agriculture _____ acres
Forestry _____ acres
Mining/Extraction _____ acres
Total Project Acreage _____ acres

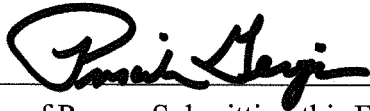
What is the acreage of the proposed new construction? N/A

What is the present land use of the project area?
Recreation

What has been the previous land use of the project area?
Recreation

Please attach a copy of the section of the USGS quadrangle map which clearly marks the project location.

This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.



Signature of Person Submitting this Form

11/26/25

Date

Name: Priscilla Geigis, Deputy Commissioner
Address: Department of Conservation and Recreation
State Transportation Building
City/Town/Zip: 10 Park Plaza, Suite 6480, Boston, MA 02116
Telephone: 617-626-1250

The Massachusetts Department of Environmental Protection's (hereinafter "the Department") Western Region Wetlands Program has determined that a set of site plans and attached information submitted for its review does not clearly demonstrate that proposed activities "will contribute to the protection of the interests identified" in the Massachusetts Wetlands Protection Act, MGL Chapter 131, Section 40 (and similarly that such plans do not clearly demonstrate that the project will prevent "adverse impacts" to the "Aquatic Ecosystem" associated with "Waters of the United States within the Commonwealth", each as defined at 314 CMR 9.02).

Therefore, please review the below criteria and either modify such plans accordingly where pertinent, or contact the Environmental Analyst assigned to your project to further discuss possible changes. Any request to modify any of the below minimum requirements should be submitted to the Department in writing, and should include justifications. Approval to modify will be provided by the Department in writing, and solely at its discretion.

1. Prepare or modify a dewatering plan, which shall minimally include identification of techniques for bypass of water around the area of alteration; and separately, identification of techniques for treatment of residual water ("seepage water") within the area of alteration. All such plans shall completely segregate bypass water from residual water. This dewatering plan shall include:
 - Identification of any regulatory "time-of-year" ("TOY") restrictions governing the proposed work [from the US Army Corps of Engineers "General Permit-Commonwealth of Massachusetts" ("MGP"); any Massachusetts Natural Heritage and Endangered Species Program directive; and any presumptive directions offered by the Massachusetts Division of Fisheries and Wildlife]. The Department will require adherence to TOY restrictions unless the applicant demonstrates that compliance with them is not practicable;
 - Identification of any "Cold-water Fishery" (as defined at 310 CMR 10.04 and 314 CMR 9.02) within the subject reach where work is proposed, by reference to the Massachusetts Division of Fisheries and Wildlife "Coldwater Fishery Resources Index" (See http://www.mass.gov/dfwele/dfw/fisheries/conservation/cfr/watershed_index.htm);
 - Use of temporary flume pipes to bypass flowing water in small rivers and intermittent streams, when flowing, and upstream and downstream temporary dams to isolate the work area and protect it from backwatering. Flume pipes shall be equipped with anti-seep collars where they pass through temporary dams, and fish screens on their upstream inverts. Flume pipes shall be sized to adequately handle at least a two-year storm event;
 - Use of cofferdams to isolate the area of alteration from flowing water in larger rivers, and in reservoirs, lakes, and ponds;
 - Use of pumps and hose lines to dewater standing water held behind cofferdams, and to dewater residual water and leaked water in isolated work areas. The rating, type, and location of all pumps and the intake and discharge positions of all hoses shall be identified and located on the site plans;

- Use of appropriate energy dissipaters and erosion and sedimentation control best management practices at the discharge orifices of all bypass flume pipes and pump hoses;
- Treatment of pumped residual water prior to discharge back to resource areas. Techniques such as filter bags, frac tanks, and stilling basins shall be analyzed and specifically proposed;
- Salvage of sessile aquatic organisms (vertebrates, crayfish, freshwater mussels, etc.) stranded during dewatering;
- Structural and nonstructural best management practices to separate stormwater from the area of alteration during work and while the site is unstable;
- Assurance that the substrate of the area of alteration is stable prior to the reestablishment of flow within it.

The Department advises that dewatering plans be designed according to *Stream Simulation: An Ecological Approach to Providing Passage for Aquatic Organisms at Road Crossings* (USDA Forest Service-National Technology and development Program 0877 1801-SDTDC, May 2008) (available at http://www.nae.usace.army.mil/reg/Stream/USFS_StreamSimulationManual.pdf). This document is very useful, even for projects not located in flowing streams.

Appendix A

Plans

Mount Greylock State Reservation

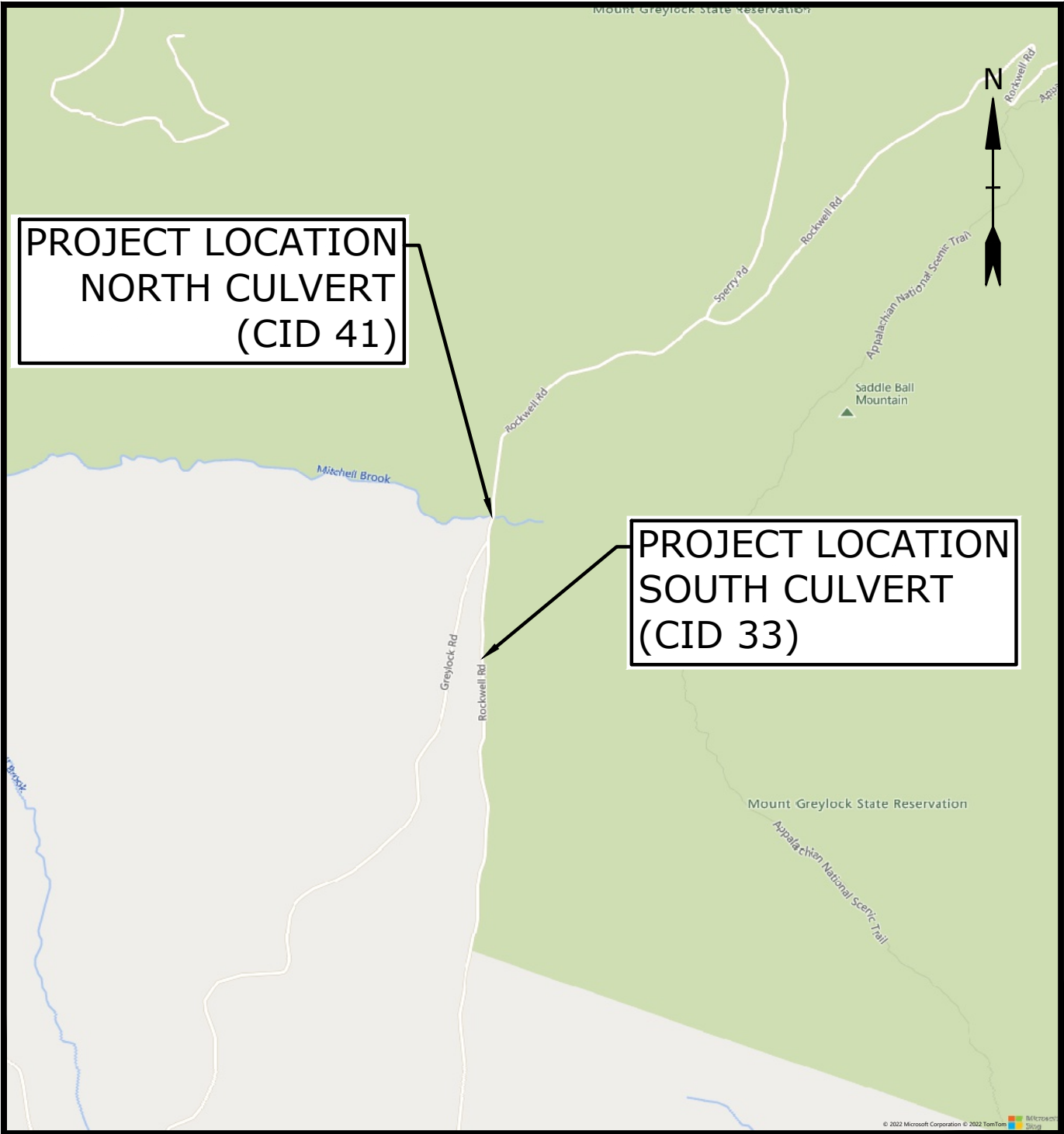
NEW ASHFORD, MASSACHUSETTS

ROCKWELL ROAD CULVERTS PROJECT

PROJECT NO: P20-3361-D12A

MARCH 2026

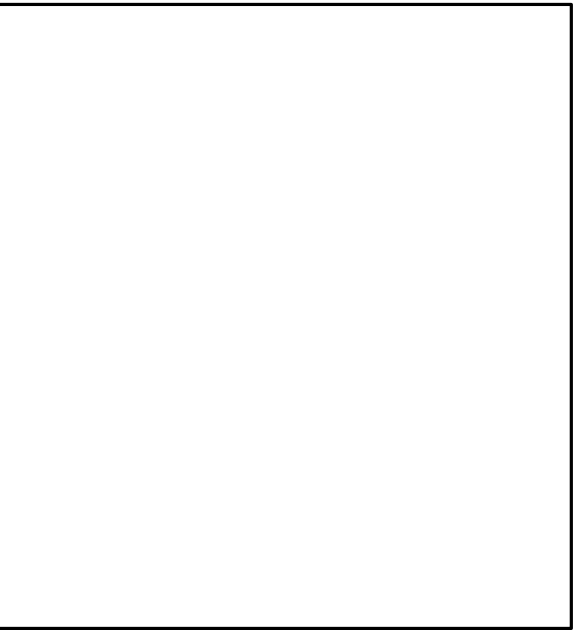
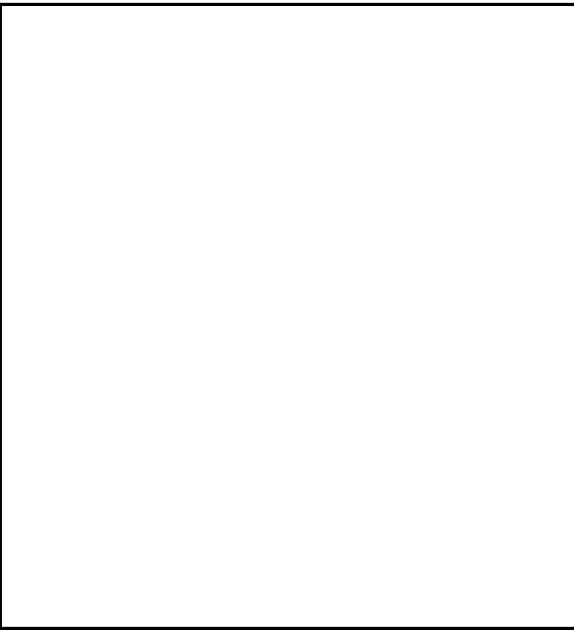
Sheet List Table	
Sheet Number	Sheet Title
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LOCATION MAP
SCALE: 1" = 20,000'

PREPARED BY:

Tighe & Bond



PREPARED FOR:
COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION & RECREATION
FACILITIES ENGINEERING
BOSTON, MA

COMPLETE SET 20 SHEETS

1. THE EXISTING CONDITIONS INFORMATION SHOWN ON THE DRAWINGS IS BASED ON THE FOLLOWING:
 - SURVEY DRAWINGS PROVIDED BY SHERMAN AND FRYDRYK TITLED SOUTH/NORTH STREAM CROSSING, ROCKWELL ROAD AND DATED 10-17-2022
 - THE RESOURCE AREA BOUNDARIES DEPICTED ON THE DRAWINGS WERE DELINEATED BY TIGHE & BOND, INC. ON 09-23-2022
2. UTILITY LOCATIONS SHOWN WERE PLOTTED FROM INFORMATION SUPPLIED BY RESPECTIVE UTILITY COMPANIES AND DATA OBTAINED FROM FIELD SURVEYS AND AS BUILT DRAWINGS. THE ACCURACY AND COMPLETENESS OF SUBSURFACE INFORMATION SHOWN ON THESE DRAWINGS IS NOT GUARANTEED. DETERMINE THE LOCATIONS AND ELEVATIONS OF ALL UTILITIES WHICH MAY AFFECT CONSTRUCTION OPERATIONS.
3. SUB-SURFACE EXPLORATIONS WERE PERFORMED BY MARTIN GEOENVIRONMENTAL ON 10-17-2022. BORING LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE AND BORING INFORMATION IS NOT GUARANTEED IN ANY WAY TO REPRESENT EXISTING CONDITIONS. BORING LOGS ARE INCLUDED IN THE PROJECT MANUAL FOR THE CONTRACTORS INFORMATION ONLY.
4. THE DRAWINGS ARE BASED ON THE FOLLOWING DATUMS: HORIZONTAL NAD83 ; VERTICAL NAVD88
5. THE EXISTING CONDITIONS SHOWN ARE APPROXIMATE. FIELD VERIFY EXISTING CONDITIONS.

1. NOTIFY DIGSAFE AT 1-888-344-7233 AND OTHER UTILITY OWNERS IN THE AREA NOT ON THE DIGSAFE LIST AT LEAST 72 HOURS PRIOR TO ANY DIGGING, TRENCHING, ROCK REMOVAL, DEMOLITION, BORING, BACKFILLING, GRADING, LANDSCAPING, OR ANY OTHER EARTH MOVING OPERATIONS.
2. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. IN ADDITION, SOME UTILITIES MAY NOT BE SHOWN. DETERMINE THE EXACT LOCATION OF UTILITIES BY TEST PIT OR OTHER METHODS, AS NECESSARY TO PREVENT DAMAGE TO UTILITIES AND/OR INTERRUPTIONS IN UTILITY SERVICE. PERFORM TEST PIT EXCAVATIONS AND OTHER INVESTIGATIONS TO LOCATE UTILITIES, AND PROVIDE THIS INFORMATION TO THE ENGINEER, PRIOR TO CONSTRUCTING THE PROPOSED IMPROVEMENTS. LOCATE ALL EXISTING UTILITIES TO BE CROSSED BY HAND EXCAVATION.
3. BOLD TEXT AND LINES INDICATE PROPOSED WORK. LIGHT TEXT AND LINES INDICATE APPROXIMATE EXISTING CONDITIONS.
4. TIGHE & BOND ASSUMES NO RESPONSIBILITY FOR ANY ISSUES, LEGAL OR OTHERWISE, RESULTING FROM CHANGES MADE TO THESE DRAWINGS WITHOUT WRITTEN AUTHORIZATION FROM TIGHE & BOND.
5. EXCAVATE ADDITIONAL TEST PITS TO LOCATE EXISTING UTILITIES AS DIRECTED OR APPROVED BY THE ENGINEER.
6. NOTIFY THE ENGINEER OF ANY UTILITIES IDENTIFIED DURING CONSTRUCTION THAT ARE NOT SHOWN ON THE DRAWINGS OR THAT DIFFER IN SIZE OR MATERIAL.
7. THE CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY; COORDINATION WITH THE OWNER, ALL SUBCONTRACTORS, AND WITH OTHER CONTRACTORS WORKING WITHIN THE LIMITS OF WORK, THE MEANS AND METHODS OF CONSTRUCTING THE PROPOSED WORK.
8. OBTAIN, PAY FOR AND COMPLY WITH PERMITS, NOTICES AND FEES NECESSARY TO COMPLETE THE WORK. ARRANGE AND PAY FOR NECESSARY INSPECTIONS AND APPROVALS FROM THE JURISDICTIONAL AUTHORITIES.
9. SHORE UTILITY TRENCHES WHERE FIELD CONDITIONS DICTATE AND/OR WHERE REQUIRED BY LOCAL, STATE AND FEDERAL HEALTH AND SAFETY CODES.
10. FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. IF FIELD CONDITIONS ARE OBSERVED THAT VARY SIGNIFICANTLY FROM THOSE SHOWN ON THE DRAWINGS, IMMEDIATELY NOTIFY THE ENGINEER IN WRITING FOR RESOLUTION OF THE CONFLICTING INFORMATION.
11. PROTECT AND MAINTAIN ALL UTILITIES IN THE AREAS UNDER CONSTRUCTION DURING THE WORK. LEAVE ALL PIPES AND STRUCTURES WITHIN THE LIMITS OF THE CONTRACT IN A CLEAN AND OPERABLE CONDITION AT THE COMPLETION OF THE WORK. TAKE ALL NECESSARY PRECAUTIONS TO PREVENT SAND AND SILT FROM DISTURBED AREAS FROM ENTERING THE DRAINAGE SYSTEM.
12. NOTIFY THE ENGINEER IN WRITING OF ANY CONFLICT, ERROR, AMBIGUITY, OR DISCREPANCY WITH THE PLANS OR BETWEEN THE PLANS AND ANY APPLICABLE LAW, REGULATION, CODE, STANDARD SPECIFICATION, OR MANUFACTURER'S INSTRUCTIONS.
13. THE CONTRACTOR IS RESPONSIBLE FOR SUPPORT OF EXISTING UTILITIES AND REPAIR OR REPLACEMENT COSTS OF UTILITIES DAMAGED DURING CONSTRUCTION, WHETHER ABOVE OR BELOW GRADE. REPLACE DAMAGED UTILITIES IMMEDIATELY AT NO ADDITIONAL COST TO THE OWNER AND AT NO COST TO THE PROPERTY OWNER.
14. TAKE NECESSARY MEASURES AND PROVIDE CONTINUOUS BARRIERS OF SUFFICIENT TYPE, SIZE, AND STRENGTH TO PREVENT ACCESS TO ALL WORK AND STAGING AREAS AT THE COMPLETION OF EACH DAYS WORK.
15. THE CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY TRAFFIC CONTROL/SAFETY DEVICES TO ENSURE SAFE VEHICULAR AND PEDESTRIAN ACCESS THROUGH THE WORK AREA, OR FOR SAFELY IMPLEMENTING DETOURS AROUND THE WORK AREA. PERFORM TRAFFIC CONTROL IN ACCORDANCE WITH THE CONTRACTOR'S APPROVED TRAFFIC CONTROL PLAN.
16. WHEN WORKING IN THE ROAD, PROVIDE THE OWNER AND LOCAL FIRE/POLICE/SCHOOL AUTHORITIES A DETAILED PLAN OF APPROACH INDICATING METHODS OF PROPOSED TRAFFIC ROUTING ON A DAILY BASIS. PROVIDE COORDINATION TO ENSURE COMMUNICATION AND COORDINATION BETWEEN THE OWNER, CONTRACTOR AND LOCAL FIRE/POLICE/SCHOOL AUTHORITIES THROUGHOUT THE CONSTRUCTION PERIOD.
17. REMOVE AND DISPOSE OF ALL CONSTRUCTION-RELATED WASTE MATERIALS AND DEBRIS IN STRICT ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL LAWS.
18. THE TERM "DEMOLISH" USED ON THE DRAWINGS MEANS TO REMOVE AND DISPOSE OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
19. THE TERM "ABANDON" USED ON THE DRAWINGS MEANS TO LEAVE IN PLACE AND TAKE APPROPRIATE MEASURES TO DECOMMISSION AS SPECIFIED OR NOTED ON THE DRAWINGS.
20. ALL PROPOSED WORK MAY BE ADJUSTED IN THE FIELD BY THE OWNER'S PROJECT REPRESENTATIVE AND ENGINEER TO MEET EXISTING CONDITIONS AT THE PROJECT LIMITS. FIELD ADJUSTMENTS WILL BE PERFORMED IN SUCH A MANNER THAT THE PROJECT REMAINS IN COMPLIANCE WITH ALL PERMIT CONDITIONS AND REGULATORY STANDARDS.

DEMOLITION / GEOTECHNICAL	
EROSION & SEDIMENT CONTROL	
COFFERDAM	
TURBIDITY CURTAIN	
UTILITY TO BE ABANDONED	
UTILITY TO BE DEMOLISHED	
ITEM TO BE DEMOLISHED	
TEST PIT	
MONITORING WELL	
BORING	

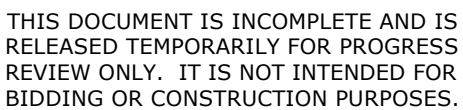
RESOURCE AREAS	
VEGETATED WETLAND LIMIT TOP OF BANK	
ORDINARY HIGH WATER DELINEATION FLAG	

1. PROVIDE ALL EROSION CONTROL MEASURES SHOWN, SPECIFIED, REQUIRED BY PERMIT, AND/OR REQUIRED BY THE ENGINEER PRIOR TO ANY CONSTRUCTION OR IMMEDIATELY UPON REQUEST. MAINTAIN SUCH CONTROL MEASURES UNTIL FINAL SURFACE TREATMENTS ARE IN PLACE AND/OR UNTIL PERMANENT VEGETATION IS ESTABLISHED. INSPECT AFTER EACH RAINSTORM AND DURING MAJOR STORM EVENTS TO CONFIRM THAT ALL SEDIMENTATION AND EROSION CONTROL MEASURES REQUIRED ARE IN PLACE AND EFFECTIVE.
2. COMPACT, STABILIZE, AND LOAM AND SEED SIDE SLOPES, SHOULDER AREAS AND DISTURBED VEGETATED AREAS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND AS REQUIRED BY PERMITS. GRADE SIDE SLOPES, SHOULDER AREAS AND DISTURBED VEGETATED AREAS TO A MAXIMUM SLOPE OF 3 HORIZONTAL TO 1 VERTICAL (3H:1V), WHERE POSSIBLE. PROVIDE BIODEGRADABLE EROSION CONTROL BLANKETS TO PREVENT EROSION WHERE SLOPES ARE STEEPER THAN 3H:1V.
3. SEED MIX SHALL ONLY BE USED IN LOCATIONS REQUIRING STABILIZATION AND SHALL BE APPROVED BY THE OWNER PRIOR TO ARRIVING ON SITE.
4. SETTLE OR FILTER ALL SILT-LADEN WATER FROM DEWATERING ACTIVITIES IN A SEDIMENTATION OR FILTER BAG TO REMOVE SEDIMENTS PRIOR TO RELEASE USING A SEDIMENTATION OR FILTER BAG LOCATED DOWN-GRADIENT OF THE DEWATERED AREA.
5. REMOVE AND PROPERLY DISPOSE OF SILT TRAPPED AT BARRIERS IN UPLAND AREAS OUTSIDE BUFFER ZONES. REMOVE MATERIALS DEPOSITED IN ANY TEMPORARY SETTLING BASINS AT THE COMPLETION OF THE PROJECT. RESTORE ALL DISTURBED AREAS TO THEIR PRECONSTRUCTION CONDITION.
6. SWEEP, COLLECT, REMOVE AND DISPOSE OF ANY SEDIMENT TRACKED ONTO PUBLIC RIGHT-OF-WAYS AT THE END OF EACH DAY.
7. LOAM AND SEED ALL DISTURBED VEGETATED AREAS TO ESTABLISH COVER AND STABILIZATION AS SOON AS POSSIBLE FOLLOWING DISTURBANCE.
8. MAINTAIN AN ADDITIONAL SUPPLY OF EROSION CONTROL MEASURES ON-SITE FOR EMERGENCY REPAIRS.
9. STORE FUEL, OIL, PAINT, OR OTHER HAZARDOUS MATERIALS IN A SECONDARY CONTAINER AND REMOVE TO A SECURE LOCKED AND COVERED AREA DURING NON-WORK HOURS.
10. PROVIDE A SUPPLY OF ABSORBENT SPILL RESPONSE MATERIALS SUCH AS BOOMS, BLANKETS, AND OIL ABSORBENT MATERIALS AT THE CONSTRUCTION SITE AT ALL TIMES TO CLEAN UP POTENTIAL SPILLS OF HAZARDOUS MATERIALS. IMMEDIATELY REPORT SPILLS OF HAZARDOUS MATERIALS TO THE STATE ENVIRONMENTAL AGENCY AND THE MUNICIPALITY WHERE THE WORK IS OCCURRING.

1. ALL PAVEMENT DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
2. IF REMOVAL OF PROJECT FEATURES IS REQUIRED IN ORDER TO PERFORM THE PROPOSED WORK, REMOVE THOSE SITE FEATURES ONLY UPON APPROVAL OF ENGINEER. REPLACE ALL REMOVED PROJECT FEATURES; NEW ITEMS SHALL BE EQUAL OR BETTER IN QUALITY AND CONDITION TO THE ITEMS REMOVED.
3. EXISTING SURVEY MONUMENTS DISTURBED BY THE CONTRACTOR SHALL BE REPLACED BY A LAND SURVEYOR LICENSED IN THE STATE IN WHICH THE WORK IS PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
4. COORDINATE THE ADJUSTMENT OF EXISTING UTILITY STRUCTURES WITH EACH RESPONSIBLE UTILITY OWNER PRIOR TO RECONSTRUCTION AND/OR PAVING OPERATIONS. RAISE ALL STRUCTURES TO FINISHED GRADES PRIOR TO THE END OF THE CONSTRUCTION SEASON AND PRIOR TO FINISHED PAVING.
5. REPAIR DISTURBED PAVED SURFACES AT THE END OF EACH WORK WEEK, UNLESS OTHERWISE APPROVED/REQUIRED BY THE OWNER.
6. TRANSFER ALL TEMPORARY BENCHMARKS, AS NECESSARY.
7. RESTORE ALL AREAS DISTURBED BY THE CONTRACTOR BEYOND THE PAYLINE LIMITS TO ORIGINAL CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.
8. REGRADE ALL UNPAVED AREAS DISTURBED BY THE WORK AS REQUIRED. REPAIR/REPLACE PAVED SURFACES DISTURBED BY THE WORK IN-KIND, UNLESS OTHERWISE NOTED. RESTORE SURFACES TO EXISTING OR PROPOSED CONDITIONS AS INDICATED ON THE DRAWINGS.
9. PROVIDE A SMOOTH, FLUSH TRANSITION BETWEEN ALL NEW AND EXISTING PAVEMENTS.

DESCRIPTION	EXISTING	PROPOSED
CONCRETE		
GRAVEL BORROW		
DUMPED RIPRAP		
STONE WINGWALL		
LOAM		

DESCRIPTION	EXISTING	PROPOSED
LIMITS OF WORK		
INTERMEDIATE CONTOURS		
INDEX CONTOURS		
SPOT GRADE		
MAGNITUDE & DIRECTION OF SLOPE		
EDGE OF PAVEMENT		
STONE WALL		
TIMBER BEAM RAIL		
TREELINE		
TREE		



Department of
Conservation
and Recreation

New Ashford,
Massachusetts

[illegible]

MARK	DATE	DESCRIPTION
PROJECT NO:	M-0736-139	
DATE:	MAR 2026	
FILE:	M-0736-139-G-General Notes.dwg	
DRAWN BY:	ND, MLM	
CHECKED BY:	AGB, MPW	
APPROVED BY:	DLM	

GENERAL NOTES, LEGEND, AND ABBREVIATIONS

SCALE: AS SHOWN

G-001
SHEET 2 OF 20

Last Saved: 3/5/2026
Plotted On: Mar 05, 2026 - 4:49pm By: RCase
File & Path: \\tjgibson.com\data\area\Projects\W\m0736.mxd
User: rcase

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DESIGN LOADS AND SPECIFICATIONS:

1. DESIGN LOADING:	HL-93
2. DESIGN METHOD:	LOAD AND RESISTANCE FACTOR DESIGN (LRFD)
3. SPECIFICATIONS:	AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH ED., 2020 AS AMENDED MASSDOT LRFD BRIDGE MANUAL, 2013, AS AMENDED BY SUPPLEMENTS
4. FOUNDATION DATA:	PRECAST RIGID FRAME: PEDESTAL MAT FOOTING SUPPORT ON BEDROCK WITH A FACTORED BEARING CAPACITY OF 12.0 KSF. FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45. WINGWALLS: MODULAR BLOCK WALLS SUPPORTED ON CRUSHED STONE ON UNDISTURBED SOIL WITH A FACTORED BEARING CAPACITY OF 3.9 KSF.
5. REINFORCING STEEL:	AASHTO M31 (ASTM A 615) GRADE 60 EPOXY COATED BARS: ALL BARS.
6. CONCRETE:	PRECAST RIGID FRAME: 5000 PSI, 3/4", 685 HP CEMENT CONCRETE CAST-IN-PLACE PEDESTAL FOOTINGS: 4000 PSI, 1 1/2", 565 CEMENT CONCRETE
7. BACKFILL:	UNIT WEIGHT = 130 PCF ANGLE OF INTERNAL FRICTION = 32 DEGREES COEFFICIENT OF FRICTION FOR CAST-IN-PLACE CONCRETE ON BEDROCK = 0.70 (DELTA = 35 DEGREES)
8. SEISMIC:	PEAK GROUND ACCELERATION (PGA) = 0.057 SEISMIC SITE CLASS = C ZONE = 1 DESIGN PEAK SEISMIC GROUND ACCELERATION MODIFIED BY THE SHORT-PERIOD SITE FACTOR (A _s) = 0.068 DESIGN SPECTRAL RESPONSE ACCELERATION AT 0.2 SECOND PERIODS (S _{0.2}) = 0.157 DESIGN SPECTRAL RESPONSE ACCELERATION AT 1-SECOND PERIODS (S _{0.1}) = 0.068

FOUNDATION NOTES

- FOUNDATION MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED DURING CONSTRUCTION, WITH THE APPROVAL OF THE ENGINEER.
- CONCRETE SHALL NOT BE PLACED IN WATER OR ON FROZEN GROUND.
- ALL FOUNDATIONS SHALL BE SUPPORTED FULLY ON SOIL OR BEDROCK. PARTIALLY SUPPORTED FOUNDATIONS ON BEDROCK AND SOIL IS NOT ACCEPTABLE.
- BOTTOM OF FOUNDATION ELEVATIONS PROVIDED ON DRAWINGS SHALL BE CONSIDERED MINIMUM DEPTHS. CONTRACTOR SHALL REMOVE UNSUITABLE MATERIAL AS REQUIRED.
- ALL FINISHED EXCAVATIONS SHALL BE VERIFIED AND APPROVED BY THE ENGINEER PRIOR TO PRECAST SECTION DELIVERY OR TO ANY CONCRETE PLACEMENT.
- ALL EXCAVATIONS FOR FOOTINGS FOUNDED ON SOIL SHALL BE FINISHED BY HAND FOR THE LAST 6".
- ALL BACKFILL UNDER OR ADJACENT TO ANY PORTION OF THE STRUCTURE SHALL BE PLACED IN ACCORDANCE WITH THE SPECIFICATIONS.
- REVIEW SOIL STRATA CONDITIONS BELOW BRIDGE FOOTINGS WITH ENGINEER PRIOR TO INSTALLATION.
- ANY UNSUITABLE MATERIALS SUCH AS LOOSE OR WEATHERED BEDROCK, BOULDERS, ROOTS, ORGANIC SOILS, OR SILT/CLAY ENCOUNTERED WITHIN THE FOUNDATION BEARING ZONE, DEFINED BY A 1H:1V PLAN EXTENDING DOWNWARD AND OUTWARD FROM 1 FOOT BEYOND THE EDGE OF FOOTING, SHALL BE REMOVED AND REPLACED WITH CRUSHED STONE, AS DIRECTED BY THE ENGINEER.

GEOTECHNICAL DESIGN PARAMETERS

- MINIMUM EMBEDMENT FOR FROST PROTECTION FOR FOOTINGS FOUNDED ON SOIL = 4 FEET BELOW ADJACENT GROUND SURFACE.
- MAXIMUM ALLOWABLE SETTLEMENT = 1.0 INCHES
- LATERAL EARTH PRESSURES FOR RESTRAINED RIGID FRAME WALLS (AT-REST):
 - STATIC =
 - 82 POUNDS PER CUBIC FOOT PER FOOT (PCF/FT) AS AN EQUIVALENT FLUID PRESSURE (ABOVE GROUNDWATER).
 - 105 POUNDS PER CUBIC FOOT PER FOOT (PCF/FT) AS AN EQUIVALENT FLUID PRESSURE (BELOW GROUNDWATER).
 - SURCHARGE =
 - HORIZONTAL FORCE FROM THE PRESSURE DISTRIBUTION PRODUCED BY THE AASHTO HL-93 VEHICULAR LIVE LOAD, UNIFORMLY DISTRIBUTED OVER THE HEIGHT OF THE WALL.
 - SEISMIC =
 - 60 POUNDS PER CUBIC FOOT PER FOOT (PCF/FT) AS AN EQUIVALENT FLUID PRESSURE.
- LATERAL EARTH PRESSURES FOR UNRESTRAINED WINGWALLS (ACTIVE):
 - STATIC =
 - 50 PCF/FT AS AN EQUIVALENT FLUID PRESSURE, 200 PSF MINIMUM (ABOVE GROUNDWATER).
 - 87 PCF/FT AS AN EQUIVALENT FLUID PRESSURE, 200 PSF MINIMUM (BELOW GROUNDWATER).
 - SURCHARGE =
 - HORIZONTAL FORCE FROM THE PRESSURE DISTRIBUTION PRODUCED BY THE AASHTO HL-93 VEHICULAR LIVE LOAD, UNIFORMLY DISTRIBUTED OVER THE HEIGHT OF THE WALL.
 - SEISMIC =
 - 54 POUNDS PER SQUARE FOOT PER FOOT (PSF/FT) AS AN EQUIVALENT FLUID PRESSURE.

REINFORCEMENT NOTES

- REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31 GRADE 60. UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION	#4 BARS	#5 BARS	#6 BARS
1. NONE	16"	19"	23"
2. 12" OF CONCRETE BELOW BAR	20"	25"	30"
3. EPOXY COATED BARS, COVER < 3d _b , OR CLEAR SPACING < 6d _b	23"	29"	34"
4. COATED BARS, ALL OTHER CASES	18"	23"	27"
5. CONDITION 2. AND 3.	26"	32"	39"
6. CONDITION 2. AND 4.	24"	30"	36"
- THE MINIMUM REBAR SPLICE LENGTH SCHEDULE IS BASED ON F'c= 4,000 PSI AND Fy= 60,000 PSI.
- IF THE CLEAR SPACING BETWEEN THE REBARS IS LESS THAN FIVE BAR DIAMETERS, OR IF THE COVER IS LESS THAN TWO BAR DIAMETERS, INCREASE THE SPLICE LENGTH BY AN ADDITIONAL 50%.
- IF LIGHTWEIGHT CONCRETE IS USED, INCREASE THE SPLICE LENGTH BY AN ADDITIONAL 30%.
- WHEN BARS OF DIFFERENT SIZE ARE LAP SPLICED, THE SPLICE LENGTH SHALL BE THE LARGER OF EITHER THE DEVELOPMENT LENGTH OF THE LARGER BAR OR THE SPLICE LENGTH OF THE SMALLER BAR.

CULVERT REMOVAL NOTES

- THE CONTRACTOR'S METHOD FOR REMOVAL OF THE EXISTING CULVERT SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE PRIOR TO THE COMMENCEMENT OF ANY REMOVAL OPERATIONS.
- REMOVAL OF EXISTING CULVERT STRUCTURE SHALL INCLUDE THE COMPLETE REMOVAL OF THE PIPES AND HEADWALLS. REFER TO SHEET 4 FOR DEMOLITION PLAN.
- PRIOR TO REMOVAL OF EXISTING CULVERT, THE CONTRACTOR SHALL VERIFY THAT WATER TEMPORARY BYPASS HAS BEEN INSTALLED.

CULVERT STRUCTURE NOTES

- ITEM 995.011, CULVERT STRUCTURE, CULVERT NO. 41, SHALL INCLUDE THE PRECAST CONCRETE RIGID FRAME. JOINT MATERIALS, MEMBRANE, AND ANY OTHER MATERIALS OR ITEMS REQUIRED FOR INSTALLATION OF THE PRECAST CONCRETE BRIDGE STRUCTURE SHALL BE SUBSIDIARY.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS SEALED AND SIGNED BY A CURRENTLY REGISTERED MASSACHUSETTS PROFESSIONAL ENGINEER(S) TO THE ENGINEER FOR REVIEW AND ACCEPTANCE TO CHECK FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS. DESIGN SHALL ENCOMPASS THE RIGID FRAME, WINGWALLS, WINGWALL FOUNDATIONS, AND CONNECTION OF HEADWALLS TO RIGID FRAME. SHOP DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED PRIOR TO FABRICATION FOR ALL PRECAST CONCRETE ELEMENTS. SHOP DRAWINGS SHALL SHOW JOINT DETAILS AND REINFORCEMENT SIZE AND LOCATION.
- CHANGES OR MODIFICATIONS DURING THE FABRICATION PROCESS MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL AND INCORPORATED INTO THE FINAL AS-BUILT DRAWINGS. HYDRAULIC OPENING DIMENSIONS MUST BE MAINTAINED AT A MINIMUM.
- DIMENSIONS SHOWN FOR THE PRECAST CONCRETE ELEMENTS ARE APPROXIMATE AND BASED ON CONCEPTUAL DESIGN. NO ADJUSTMENTS TO QUANTITIES OR PAYMENTS WILL BE MADE AS A RESULT OF PROVIDING PRECAST UNITS SIZED DIFFERENTLY THAN SHOWN ON THE PLANS. CONTRACTOR TO ADJUST OVERALL BRIDGE GEOMETRY AS NEEDED IF PRECAST ELEMENT SIZES SELECTED BY CONTRACTOR DIFFER. SEE ALSO SPECIFICATIONS ITEM 955.011.
- THE QUALITY OF MATERIALS, THE PROCESS OF MANUFACTURE, AND THE FINISHED PRECAST UNITS SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE ENGINEER.
- JOINTS BETWEEN ABUTTING PRECAST UNITS SHALL BE MECHANICALLY CONNECTED, WATERTIGHT, GROUTED, AND MEMBRANED.
- SEE LIMITS OF MATERIALS ON SHEET C-504 FOR LIMITS OF DAMPPROOFING AND MEMBRANE WATERPROOFING.
- EXPOSED CONCRETE SURFACES SHALL BE TREATED WITH WATER REPELLENT (SILANE/SILOXANE).
- PRECAST CONCRETE HEADWALL ANCHORAGES AND RIGID FRAME SECTIONS SHALL BE DESIGNED TO ACCOUNT FOR ALL EARTH PRESSURE AND LIVE LOAD SURCHARGES WHEN APPLICABLE.
- WEEP HOLES SHALL BE PLACED 1'-0" (TYP) ABOVE THE TOP OF THE PEDESTAL FOOTING AND ONE (1) WEEP SHALL BE PROVIDED ON BOTH SIDES OF EACH RIGID FRAME OR WINGWALL UNIT OR 10'-0" (MAX) SPACING ALONG FOOTING.
- FOOTINGS SHALL HAVE A KEYWAY WITH THE SPECIFIED DIMENSIONS. GROUT SHALL BE PLACED AROUND THE BOTTOM OF THE RIGID FRAME AND TO THE TOP OF THE KEYWAY.
- TOP SURFACES OF FOOTING UNITS SHALL BE SET UNIFORMLY TRUE AND LEVEL TO A TOLERANCE OF $\pm\frac{1}{4}$ ".
- DEWATERING IS REQUIRED AT EACH FOUNDATION LOCATION TO CONTROL THE WATER INFLOW AND ADEQUATELY DEWATER THE FOOTING EXCAVATION. SUMP PUMPING AREAS AROUND THE ENTIRE PERIMETER SHALL BE REQUIRED, AT A MINIMUM, TO ADEQUATELY CONTROL THE GROUNDWATER WITHIN THE EXCAVATION AREAS. DEWATERING SHALL BE CONTINUOUS UNTIL THE PRECAST CONCRETE RIGID FRAME AND WINGWALLS ARE BACKFILLED EVENLY ON BOTH SIDES TO THE ELEVATIONS OF THE SURROUNDING WATER TABLE, UNLESS OTHERWISE DIRECTED.
- PROPOSED DEWATERING SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND ACCEPTANCE.
- WATER PUMPED FROM DEWATERING LOCATIONS SHALL BE FILTERED TO REMOVE FINE MATERIALS PRIOR TO RETURNING THE WATER TO THE RIVER/BROOK. SEE NOTES AND SEDIMENT TRAP DETAIL ON SHEET C-501. ACTUAL LOCATION OF SEDIMENTATION BASIN TO BE DETERMINED BY CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
- THE CONTRACTOR SHALL SUBMIT DRAWINGS AND DESIGN CALCULATIONS, SEALED AND SIGNED BY A CURRENTLY REGISTERED MASSACHUSETTS PROFESSIONAL ENGINEER TO THE ENGINEER FOR REVIEW AND ACCEPTANCE OF PROPOSED SHORING AND SUPPORT OF EXCAVATION. SHOP DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED PRIOR TO FABRICATION AND INSTALLATION FOR ALL SHORING AND SUPPORT OF EXCAVATION ELEMENTS.
- ANY FOUNDATION MATERIALS WEAKENED AS A RESULT OF INSUFFICIENT CARE WHILE MAINTAINING A DEWATERED CONDITION SHALL BE REMOVED AND REPLACED WITH GRAVEL BORROW (M1.03.0 TYPE A) OR CRUSHED STONE AT NO EXPENSE TO THE OWNER.
- REINFORCEMENT OF THE PRECAST UNITS SHALL HAVE A 2" MINIMUM CLEAR COVER IN THE TOP FACE OF TOP SLAB, INSIDE FACE OF SIDEWALLS, AND HEADWALLS. ALL OTHER REINFORCEMENT IN THE PRECAST UNITS SHALL HAVE A 1 ½" MINIMUM CLEAR COVER. ANY CAST-IN-PLACE CONCRETE SHALL MEET AASHTO COVER REQUIREMENTS.
- DATE TO BE PLACED CENTERED BOTH WAYS, BEDDED INTO THE EXTERIOR FACE OF THE CONCRETE RIGID FRAME ROOF SLAB. CONTRACTOR SHALL FURNISH A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS. THE DATE USED SHALL BE THE LATEST YEAR OF CONTRACT COMPLETION AS OF THE DATE IT IS CONSTRUCTED. BOTH ENDS OF THE RIGID FRAME SHALL FEATURE THE SAME DATE.
- ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4", UNLESS OTHERWISE NOTED.



THIS DOCUMENT IS INCOMPLETE AND IS RELEASED TEMPORARILY FOR PROGRESS REVIEW ONLY. IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

Rockwell Road Improvements Project

Department of Conservation and Recreation

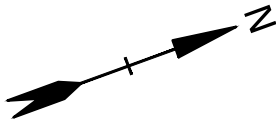
New Ashford, Massachusetts

MARK	DATE	DESCRIPTION
PROJECT NO:		M-0736-139
DATE:		MAR 2026
FILE:		M-0736-139-G-General_Notes.dwg
DRAWN BY:		ND, MLM
CHECKED BY:		AGB, MPW
APPROVED BY:		DLM

GENERAL NOTES

SCALE: AS SHOWN

G-002
SHEET 3 OF 20



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Rockwell Road Improvements Project

Department of Conservation and Recreation

New Ashford, Massachusetts

MARK	DATE	DESCRIPTION
PROJECT NO:		M-0736-139
DATE:		MAR 2026
FILE:		M-0739-139 EXISTING CONDITIONS.dwg
DRAWN BY:		ND, TW
CHECKED BY:		AGB, MPW
APPROVED BY:		DLM

EXISTING CONDITION AND DEMOLITION PLAN - NORTH CULVERT (CID 41)

SCALE: AS SHOWN



PHOTO 1

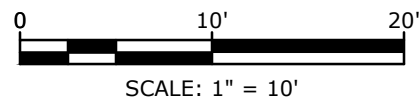
NOTE: EXISTING CID 41 UPSTREAM HEADWALL

1. ALL PROPOSED CONSTRUCTION IS LOCATED WITHIN THE 100-FT BUFFER ZONE AND 200-FOOT RIVERFRONT AREA OF MITCHELL BROOK.

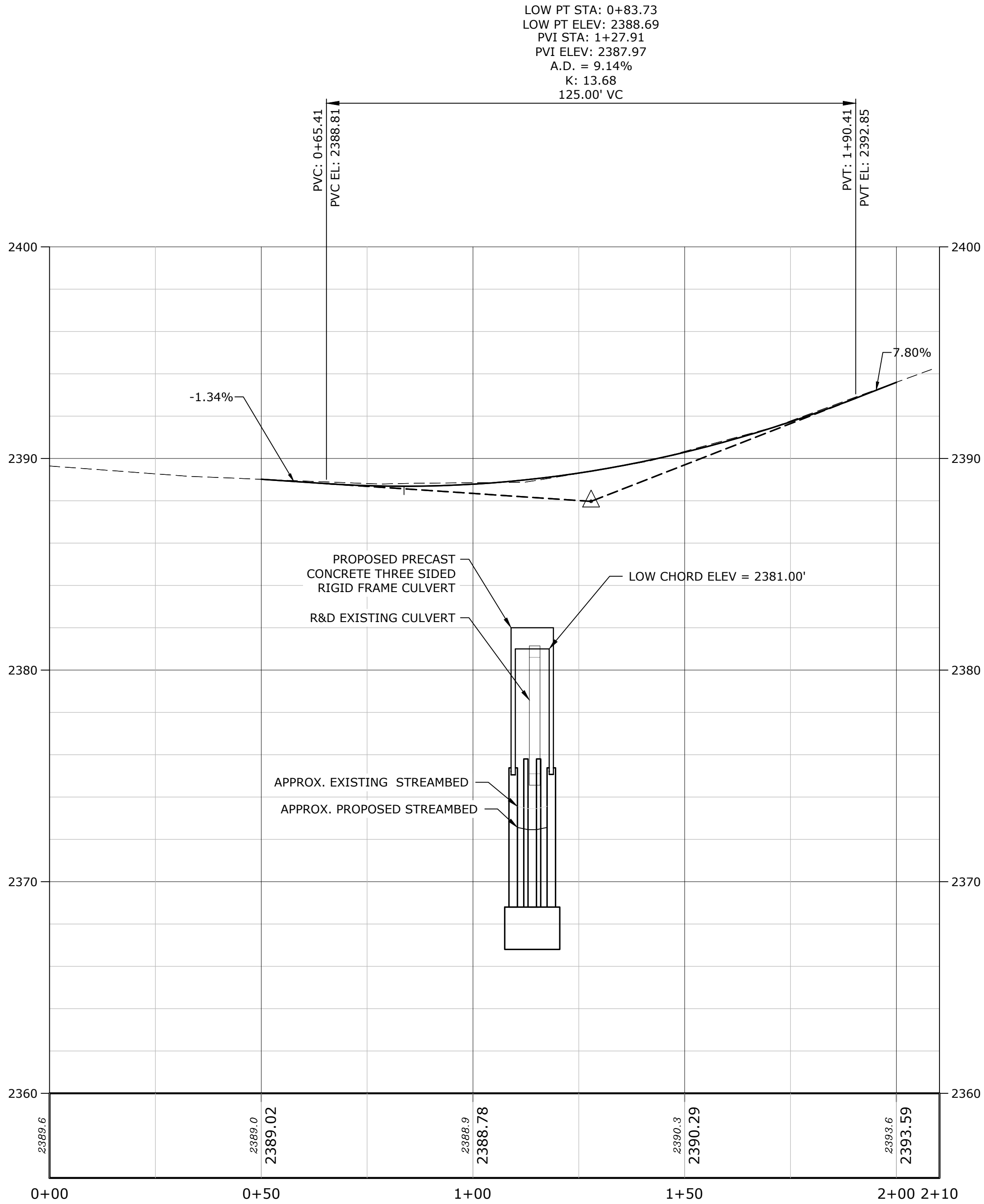


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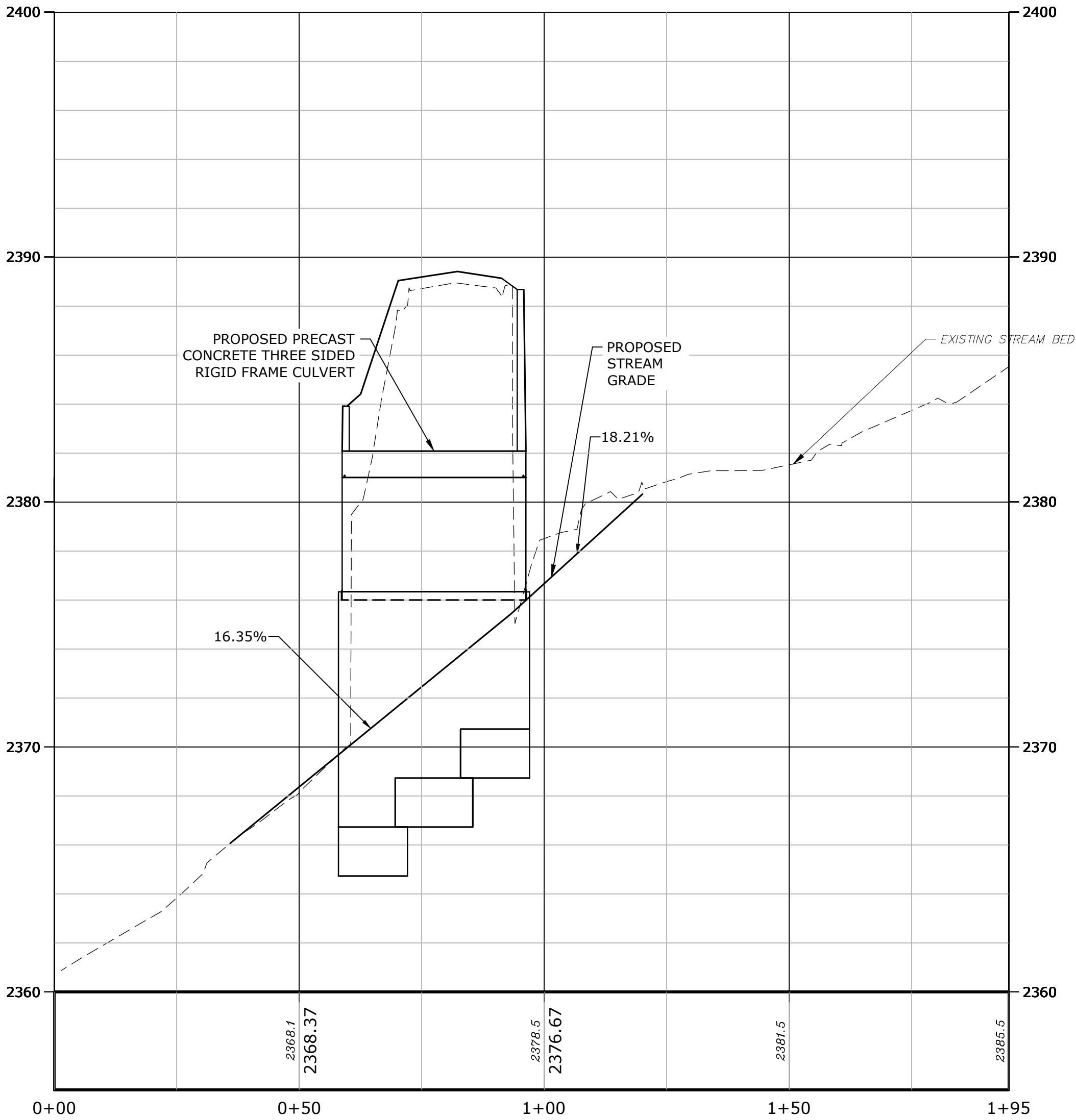
EXISTING CID 41 DOWNSTREAM HEADWALL



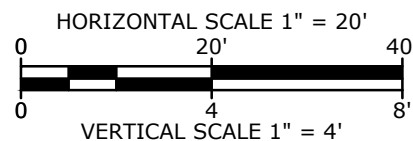
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ROCKWELL ROAD NORTH CULVERT PROFILE



MITCHELL BROOK PROFILE



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Rockwell Road
Improvements
Project

Department of
Conservation
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New Ashford,
Massachusetts

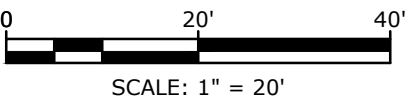
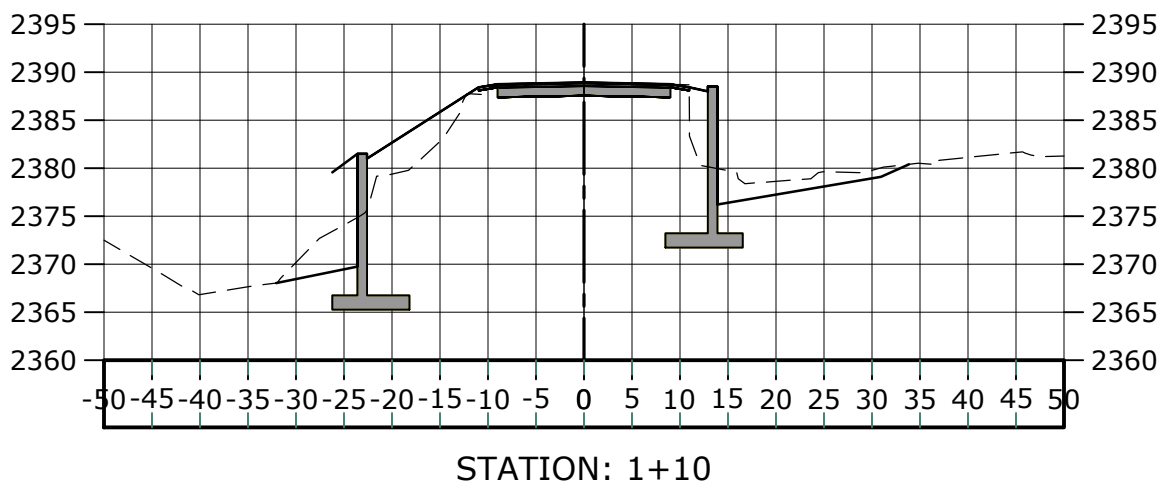
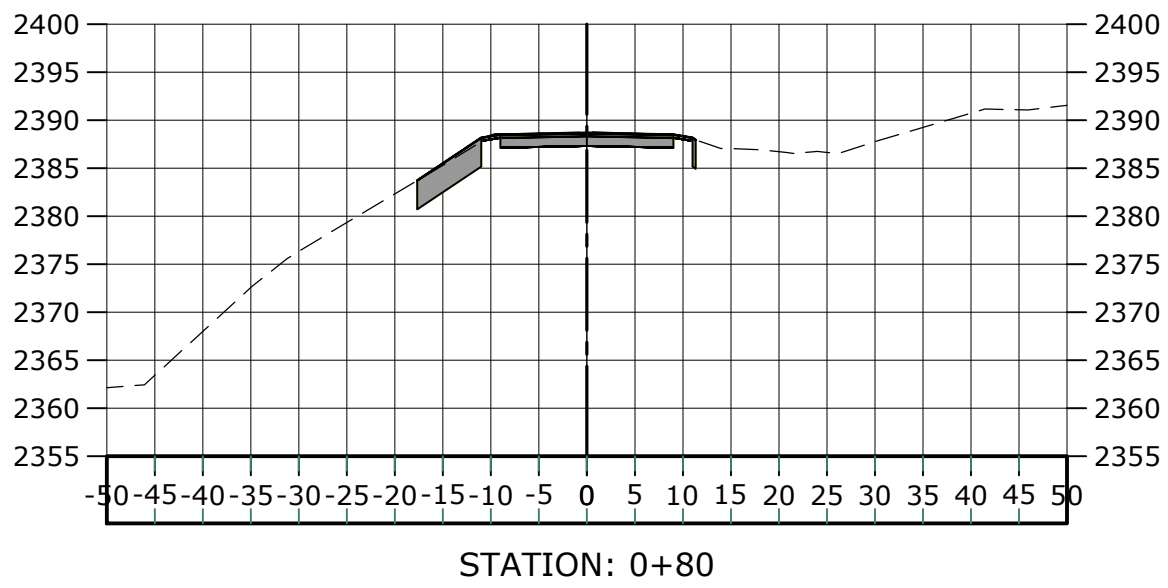
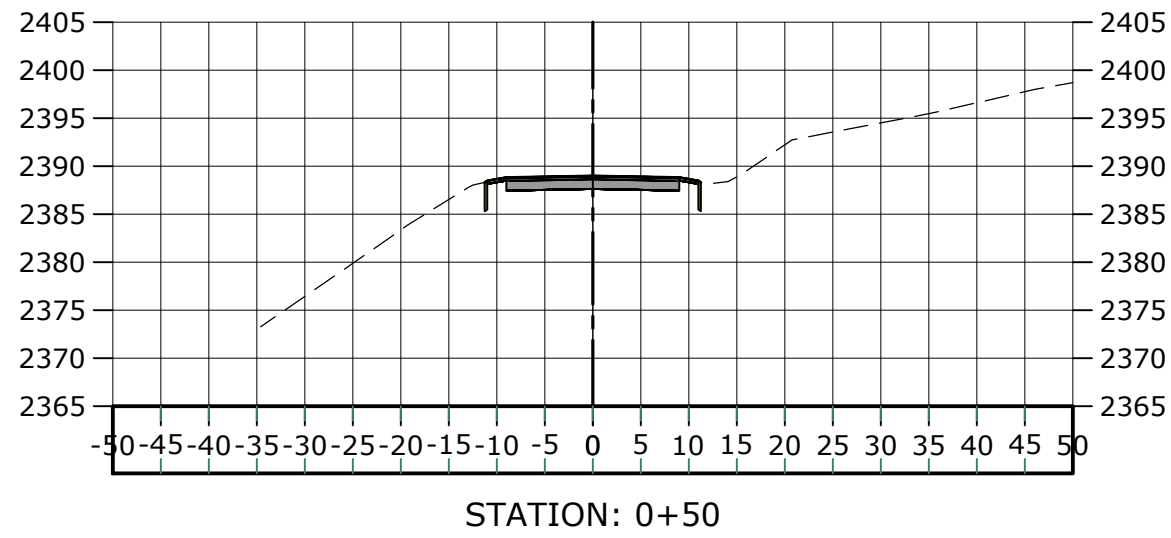
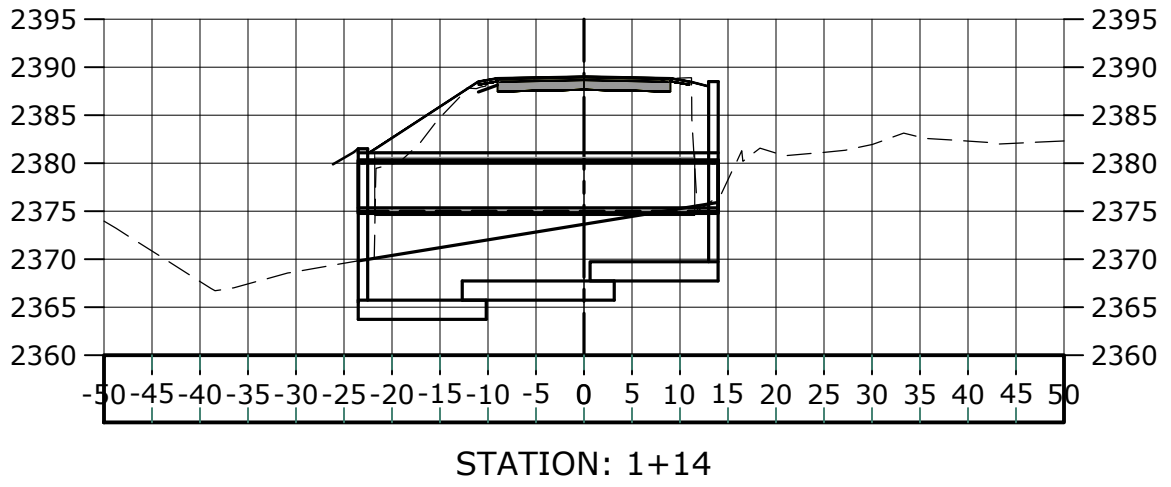
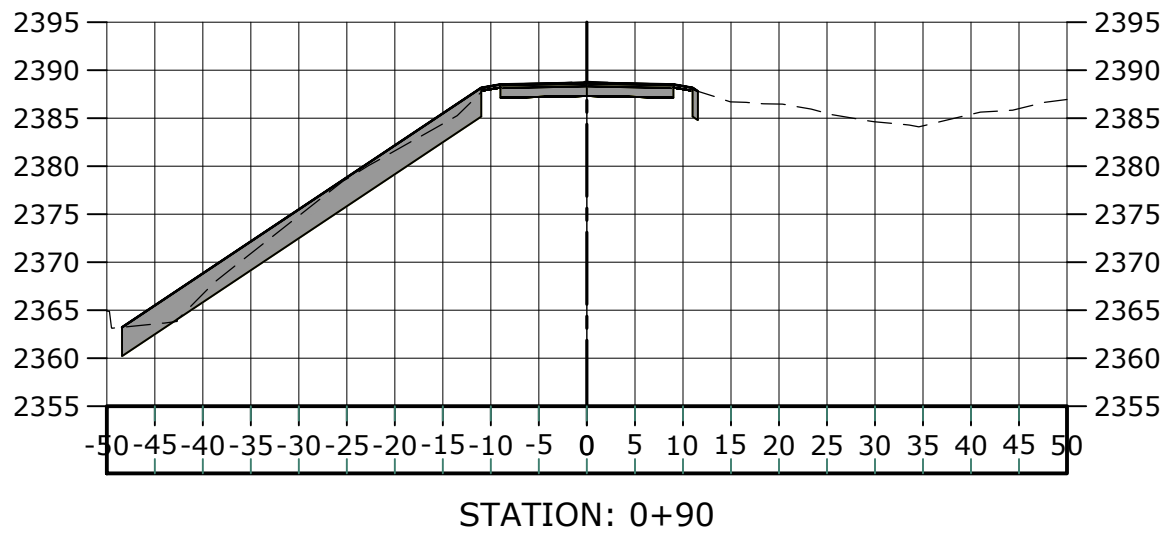
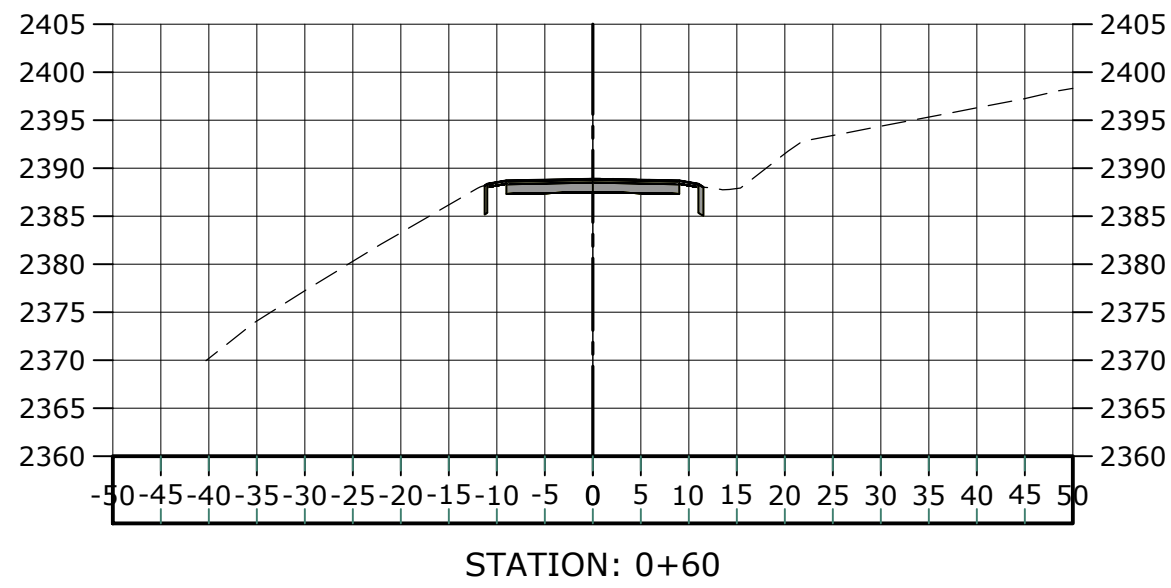
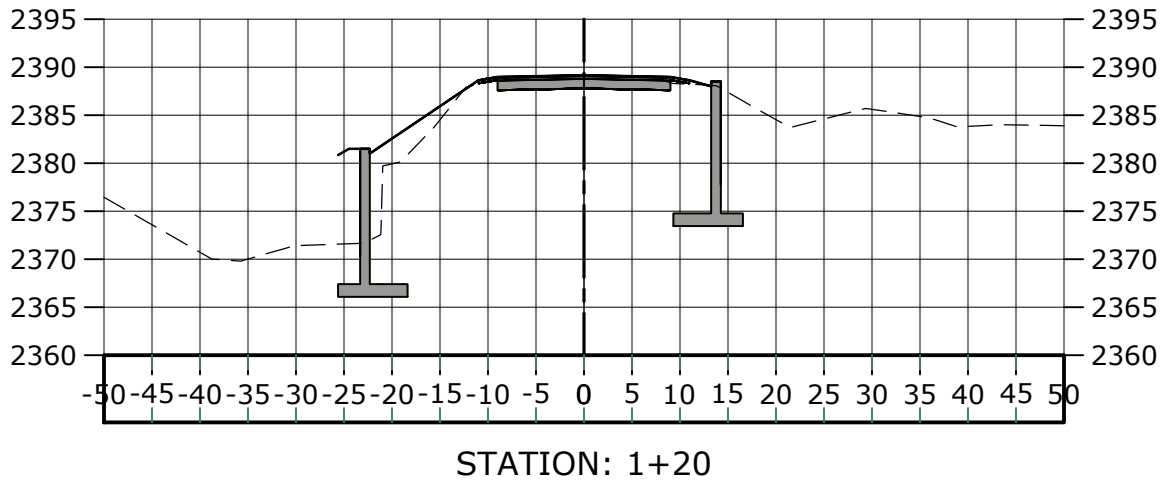
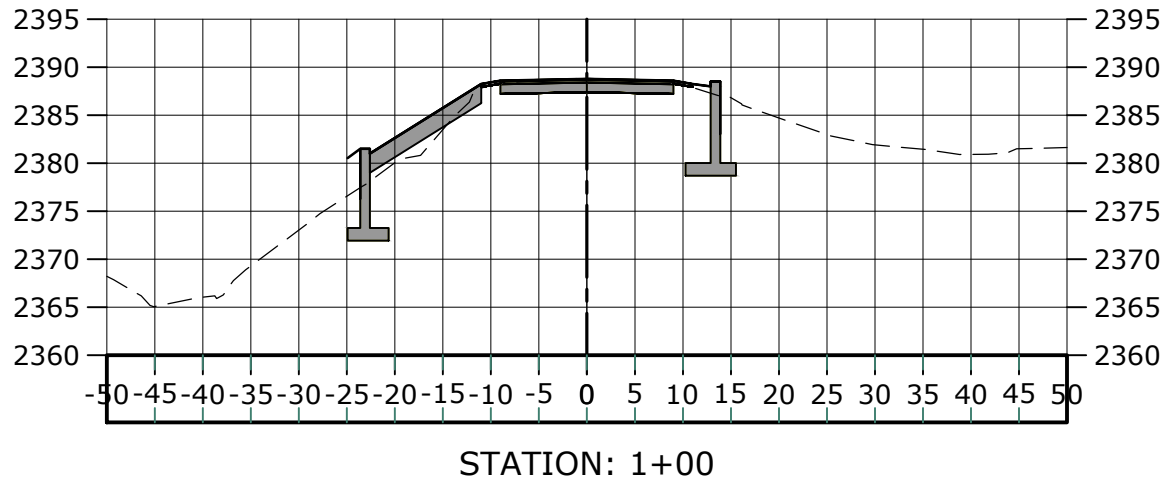
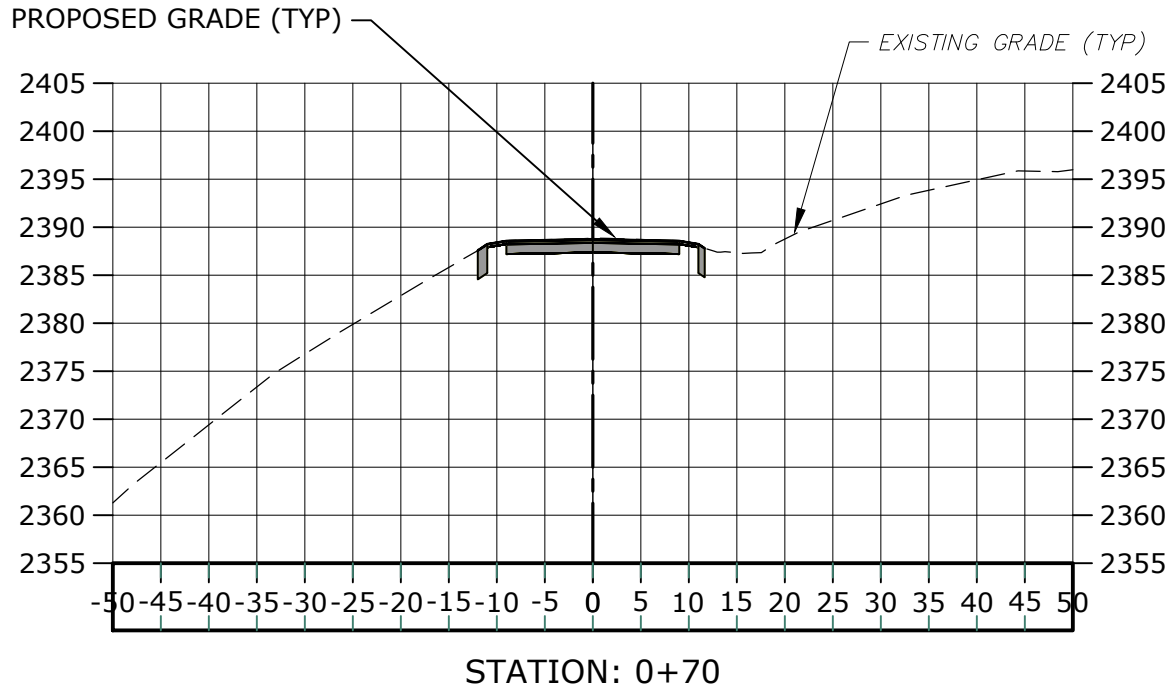
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DATE:		MAR 2026
FILE:		M-0739-139 SITE PALN.dwg
DRAWN BY:		ND/TW
CHECKED BY:		AGB/MPW
APPROVED BY:		DLM

NORTH CULVERT PROFILE
(CID 41)

SCALE: AS SHOWN

C-103
SHEET 6 OF 20

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Rockwell Road Improvements Project

Department of Conservation and Recreation

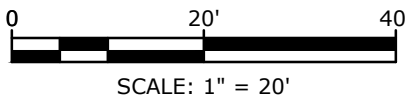
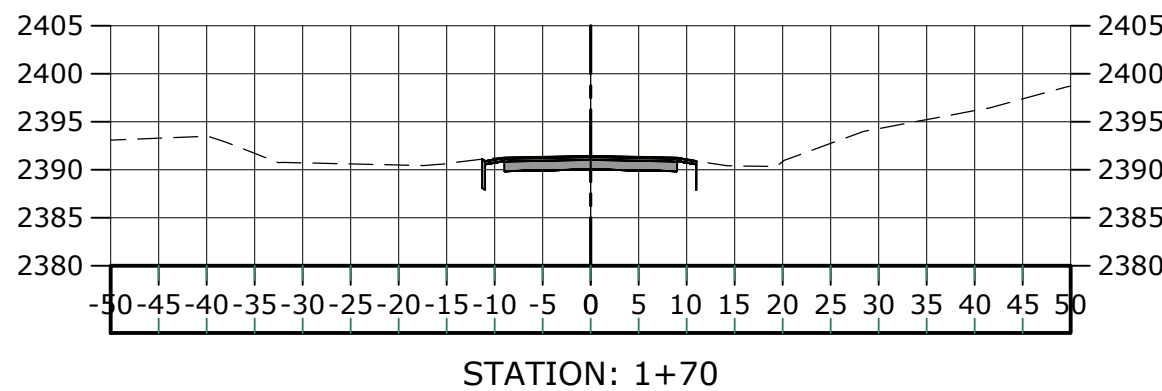
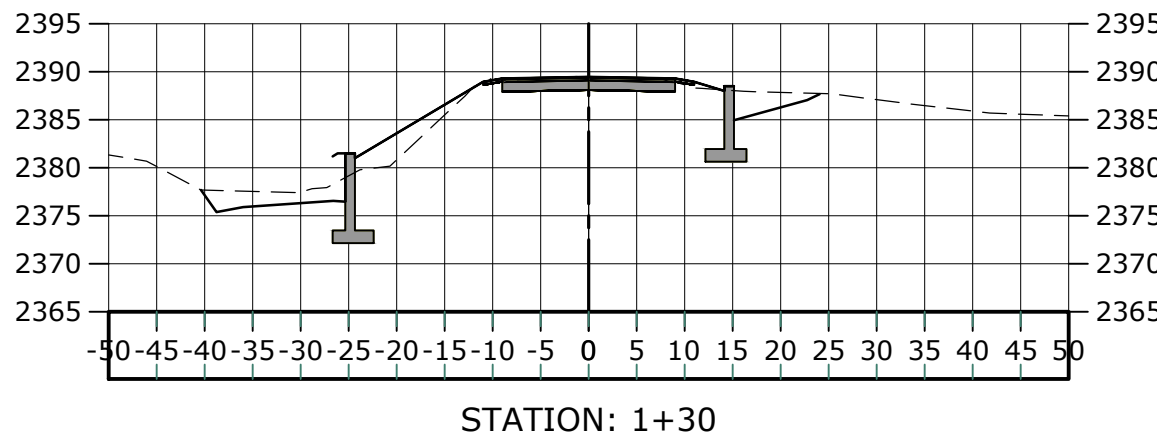
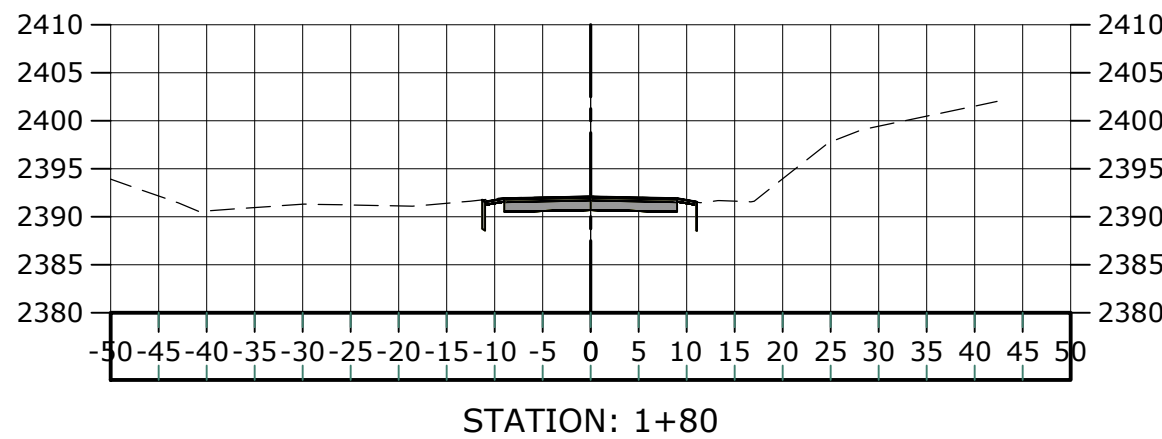
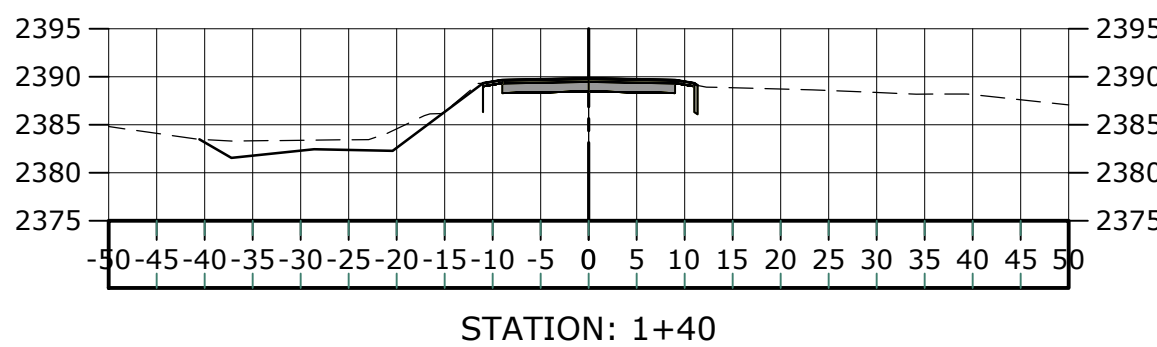
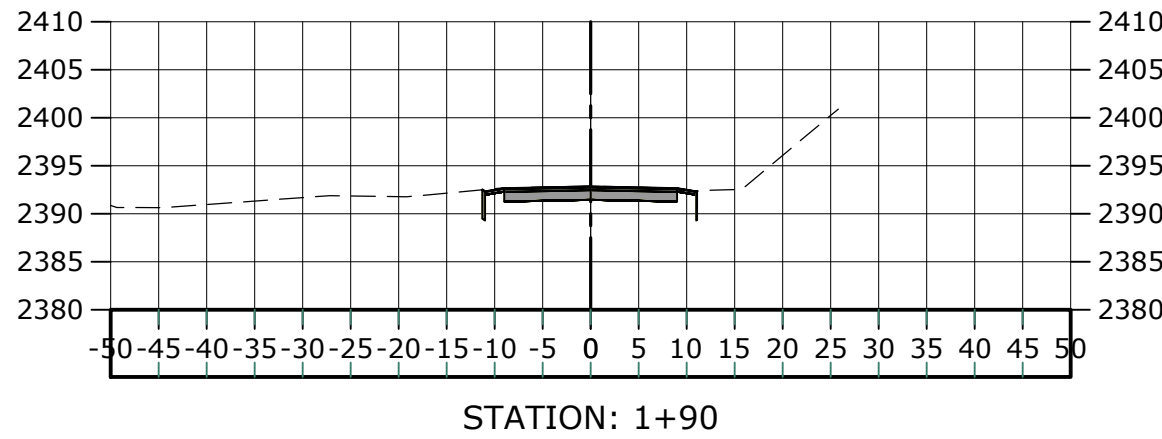
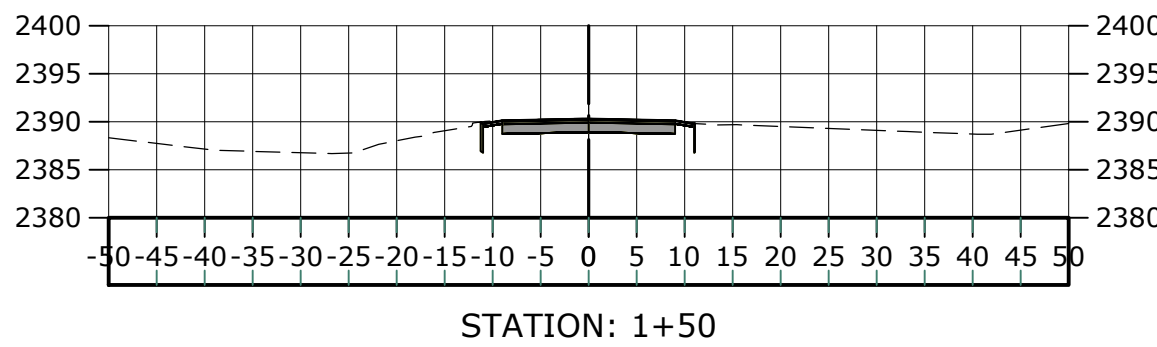
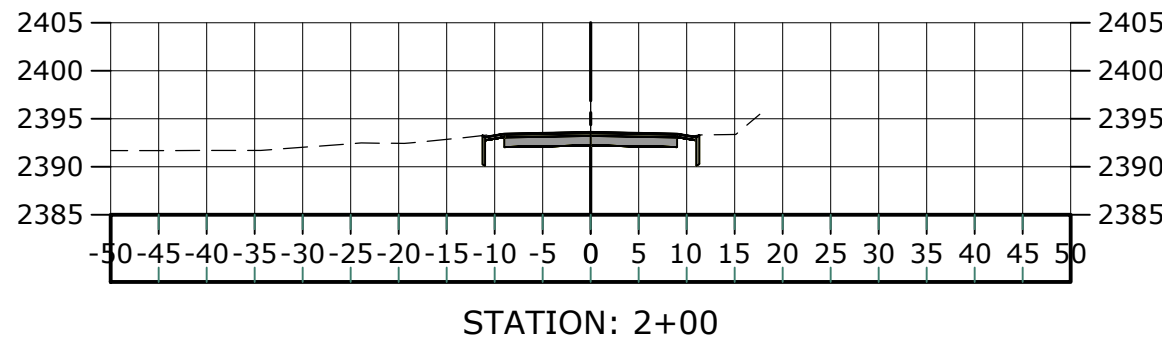
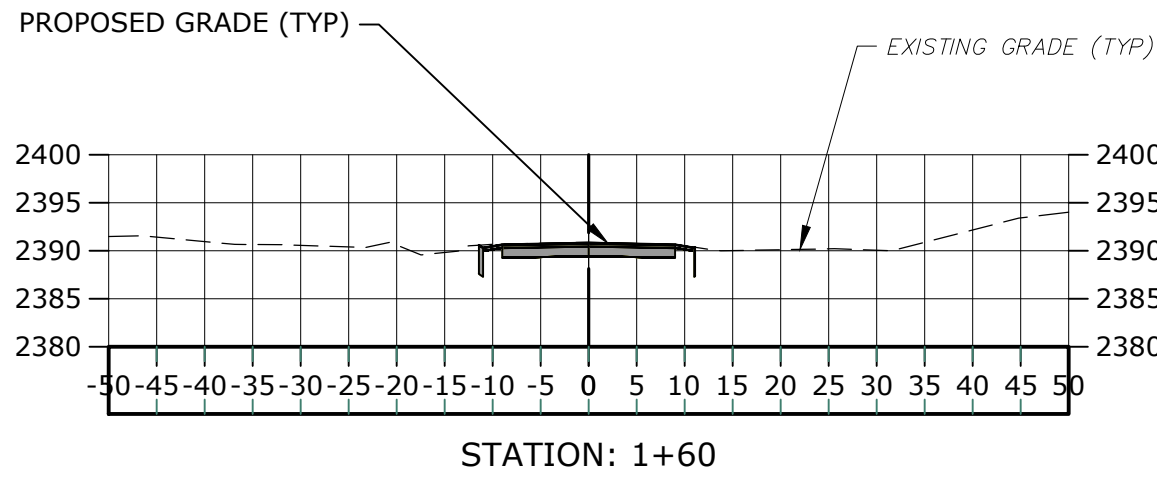
New Ashford, Massachusetts

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DATE:		MAR 2026
FILE:		M-0739-139 SITE PALN.dwg
DRAWN BY:		ND/TW
CHECKED BY:		AGB/MPW
APPROVED BY:		DLM

NORTH CULVERT ROADWAY SECTIONS (CID 41)

SCALE: AS SHOWN

Last Saved: 3/5/2026
Plotted On: Mar 05, 2026 4:51pm By: RCase
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Rockwell Road Improvements Project

Department of Conservation and Recreation

New Ashford, Massachusetts

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APPROVED BY:		DLM

NORTH CULVERT ROADWAY SECTIONS (CID 41)

SCALE: AS SHOWN

C-105
SHEET 8 OF 20

Last Saved: 3/5/2026
Plotted On: Mar 05, 2026 4:51pm By: RCase
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PHOTO 1
EXISTING CID 33 UPSTREAM HEADWALL

NOTE:

1. ALL PROPOSED CONSTRUCTION IS LOCATED WITHIN THE 100-FT BUFFER ZONE AND 200-FOOT RIVERFRONT AREA OF THE UNNAMED STREAM.

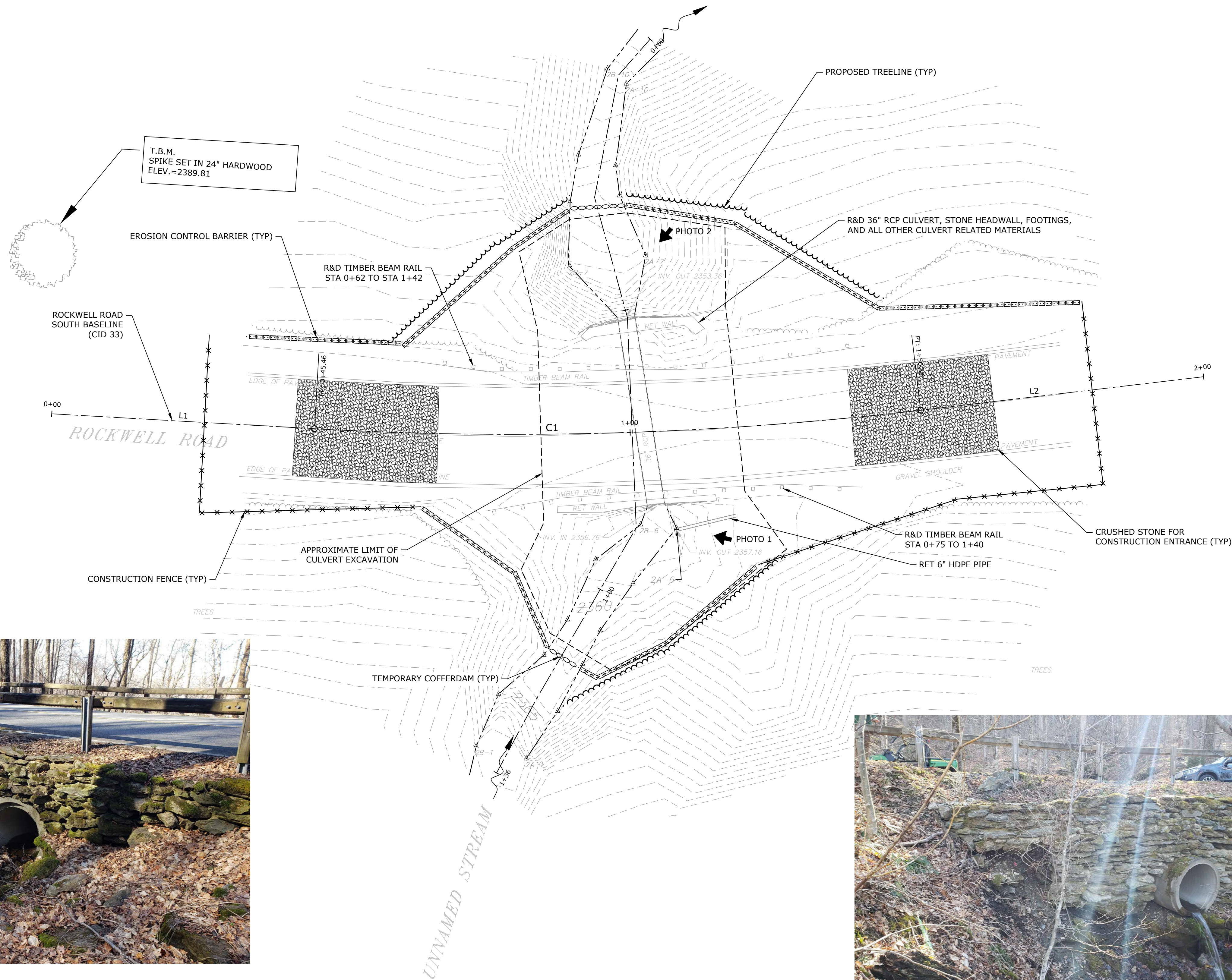


PHOTO 2
EXISTING CID 33 DOWNSTREAM HEADWALL

0 10' 20'
SCALE: 1" = 10'

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Rockwell Road Improvements Project

Department of Conservation and Recreation

New Ashford, Massachusetts

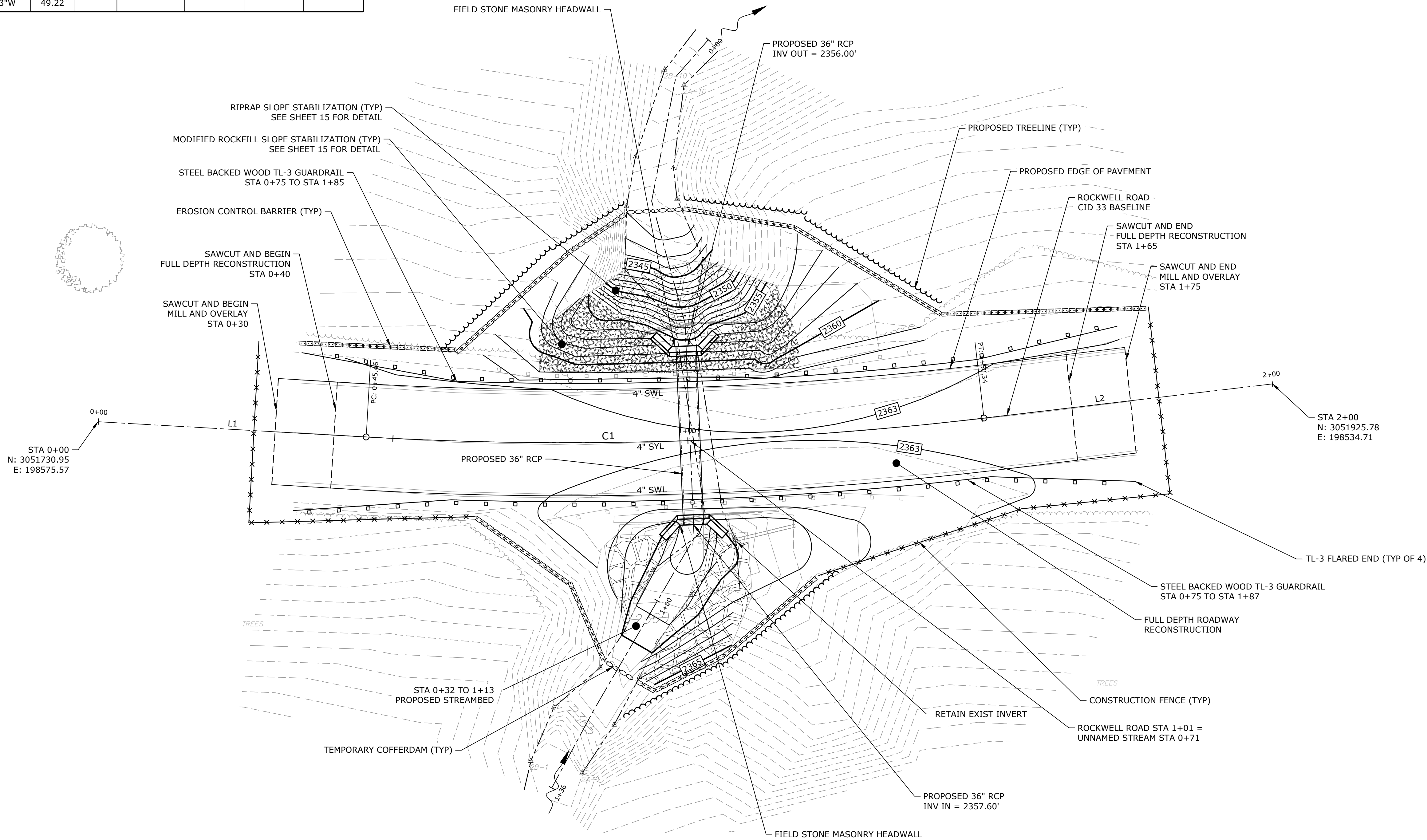
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FILE:		M-0739-139 EXISTING CONDITIONS.dwg
DRAWN BY:		ND, TW
CHECKED BY:		AGB, MPW
APPROVED BY:		DLM

EXISTING CONDITION AND DEMOLITION PLAN SOUTH CULVERT (CID 33)

SCALE: AS SHOWN

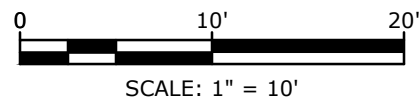
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ROCKWELL ROAD SOUTH BASELINE (CID 33)							
NUMBER	LINE/CHORD BEARING	LENGTH	RADIUS	DELTA ANGLE	PC STATION	PI STATION	PT STATION
L1	N6° 44' 34.59"W	45.46					
C1	N11° 45' 00.76"W	104.87	600.00	10°00'52"	0+45.46	0+98.03	1+50.34
L2	N16° 45' 26.93"W	49.22					



NOTE:

- ALL PROPOSED CONSTRUCTION IS LOCATED WITHIN THE 100-FT BUFFER ZONE AND 200-FOOT RIVERFRONT AREA OF THE UNNAMED STREAM.



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Rockwell Road Improvements Project

Department of Conservation and Recreation

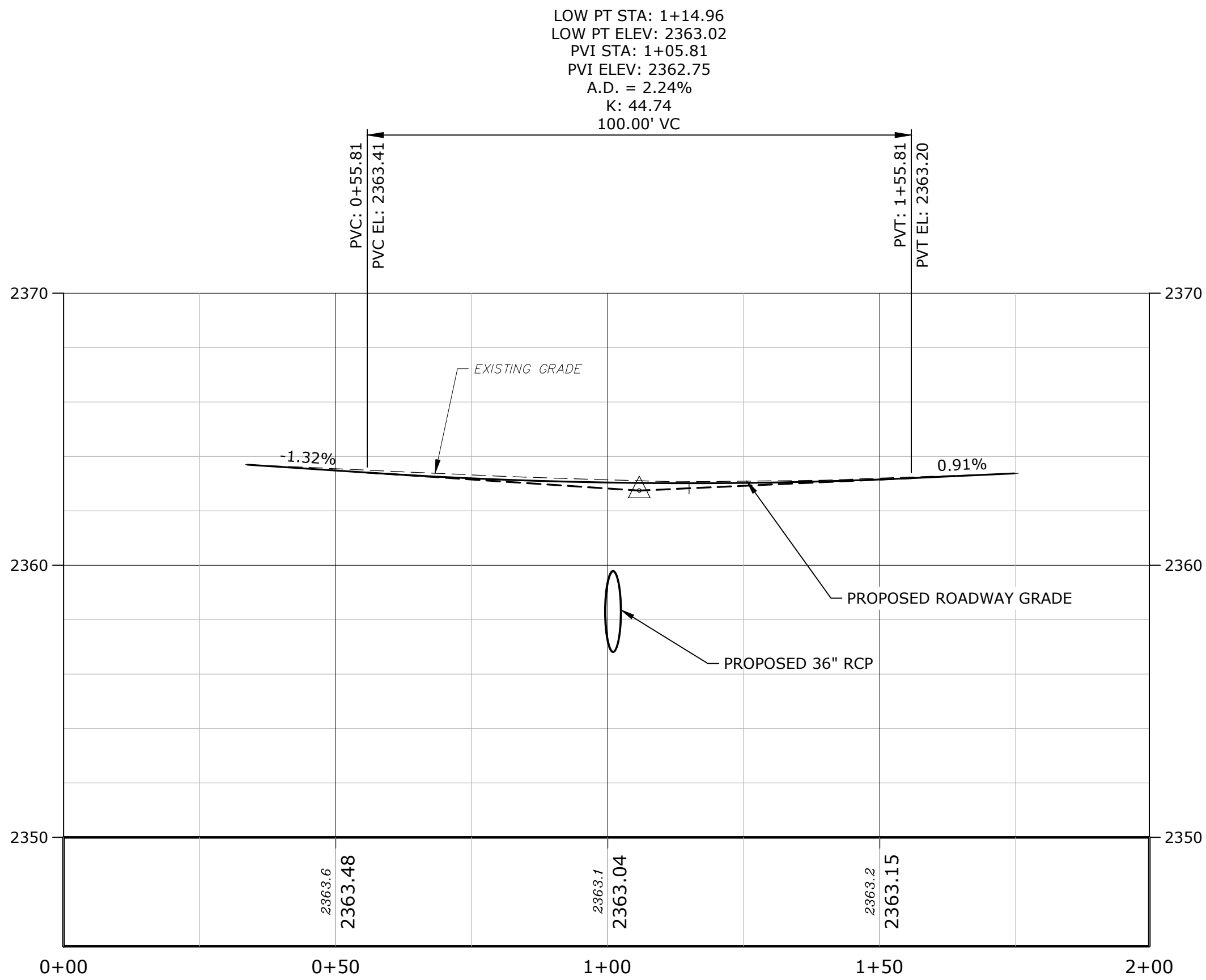
New Ashford, Massachusetts

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DATE:		MAR 2026
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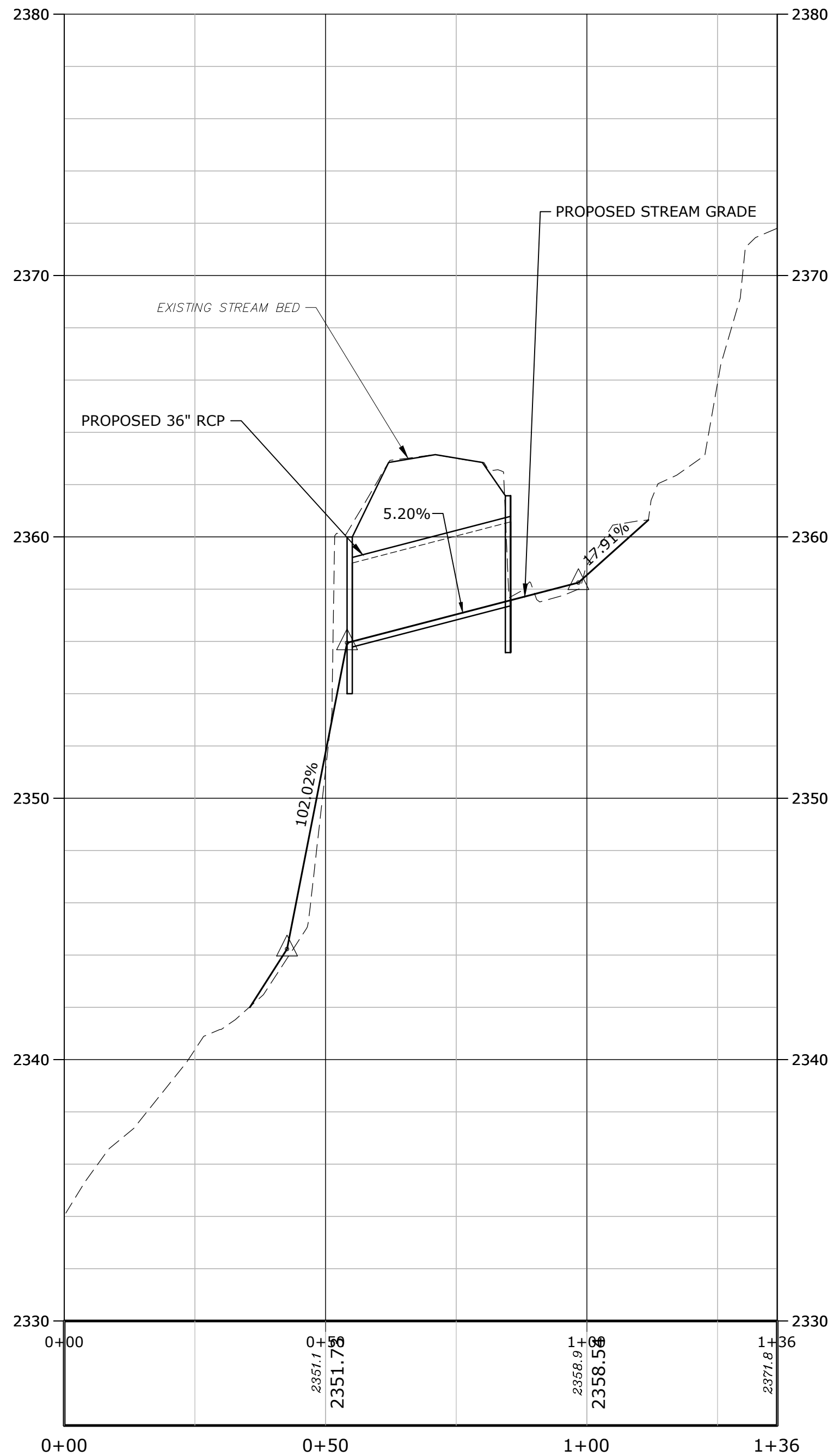
SITE PLAN - SOUTH CULVERT (CID 33)

SCALE: AS SHOWN

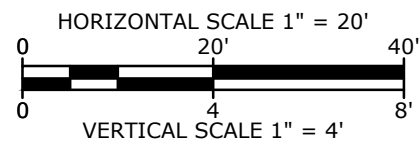
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ROCKWELL ROAD PROFILE



UNNAMED STREAM PROFILE



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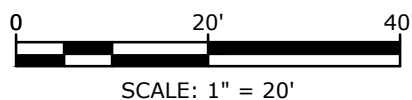
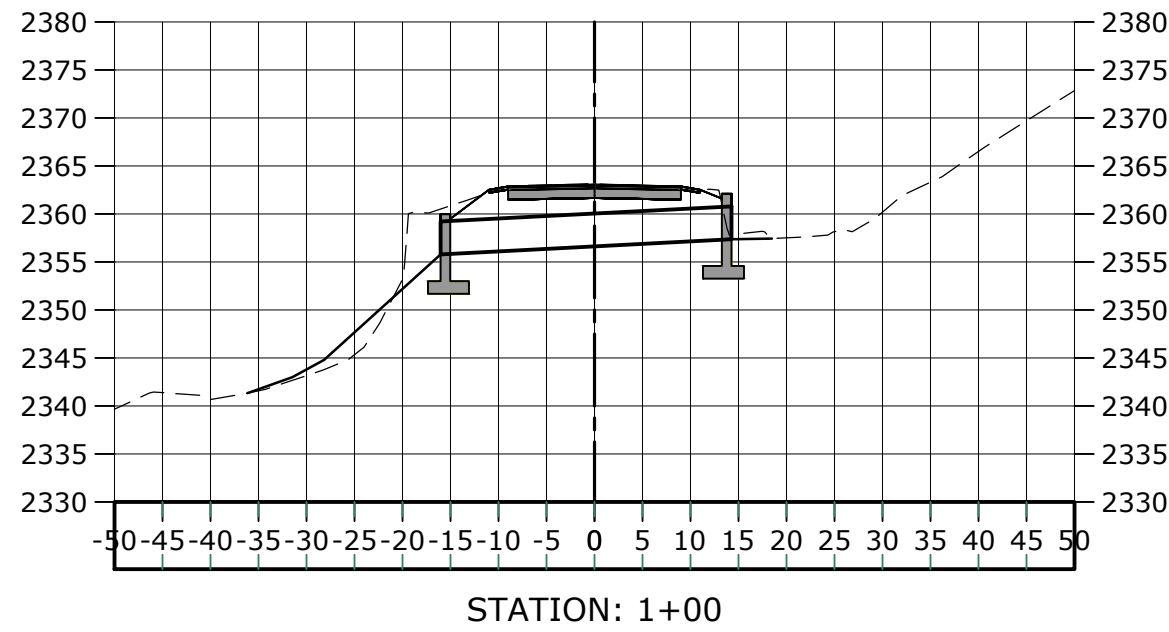
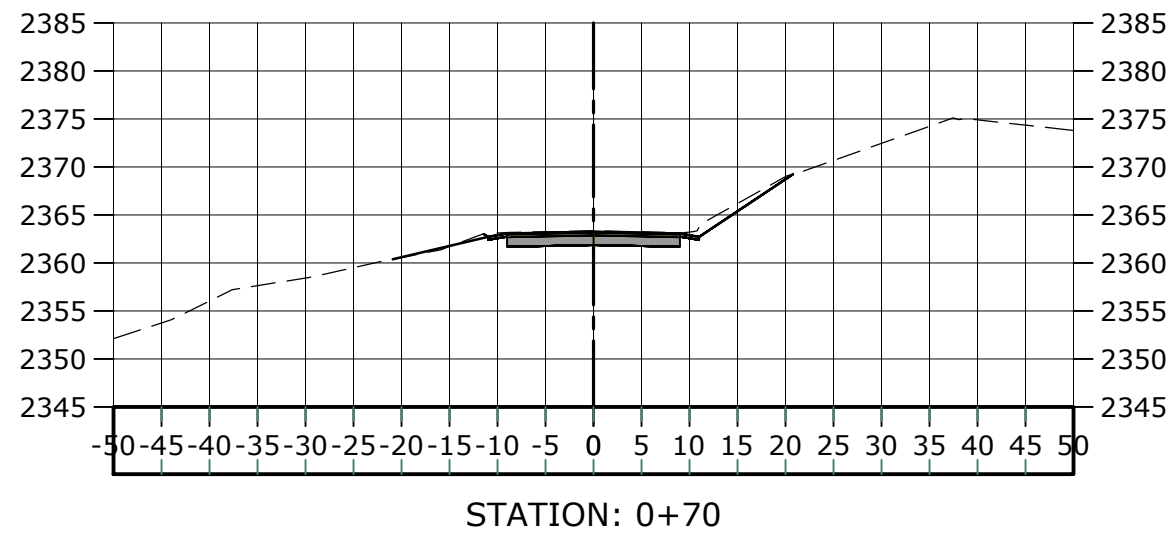
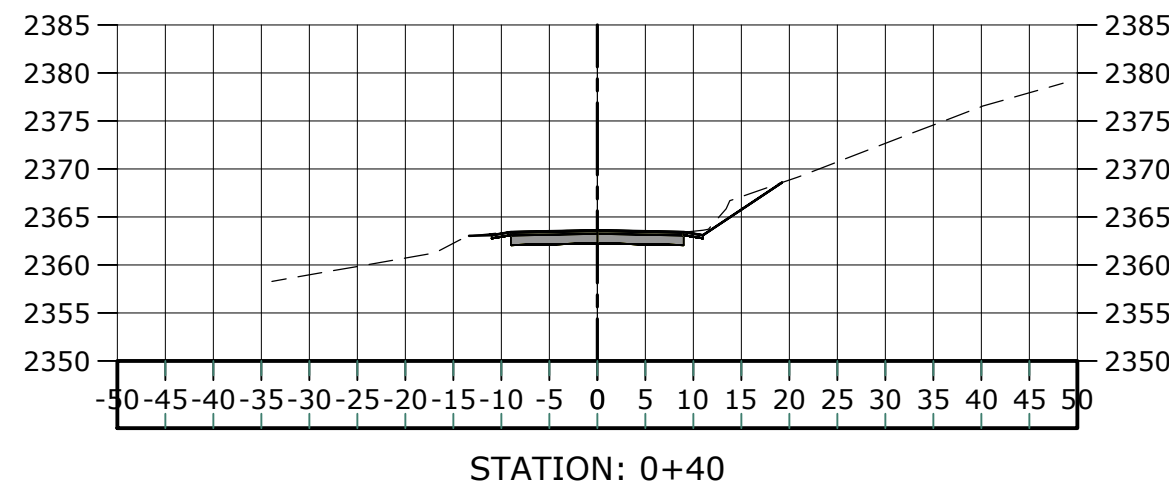
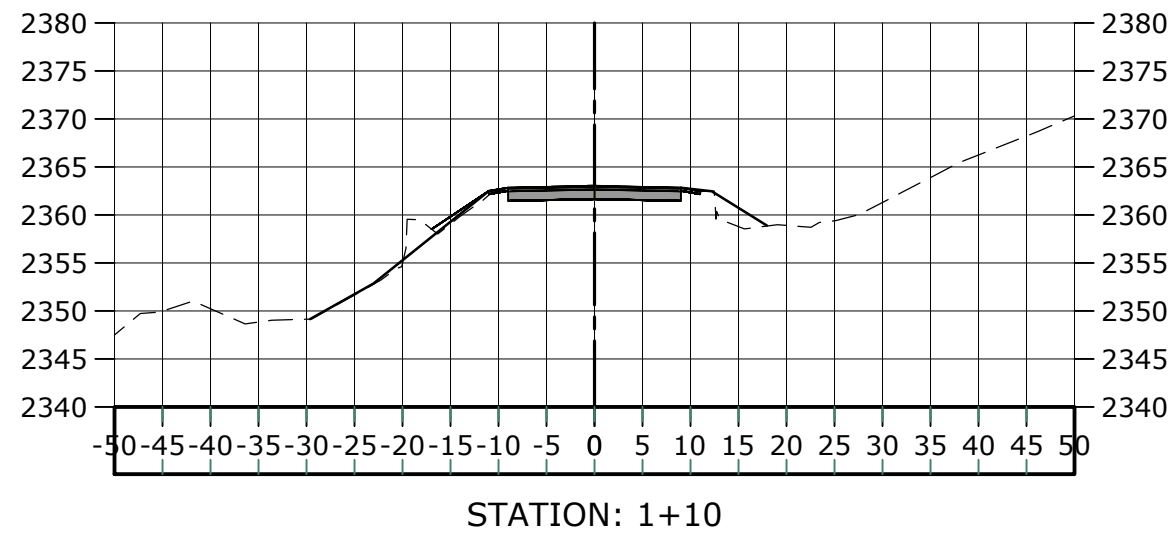
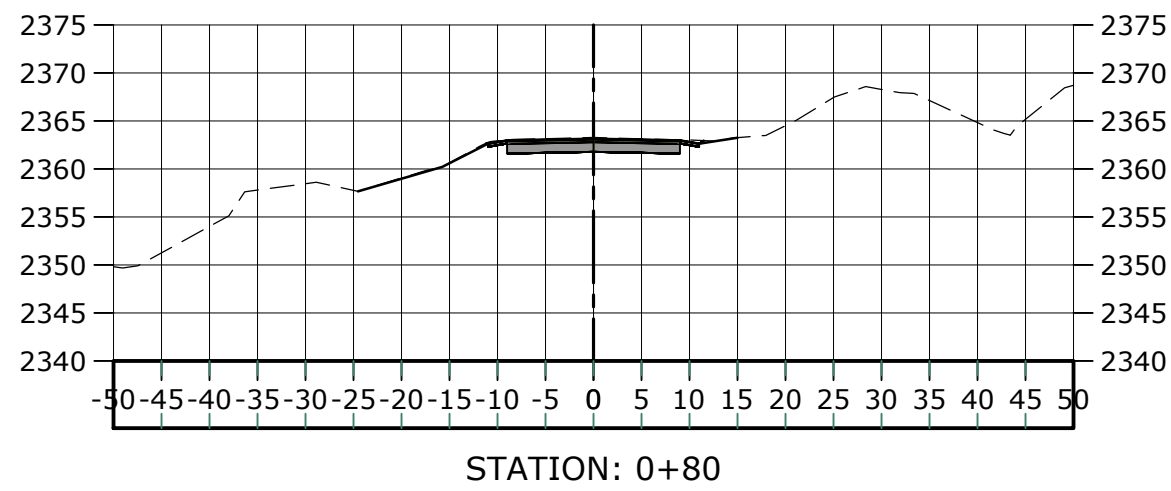
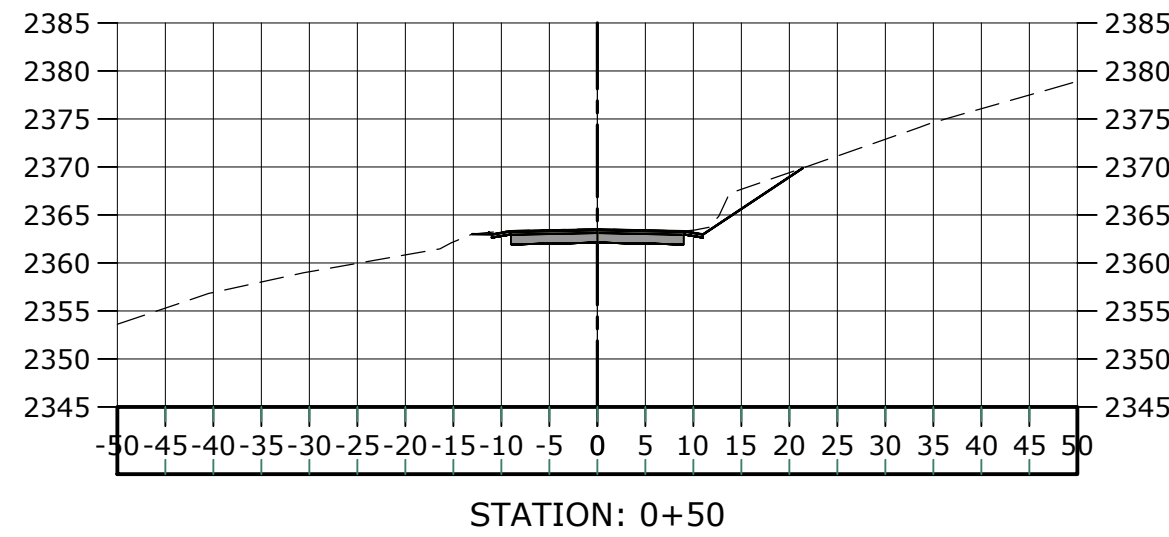
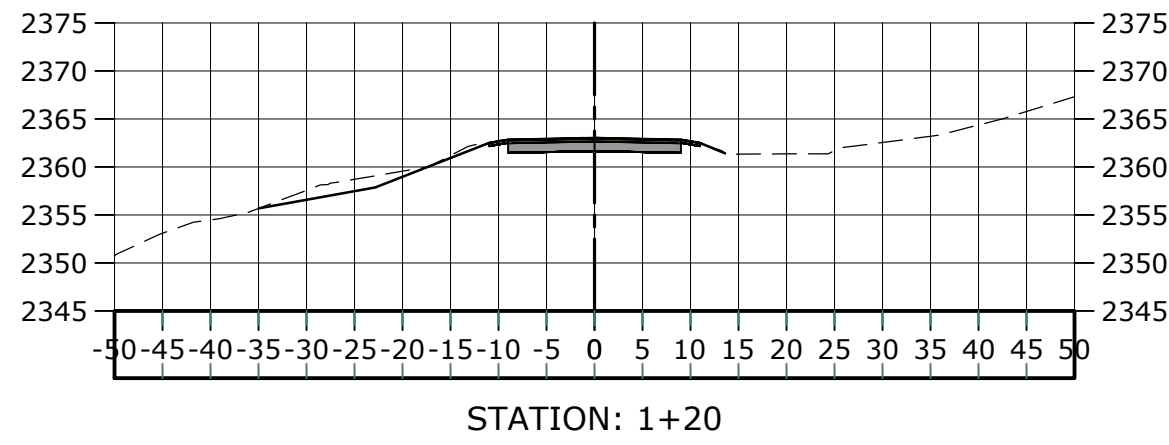
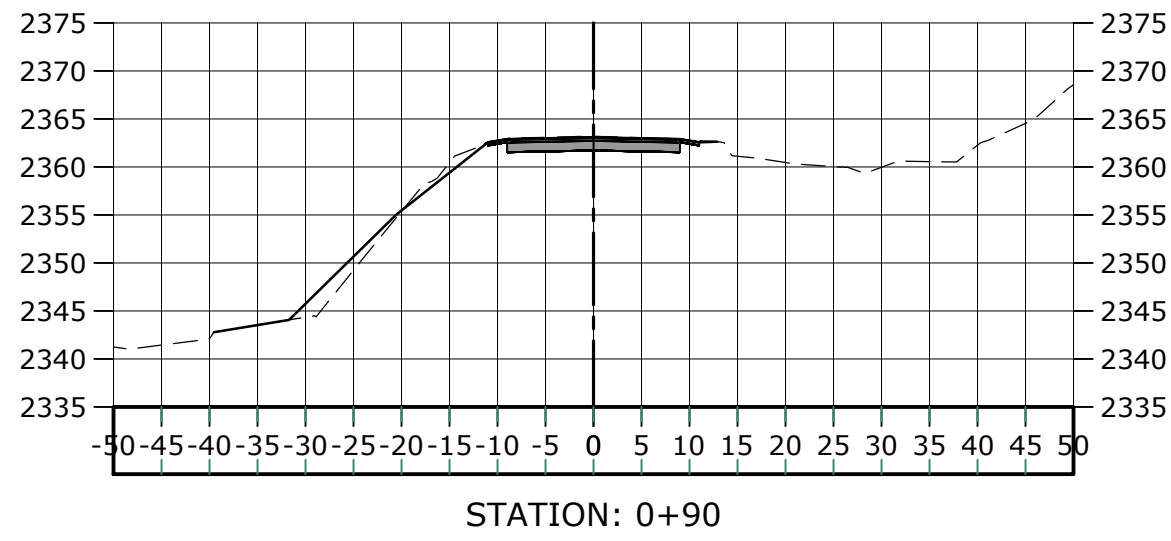
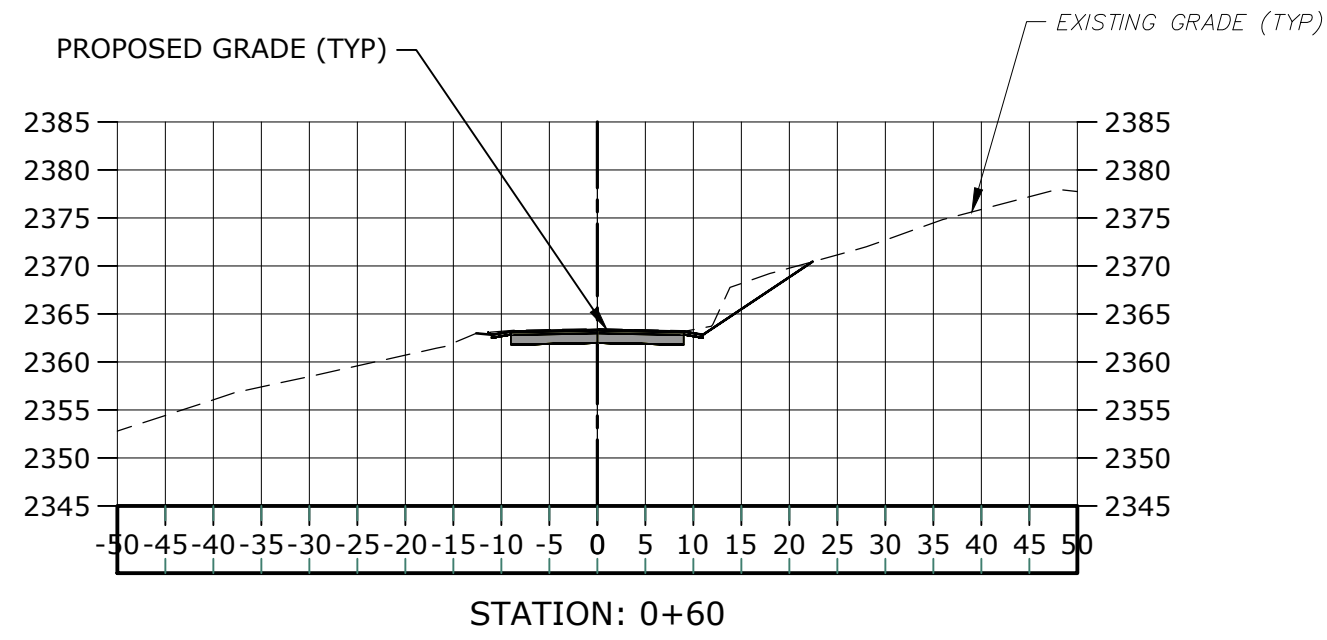
New Ashford, Massachusetts

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APPROVED BY:		DLM

SOUTH CULVERT PROFILE (CID 33)

SCALE: AS SHOWN

Last Saved: 3/5/2026
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Rockwell Road Improvements Project

Department of Conservation and Recreation

New Ashford, Massachusetts

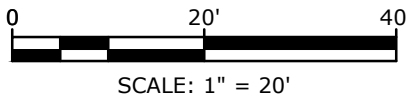
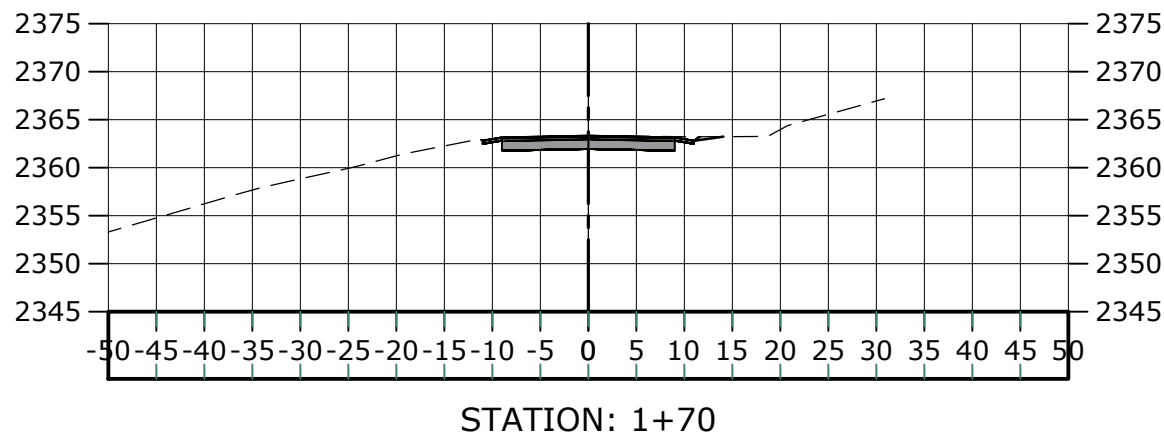
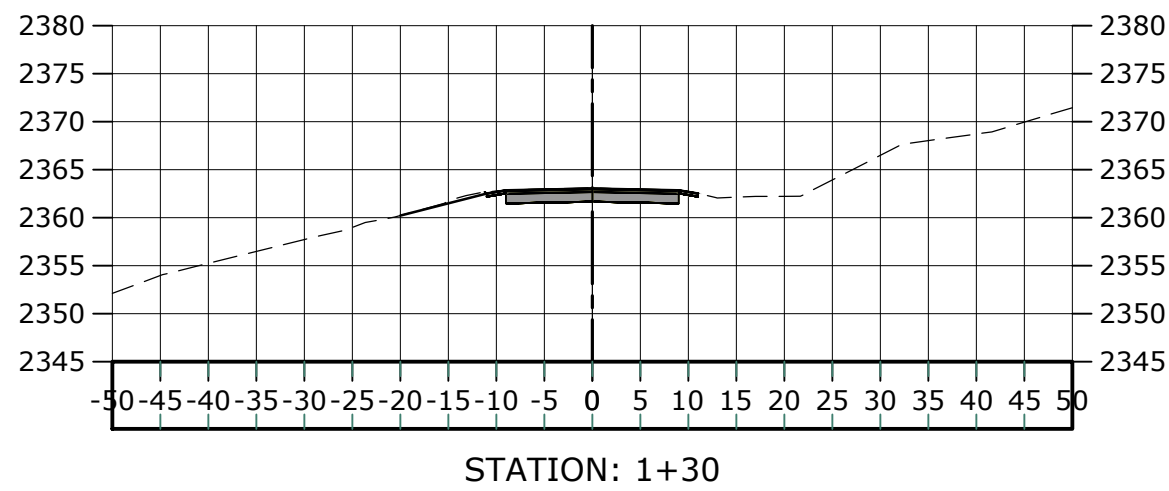
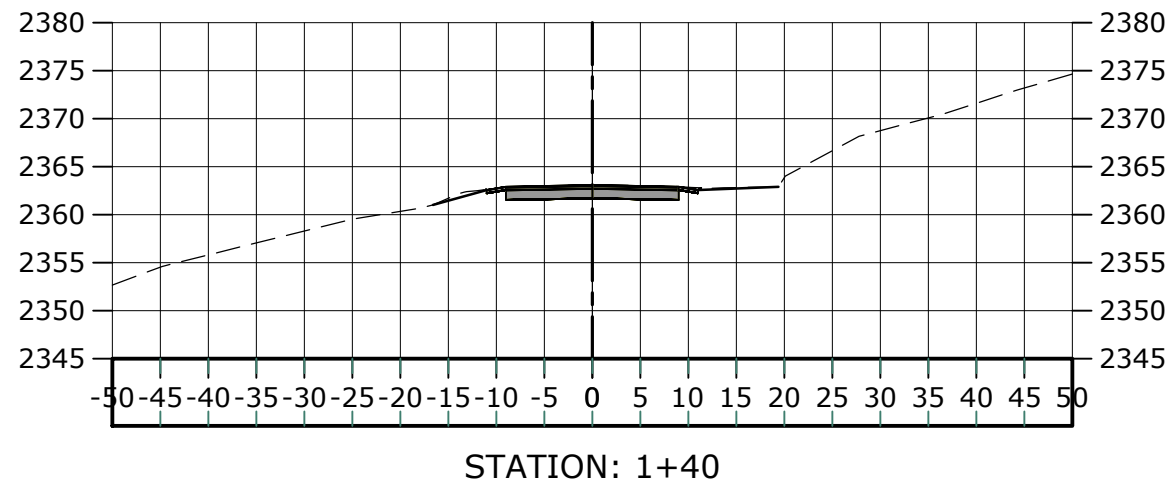
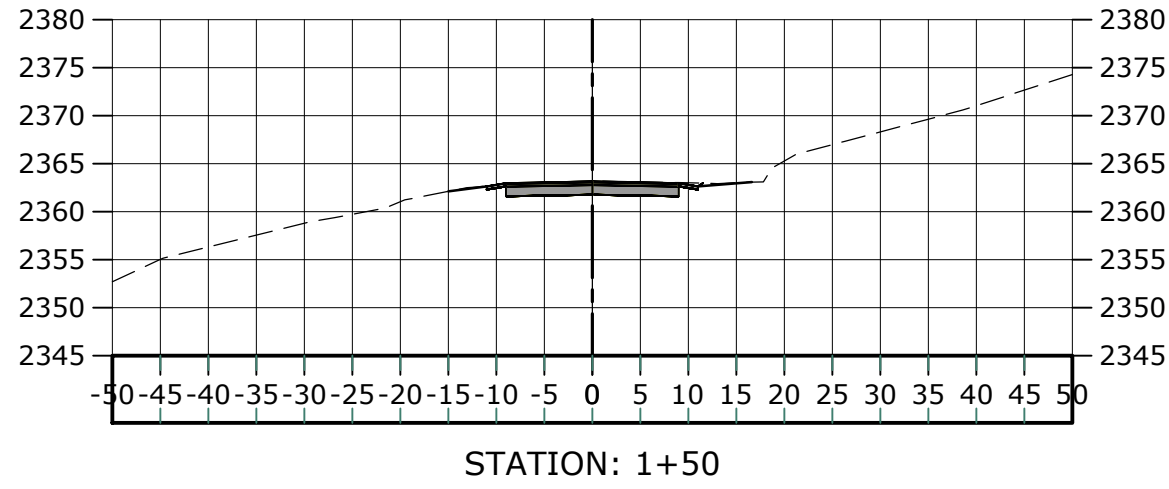
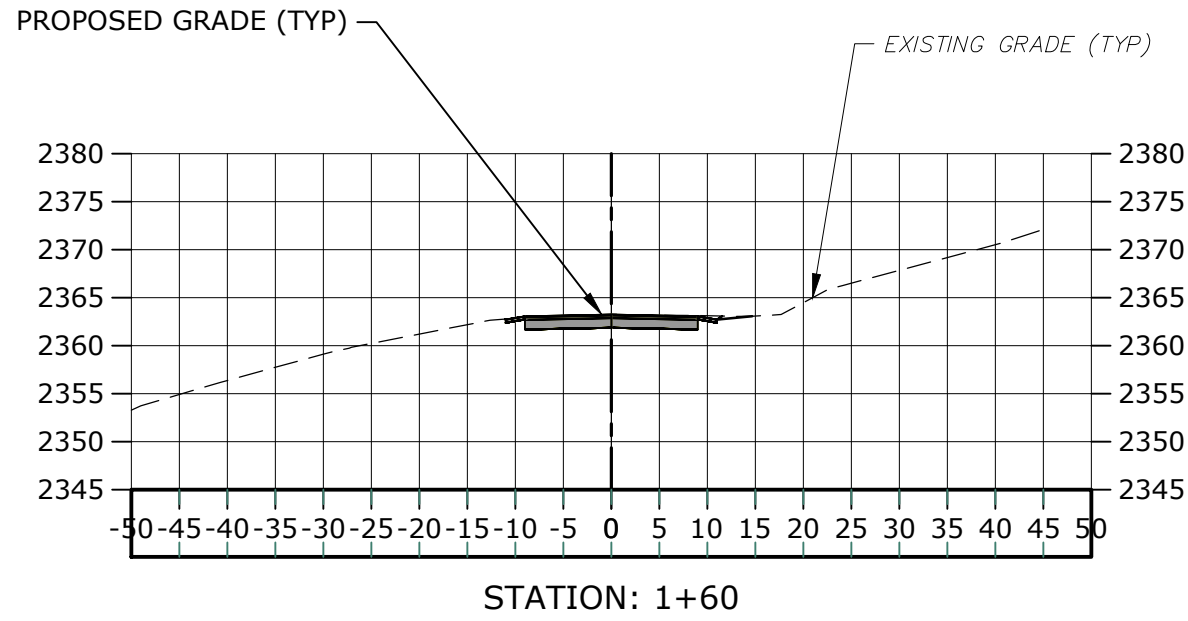
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FILE:		M-0739-139 SITE PALN.dwg
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APPROVED BY:		DLM

SOUTH CULVERT ROADWAY SECTIONS (CID 33)

SCALE: AS SHOWN

C-109
SHEET 12 OF 20

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Rockwell Road Improvements Project

Department of Conservation and Recreation

New Ashford, Massachusetts

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APPROVED BY:		DLM

SOUTH CULVERT ROADWAY SECTIONS (CID 33)

SCALE: AS SHOWN

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GENERAL SEQUENCE OF OPERATIONS

1. PROVIDE EROSION AND SEDIMENTATION CONTROLS, COFFERDAMS, AND STREAM BYPASS ACCORDING TO THE CONTRACT DRAWING AND SPECIFICATIONS.
2. COORDINATE WITH THE OWNER TO SCHEDULE WORK AND PERFORM CONSTRUCTION LAYOUT.
3. AFTER THE SURVEY WORK HAS BEEN COMPLETED, THE EROSION AND SEDIMENTATION CONTROLS HAVE BEEN INSTALLED, AND THE PROPER AUTHORITIES HAVE BEEN NOTIFIED, BEGIN CONSTRUCTION.
4. AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED FOR THE DAY, CLEAN THE WORK AREA(S). SECURE AND STABILIZE THE WORK AREA(S) ACCORDING TO THE CONTRACT DRAWINGS AND SPECIFICATIONS.
5. REMOVE EROSION AND SEDIMENTATION CONTROLS AFTER THE SITE HAS BEEN CLEANED AND THE WORK HAS BEEN APPROVED BY THE OWNER AND ENGINEER.

ENVIRONMENTAL REQUIREMENTS

1. ALL WORK SHALL PROCEED IN ACCORDANCE WITH THE ORDER OF CONDITIONS ISSUED BY THE NEW ASHFORD CONSERVATION COMMISSION AND INCLUDED IN THE PROJECT MANUAL.
2. PORTIONS OF THE WORK AREA ARE LOCATED IN DESIGNATED INLAND WETLANDS AND/OR WATERWAYS. THE LIMITS OF THESE WETLANDS AND THEIR ASSOCIATED BUFFER ZONES ARE SHOWN ON THE CONTRACT DRAWINGS.
3. PRIOR TO ANY OTHER CONSTRUCTION ACTIVITY, PROVIDE ALL SEDIMENT AND EROSION CONTROL DEVICES REQUIRED BY THESE CONTRACT DOCUMENTS. ADDITIONAL AND SUPPLEMENTAL DEVICES LATER DETERMINED TO BE NEEDED SHALL BE PROVIDED AS THE WORK PROGRESSES. ALL SUCH DEVICES SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE WORK AND SHALL BE REMOVED ONLY WHEN AUTHORIZED BY THE OWNER'S REPRESENTATIVE.
4. PROVIDE AND MAINTAIN PROPER SEDIMENT AND SOIL EROSION CONTROL DEVICES AROUND ALL CONSTRUCTION ACTIVITIES THROUGHOUT THE DURATION OF THE ENTIRE PROJECT, AS REQUIRED BY THESE CONTRACT DOCUMENTS (WHICH INCLUDES ANY LOCAL PERMITS).
5. PROVIDE DUST CONTROL USING WATER FOR ALL RAW SLOPES, ALL EARTH STOCKPILES, ANY EARTH PILED ALONG EXCAVATIONS, AND SURFACES OF REFILLED TRENCHES. IN NO CASE SHALL EXCAVATED MATERIAL BE STOCKPILED AT SUCH LOCATIONS WHERE THE MATERIAL CAN RUNOFF INTO WETLAND AREAS, WATERWAYS, OR ADJACENT PROPERTIES.
6. RESTORE AREAS DISTURBED BY CONSTRUCTION AS SHOWN ON THE CONTRACT DRAWINGS.
7. CLEAN ALL ROADWAY AND ADJOINING AREAS AFFECTED BY THE PROPOSED WORK TO AVOID SEDIMENT BUILD-UP ON A REGULAR BASIS AND AS NEEDED.
8. MINIMIZE THE DISTURBANCE TIME AT ALL CULVERT CROSSINGS BY COMPLETING THE PROPOSED WORK IN AN EXPEDIENT MANNER.
9. PLACE EROSION AND SEDIMENTATION CONTROLS ALONG THE DOWNHILL SIDE OF ANY CONSTRUCTION RELATED (TEMPORARY) STOCKPILE OF MATERIAL. SURROUND STAGING AREAS WITH EROSION AND SEDIMENTATION CONTROLS TO PREVENT EROSION AND SEDIMENTATION, OR SECONDARY IMPACT OF WETLAND AREAS.

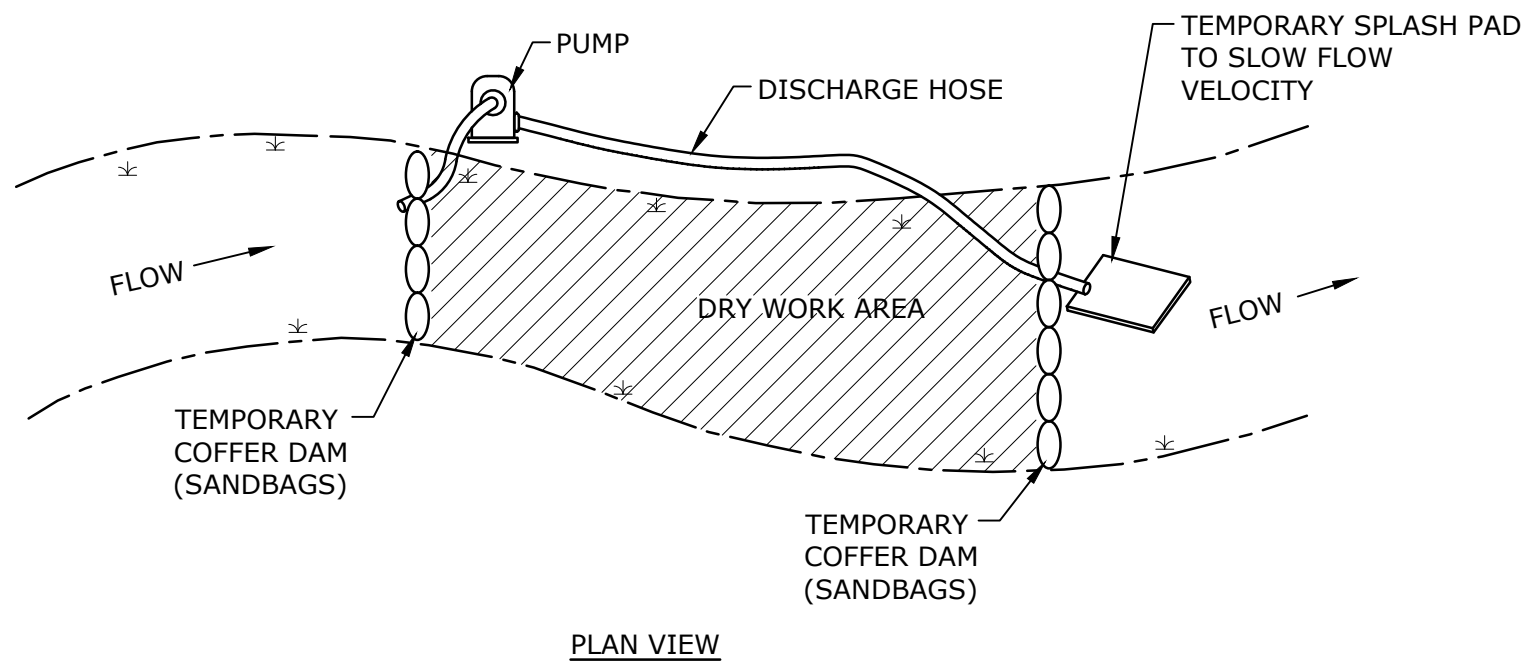
STREAM BYPASS & DEWATERING REQUIREMENTS

AS APPLICABLE SUBMIT TO THE OWNER A DETAILED METHOD OF DEWATERING, TO BE APPROVED BY THE OWNER PRIOR TO THE START OF CONSTRUCTION. AS A MINIMUM, THE CONTRACTOR'S DEWATERING PLAN SHALL ADDRESS THE FOLLOWING CONCERNS AND ADHERE TO THE FOLLOWING REQUIREMENTS:

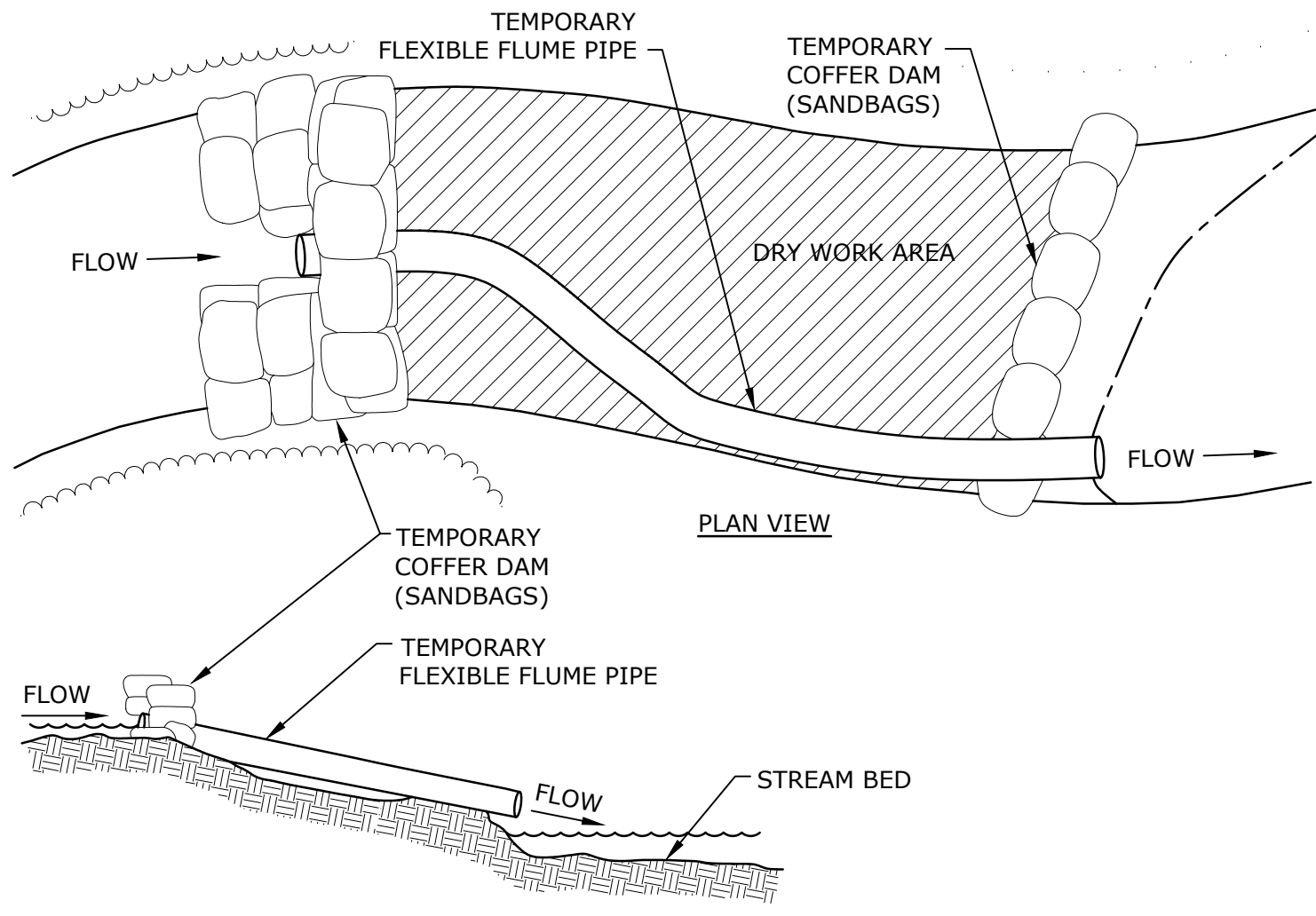
1. IF THE WATER TABLE IS INTERCEPTED DURING EXCAVATION, WATER COLLECTED IN THE WORK AREA SHALL BE PUMPED OUT SO THAT THE WORK CAN BE PERFORMED "IN THE DRY." PROVIDE ADEQUATELY SIZED DEWATERING EQUIPMENT WITH 100% BACKUP AND SEDIMENTATION/EROSION CONTROL STRUCTURES AS DETAILED ON THE CONTRACT DRAWINGS TO ENSURE CONSTRUCTION "IN THE DRY" AND ADEQUATELY PROTECT ADJACENT WETLAND AREAS AND WATERWAYS.
2. ALL GROUNDWATER REMOVED (PUMPED) FROM THE WORK AREA AND DISCHARGED TOWARD OR INTO DESIGNATED INLAND WETLANDS SHALL BE A "CLEAN DISCHARGE." PROVIDE WHATEVER DEVICES ARE REQUIRED TO ACHIEVE THE "CLEAN DISCHARGE." IF THE OWNER'S REPRESENTATIVE DETERMINES THE PUMPED DISCHARGE IS CLEAN (LESS THAN 50 NTU), THE FLOW CAN BE DIRECTED OVERLAND TOWARD THE RECEIVING BODY OF WATER. IF THE OWNER'S REPRESENTATIVE DETERMINES THAT THE FLOW IS NOT CLEAN, DIRECT THAT FLOW TO ONE OR MORE FILTRATION DEVICES FOR THE PURPOSE OF SUBSTANTIALLY REMOVING SUSPENDED SOLIDS FROM THE WATER. THE FILTRATION DEVICES SHALL BE AS SHOWN ON THE DRAWINGS OR APPROVED ALTERNATES SUGGESTED BY THE CONTRACTOR, OR AS REQUIRED BY THE LOCAL PERMITS.
3. DEWATERING DISCHARGE LOCATIONS ARE TO BE REVIEWED AND APPROVED BY THE OWNER'S REPRESENTATIVE.
4. REFER TO THE SPECIAL PROVISIONS IN THE PROJECT MANUAL FOR FURTHER DIRECTION ON DEWATERING AND CONTROL OF WATER.
5. WATER CONTROLS SHOULD BE DESIGNED FOR A 2-YEAR STORM (CID 41 = 18.23 CFS CID 33 = 7.94 CFS). PRIOR TO COMMENCING WORK THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER DRAWINGS AND CALCULATIONS INDICATING THE CONTRACTOR'S METHOD FOR CONTROL OF WATER. THE SUBMITTAL SHALL INCLUDE PROPOSED IMPACT AREAS, RESTORATION METHODS, FLOW RATES, DEWATERING METHODS AND A DETAILED SCHEDULE FOR THE CONTROL OF WATER.

EROSION CONTROL NOTES

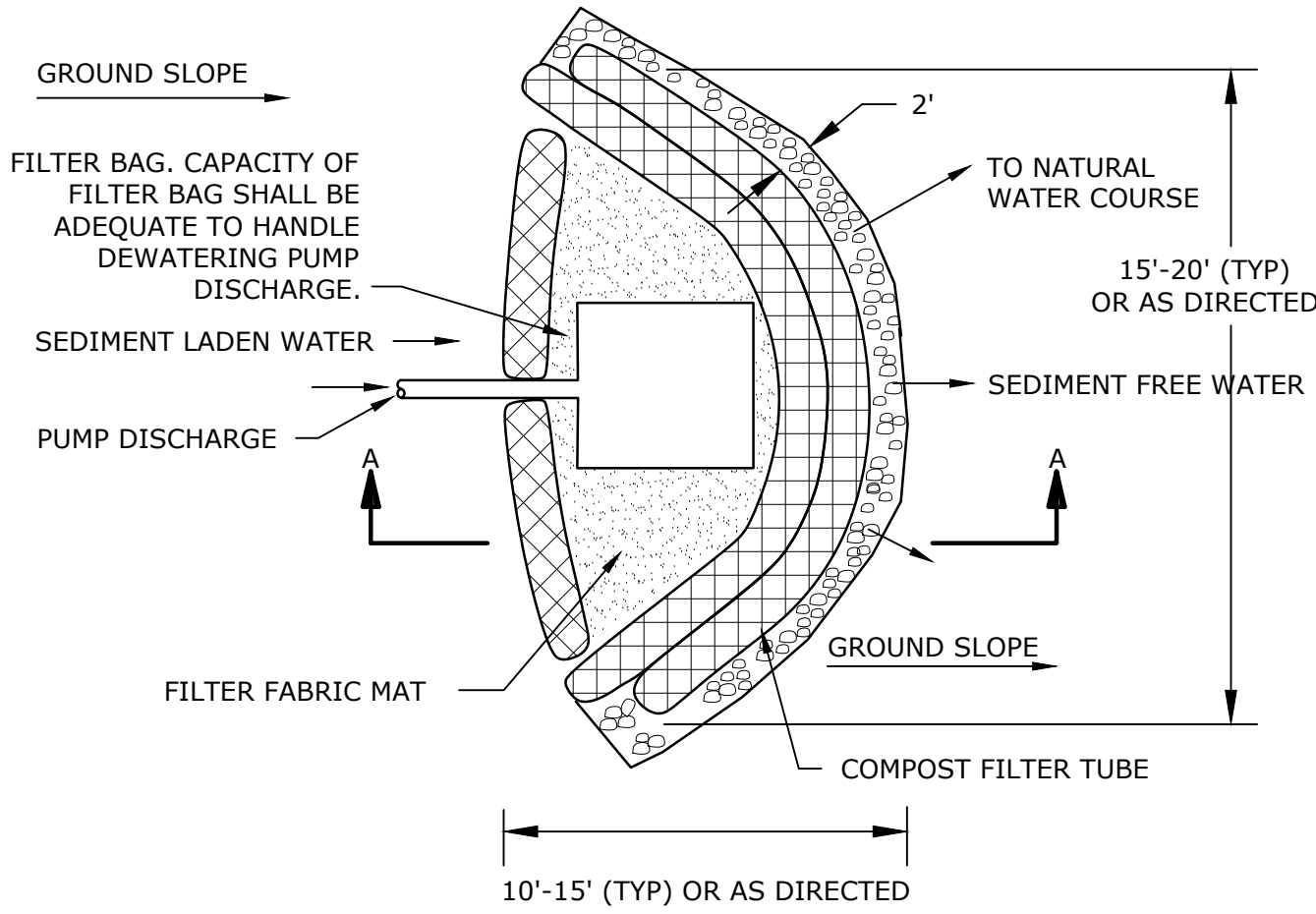
1. INSTALL EROSION CONTROL MEASURES PRIOR TO ANY CONSTRUCTION OR IMMEDIATELY UPON REQUEST. MAINTAIN ALL SUCH CONTROL MEASURES UNTIL FINAL SURFACE TREATMENTS ARE IN PLACE AND/OR UNTIL PERMANENT VEGETATION IS ESTABLISHED.
2. PRIOR TO STARTING WORK, CLEARLY STAKE WORK LIMIT LINE(S). DO NOT DISTURB VEGETATION AND TOPSOIL BEYOND THE PROPOSED LIMIT LINE. COORDINATE WITH THE ENGINEER THE LOCATIONS FOR THE TEMPORARY STOCKPILING OF TOPSOIL DURING CONSTRUCTION.
3. SILT TRAPPED AT BARRIERS SHALL BE REMOVED AND DISPOSED OF IN UPLAND AREAS OUTSIDE BUFFER ZONES. MATERIALS DEPOSITED IN ANY TEMPORARY SETTLING BASIN SHALL BE REMOVED AT THE COMPLETION OF PROJECT. ALL DISTURBED AREAS TO BE RESTORED.
4. ALL SILT-LADEN WATER MUST BE SETTLED OR FILTERED IN A SEDIMENTATION OR FILTER BAG LOCATED DOWNSTREAM OF THE DEWATERED AREA TO REMOVE SEDIMENTS PRIOR TO RELEASE TO THE WATERWAY.
5. TOPSOIL FROM THE SITE SHALL BE STRIPPED AND STOCKPILED FOR RESPREADING TO STABILIZE THE DISTURBED AREAS. NO NEW LOAM BORROW SHALL BE BROUGHT TO THE SITE.
6. SEED MIXURES, IF NECESSARY, SHALL BE APPROVED BY THE OWNER PRIOR TO ARRIVING ONSITE.
7. ANY SEDIMENT TRACKED ONTO PUBLIC RIGHT-OF-WAYS SHALL BE SWEEPED AT THE END OF EACH DAY.



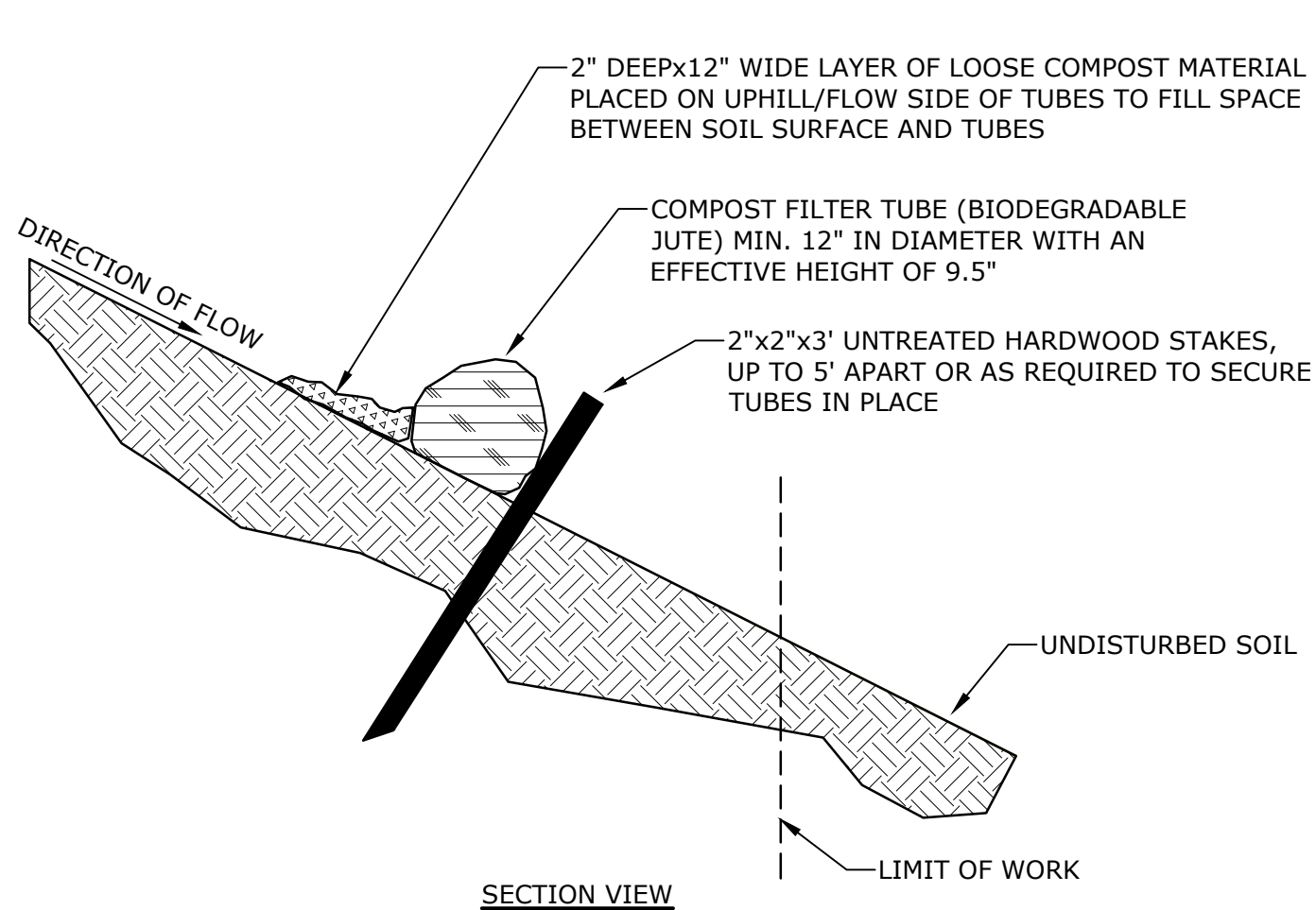
STREAM BYPASS DETAIL (PUMPED)
NO SCALE



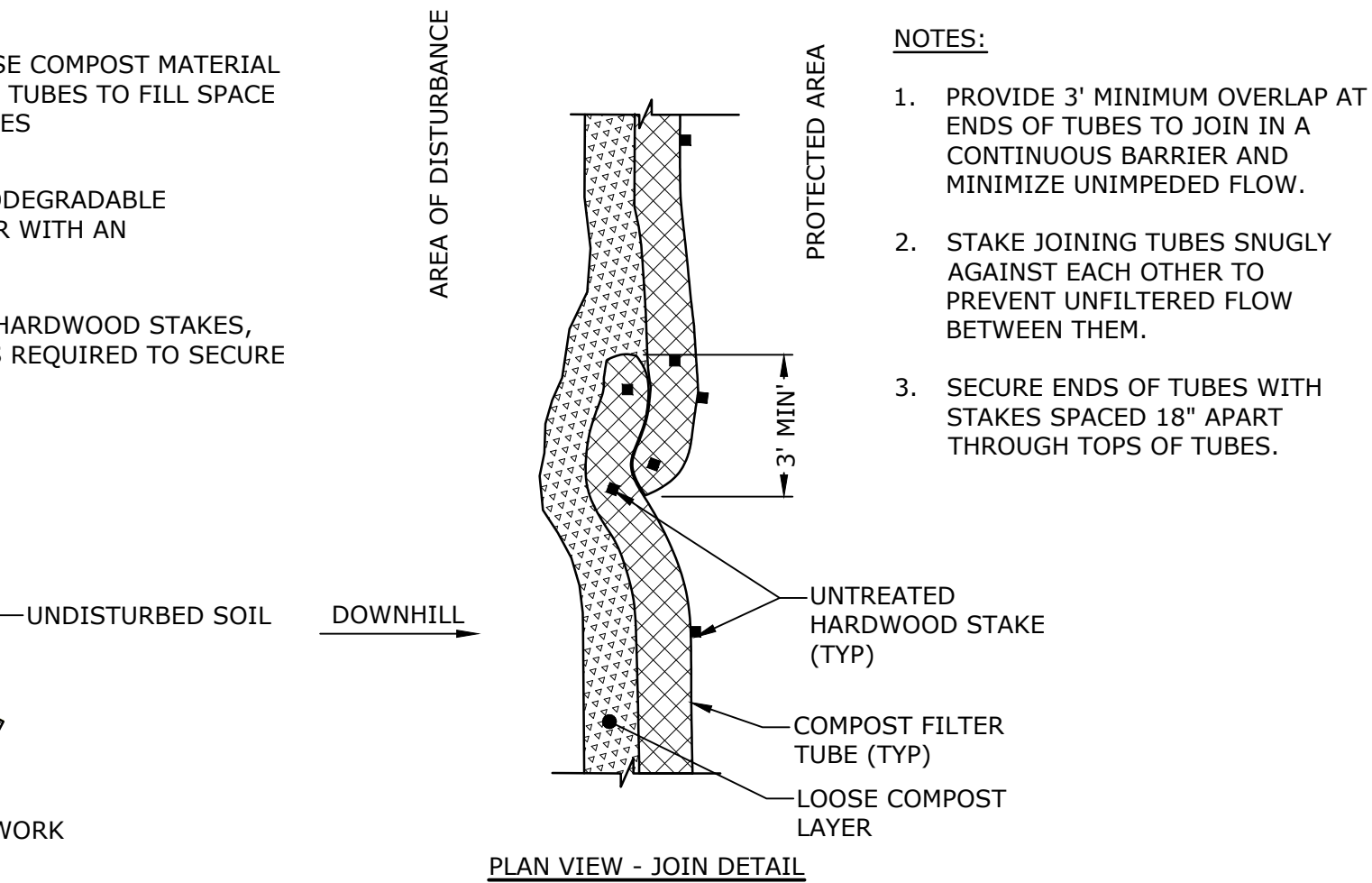
STREAM BYPASS DETAIL (GRAVITY)
NO SCALE



SEDIMENT TRAP
NO SCALE



EROSION CONTROL BLANKET
NO SCALE



COMPOST FILTER TUBE NOTES:

1. PROVIDE A MINIMUM TUBE DIAMETER OF 12" FOR SLOPES UP TO 50' IN LENGTH WITH A SLOPE RATIO OF 3H:1V OR STEEPER. LONGER SLOPES OF 3H:1V MAY REQUIRE LARGER TUBE DIAMETER OR ADDITIONAL COURSING OF FILTER TUBES TO CREATE A FILTER BERM. REFER TO MANUFACTURER'S RECOMMENDATIONS FOR SITUATION WITH LONGER SLOPES OR STEEPER SLOPES.
2. INSTALL TUBES ALONG CONTOURS AND PERPENDICULAR TO SHEET OR CONCENTRATED FLOW.
3. DO NOT INSTALL IN PERENNIAL, EPHEMERAL OR INTERMITTENT STREAMS.
4. CONFIGURE TUBES AROUND EXISTING SITE FEATURES TO MINIMIZE SITE DISTURBANCE AND MAXIMIZE CAPTURE AREA OF STORMWATER RUN-OFF.
5. TUBES FOR COMPOST FILTERS SHALL BE JUTE MESH OR APPROVED BIODEGRADABLE MATERIAL. ADDITIONAL TUBES SHALL BE USED AT THE DIRECTION OF THE ENGINEER.
6. TAMP TUBES IN PLACE TO ENSURE GOOD CONTACT WITH SOIL SURFACE. IT IS NOT NECESSARY TO TRENCH TUBES INTO EXISTING GRADE.
7. WHEN STAKING IS NOT POSSIBLE, SUCH AS WHEN TUBES MUST BE PLACED ON PAVEMENT, HEAVY CONCRETE OR CINDER BLOCKS CAN BE USED BEHIND TUBES UP TO 5' APART OR AS REQUIRED TO SECURE TUBES IN PLACE. IF MATERIALS OTHER THAN STAKES ARE USED, RECORD LOCATIONS USING GPS TO RETRIEVE THE MATERIALS AT THE END OF THE PROJECT.
8. PROVIDE 3' MINIMUM OVERLAP AT ENDS OF TUBES TO JOIN IN A CONTINUOUS BARRIER AND MINIMIZE UNIMPEDED FLOW.
9. STAKE JOINING TUBES SNUGLY AGAINST EACH OTHER TO PREVENT UNFILTERED FLOW BETWEEN THEM.
10. SECURE ENDS OF TUBES WITH STAKES SPACED 18" APART THROUGH TOPS OF TUBES.

EROSION CONTROL BARRIER
NO SCALE

Tighe & Bond

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Rockwell Road Improvements Project

Department of Conservation and Recreation

New Ashford, Massachusetts

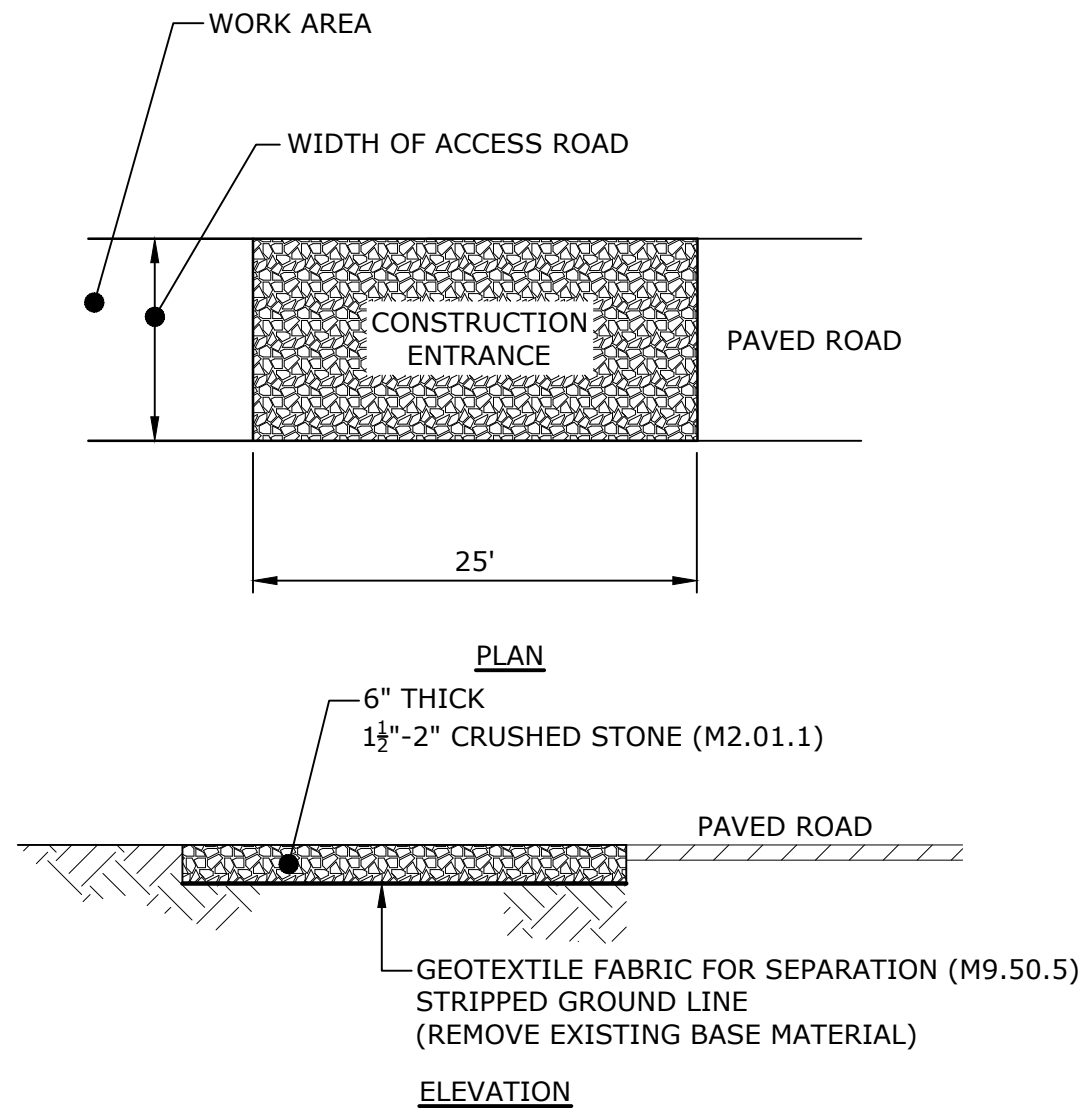
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DATE:	MAR 2026	
FILE:	M-0739-139 DETAILS.dwg	
DRAWN BY:	ND/TW	
CHECKED BY:	AGB/MPW	
APPROVED BY:	DLM	

DETAILS - 1

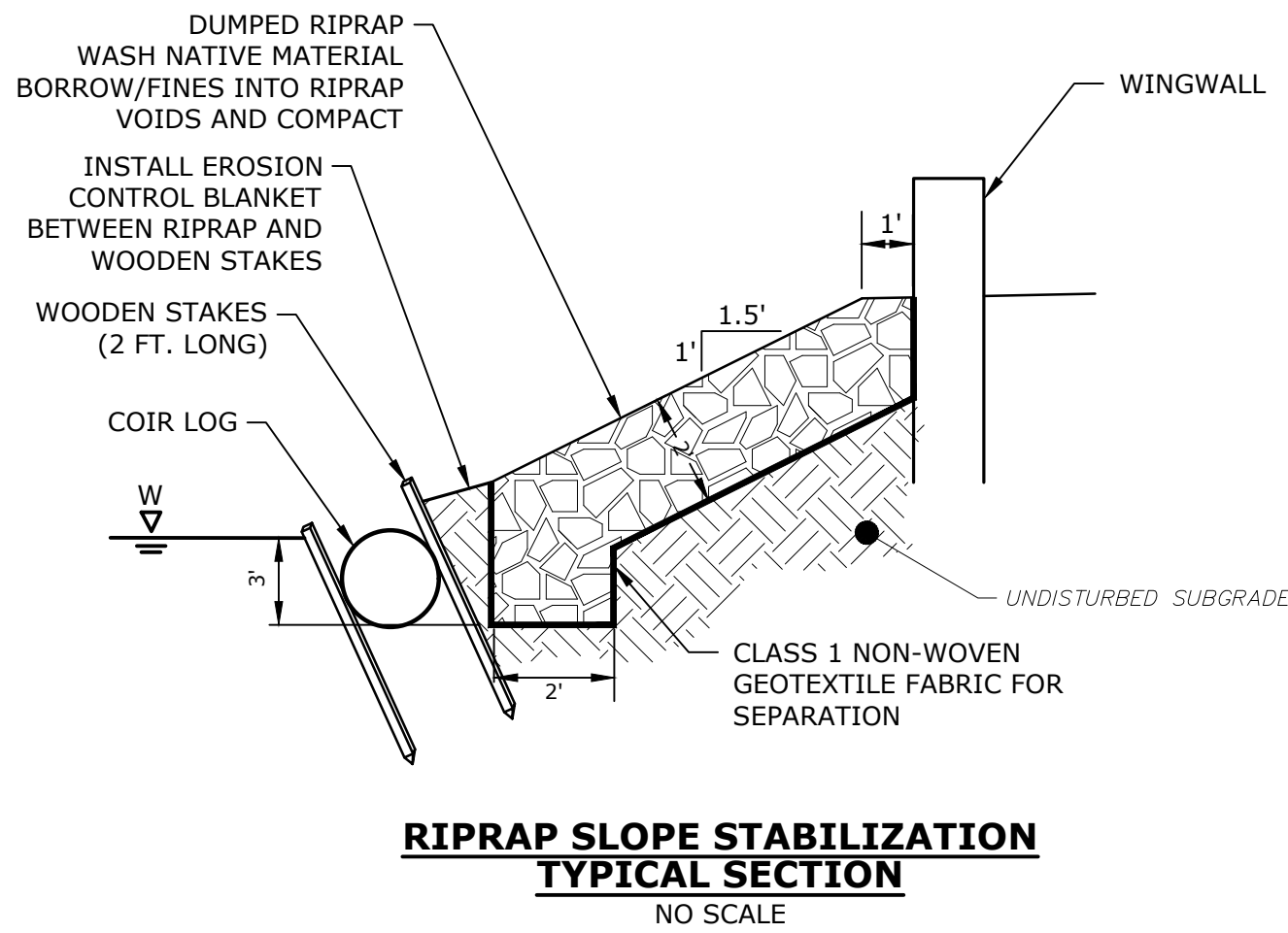
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C-501
SHEET 14 OF 20

Last Saved: 3/5/2026
Plotted On: Mar 05, 2026 4:52pm By: RCase
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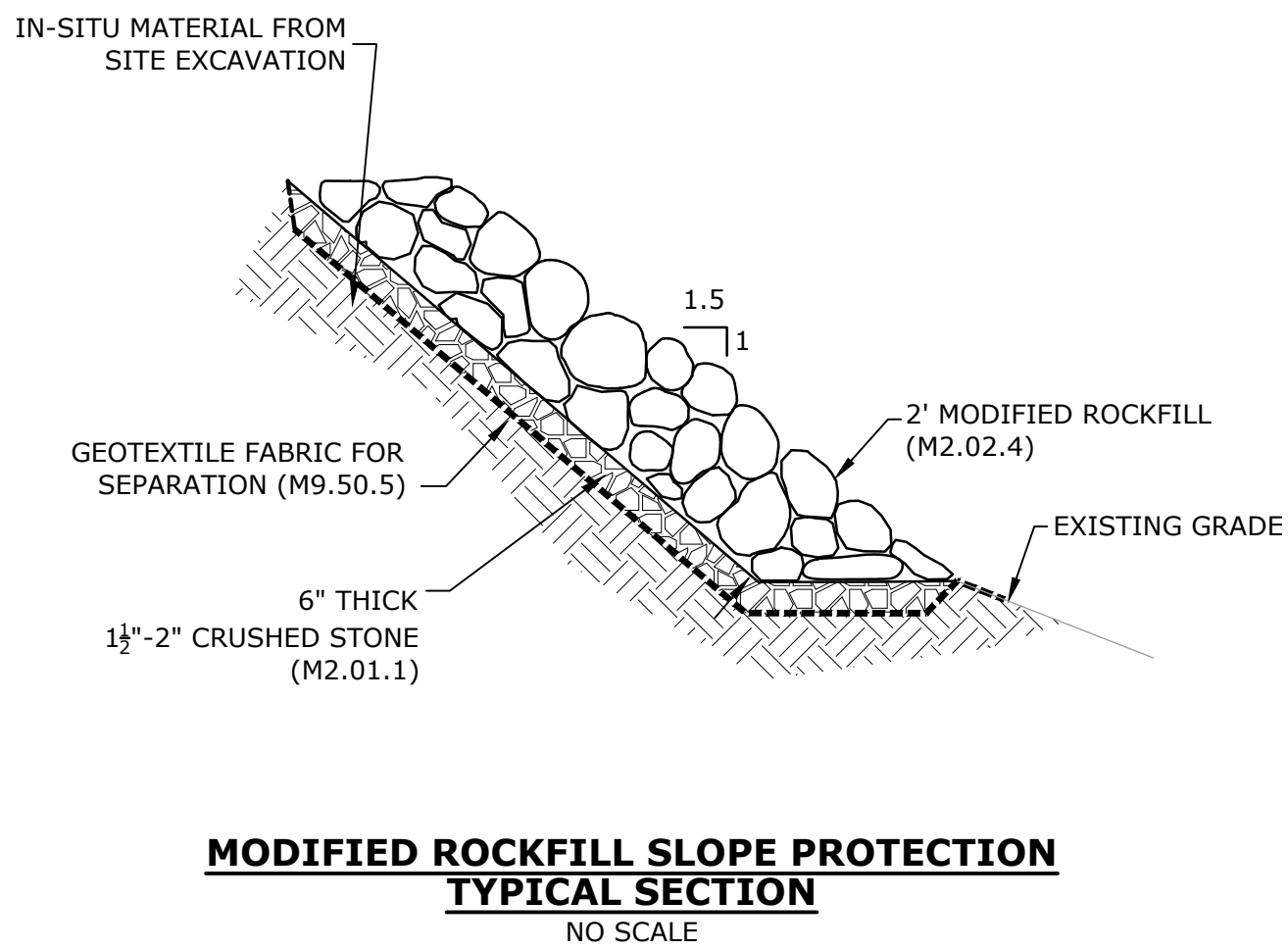


CONSTRUCTION ENTRANCE
NO SCALE

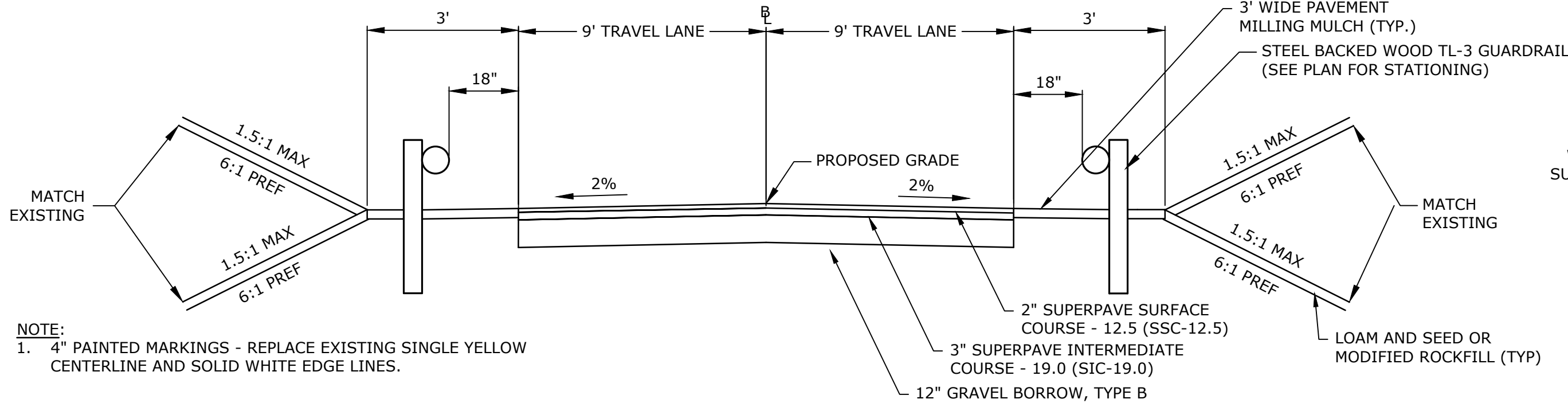


RIPRAP SLOPE STABILIZATION
TYPICAL SECTION
NO SCALE

NOTE:
1. TOE OF SLOPE RESTORATION SHALL CONSIST OF THE COIR LOG, NATIVE TOPSOIL, AND 100% BIODEGRADABLE EROSION CONTROL BLANKETS.

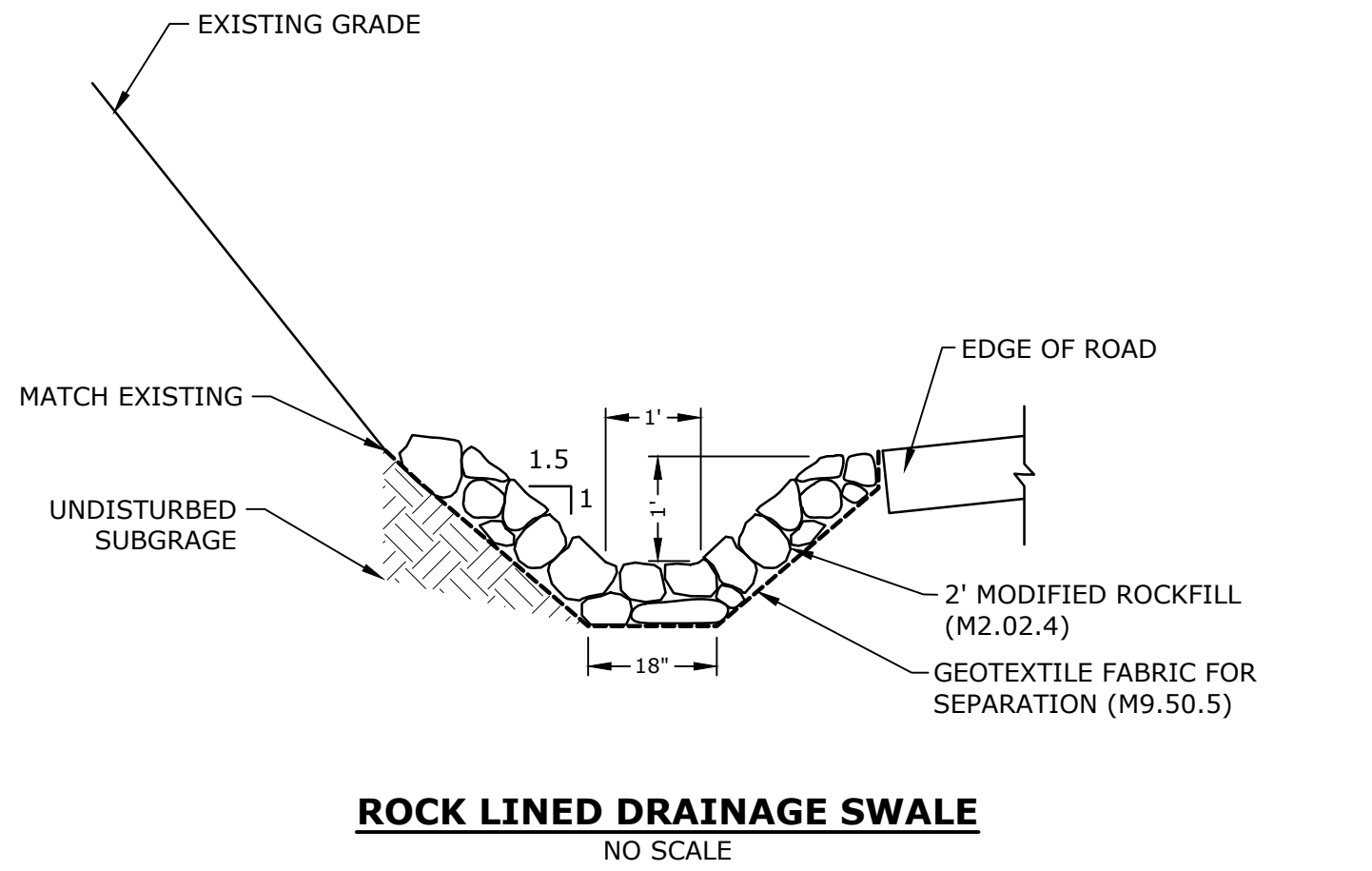


MODIFIED ROCKFILL SLOPE PROTECTION
TYPICAL SECTION
NO SCALE

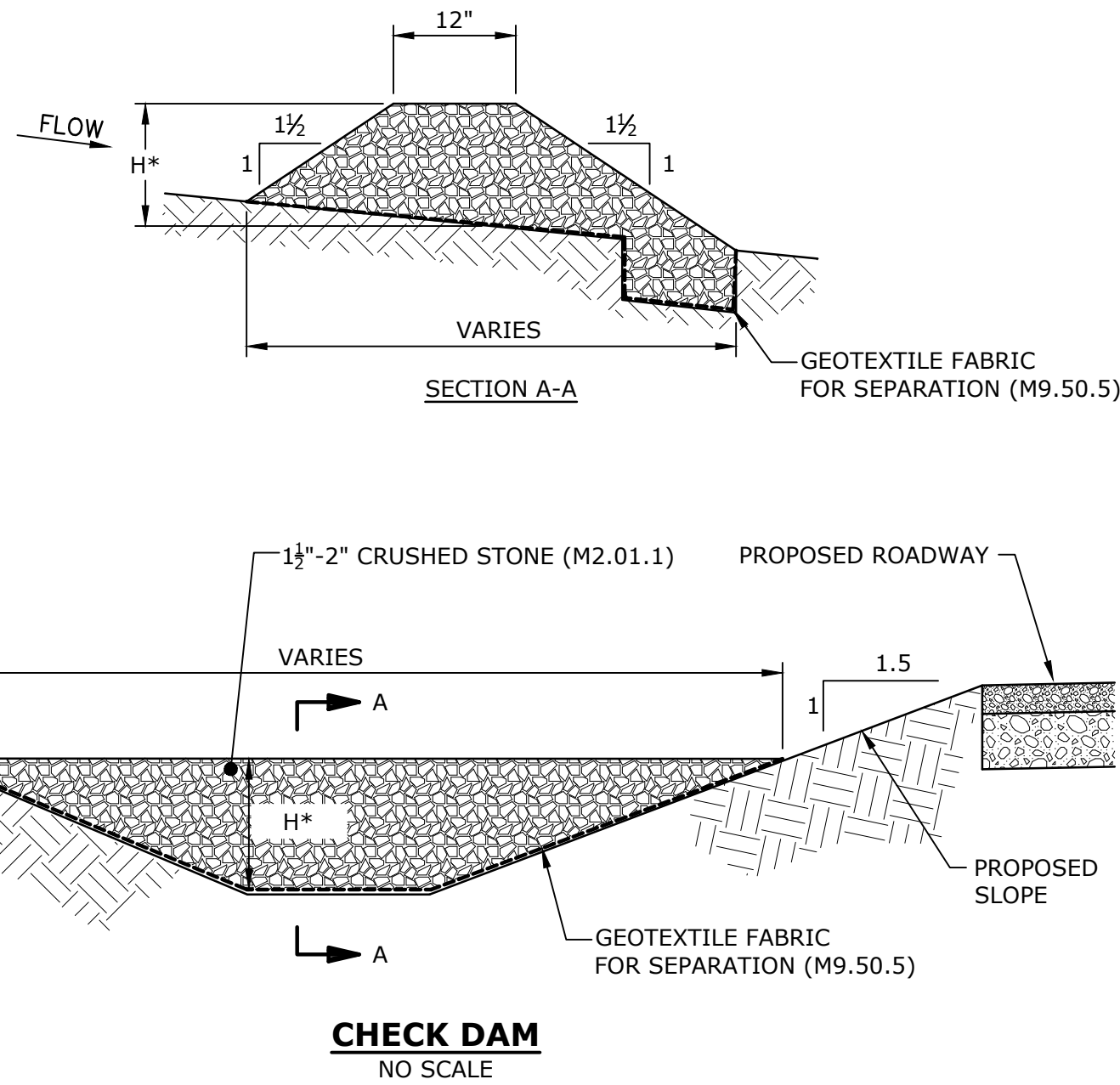


ROCKWELL ROAD TYPICAL SECTION
1" = 4'

NOTE:
1. 4" PAINTED MARKINGS - REPLACE EXISTING SINGLE YELLOW CENTERLINE AND SOLID WHITE EDGE LINES.

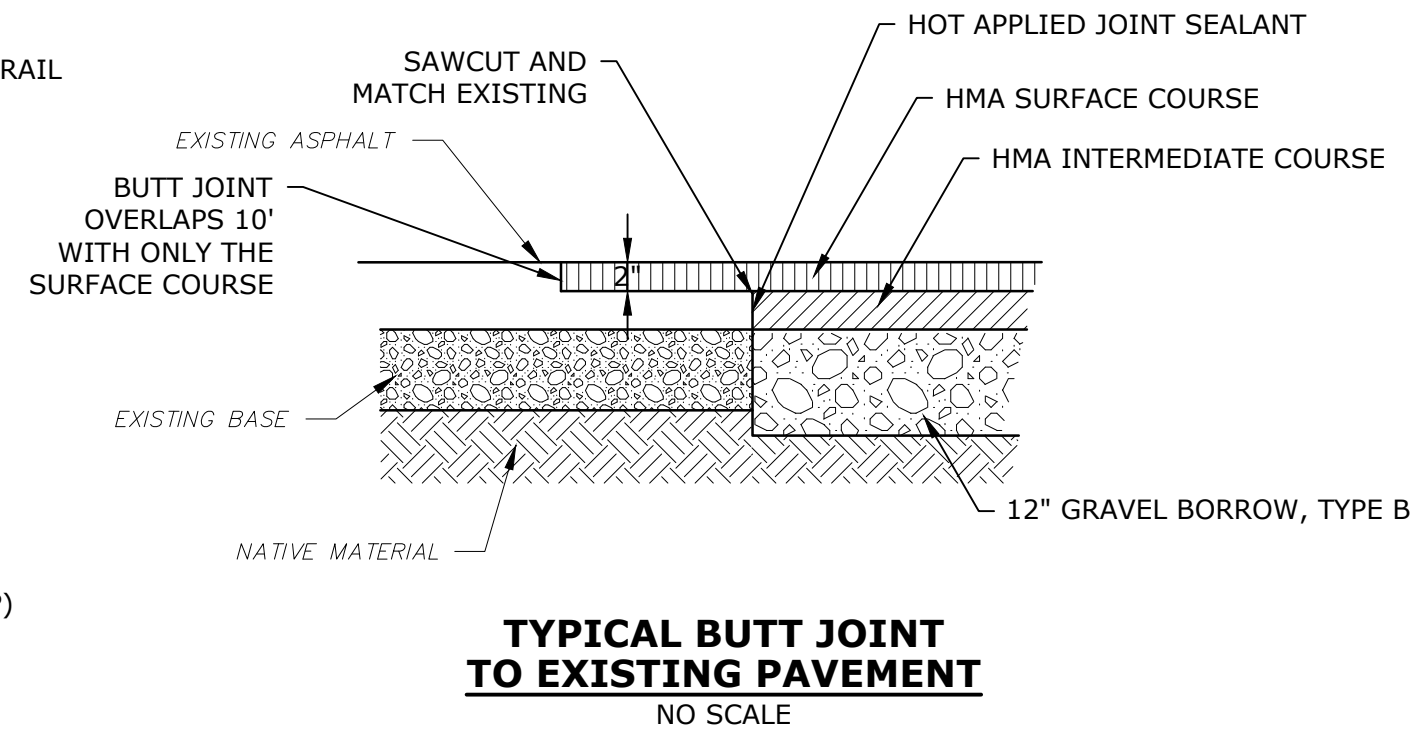


ROCK LINED DRAINAGE SWALE
NO SCALE

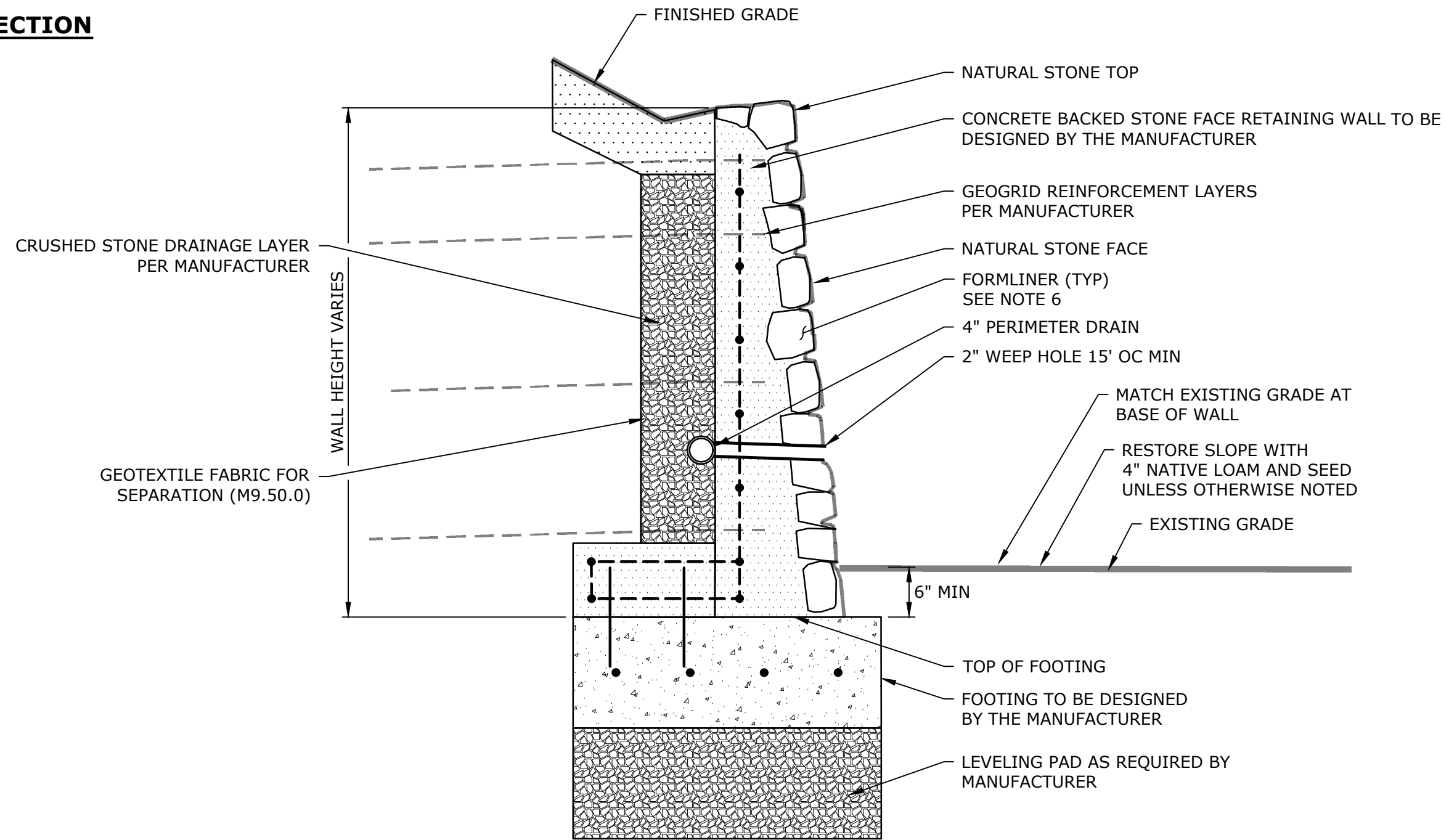


NOTES:
1. CHECK DAM SHALL BE INSTALLED AT LOCATIONS SHOWN ON SHEET C-102.

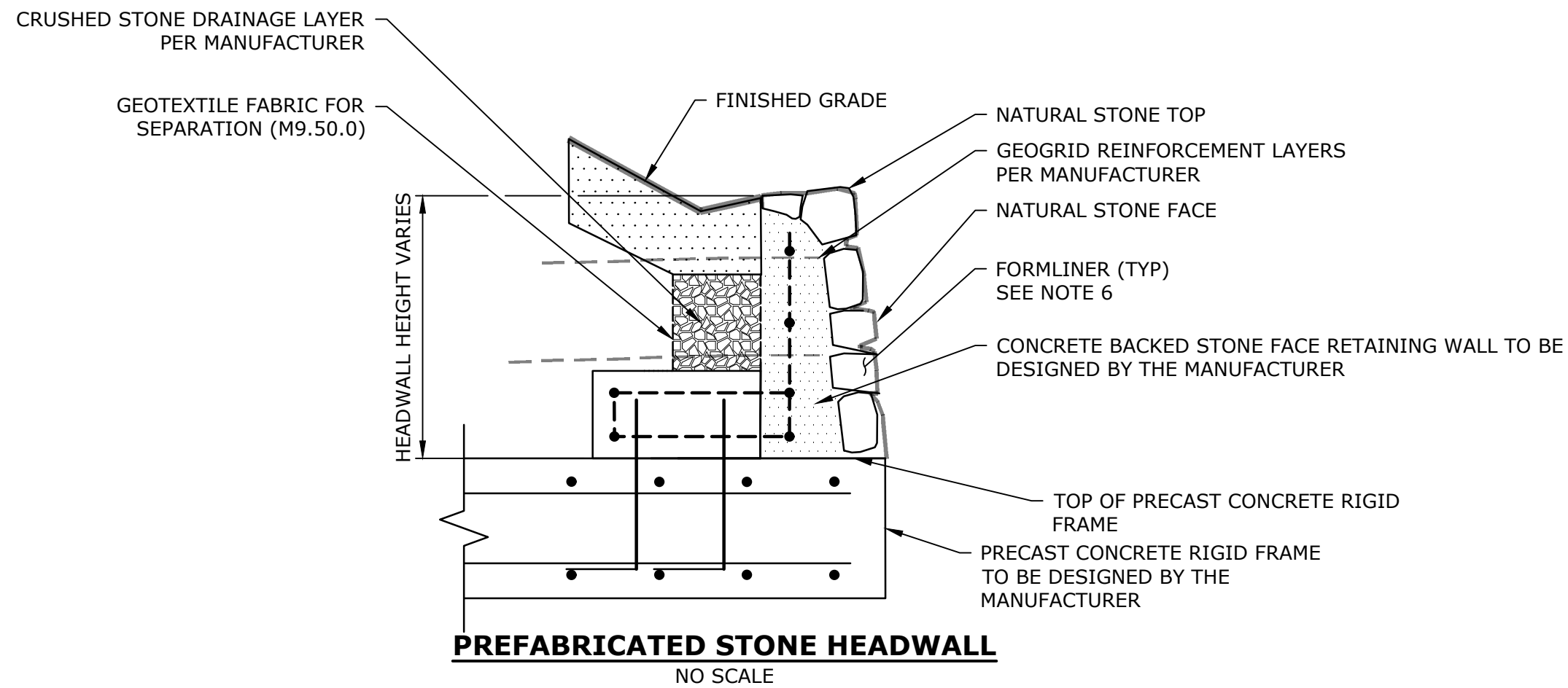
*HEIGHT FOR THE ROADWAY DRAINAGE SWALE SHALL BE 4" MAX, AND HEIGHT FOR THE UPLAND SWALE SHALL BE 6" MAX.



TYPICAL BUTT JOINT TO EXISTING PAVEMENT
NO SCALE



PREFABRICATED STONE RETAINING WALL
NO SCALE



PREFABRICATED STONE HEADWALL
NO SCALE

- NOTES:
- PREFABRICATED STONE RETAINING WALL AND HEADWALL (ESTABLISHED AS THE BASIS OF DESIGN) TO BE SELECTED BY CONTRACTOR AND SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. THE OWNER TO APPROVE THE SUBMITTED COLOR AND FINISH OF THE WALL.
 - SUBMITTAL SHALL INCLUDE DETAILED DESIGN COMPUTATIONS AND ALL DETAILS, DIMENSIONS, QUANTITIES, AND CROSS SECTIONS NECESSARY TO CONSTRUCT THE RETAINING WALL AND HEADWALL.
 - DESIGN DRAWINGS AND CALCULATIONS SHALL BE PREPARED, STAMPED, AND SIGNED BY A REGISTERED PROFESSIONAL ENGINEER IN THE COMMONWEALTH OF MASSACHUSETTS.
 - SEE SPECIAL PROVISIONS FOR LIMITS OF EXCAVATION AND BACKFILL THAT ARE INCLUSIVE TO THE PREFABRICATED STONE RETAINING WALL AND HEADWALL.
 - THE SELECTED PREFABRICATED STONE RETAINING WALL AND HEADWALL SHALL BE COMPATIBLE WITH THE PRECAST CULVERT.
 - THE CONTRACTOR SHALL SUBMIT FOR SELECTION AND APPROVAL A CHART OF AVAILABLE STONES. THE CHART SHALL BE REPRESENTATIVE OF THE STONE INTENDED TO BE USED IN THE PROJECT AND SHOW THE FULL RANGE OF COLOR AND OTHER VISUAL CHARACTERISTICS IN THE COMPLETE WORK. INCLUDE MANUFACTURER'S COLOR SELECTION CHARTS SHOWING THE FULL RANGE OF COLORS AVAILABLE FOR EACH STONE PRODUCT EXPOSED TO VIEW. THE CONTRACTOR SHALL MAKE SAMPLES AVAILABLE TO THE OWNER TO VIEW UPON REQUEST.

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Rockwell Road Improvements Project

Department of Conservation and Recreation

New Ashford, Massachusetts

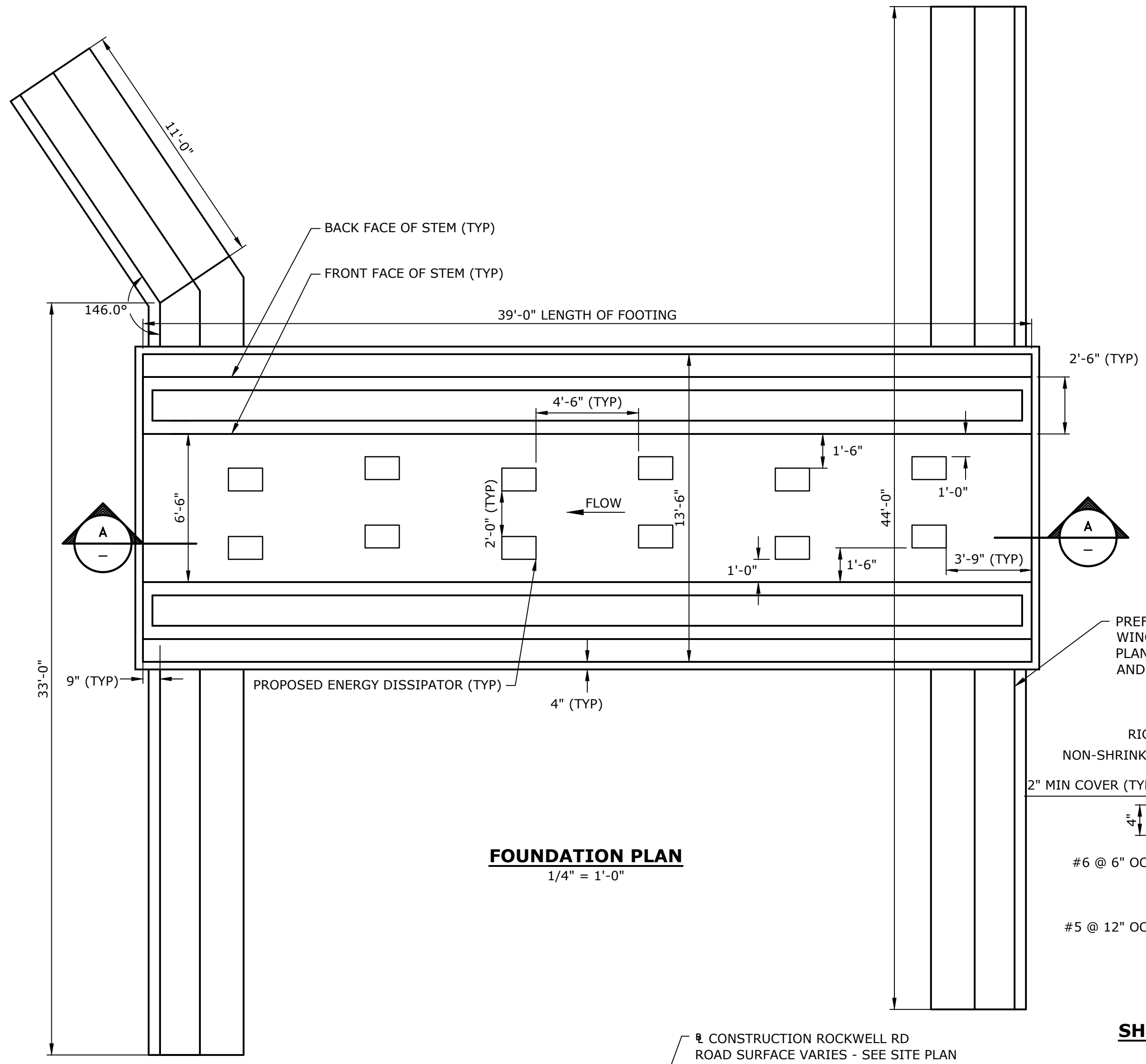
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DRAWN BY:	ND/TW	
CHECKED BY:	AGB/MPW	
APPROVED BY:	DLM	

DETAILS - 2

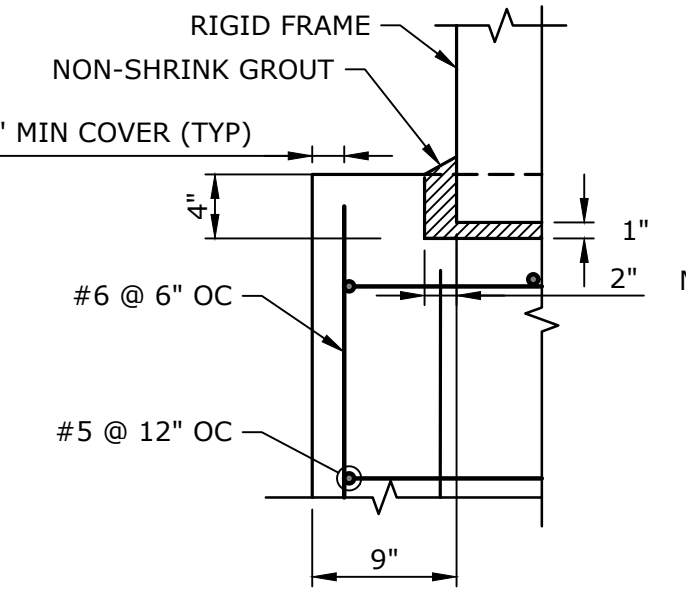
SCALE: AS SHOWN

C-502
SHEET 15 OF 20

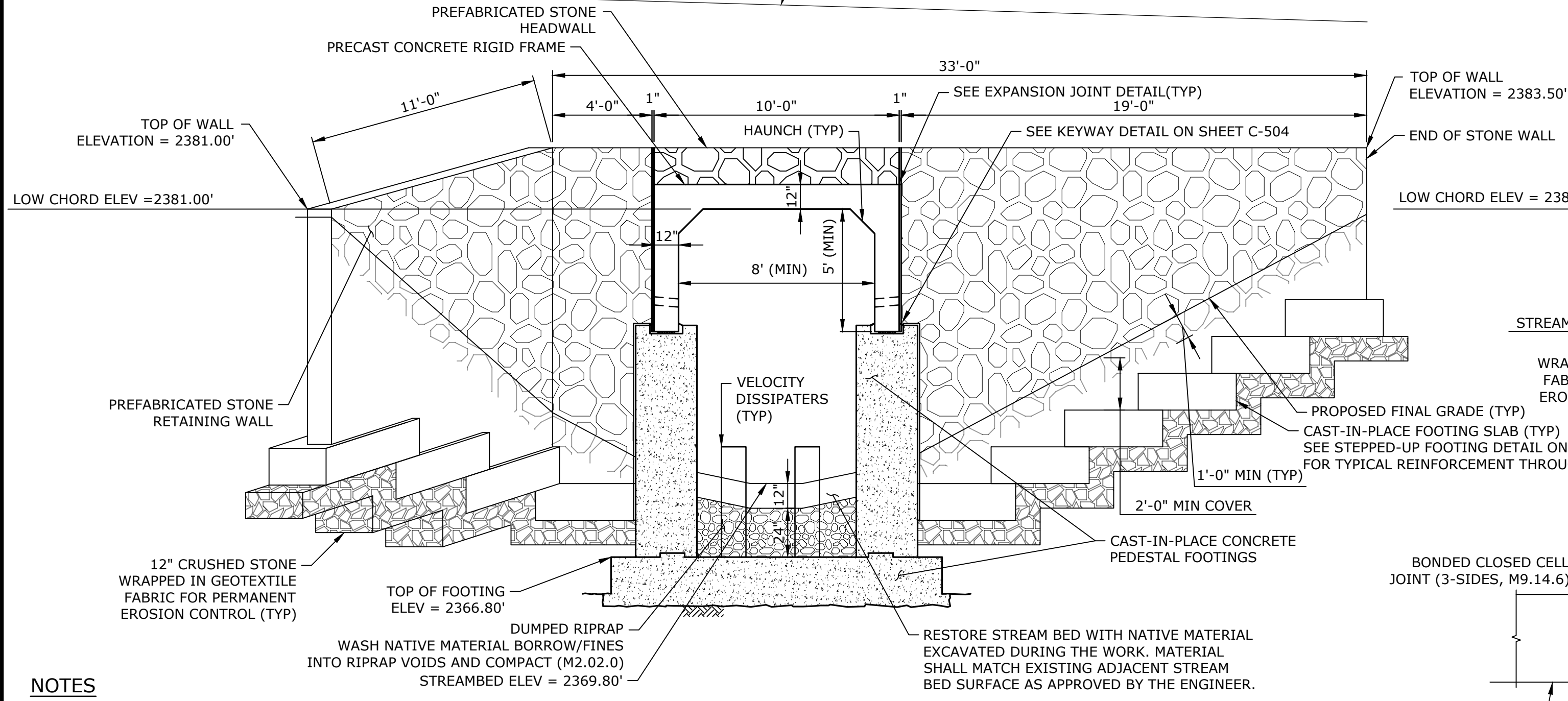
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FOUNDATION PLAN
1/4" = 1'-0"

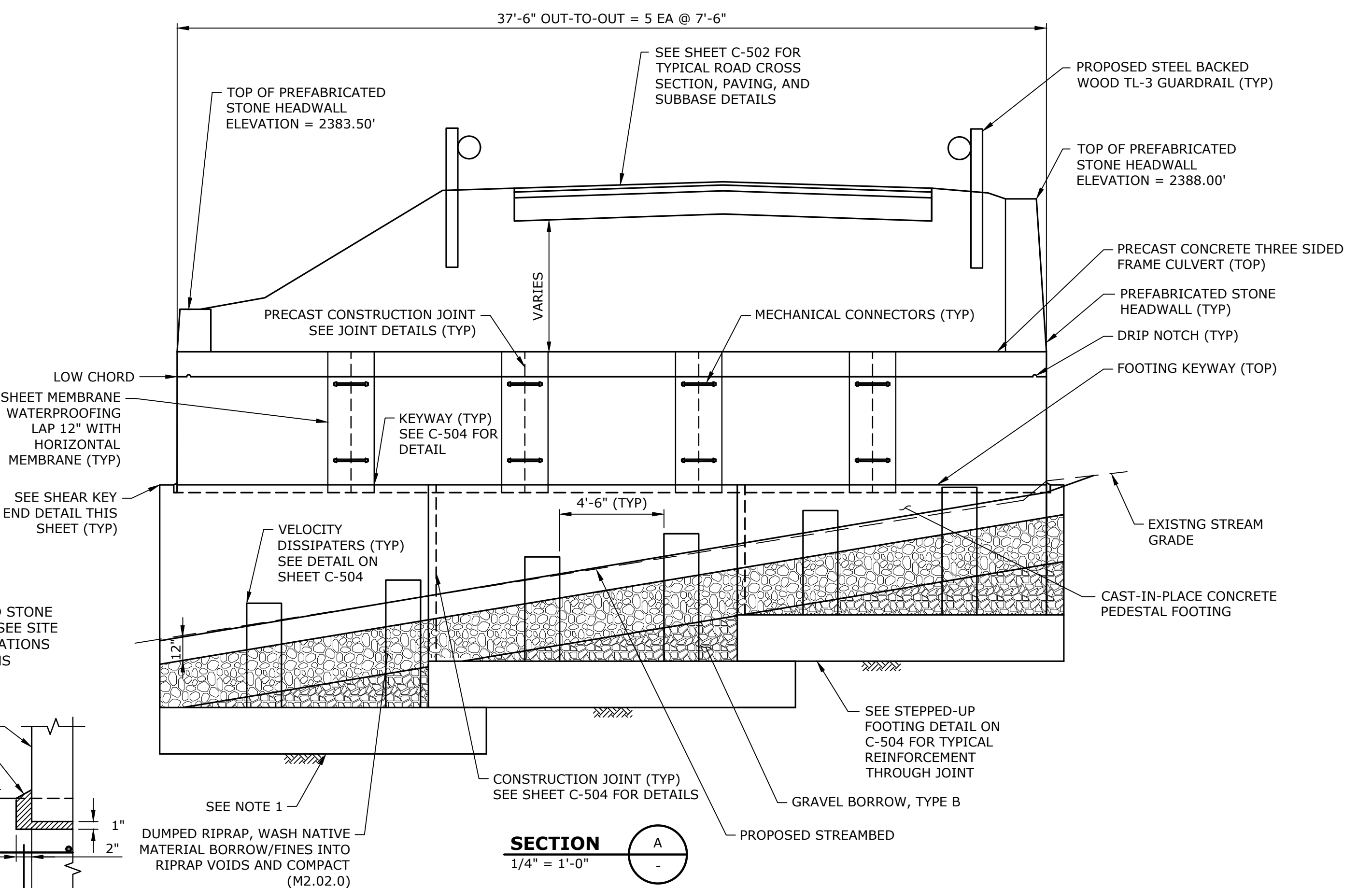


SHEAR KEY END DETAIL
1" = 1'-0"

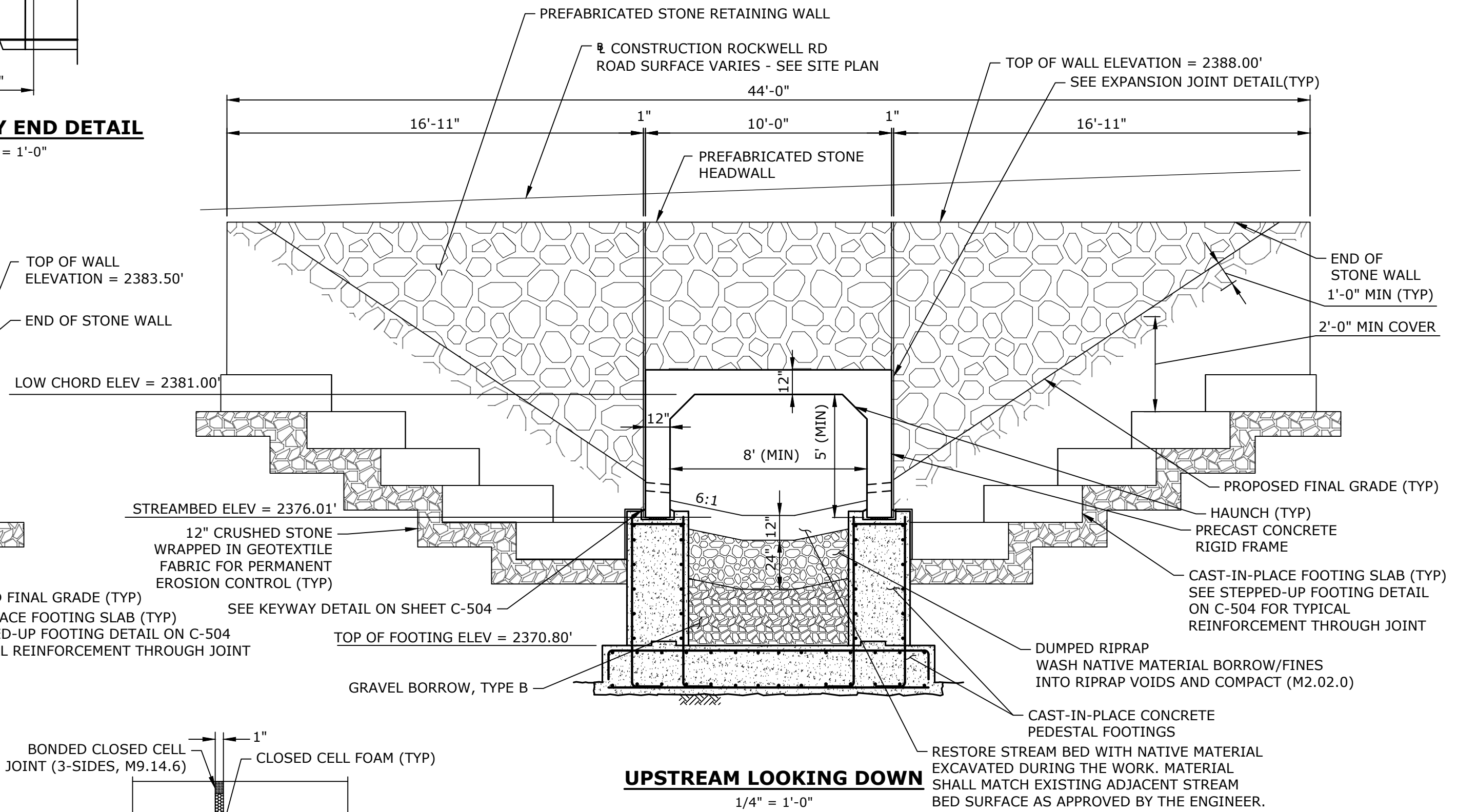


DOWNSTREAM LOOKING UP
1/4" = 1'-0"

- NOTES**
- FOOTING DIMENSIONS AND REINFORCEMENT NOT SHOWN FOR CLARITY. SEE SHEET C-504 FOR DETAILS.
 - THE VERTICAL AND HORIZONTAL HAUNCH DIMENSIONS SHALL BE EQUAL TO THE SIDEWALL THICKNESS.



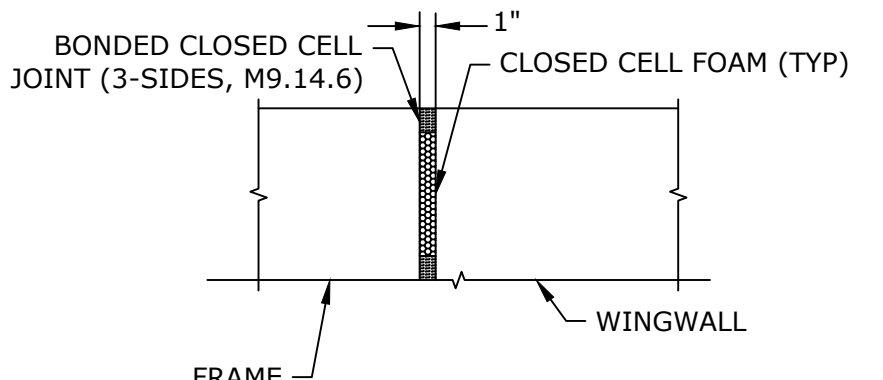
SECTION A-A
1/4" = 1'-0"



UPSTREAM LOOKING DOWN
1/4" = 1'-0"

- NOTES**
- VELOCITY DISSIPATORS NOT SHOWN FOR CLARITY.

EXPANSION JOINT BETWEEN WINGWALL AND FRAME
1/2" = 1'-0"



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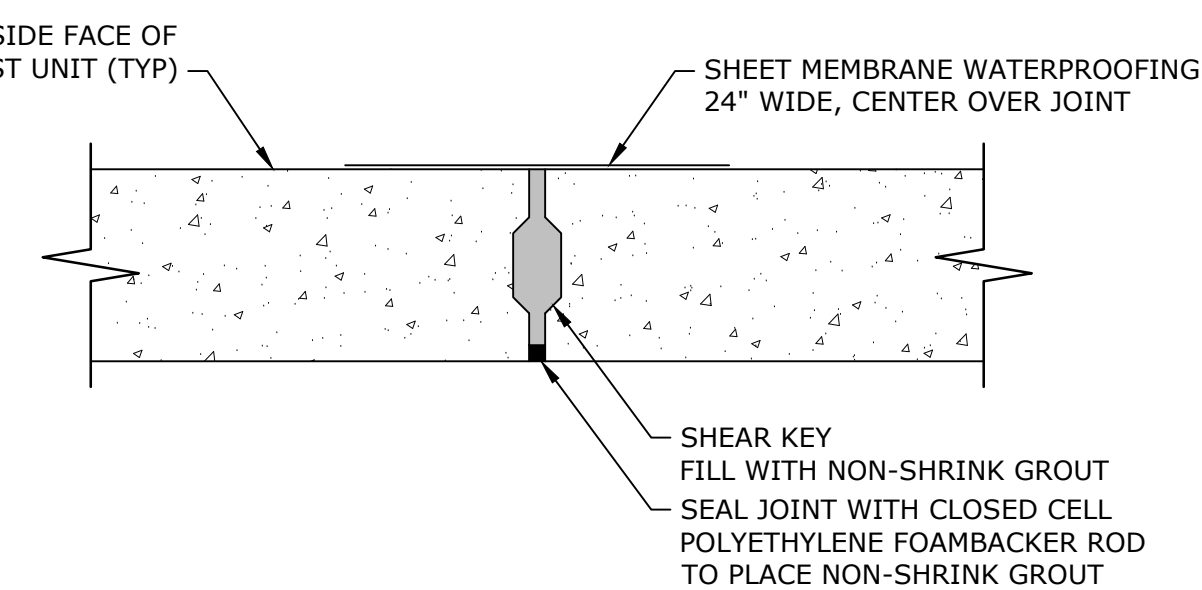
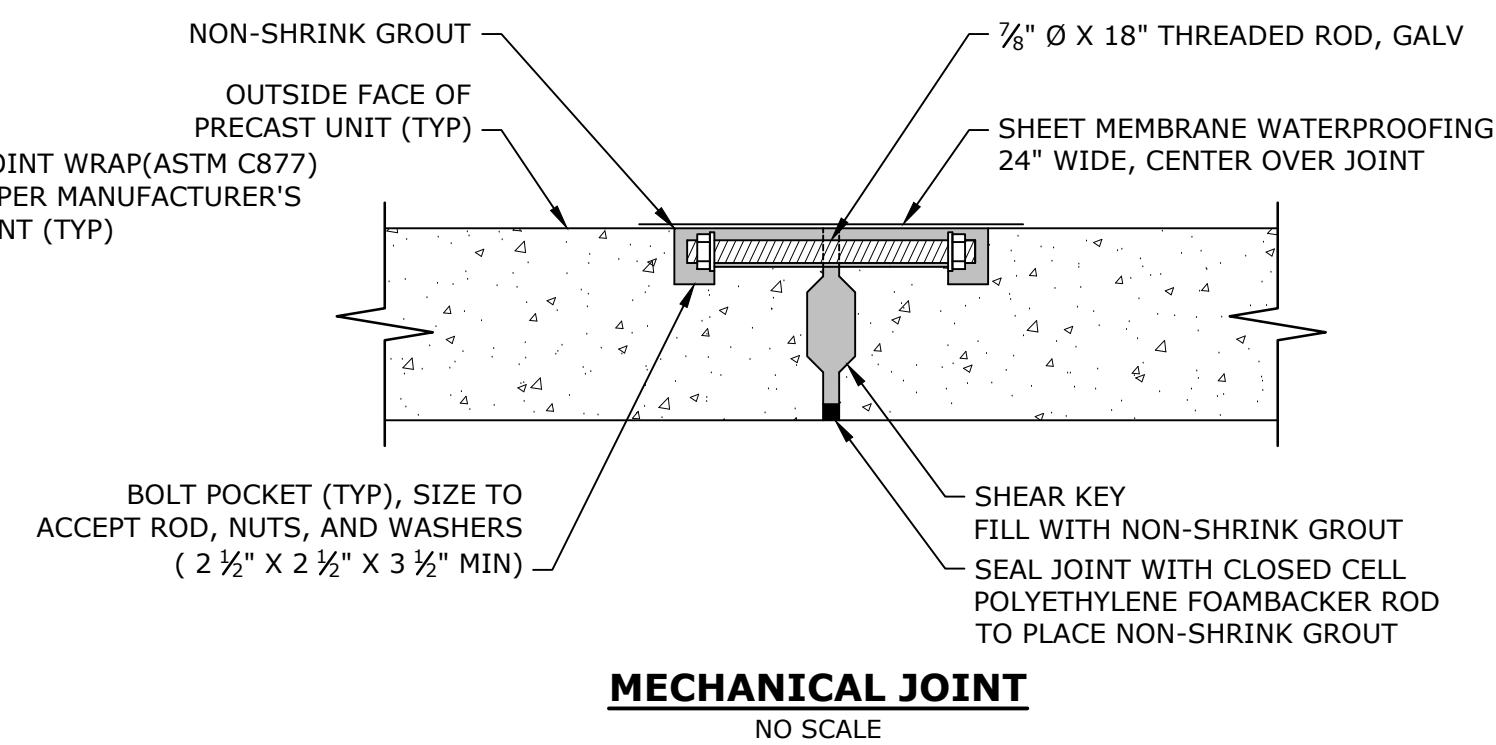
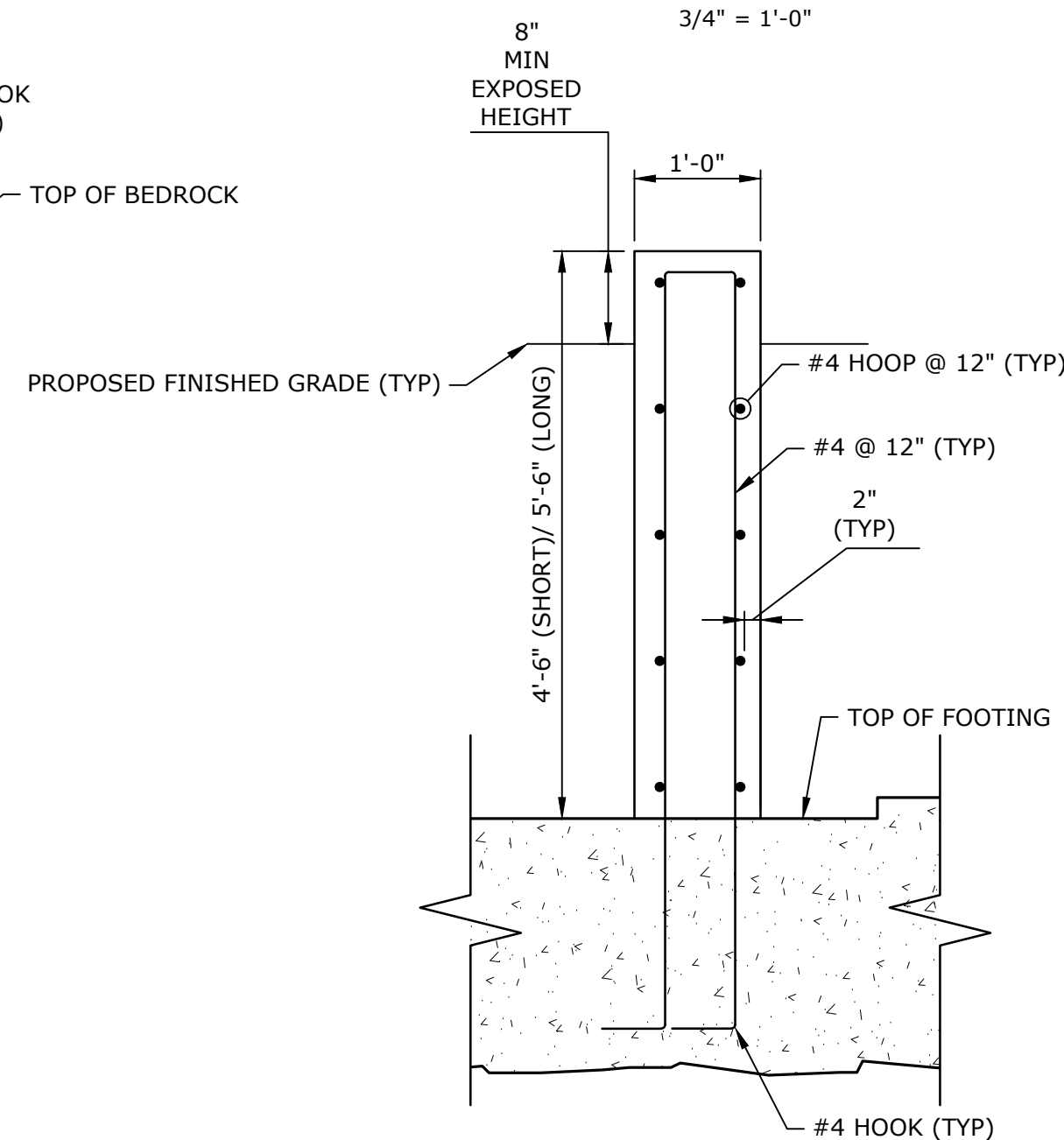
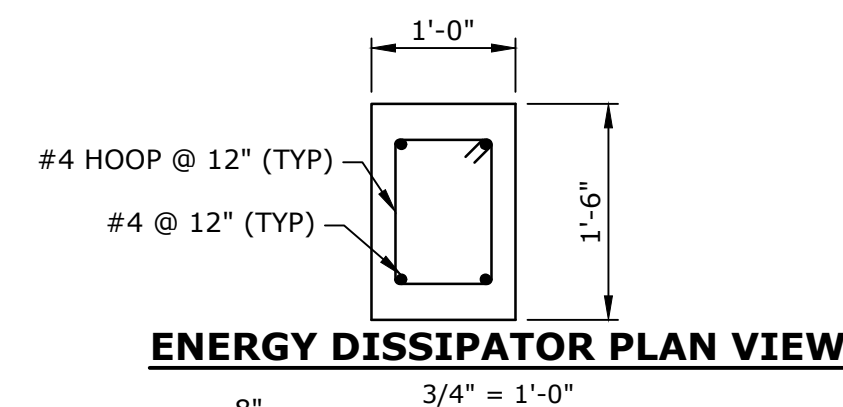
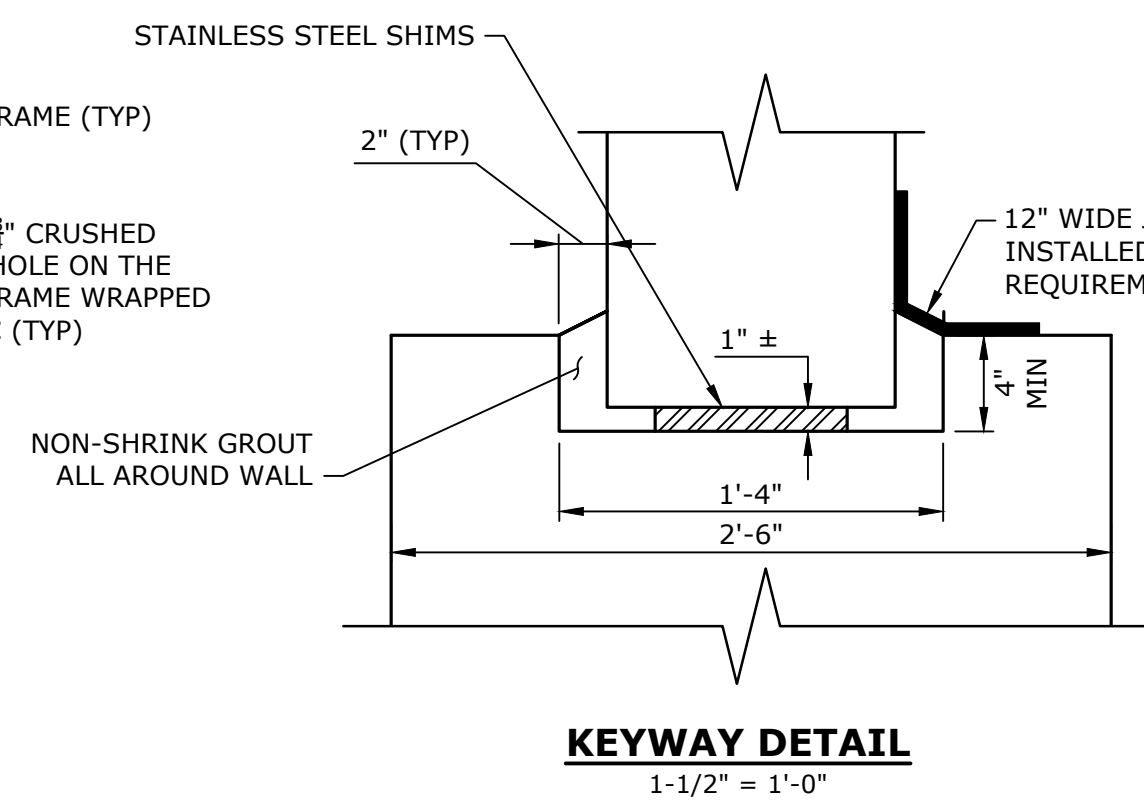
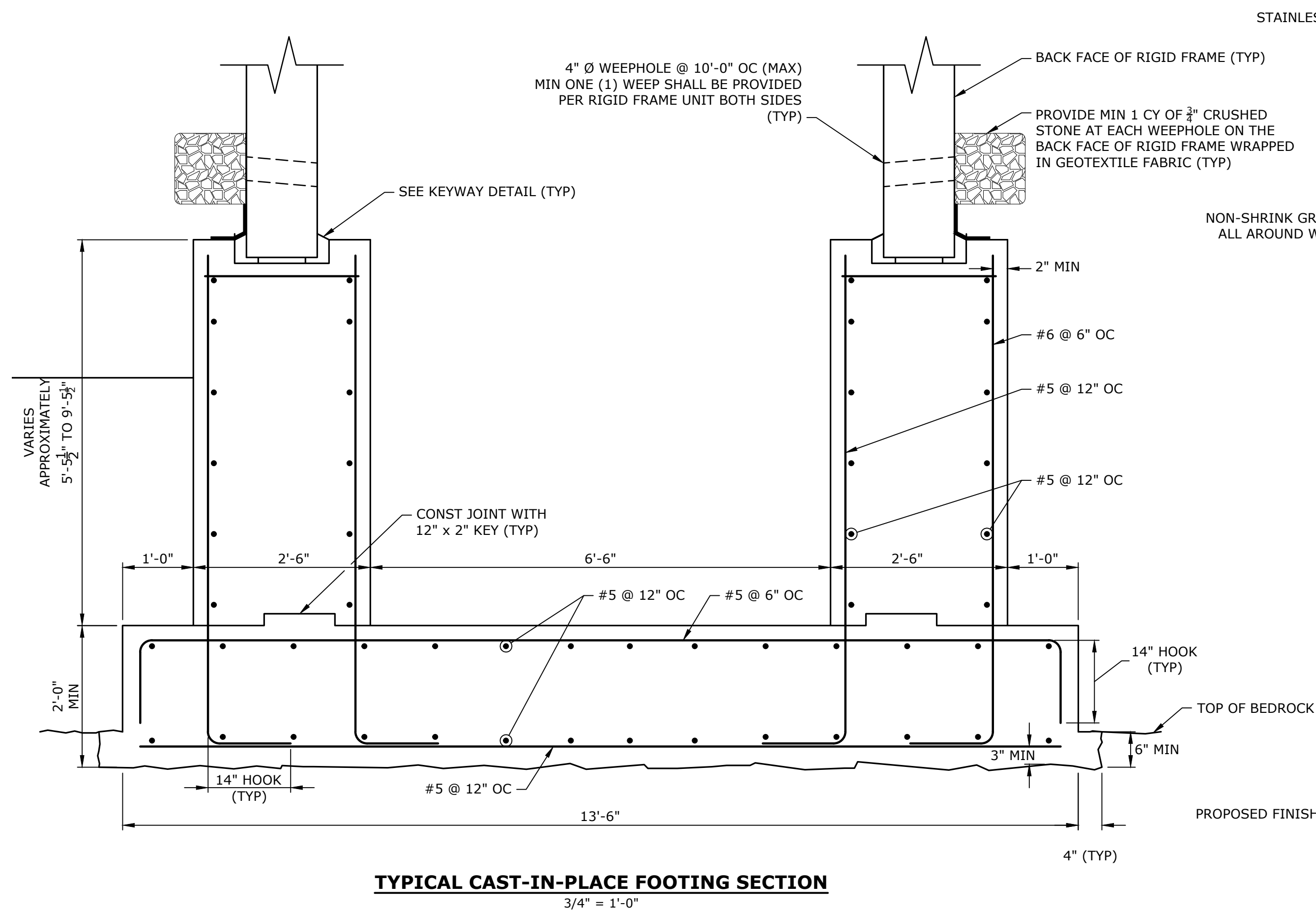
New Ashford, Massachusetts

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DATE:	MAR 2026	
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DETAILS - 3

SCALE: AS SHOWN

C-503
SHEET 16 OF 20

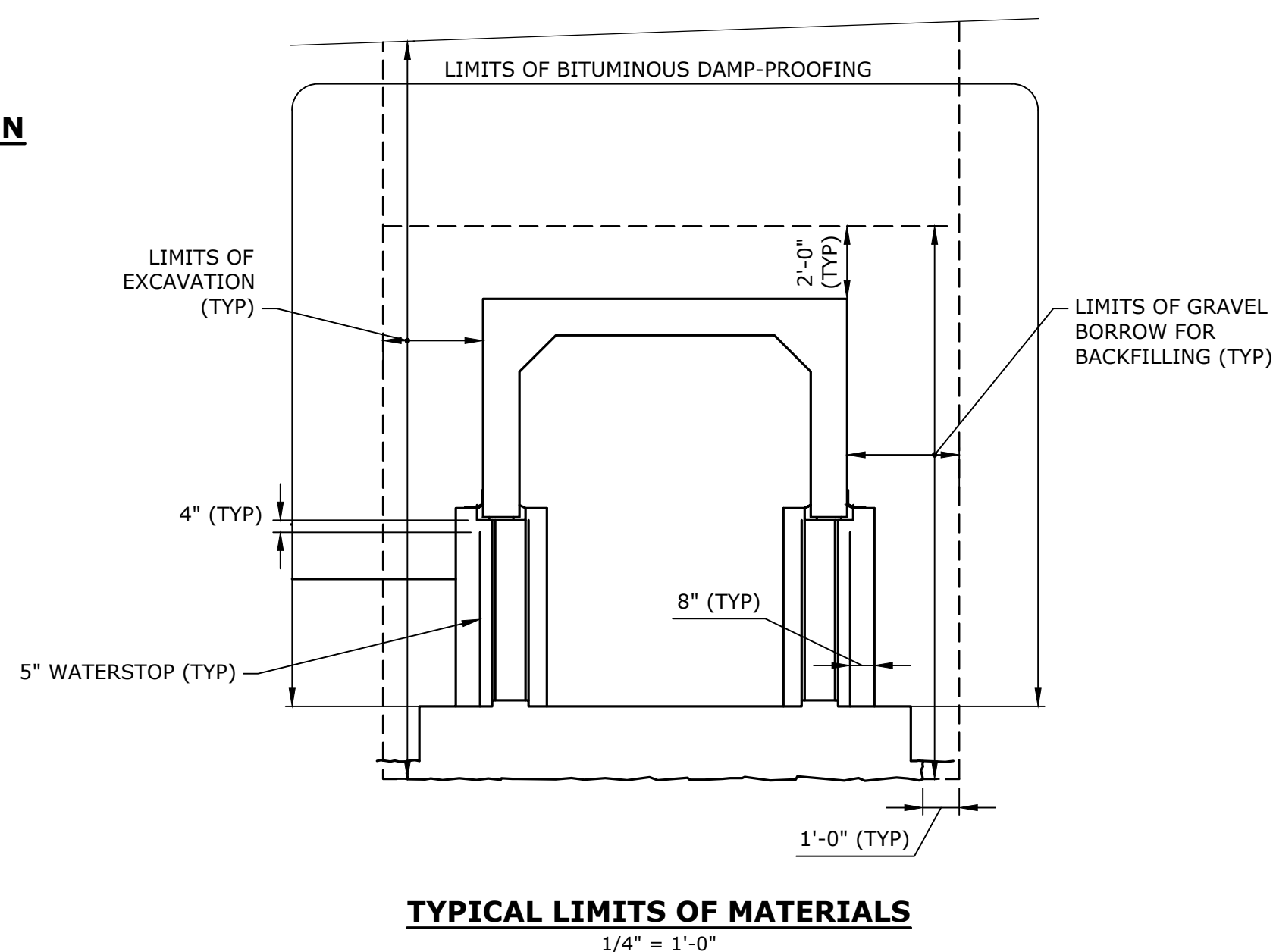
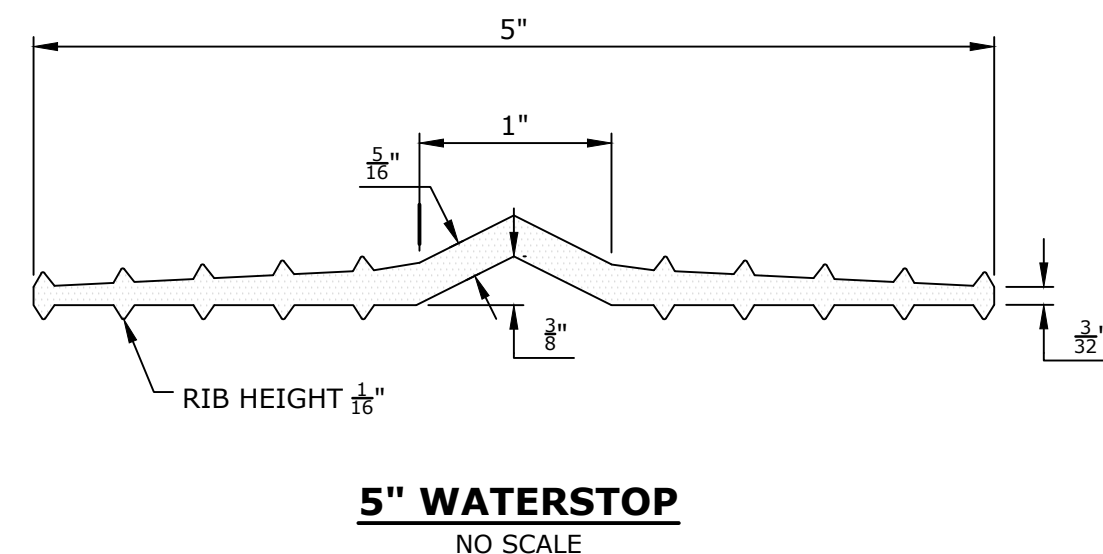
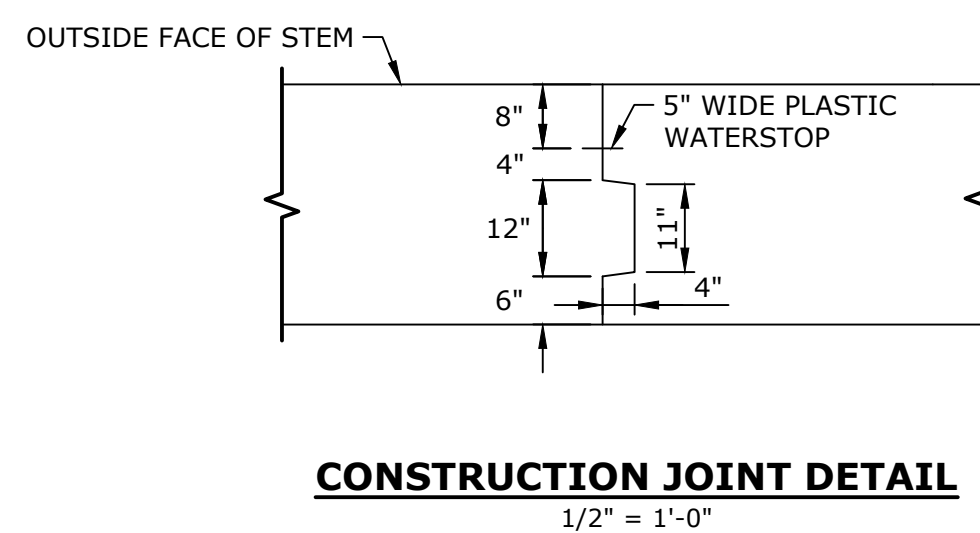
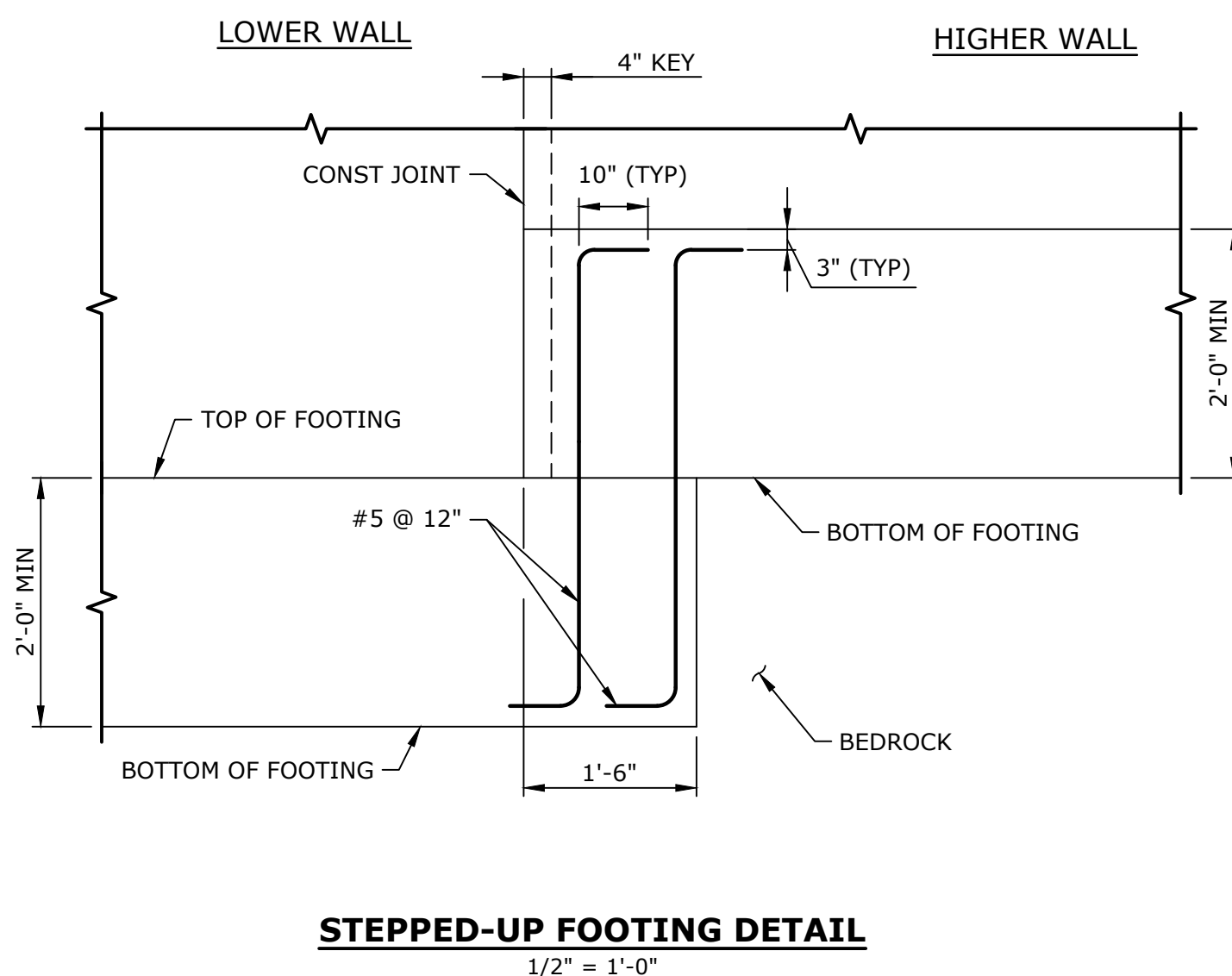


- ## JOINT NOTES

1. PROVIDE MINIMUM OF 6 MECHANICAL CONNECTORS BETWEEN RIGID FRAME UNITS (2 ON TOP AND 2 ON EACH LEG).
2. ALL BOLT POCKETS SHALL BE FILLED WITH NON-SHRINK GROUT.
3. SHEET MEMBRANE SHALL BE PLACED IN 2-FOOT WIDE STRIPS, CENTERED OVER THE TOP AND/OR SIDES OF EACH JOINT.

FOUNDATION NOTES

1. MINIMUM FOOTING THICKNESS SHALL BE 2'-0".
2. JOINTS IN THE PEDESTAL FOOTINGS SHALL BE A MINIMUM OF 18" FROM RIGID FRAME JOINTS.
3. CONCEPTUAL LAYOUT SHOWN IS BASED ON A RIGID FRAME STEM WIDTH OF 1'-0" AND A TOP SLAB THICKNESS OF 1'-0". FINAL DIMENSIONS TO BE VERIFIED PER CONTRACTOR'S FINAL DESIGN. ANY CHANGES IN THICKNESS SHALL CHANGE ASSOCIATED DIMENSIONS ACCORDINGLY. HYDRAULIC OPENING MUST BE MAINTAINED AT A MINIMUM.
4. PEDESTAL MAT FOOTING SHALL BE SUPPORTED DIRECTLY ON BEDROCK.
5. BOTTOM OF PEDESTAL FOOTING SHALL BE STEPPED ALONG ITS LENGTH TO CONFORM TO THE BEDROCK. USE THE STEPPED-UP FOOTING DETAIL FOR FOOTING STEP DIMENSIONS AND REINFORCING.



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Rockwell Road Improvements Project

Department of
Conservation
and Recreation

New Ashford,
Massachusetts

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DETAILS - 4

SCALE: AS SHOWN

C-504
SHEET 17 OF 20

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Rockwell Road Improvements Project

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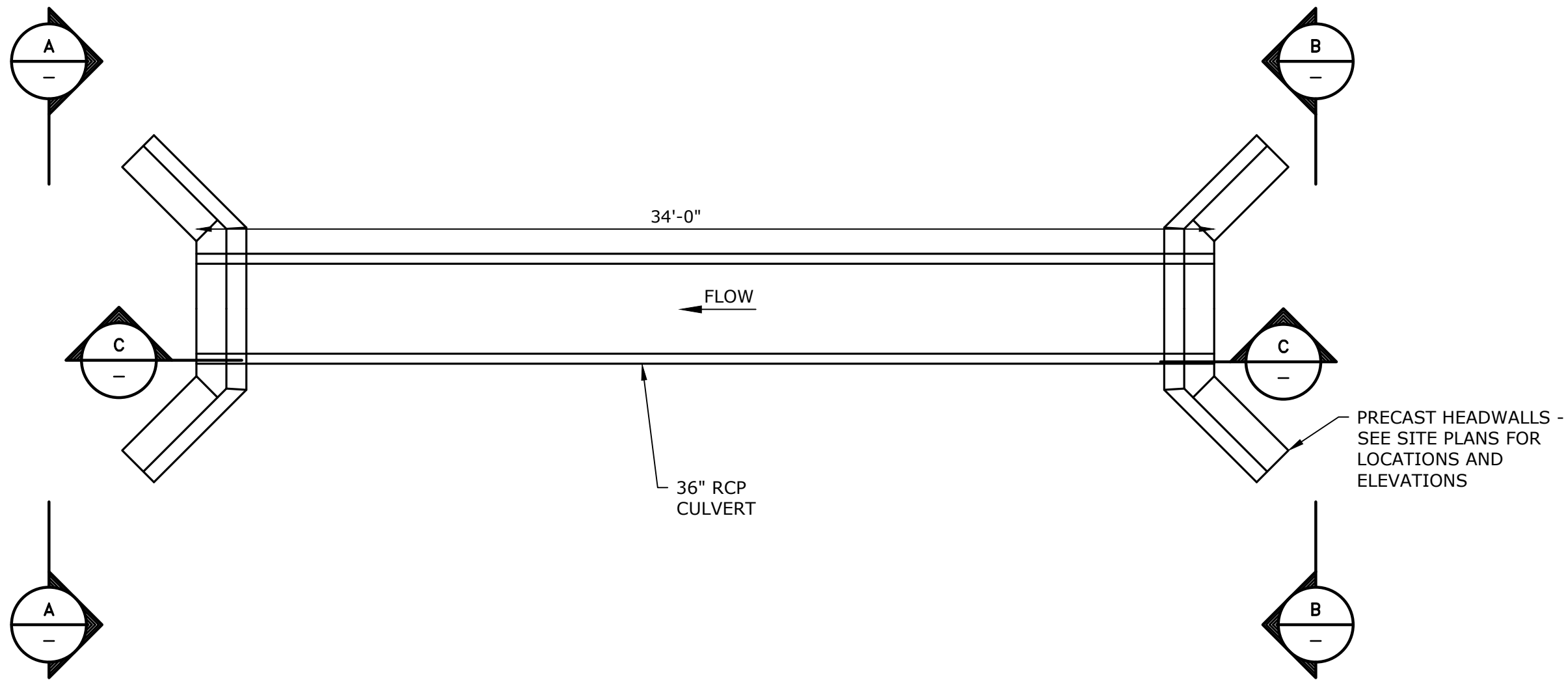
New Ashford, Massachusetts

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DATE: MAR 2026		
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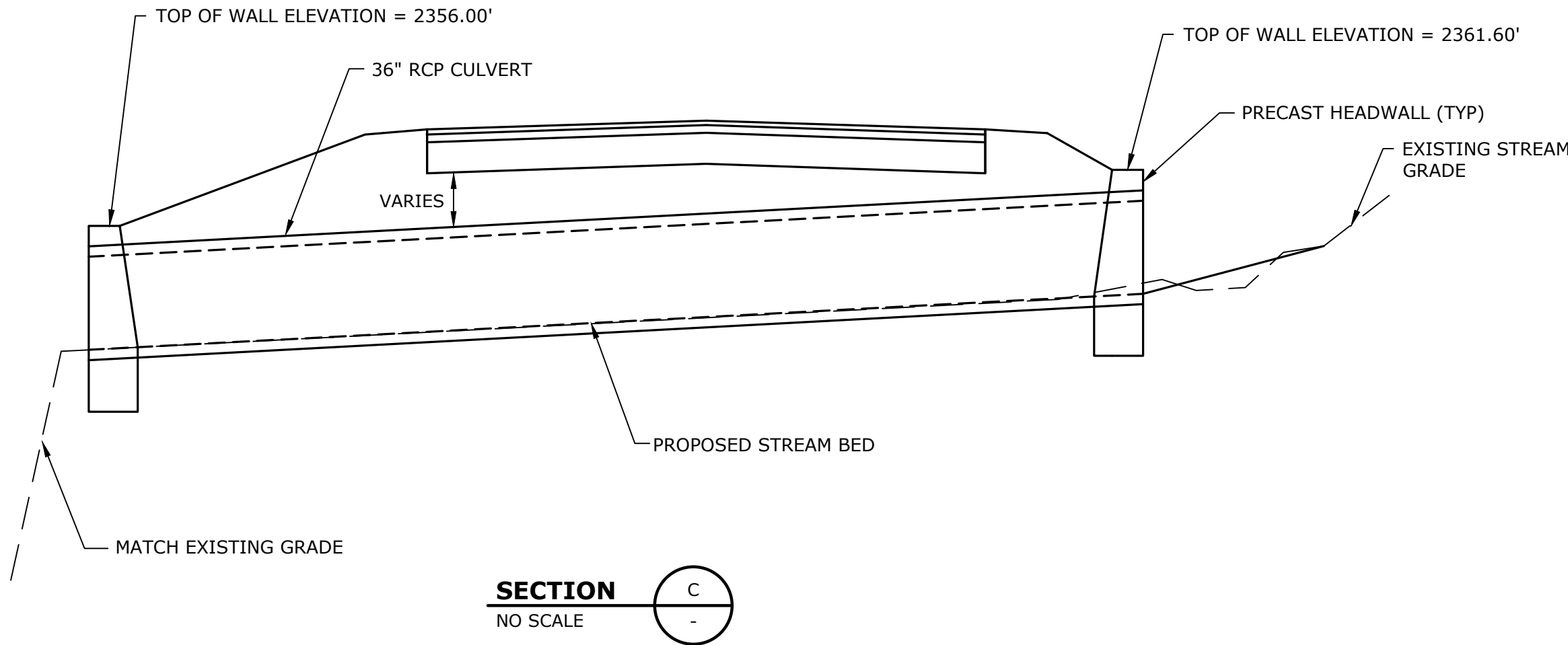
DETAILS - 5

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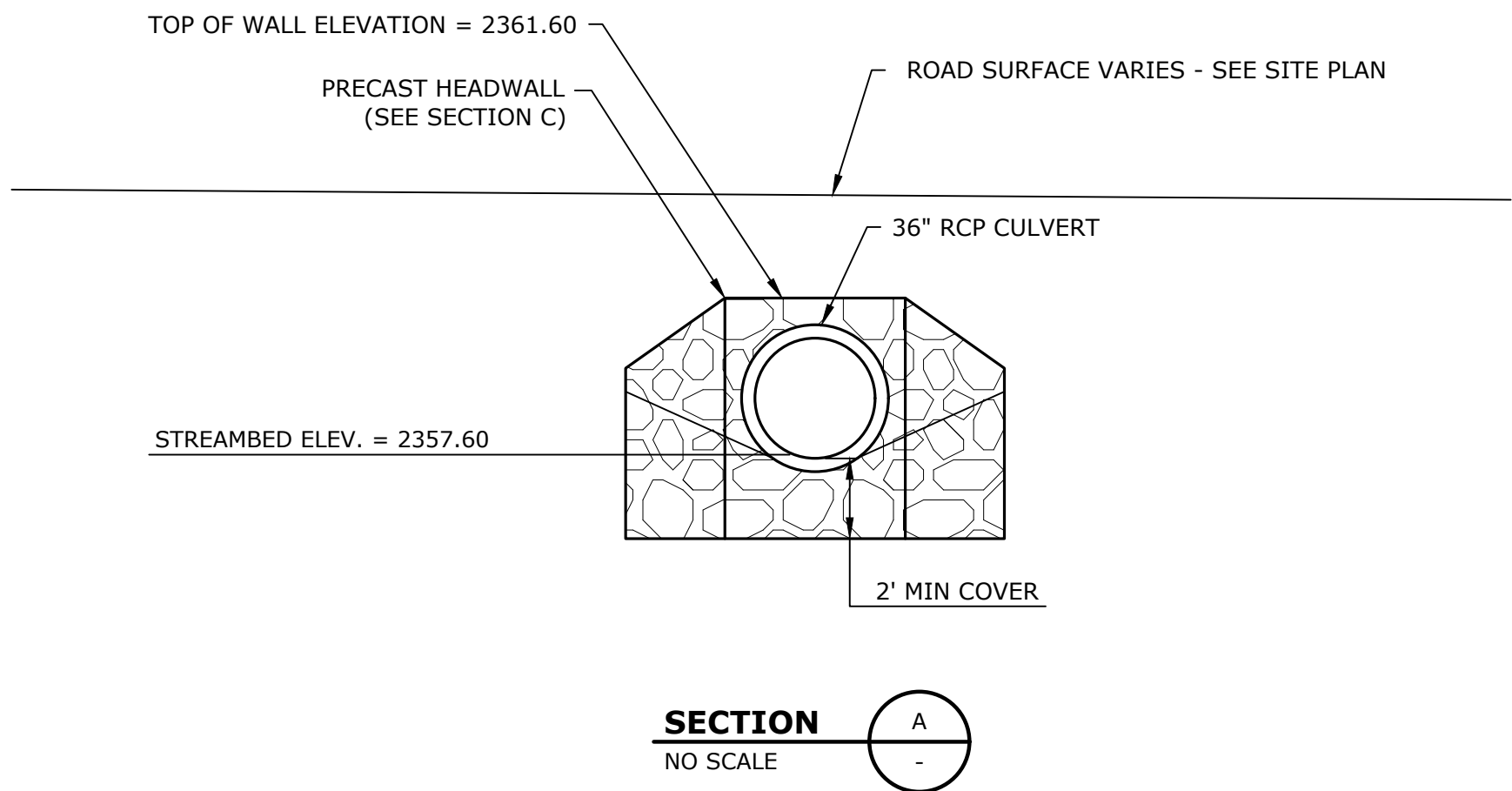
C-505
SHEET 18 OF 20



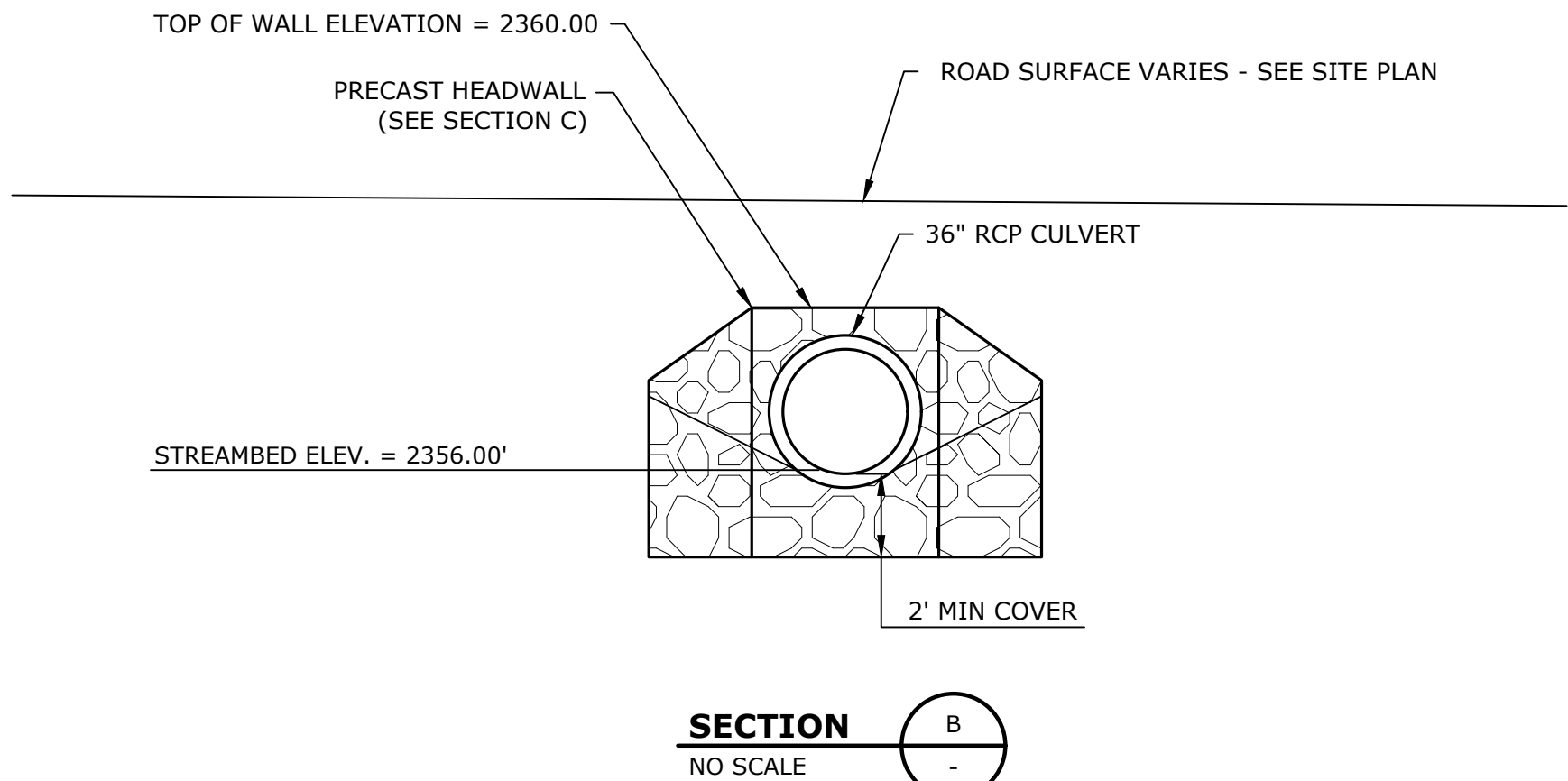
ROCKWELL ROAD SOUTH CULVERT - DCR CULVERT CID 33
NO SCALE



SECTION C
NO SCALE



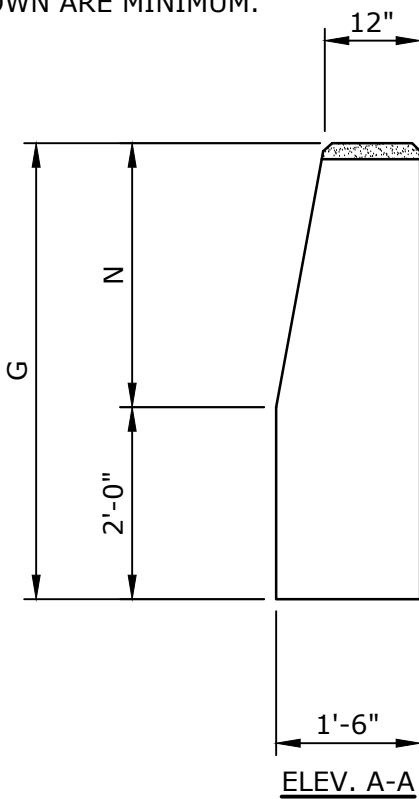
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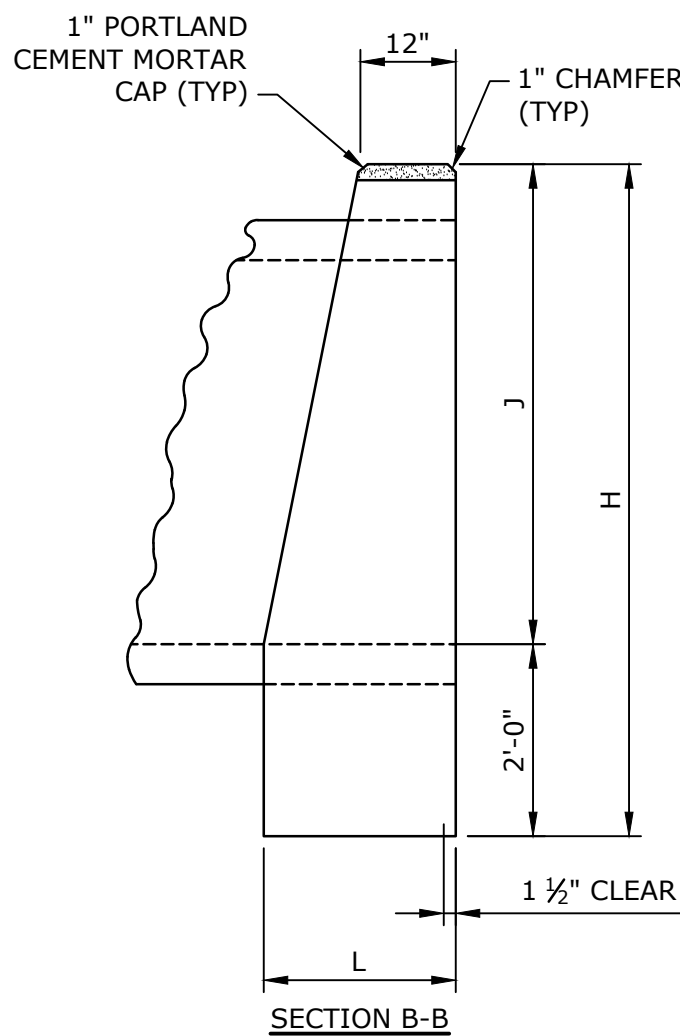
SECTION B
NO SCALE

1 ½:1 AND 2:1 SLOPES								1 ½:1 SLOPE			2:1 SLOPE			TRENCH EXCAV. 1'-0" DEPTH 2:1 SLOPE	
D	E	G	H	J	L	N	P	F	CONC. CU. YDS.	STEEL LBS.	F	CONC. CU. YDS.	STEEL LBS.		CU. FT.
(CID 33)	30"	4'-0"	4'-0"	5'-6"	3'-6"	1'-6"	2'-0"	5'-3"	3'-0"	2.60	45	4'-3"	3.16	54	55.16
	36"	4'-6"	4'-3"	6'-0"	4'-0"	1'-8"	2'-3"	5'-11"	3'-6"	3.35	54	5'-0"	4.15	64	64.35
	42"	5'-0"	4'-6"	6'-6"	4'-6"	1'-10"	2'-6"	6'-6"	4'-0"	4.20	59	5'-9"	5.25	70	73.70
	48"	5'-6"	4'-9"	7'-0"	5'-0"	2'-0"	2'-9"	7'-2"	4'-6"	5.19	65	6'-6"	6.50	83	83.96
	54"	6'-0"	5'-0"	7'-6"	5'-6"	2'-2"	3'-0"	7'-10"	5'-0"	6.26	73	7'-3"	7.88	93	94.46
	60"	6'-6"	5'-3"	8'-0"	6'-0"	2'-4"	3'-3"	8'-5"	5'-6"	7.43	85	8'-0"	9.37	106	105.30
	72"	7'-6"	5'-9"	9'-0"	7'-0"	2'-8"	3'-9"	9'-9"	6'-6"	10.25	98	9'-6"	12.99	128	128.92
84"	8'-6"	6'-3"	10'-0"	8'-0"	3'-0"	4'-3"	11'-0"	7'-6"	13.49	120	11'-0"	17.32	154	153.86	

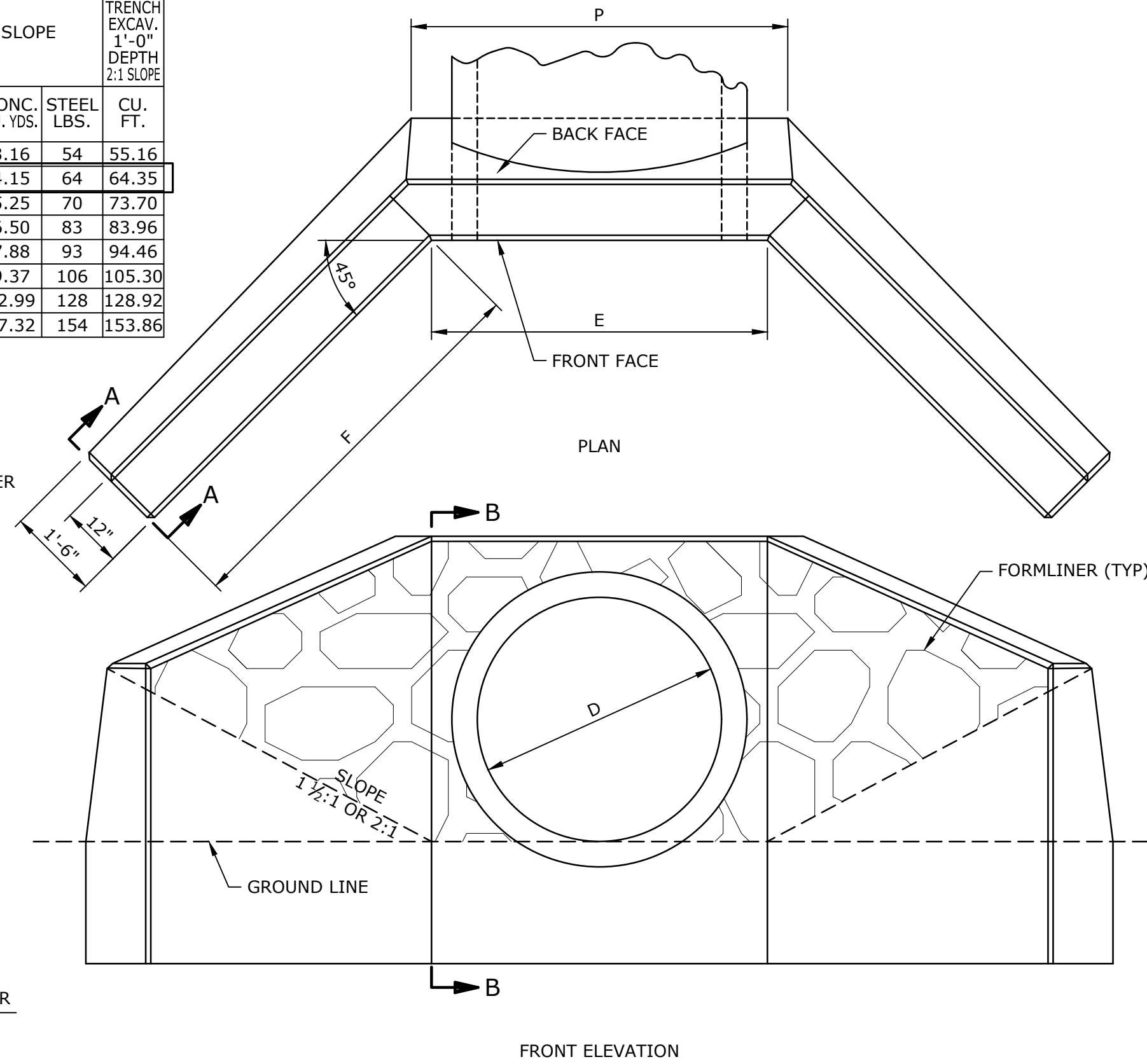
- NOTES:
1. PORTLAND CEMENT CONCRETE SHALL BE 3000 PSI, 1 ½" MAX AGGREGATE.
 2. STEEL REINFORCEMENT SHALL CONFORM TO AASHTO-M31, GRADE 400.
 3. ALL CONCRETE DIMENSIONS SHOWN ARE MINIMUM.



ELEV. A-A

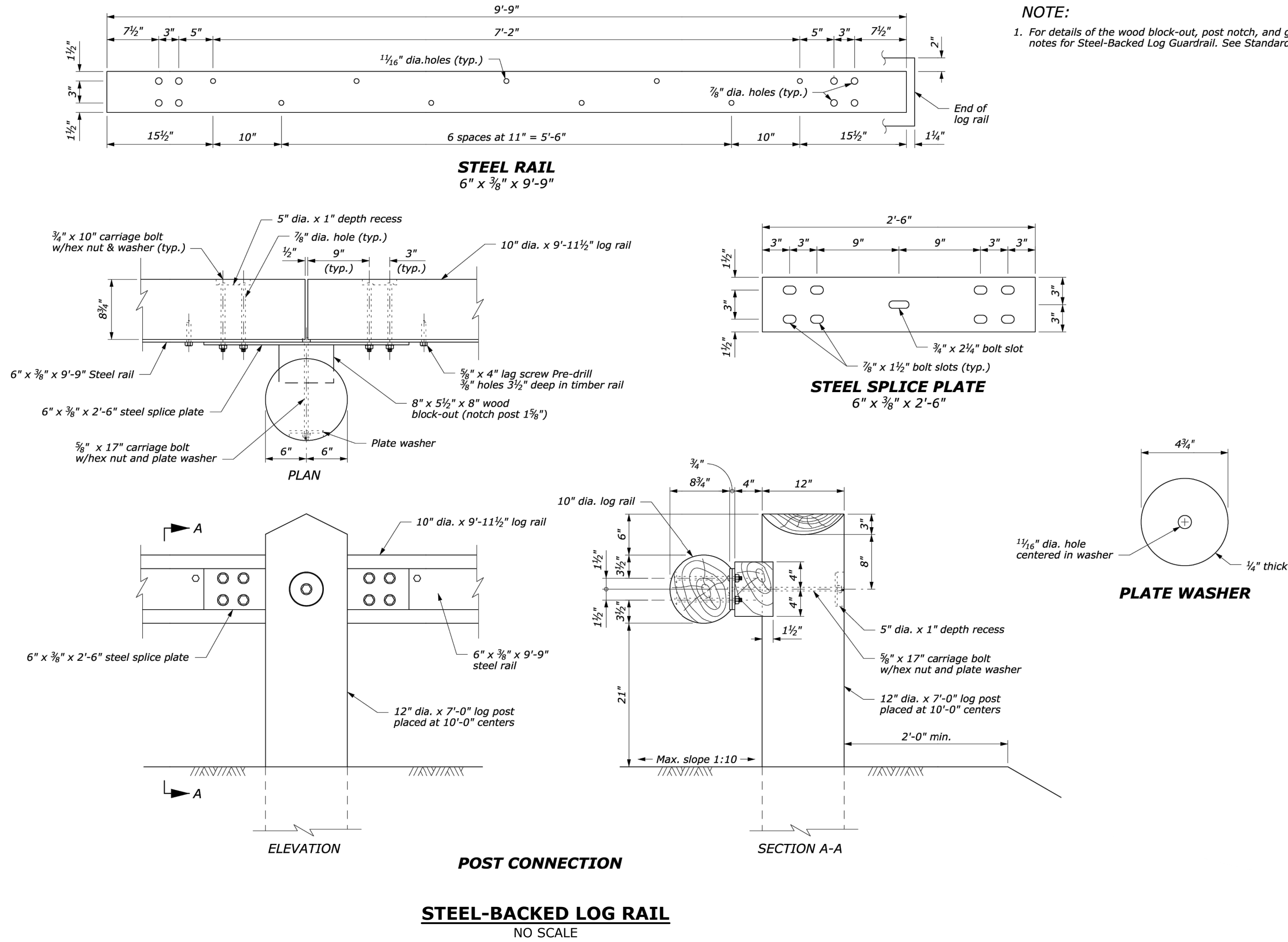


SECTION B-B



PRECAST HEADWALL FOR 36" PIPE
NO SCALE

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APPROVED BY:	DLM	

DETAILS - 6

SCALE: AS SHOWN

C-506
SHEET 19 OF 20

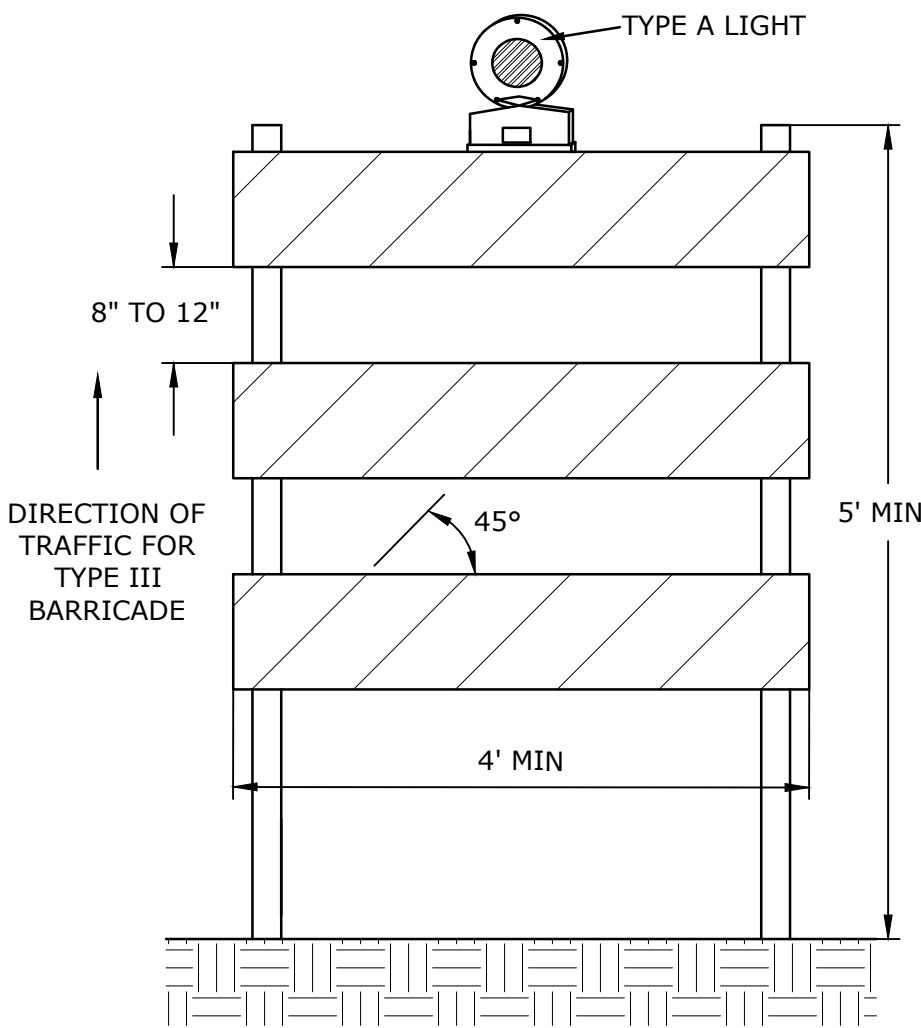
Last Saved: 3/5/2026
Plotted On: Mar 05, 2026-4:54pm By: RCase
Tighe & Bond: \\tighetbond.com\data\proj\proj\m0736.ma dcr engineering services.msa\139 - greylock road improvements.dwg
Figures: rockwell_road\AutoCAD\Sheet\M-0739-139 TCP.dwg

GENERAL NOTES:

- ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS, UNLESS SUPERCEDED BY MASSDOT TRAFFIC CONTROL STANDARDS.
- ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD UNLESS SUPERCEDED BY MASSDOT TRAFFIC CONTROL STANDARDS.
- TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
- TEMPORARY CONSTRUCTION SIGNING, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
- SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
- NOTIFY EACH ABUTTER AT LEAST 48 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS.
- ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.
- ALL CONCRETE BARRIERS SHALL BE PLACED SO EMERGENCY VEHICLES CAN PASS.

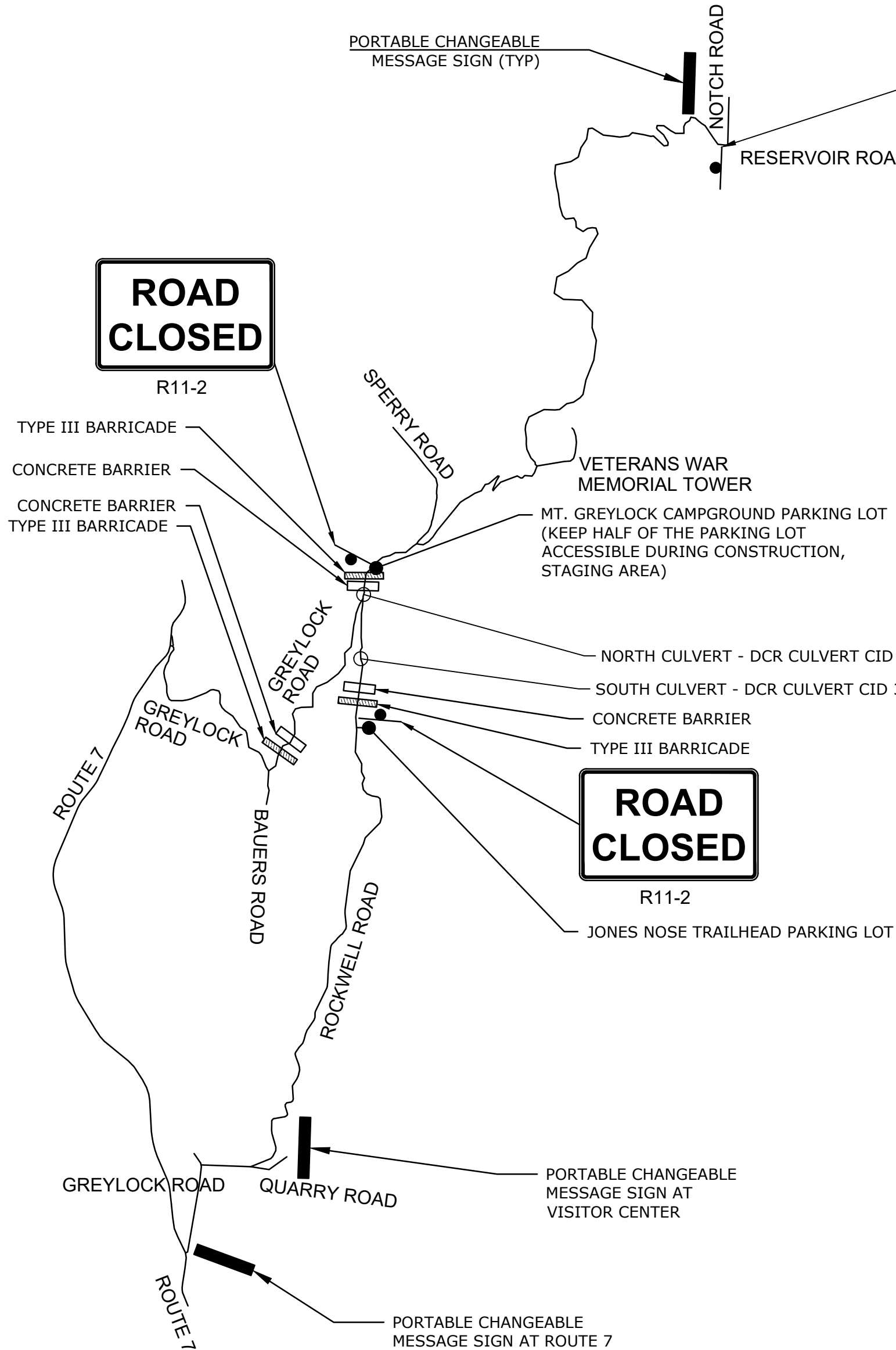
LEGEND:

- TYPE III BARRICADE
- SIGN
- PORTABLE CHANGEABLE MESSAGE SIGN
- CONCRETE BARRIER



NOTES:

- CONSTRUCTION BARRICADES SHALL CONFORM TO THE REQUIREMENTS OF THE NCHRP REPORT 350 (TL-3) AND THE LATEST EDITION OF THE MUTCD.
- MARKINGS FOR BARRICADE RAILS SHALL BE ALTERNATE ORANGE WHITE STRIPES SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS. 6" WIDE STRIPES SHALL BE USED.
- THE ENTIRE AREA OF ORANGE AND WHITE STRIPES SHALL BE RETROREFLECTIVE SHEETING AS REQUIRED IN THE SPECIFICATIONS.

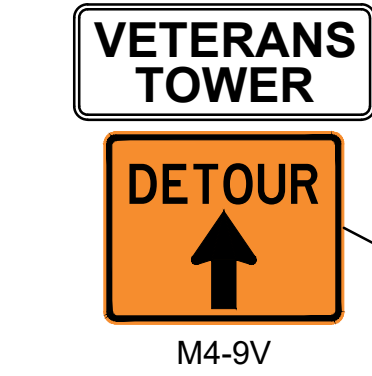


ROCKWELL ROAD CLOSURE PLAN
SCALE : 1" = 5000'

NOTE:
DEPLOY ELECTRONIC MESSAGE BOARD AT LEAST TWO WEEKS PRIOR TO CLOSURES AND MAINTAIN FOR FIRST TWO WEEKS OF CONSTRUCTION.
RECOMMENDED TEXT:

PHASE 1:
ROCKWELL
ROAD
CLOSED

PHASE 2:
[DATE]
SEEK ALT
ROUTE



ROCKWELL ROAD EMERGENCY VEHICLE DETOUR PLAN
SCALE : 1" = 5000'

THIS DOCUMENT IS INCOMPLETE AND IS RELEASED TEMPORARILY FOR PROGRESS REVIEW ONLY. IT IS NOT INTENDED FOR BIDDING OR CONSTRUCTION PURPOSES.

Rockwell Road Improvements Project

Department of Conservation and Recreation

New Ashford, Massachusetts

MARK	DATE	DESCRIPTION
PROJECT NO:	M-0736-139	
DATE:	MAR 2026	
FILE:	M-0739-139 TCP.dwg	
DRAWN BY:	ND/TW	
CHECKED BY:	AGB/MPW	
APPROVED BY:	DLM	

TEMPORARY TRAFFIC CONTROL PLAN

SCALE: AS SHOWN

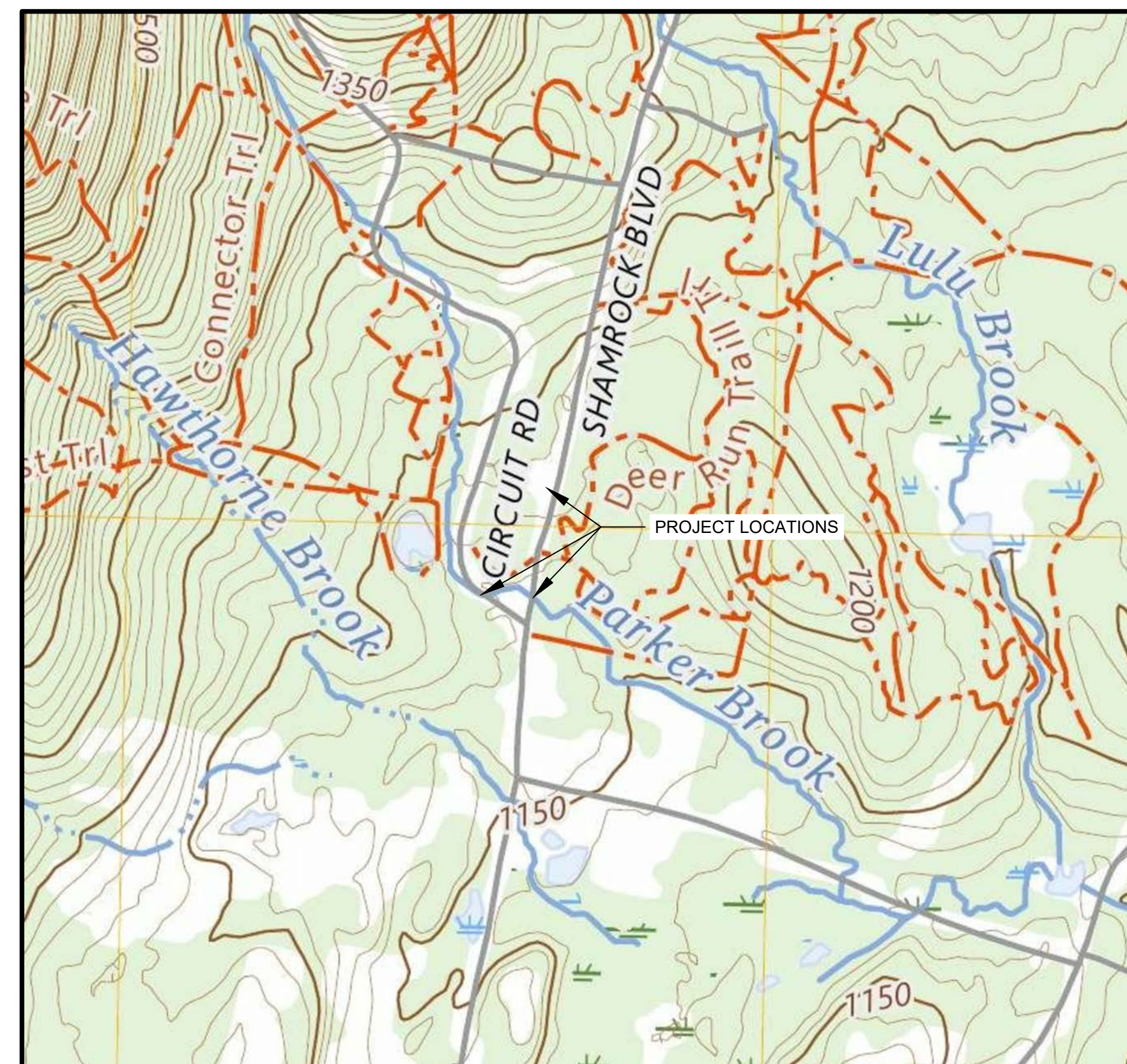
T-101
SHEET 20 OF 20

Pittsfield State Forest



MASSACHUSETTS DEPARTMENT OF CONSERVATION & RECREATION PITTSFIELD STATE FOREST CULVERT AND DRAINAGE IMPROVEMENTS

MARCH 2026



LOCATION MAP

NOT TO SCALE

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ARCADIS U.S., INC. _____



1

2

3

4

5

6

NOTES:

1. CONTRACTOR SHALL CALL DIG SAFE AND ALL UTILITY OWNERS TO MARK ALL UNDERGROUND UTILITIES PRIOR TO EXCAVATION. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT ALL UTILITIES ENCOUNTERED.

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING VEHICULAR ACCESS TO ALL RIGHT OF WAYS ALONG THE CONSTRUCTION ROUTE TO THE MAXIMUM EXTENT PRACTICABLE. CONTRACTOR SHALL COORDINATE WITH THE POLICE AND FIRE DEPARTMENT SUCH THAT ACCESS FOR EMERGENCY VEHICLES IS ALWAYS MAINTAINED.

3. THE CONTRACTOR SHALL PROTECT ALL PROPERTY, TREES, STRUCTURES, EQUIPMENT, PAVING, CURBING, AND PIPING FROM DAMAGE DURING CONSTRUCTION. ALL DAMAGE SHALL BE REPAIRED TO THE COMPLETE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.

4. THE CONTRACTOR SHALL RESTORE TO THE ORIGINAL CONDITION ANY WALLS, STAIRS, FENCES, LAWNS, SIGNS, GUARDRAIL, CURBS, DRIVEWAYS, SIDEWALKS, AND ANY OTHER ITEM AFFECTED BY THE CONTRACTORS WORK.

5. RUNOFF AND SEDIMENT CONTROL MEASURES SHALL BE FOLLOWED IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.

6. THE CONTRACTOR SHALL MAKE ALL REQUIRED FIELD MEASUREMENTS TO VERIFY EXISTING AND CONTRACT INTERFACE DIMENSION, LOCATIONS AND OTHER CONDITIONS.

7. EXISTING UTILITIES INTERFERING WITH THE WORK SHALL BE RELOCATED OR AVOIDED AS DIRECTED BY THE ENGINEER OR THE APPROPRIATE UTILITY COMPANY IN THE FIELD.

8. LOCATION OF ALL UNDERGROUND UTILITIES SHOW HEREON ARE APPROXIMATE AND ARE BASED ON FIELD LOCATION OF VISIBLE STRUCTURES SUCH AS CATCH BASINS, MANHOLES, WATER GATES, ETC. AND COMPILED INFORMATION FROM PLANS SUPPLIED BY THE RESPECTIVE UTILITY COMPANIES AND GOVERNMENT AGENCIES. THE CONTRACTOR SHALL VERIFY THE LOCATION OF UNDERGROUND AND ABOVE GROUND UTILITIES WITH UTILITY OWNER PRIOR TO MAKING ANY EXCAVATION AND SHALL COMPLY WITH THE REQUIREMENTS OF UTILITY OWNERS REGARDING NOTICE OF WORK AND PROTECTION OF UTILITIES. ALL WORK IS LIMITED TO EXISTING RIGHT-OF-WAYS, EASEMENTS AND TEMPORARY CONSTRUCTION EASEMENTS AS SHOWN. DO NOT DISTURB CLOSER THAN 2 FEET TO THE EDGE OF THE BOUNDARY SHOWN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGE OR RESTORATION REQUIRED OUTSIDE THESE LIMITS OF WORK.

9. UNLESS OTHERWISE SHOWN, EXISTING GRADES SHALL BE RESTORED AFTER CONSTRUCTION OF THE WORK IS COMPLETE.

10. SITE PLAN HAS BEEN PREPARED FROM SURVEYS CONDUCTED BY MERIDEN CONSULTANTS. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL INFORMATION WHICH MAY AFFECT THE WORK.

11. VERTICAL DATUM IS REFERENCED TO A NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88).

12. EXISTING SIGNS, MAILBOXES, AND LIGHT POLES ARE NOT NECESSARILY SHOWN. WHERE NECESSARY, CONTRACTOR SHALL REMOVE OBSTRUCTIONS WITHOUT DAMAGING THEM AND REINSTALL SAME AT COMPLETION OF EXCAVATION/BACKFILL ACTIVITIES FOR EACH PROPERTY. NO ADDITIONAL COMPENSATION WILL BE MADE FOR PROTECTION, REMOVAL, OR RESTORATION.

13. SUPPORT UTILITY POLES IN VICINITY OF EXCAVATION. NO SEPARATE COMPENSATION WILL BE MADE FOR SUPPORT.

14. IN PAVED AREAS, ALL TRENCHES SHALL BE RESTORED WITH TEMPORARY PAVING BY THE END OF THE WORK WEEK. NO OPEN TRENCHES SHALL BE ALLOWED DURING NON-WORKING TIMES. ALL EXCAVATIONS SHALL BE MADE SAFE AT ALL TIMES.

15. EXISTING WATER, GAS, TELEPHONE, CABLE, ELECTRICAL SERVICES, FIBER OPTIC COMMUNICATIONS, OVERHEAD UTILITIES AND OTHER UTILITY SERVICES TO BUILDINGS ARE NOT SHOWN. THE CONTRACTOR SHALL CALL "DIG SAFE (1-888-344-7233) AND EACH UTILITY OWNER 72 HOURS (EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS) PRIOR TO EXCAVATION. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT ALL UTILITIES ENCOUNTERED.

16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPORT AND PROTECTION OF EXISTING UTILITIES AND STRUCTURES, AS WELL AS ANY REPAIR AND/OR REPLACEMENT COSTS OF UTILITIES DAMAGED DURING CONSTRUCTION, WHETHER ABOVE OR BELOW GRADE.

17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF ALL UTILITY RELOCATION WORK. CLAIMS FOR EXTRAS WILL NOT BE ALLOWED FOR DELAY OF WORK DUE TO UTILITY COMPANY COORDINATION OR UTILITY RELOCATION WORK.

18. THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER OF ANY SUBSURFACE UTILITY, OR OTHER PIPE NOT SHOWN ON THE DRAWINGS THAT IS ENCOUNTERED DURING CONSTRUCTION.

19. WHERE CONSTRUCTION ACTIVITY IS TO TAKE PLACE IN TRAVELED WAYS, THE CONTRACTOR SHALL PERFORM WORK IN A MANNER ACCEPTABLE TO THE DEPARTMENT OF CONSERVATION AND RECREATION AND IN ACCORDANCE WITH TRAFFIC CONTROL PLANS SO THAT INTERFERENCE WITH AND INCONVENIENCE TO BUSINESS CONCERNS AND ABUTTERS ON ACCOUNT OF THE CONSTRUCTION WORK IS MINIMAL. THE CONTRACTOR WILL NOT BE ALLOWED TO PARK EQUIPMENT OR STOCKPILE MATERIAL ON THE TRAVELED WAYS OVERNIGHT OR WHEN NOT IN USE. THE CONTRACTOR SHALL MAINTAIN SAFE AND REASONABLE INGRESS TO EGRESS FROM ABUTTING PROPERTIES AT ALL TIMES..

20. STAGING AREAS DESIRED BY THE CONTRACTOR WILL BE ACQUIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE DEPARTMENT OF CONSERVATION AND RECREATION. ANY STAGING AREAS SHALL BE REVIEWED BY THE DEPARTMENT OF CONSERVATION AND RECREATION.

21. THE CONTRACTOR IS RESPONSIBLE FOR DESIGN AND INSTALLATION OF ALL TRENCH EXCAVATION SUPPORT SYSTEMS.

22. THE SCOPE OF WORK INCLUDES INSTALLATION OF STREAM CROSSING STRUCTURES INSTALLATION OF DRAINAGE PIPING AND STRUCTURES, AND RELATED SITE IMPROVEMENTS. WORK IS LIMITED TO DEPARTMENT OF CONSERVATION AND RECREATION RIGHT OF WAYS, EASEMENTS AND CONSTRUCTION EASEMENTS.

ABBREVIATIONS

BIT CONC
CMP
INV
ELEV.
TYP.
UPN
LOW

BITUMINOUS CONCRETE
CORRUGATED METAL PIPE
INVERT
ELEVATION
TYPICAL
UTILITY POLE
LIMIT OF WORK

INDEX OF DRAWINGS

SHEET NO.	DISCIPLINE NO.	DESCRIPTION
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2	G-01	GENERAL NOTES & LEGEND
CIVIL		
3	C-01	ENVIRONMENTAL RESOURCE AREAS
4	C-02	EXISTING CONDITIONS 1
5	C-03	EXISTING CONDITIONS 2
6	C-04	PAVEMENT DEMOLITION
7	C-05	DEMOLITION AND SITE PREP 1
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9	C-07	CULVERTS & ROADWAY SITE PLAN
10	C-08	ROADWAY PROFILE 1
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13	C-11	CIVIL DETAILS 1
14	C-12	CIVIL DETAILS 2
15	C-13	VEGETATION RESTORATION PLAN
16	C-14	DETOUR PLAN

EROSION AND SEDIMENT CONTROL NOTES:

1. MAINTAIN ALL EROSION AND SEDIMENT CONTROL STRUCTURES IN ACCORDANCE WITH MA DEP REQUIREMENTS AND THE RECOMMENDATIONS OF THE MANUFACTURERS OF ANY MATERIALS USED.

2. UPON WRITTEN APPROVAL FROM THE ENGINEER, CONTRACTOR MAY UTILIZE OTHER CONTROL STRUCTURES AS SHOWN IN MA DEP’S "EROSION AND SEDIMENT CONTROL PROGRAM MANUAL".

3. REFER TO EROSION AND SEDIMENT CONTROL NOTES AS SHOWN ON THE DRAWINGS AND SPECIFIED FOR PLACEMENT OF CONTROL STRUCTURES.

4. CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION AND SEDIMENT CONTROL DEVICES DURING CONSTRUCTION WHERE DIRECTED BY THE ENGINEER, DEPARTMENT OF CONSERVATION AND RECREATION OR OTHER AUTHORITIES HAVING JURISDICTION. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSPECTED WEEKLY AND AFTER EVERY STORM EVENT. ANY REPAIRS OR REQUIRED MAINTENANCE TO EROSION AND SEDIMENT CONTROL DEVICES SHALL BE CONDUCTED IMMEDIATELY FOLLOWING THE INSPECTION.

5. INSTALL ALL SOIL EROSION AND SEDIMENT CONTROLS IN ACCORDANCE WITH THE SPECIFICATIONS PRIOR TO ANY SOIL DISTURBANCE, EXCAVATION, OR BYPASS WORK.

6. CATCH BASIN PROTECTION SHALL BE INSTALLED AT ALL CATCH BASINS SUBJECT TO RUNOFF FROM CONSTRUCTION AREAS.

7. ALL DEBRIS IS TO BE REMOVED FROM SITE AND DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS. NO DEBRIS IS TO REMAIN ON SITE.

8. UPON COMPLETION OF THE WORK, IF THE SEASON PREVENTS THE ESTABLISHMENT OF A PERMANENT COVER, THE AREA TO BE RESTORED WILL BE TEMPORARILY SEEDED.

9. AT THE TIME WHEN THE SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER THEM SUITABLE FOR VEGETATIVE GROUND COVER.

10. WATER FROM DEWATERING OPERATIONS SHALL BE DISCHARGED INTO A DEWATERING BAG, DESIGNED TO FILTER OIL AND SEDIMENT, PRIOR TO A SURFACE WATER BODY. FILTER BAG SHALL BE PLACED ON CRUSHED STONE TO SUFFICIENT TO PREVENT EROSION FROM DISCHARGE WATER ON ADJACENT AREAS. FILTER BAG SHALL BE REPLACED WHEN DAMAGED OR NO LONGER FUNCTIONING AN AN APPROPRIATE LEVEL FOR EFFICIENT DEWATERING.

11. PREVENTATIVE AND CONTAINMENT MEASURES SHALL BE TAKEN TO AVOID SPILLAGE AND RELEASE OF PETROLEUM PRODUCTS AND OTHER POLLUTANTS. IN THE EVENT OF ANY SPILLAGE, PROMPT REMEDIAL ACTION SHALL BE TAKEN IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

12. FOLLOWING COMPLETION OF THE WORK, CONTRACTOR SHALL ELIMINATE ALL SIGNS OF TEMPORARY CONSTRUCTION FACILITIES AS DIRECTED BY THE ENGINEER OR DEPARTMENT OF CONSERVATION AND RECREATION.

13. ALL WORK SHALL BE CONDUCTED IN ACCORDANCE WITH ALL PERMITS.

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PITTSFIELD STATE FOREST
CULVERT IMPROVEMENTS

REVISIONS

NO.	DATE	ISSUED FOR	BY
COPYRIGHT: ARCADIS U.S., INC. 2024			
PROJECT STATUS: 100% SUBMITTAL			
PROJECT NO.:	30219082		
DATE:	MARCH 2026		
DESIGNED BY:	MMM		
DRAWN BY:	MMM		
CHECKED BY:	TBD		
SHEET TITLE			
CIVIL			
GENERAL NOTES & LEGEND			
SCALE: AS SHOWN			
DRAWING NO.:			
G-01			
SHEET NO.: 2 OF 16			

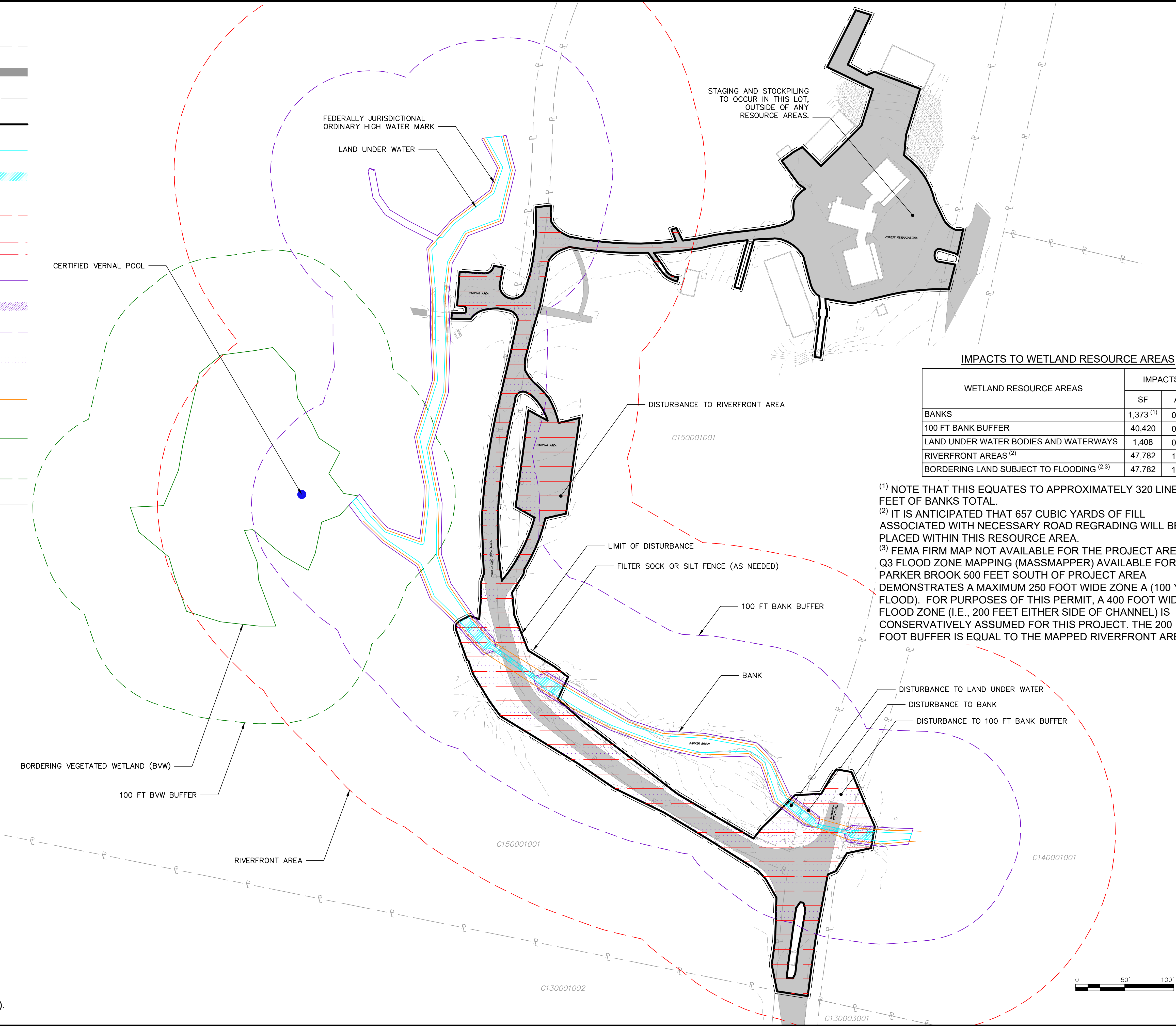
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LEGEND

- CONTOUR (1-FOOT)
- EXISTING PAVEMENT
- PROPERTY LINES
- LIMIT OF DISTURBANCE
- LAND UNDER WATER
- DISTURBANCE TO LAND UNDER WATER
- RIVERFRONT AREA
- DISTURBANCE TO RIVERFRONT AREA
- BANK
- DISTURBANCE TO BANK
- 100 FT BANK BUFFER
- DISTURBANCE TO 100 FT BANK BUFFER
- FEDERALLY JURISDICTIONAL ORDINARY HIGH WATER MARK
- BORDERING VEGETATED WETLAND (BVW)
- 100 FT BVW BUFFER
- FILTER SOCK OR SILT FENCE (AS NEEDED)
- CERTIFIED VERNAL POOL

NOTES

1. WETLANDS AND WATERBODIES WERE DELINEATED BY ARCADIS ECOLOGISTS ON JULY 8, 2025.
2. A REVIEW OF THE NHESP MassGIS LAYER FOR CERTIFIED VERNAL POOLS (CVPs) INDICATED THE PRESENCE OF A VERNAL POOL (CVP #2891) TO THE WEST OF THE PROPOSED PROJECT AREA. SEASONAL CONDITIONS DURING THE DELINEATION EVENT PREVENTED CONFIRMATION OF THE LIMITS OF THIS VERNAL POOL. FOR PERMITTING PURPOSES, THE LIMITS OF THE CVP ARE ASSUMED TO BE CONSISTENT WITH THOSE OF THE DELINEATED BORDERING VEGETATED WETLAND.
3. PROPERTY LINES ARE DERIVED FROM MASSMAPPER.
4. 100 FT BANK BUFFER REPRESENTS THE PORTION OF BORDERING LAND SUBJECT TO FLOODING THAT IS PRESUMED TO BE SIGNIFICANT TO THE PROTECTION OF WILDLIFE HABITAT PER 310 CMR 10.57(1)(a).



IMPACTS TO WETLAND RESOURCE AREAS		
WETLAND RESOURCE AREAS	IMPACTS	
	SF	AC
BANKS	1,373 ⁽¹⁾	0.03
100 FT BANK BUFFER	40,420	0.92
LAND UNDER WATER BODIES AND WATERWAYS	1,408	0.03
RIVERFRONT AREAS ⁽²⁾	47,782	1.09
BORDERING LAND SUBJECT TO FLOODING ^(2,3)	47,782	1.09

- ⁽¹⁾ NOTE THAT THIS EQUATES TO APPROXIMATELY 320 LINEAR FEET OF BANKS TOTAL.
- ⁽²⁾ IT IS ANTICIPATED THAT 657 CUBIC YARDS OF FILL ASSOCIATED WITH NECESSARY ROAD REGRADING WILL BE PLACED WITHIN THIS RESOURCE AREA.
- ⁽³⁾ FEMA FIRM MAP NOT AVAILABLE FOR THE PROJECT AREA. Q3 FLOOD ZONE MAPPING (MASSMAPPER) AVAILABLE FOR PARKER BROOK 500 FEET SOUTH OF PROJECT AREA DEMONSTRATES A MAXIMUM 250 FOOT WIDE ZONE A (100 YR FLOOD). FOR PURPOSES OF THIS PERMIT, A 400 FOOT WIDE FLOOD ZONE (I.E., 200 FEET EITHER SIDE OF CHANNEL) IS CONSERVATIVELY ASSUMED FOR THIS PROJECT. THE 200 FOOT BUFFER IS EQUAL TO THE MAPPED RIVERFRONT AREA.



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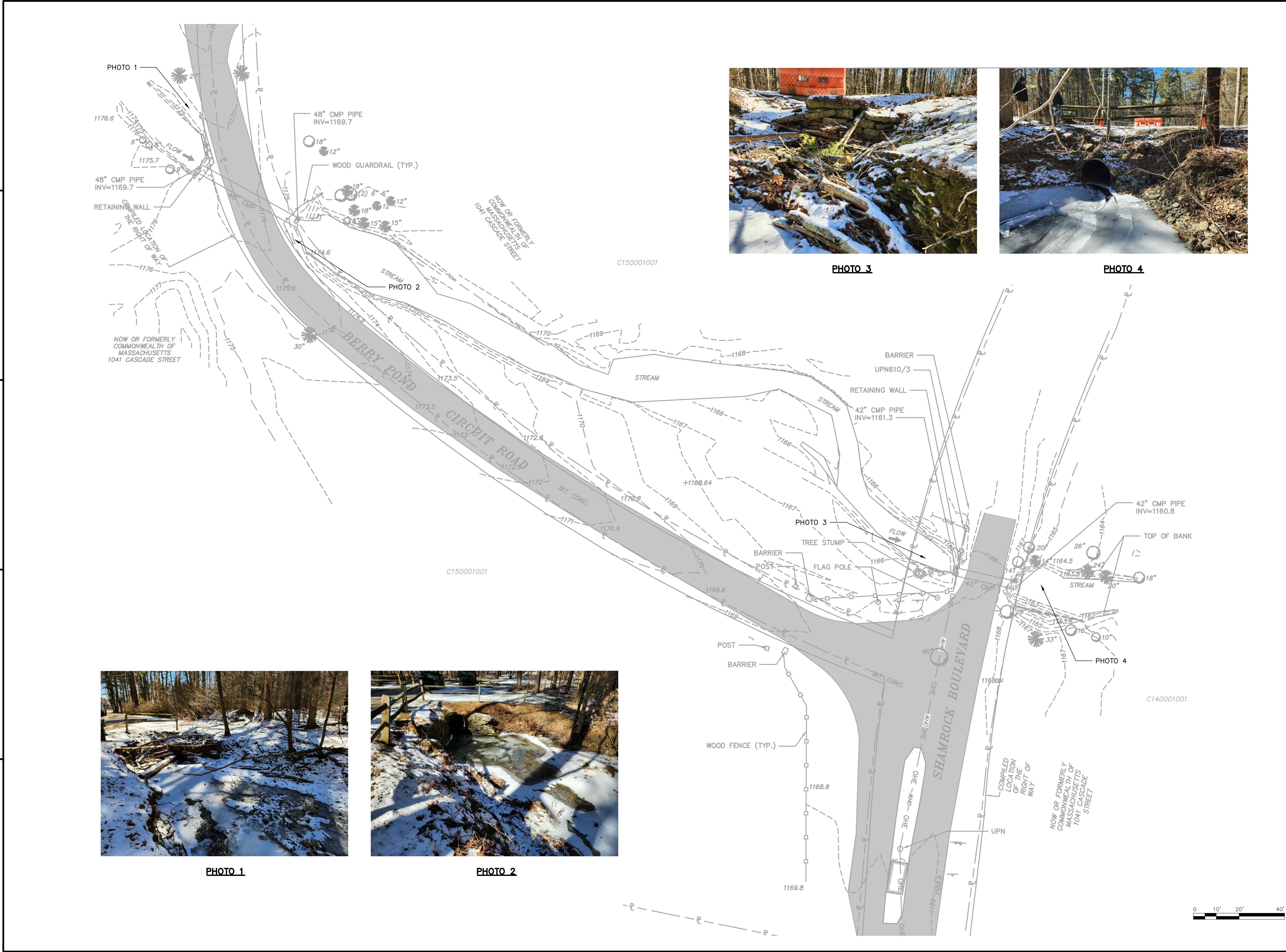
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DATE:	MARCH 2026
DESIGNED BY:	MMM
DRAWN BY:	MMM
CHECKED BY:	TBD

SHEET TITLE
CIVIL

ENVIRONMENTAL
RESOURCE AREAS

SCALE:
AS SHOWN

DRAWING NO.:
C-01
SHEET NO.: 3 OF 16



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PROJECT NO.: 30219082

DATE: MARCH 2026

DESIGNED BY: MMM

DRAWN BY: MMM

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SHEET TITLE

CIVIL

EXISTING CONDITIONS
1

SCALE:
AS SHOWN

DRAWING NO.: C-02

SHEET NO.: 4 OF 16

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PROJECT NO.: 30219082

DATE: MARCH 2026

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CHECKED BY: TBD

SHEET TITLE

CIVIL

EXISTING CONDITIONS
2

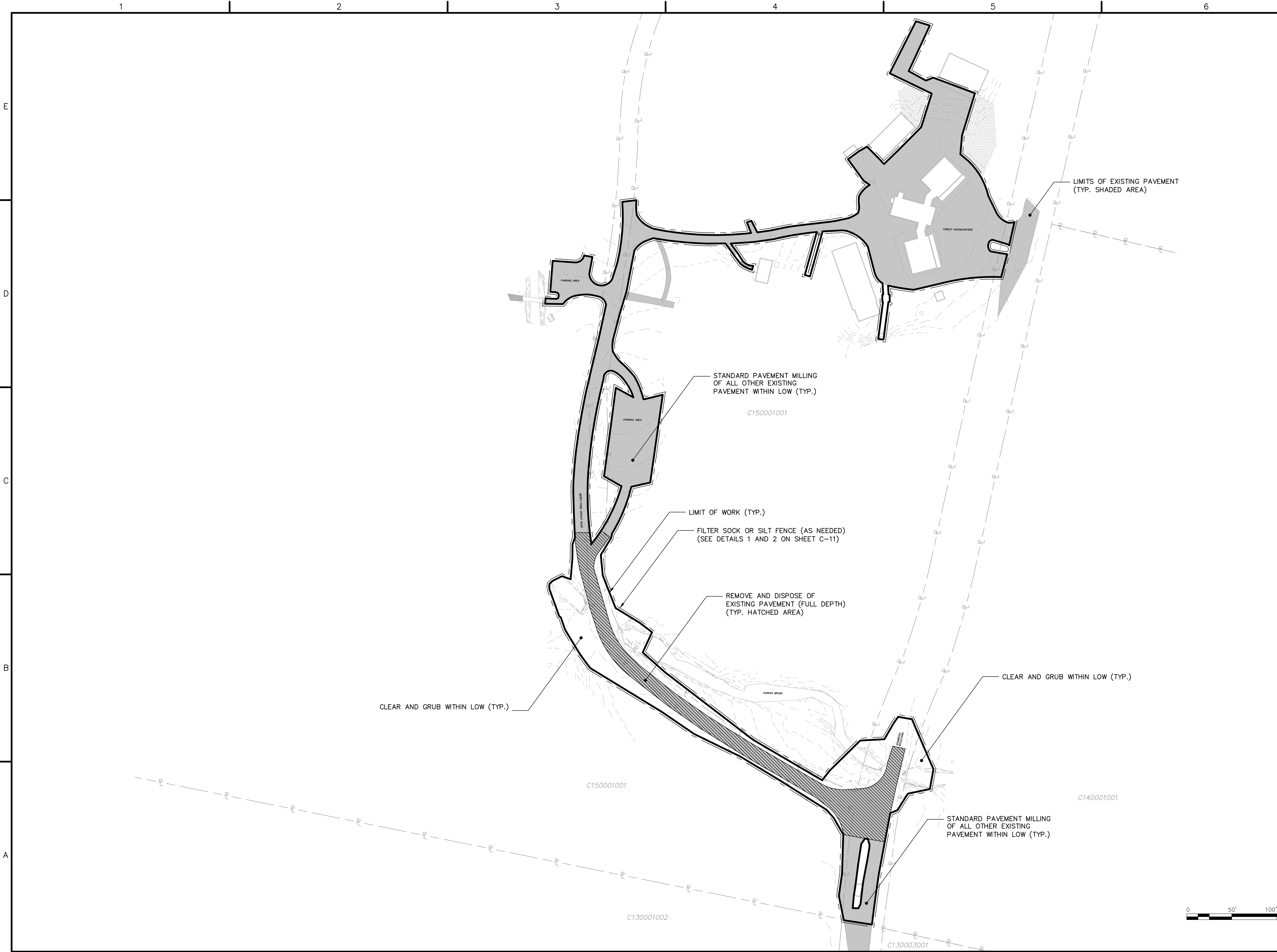
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DRAWING NO.: 000000

C-03

SHEET NO.: 5 OF 16





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SHEET TITLE

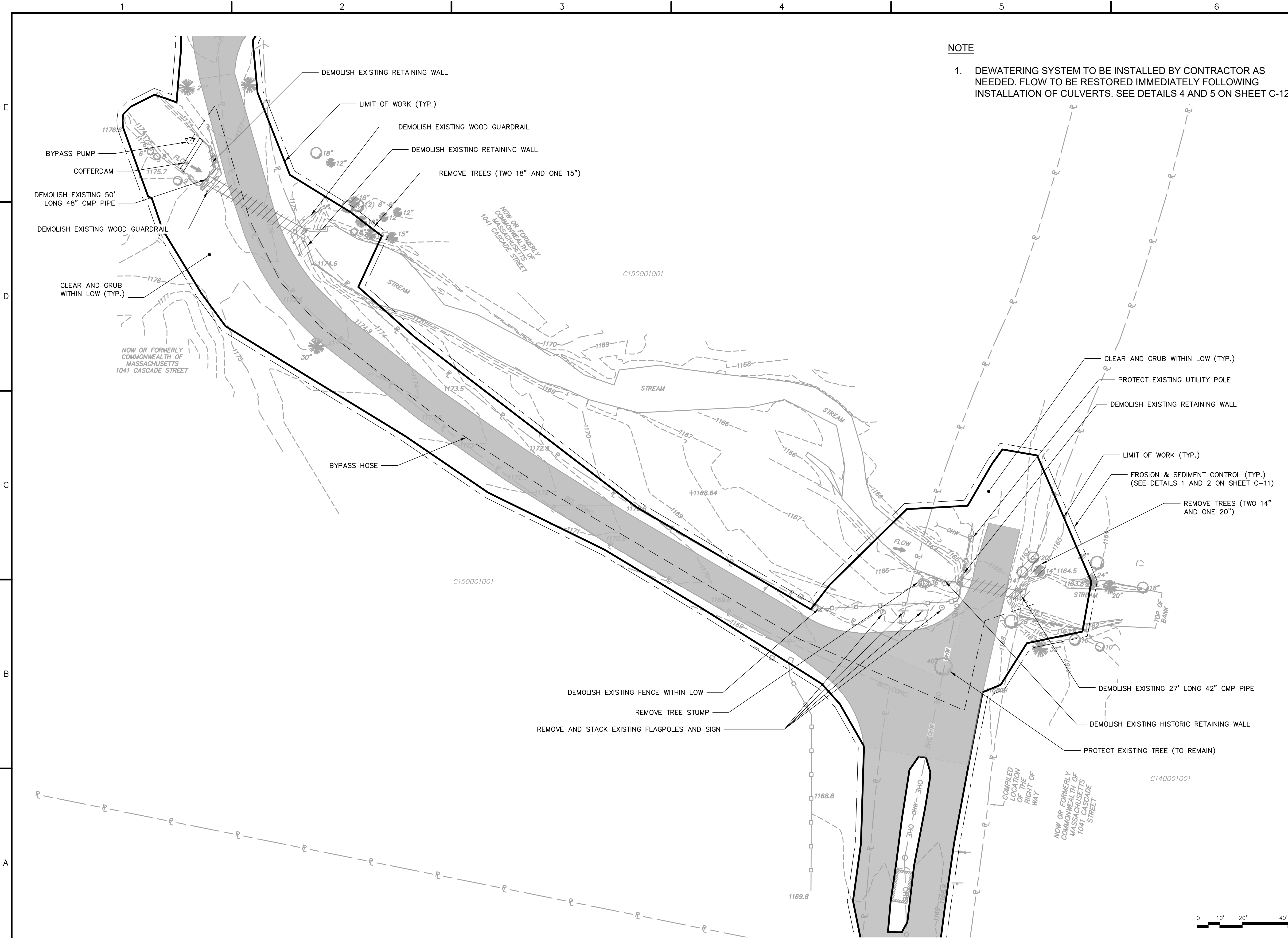
CIVIL

PAVEMENT
DEMOLITION

SCALE:
AS SHOWN

DRAWING NO.:
C-04

SHEET NO.: 6 OF 16



NOTE

1. DEWATERING SYSTEM TO BE INSTALLED BY CONTRACTOR AS NEEDED. FLOW TO BE RESTORED IMMEDIATELY FOLLOWING INSTALLATION OF CULVERTS. SEE DETAILS 4 AND 5 ON SHEET C-12.



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SHEET TITLE

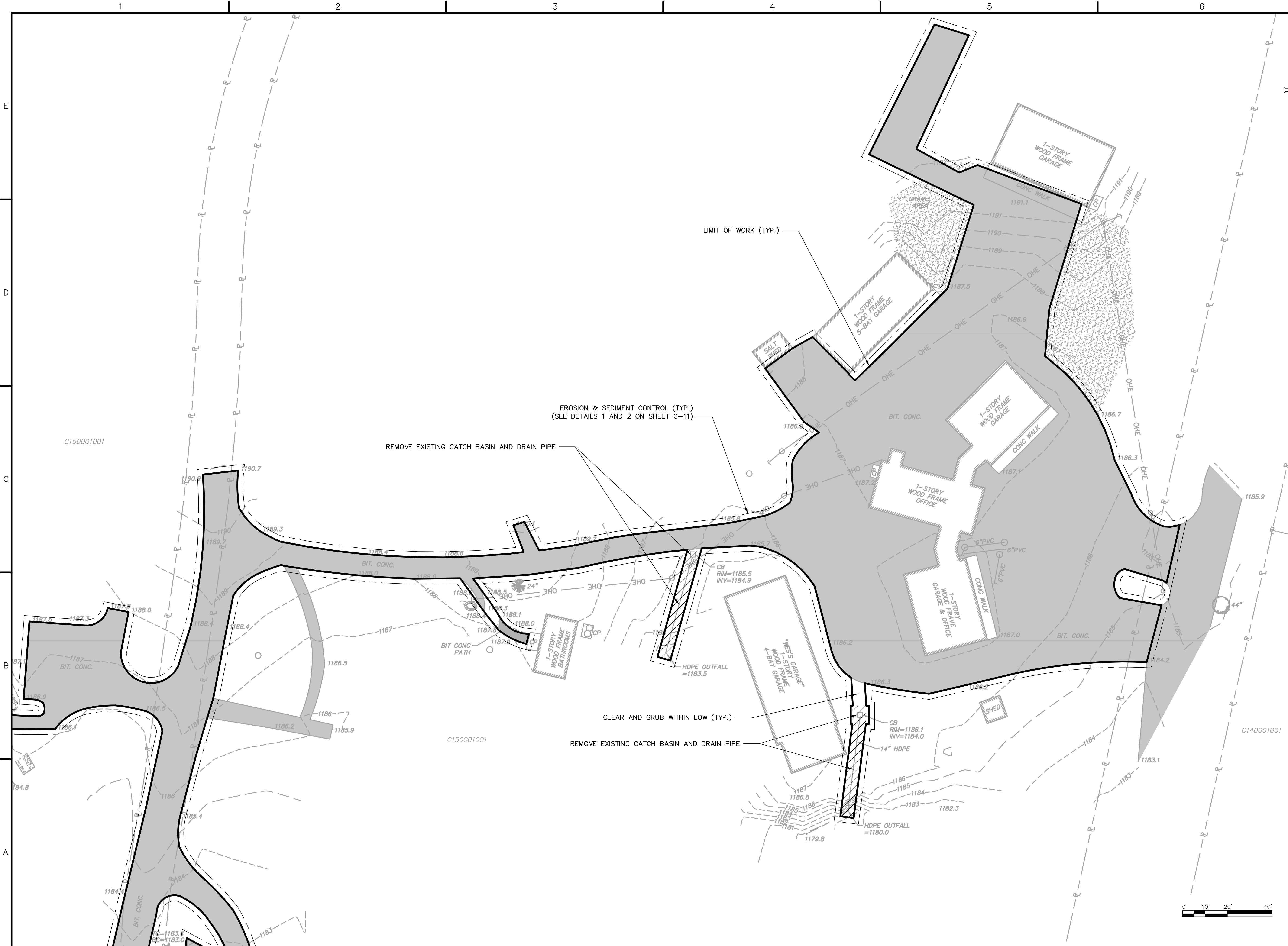
CIVIL

DEMOLITION AND
SITE PREPARATION 1

SCALE:
AS SHOWN

DRAWING NO.:
C-05

SHEET NO.: 7 OF 16



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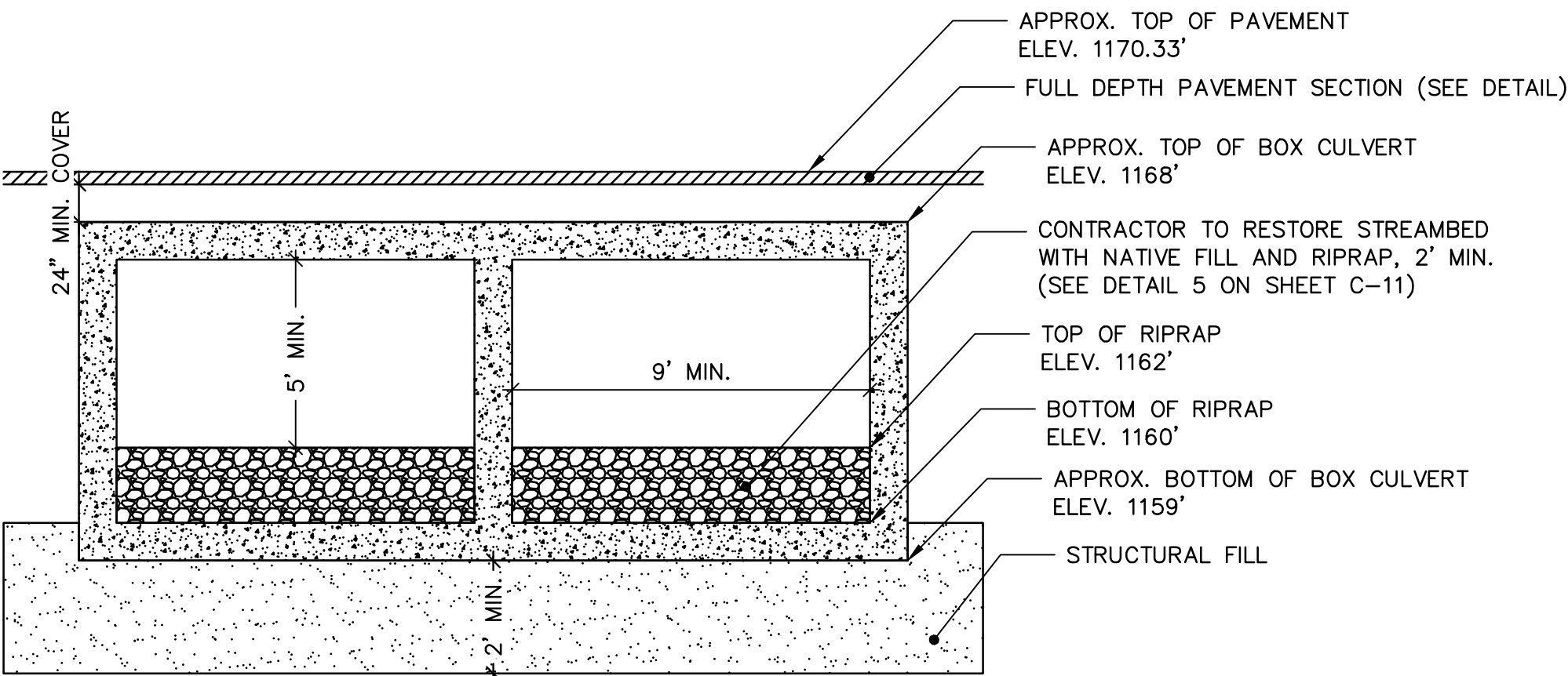
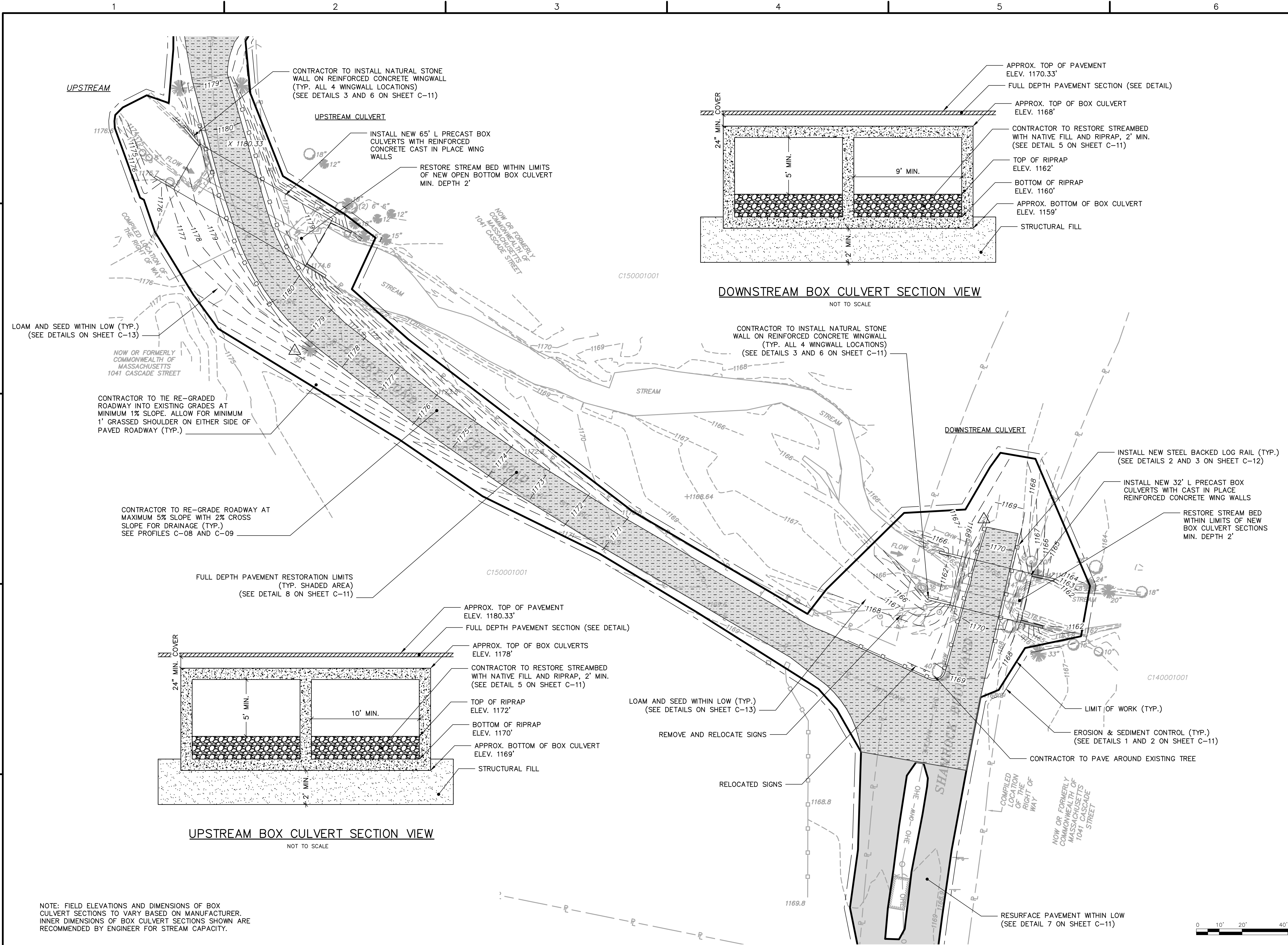
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DEMOLITION AND
SITE PREPARATION 2

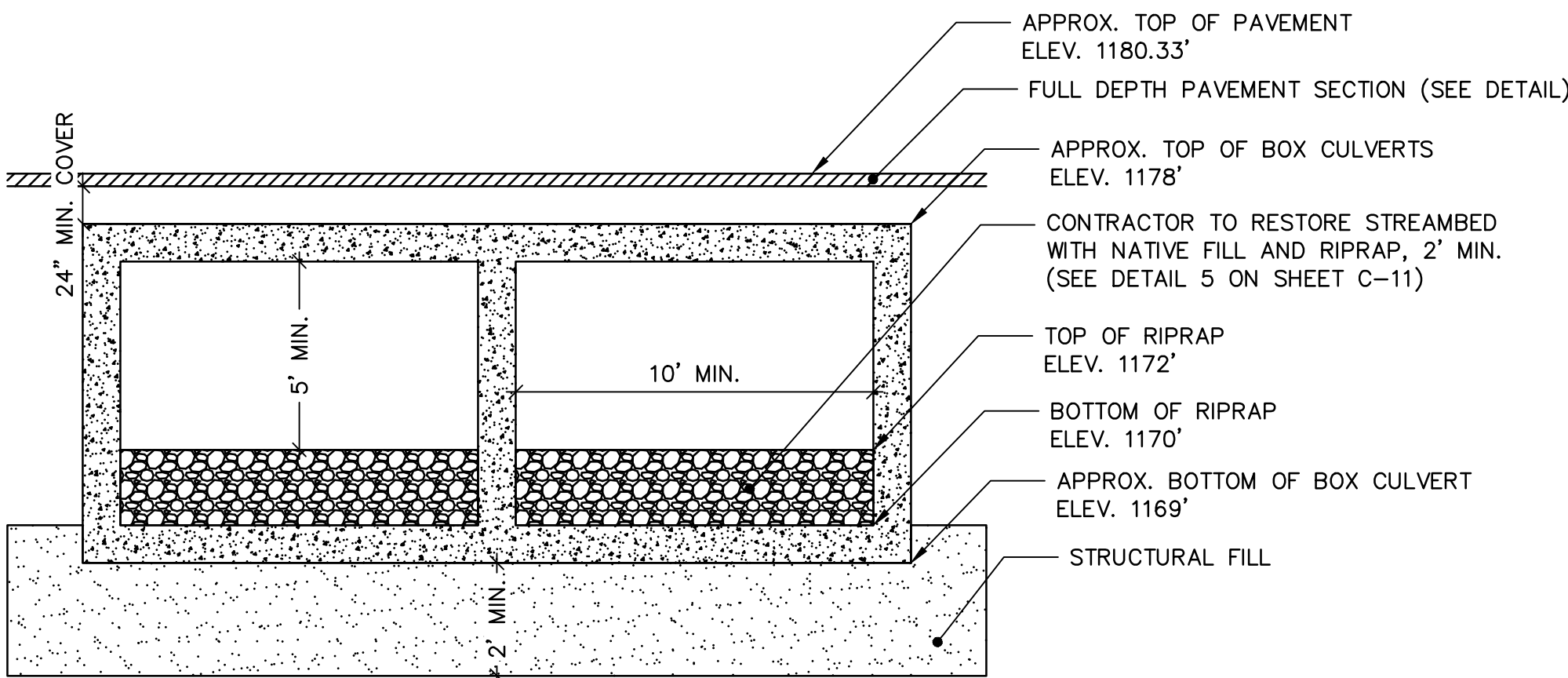
SCALE:
AS SHOWN

DRAWING NO.:
C-06

SHEET NO.: 8 OF 16



DOWNSTREAM BOX CULVERT SECTION VIEW
NOT TO SCALE



UPSTREAM BOX CULVERT SECTION VIEW
NOT TO SCALE

NOTE: FIELD ELEVATIONS AND DIMENSIONS OF BOX CULVERT SECTIONS TO VARY BASED ON MANUFACTURER. INNER DIMENSIONS OF BOX CULVERT SECTIONS SHOWN ARE RECOMMENDED BY ENGINEER FOR STREAM CAPACITY.

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PITTSFIELD, MA
MASSACHUSETTS
DEPARTMENT OF
CONSERVATION &
RECREATION

PITTSFIELD STATE FOREST
CULVERT IMPROVEMENTS

REVISIONS			
NO.	DATE	ISSUED FOR	BY

NO. DATE ISSUED FOR BY

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PROJECT STATUS: 100% SUBMITTAL

PROJECT NO.: 30219082

DATE: MARCH 2026

DESIGNED BY: MMM

DRAWN BY: MMM

CHECKED BY: TBD

SHEET TITLE

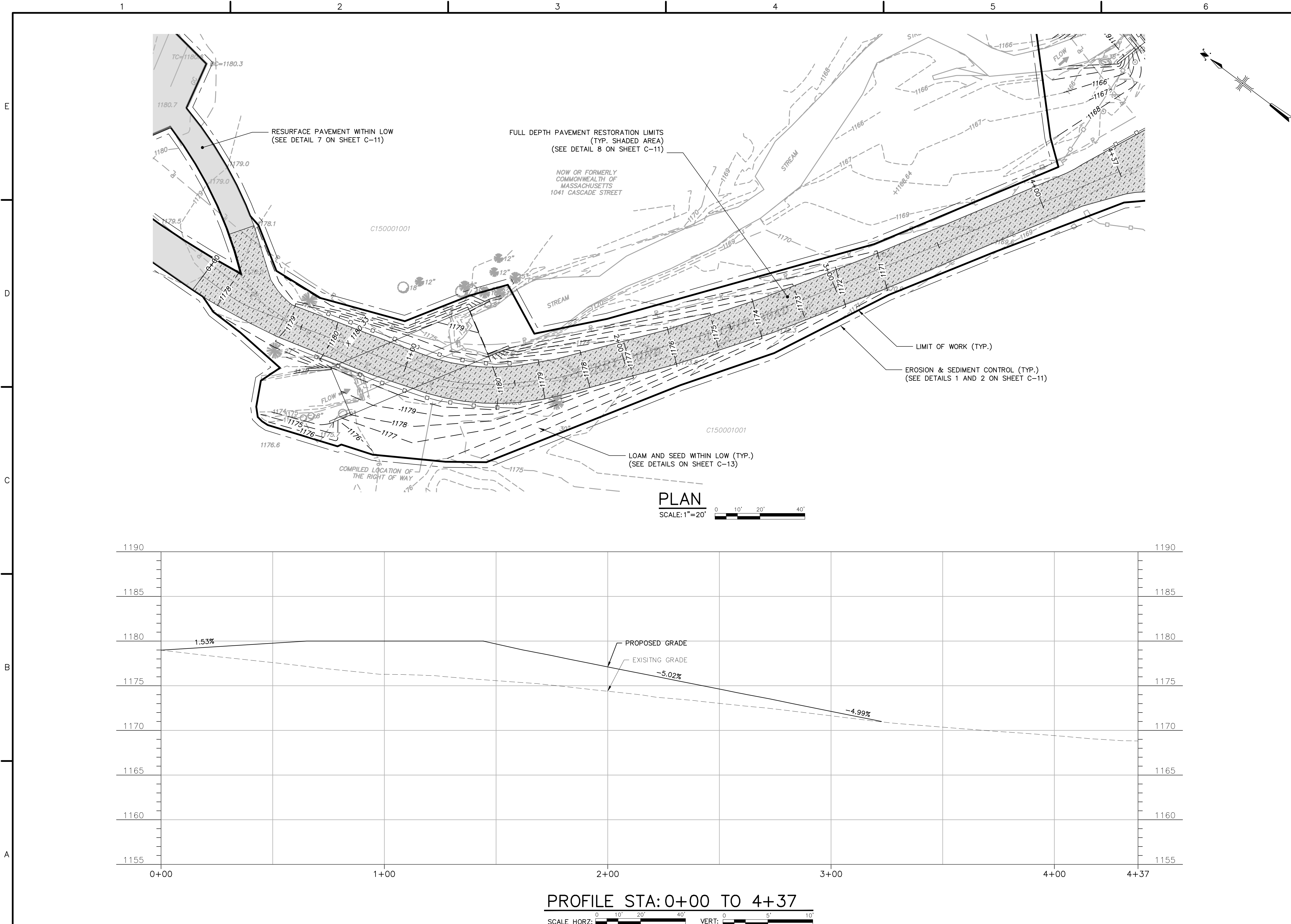
CIVIL

CULVERTS & ROADWAY
SITE PLAN

SCALE:
AS SHOWN

DRAWING NO.:
C-07

SHEET NO.: 9 OF 16





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CIVIL

ROADWAY PROFILE 1

SCALE:
AS SHOWN

DRAWING NO.: C-08

SHEET NO.: 10 OF 16

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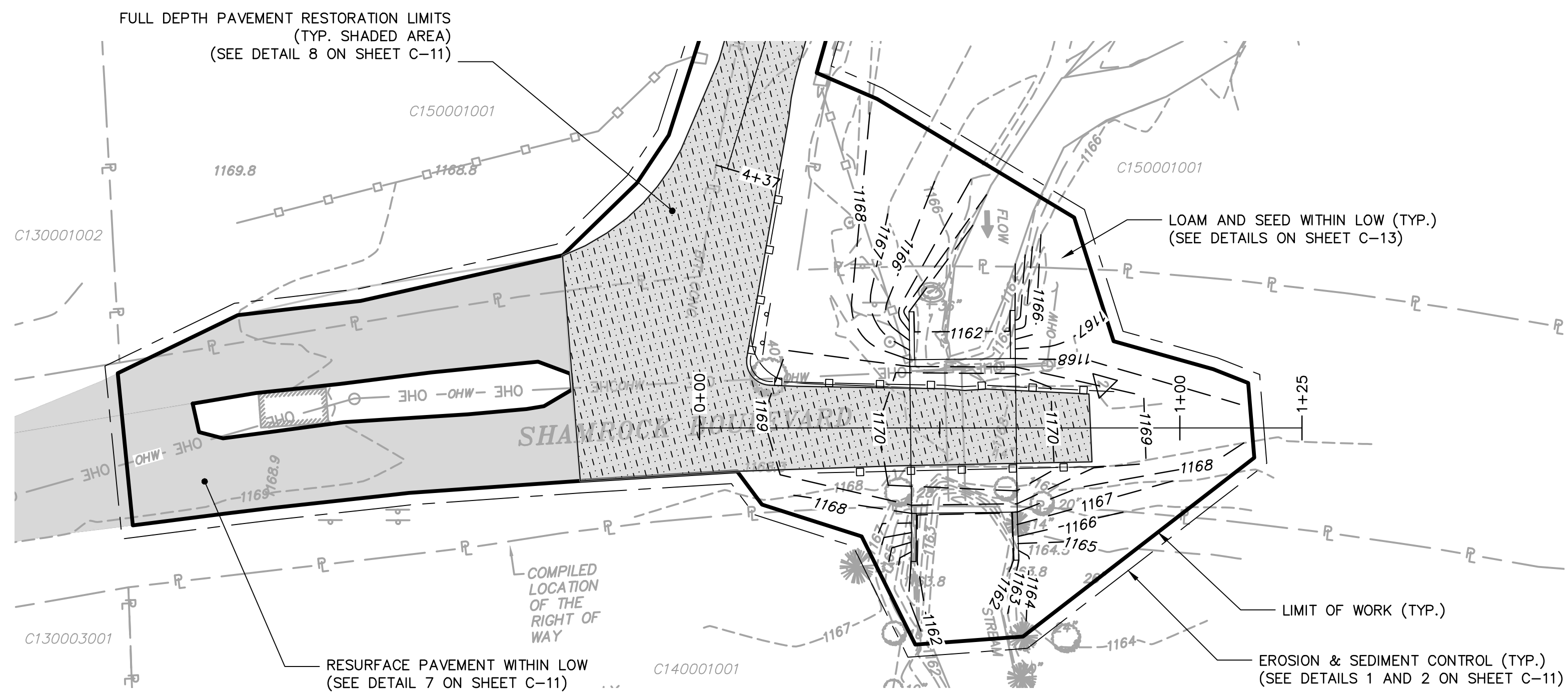
ROADWAY PROFILE 2

SCALE:
AS SHOWN

DRAWING NO.:

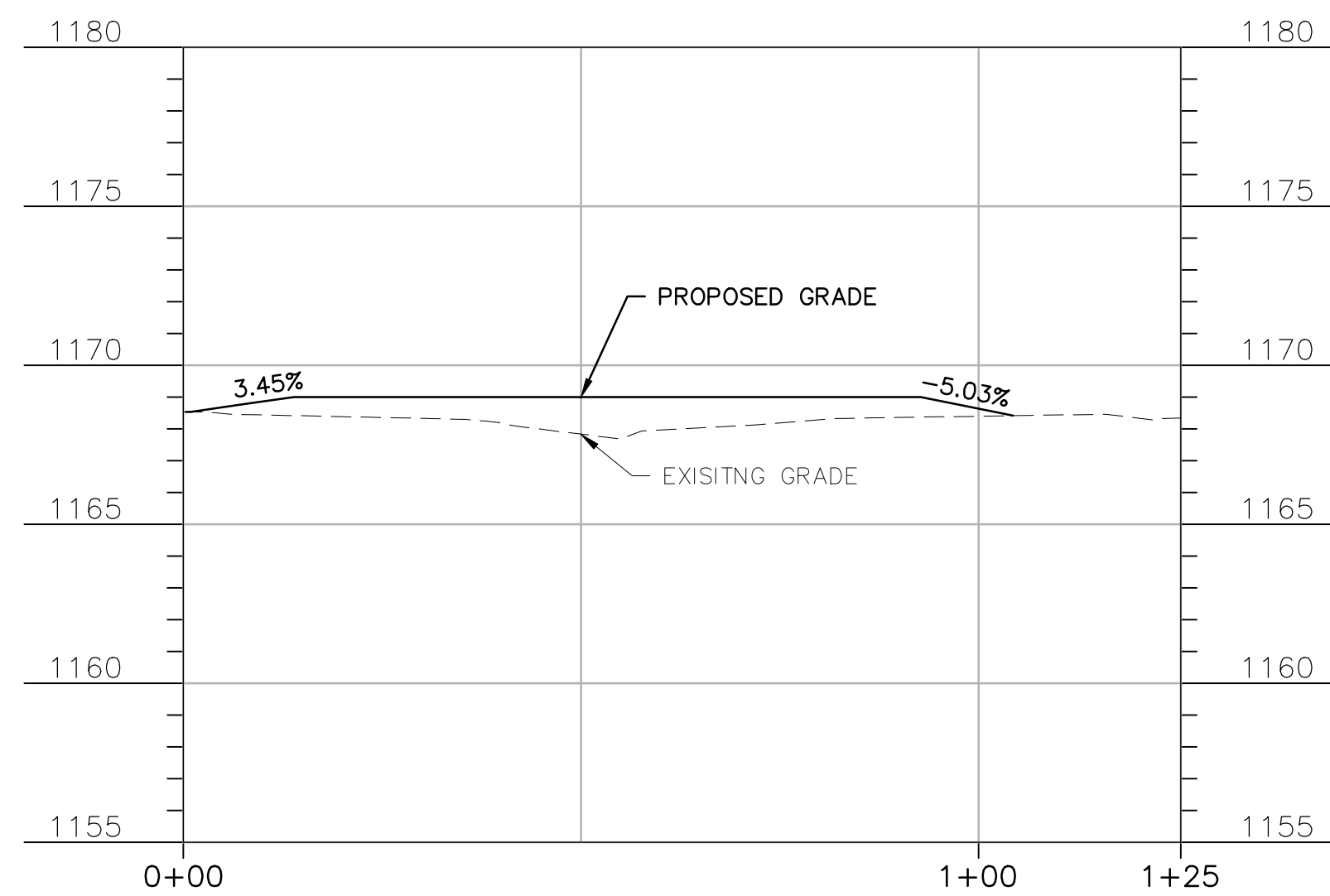
C-09

SHEET NO.: 11 OF 16



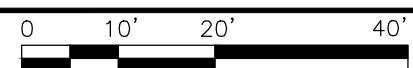
PLAN

SCALE: 1"=20'

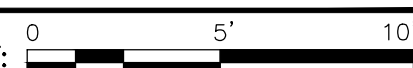


PROFILE STA: 0+00 TO 1+25

SCALE HORZ:



VER





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SHEET TITLE

CIVIL

DRAINAGE IMPROVEMENTS SITE PLAN

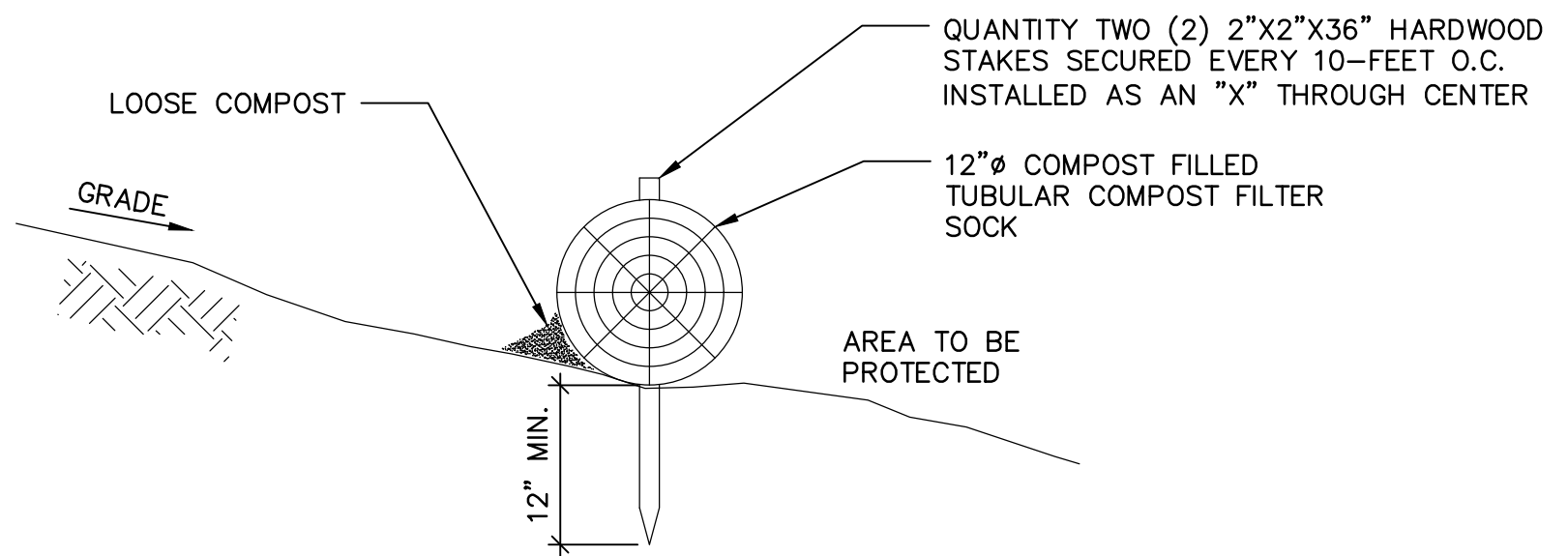
SCALE:
AS SHOWN

DRAWING NO.:

C-10

SHEET NO.: 12 OF 16



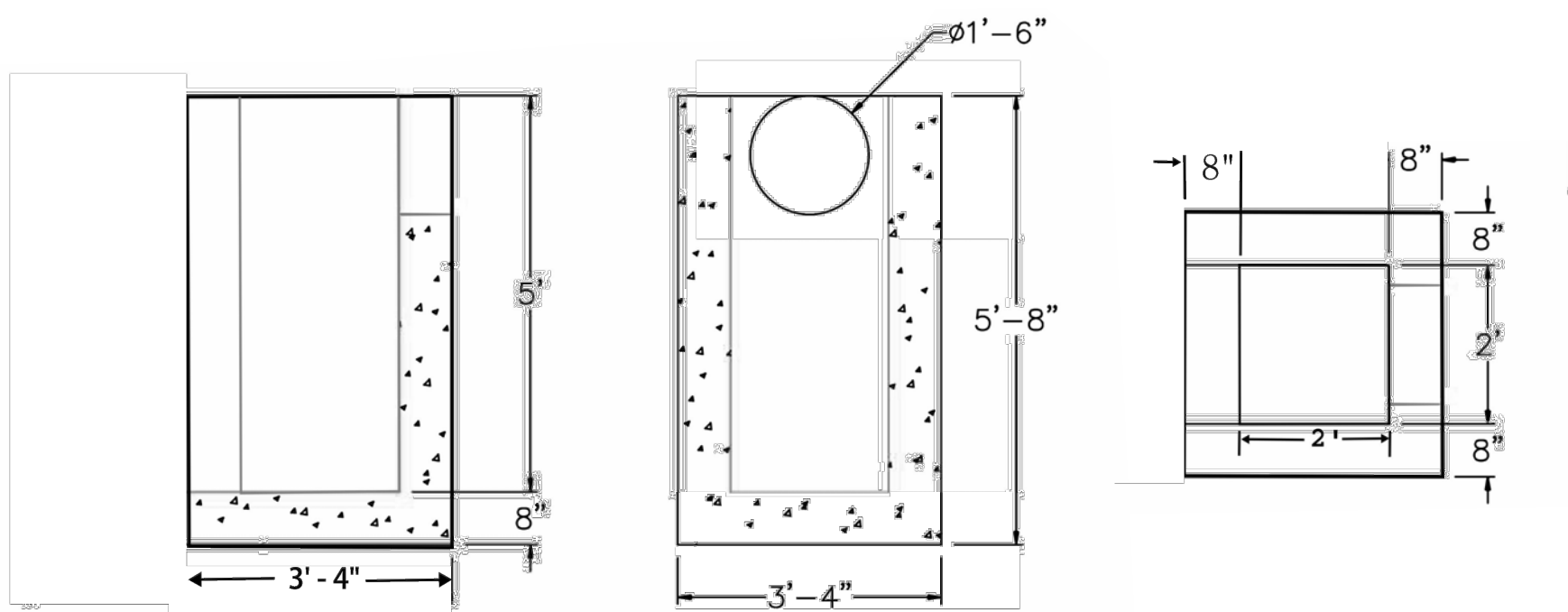


01 TUBULAR COMPOST FILTER SOCK DETAIL

C-04 SCALE: NTS

NOTES:

1. TUBULAR COMPOST FILTER SOCK SHALL BE 100% BIODEGRADABLE
2. THE COMPOST FILTER SOCK SHALL BE PLACED AS NECESSARY AT LOCATIONS AS DIRECTED BY THE ENGINEER OR BY TOWN AGENCIES HAVING JURISDICTION TO CONTROL THE MOVEMENT OF SEDIMENT. ALL COMPOST FILTER SOCK SHALL BE PLACED WITHIN THE EASEMENT.
3. AT THE TIME OF INSTALLATION, THE COMPOST FILTER SOCK SHALL BE REJECTED IF IT HAS DEFECTS, RIPS, HOLES, FLAWS, DETERIORATION OR DAMAGE INCURRED DURING MANUFACTURE, TRANSPORTATION, OR STORAGE.
4. COMPOST FILTER SOCK SHALL BE INSTALLED FAR ENOUGH UP THE SLOPE SO THAT THE BOTTOM OF THE COMPOST FILTER SOCK END IS HIGHER THAN THE TOP OF THE LOWEST PORTION OF THE COMPOST FILTER SOCK.
5. JOINTS ONLY AT SUPPORT POST WITH MINIMUM 4" OVERLAP AND SECURELY SEALED.
6. SEDIMENTATION DEPOSITS SHALL BE REMOVED WHEN IT REACHES ONE HALF THE HEIGHT OF THE COMPOST FILTER SOCK.
7. COMPOST FILTER SOCK SHALL NOT BE USED IN A WATER COURSE.
8. UPON ESTABLISHMENT OF GROUND COVER ON DISTURBED AREAS AND WHEN DIRECTED BY THE ENGINEER, COMPOST FILTER SOCK WILL BE REMOVED AND ANY SEDIMENTATION WILL BE THINLY SPREAD UPON EXISTING GROUND OVER.
9. COMPOST FILTER SOCK SHALL BE INSPECTED BY CONTRACTOR WEEKLY AND FOLLOWING EACH STORM EVENT.

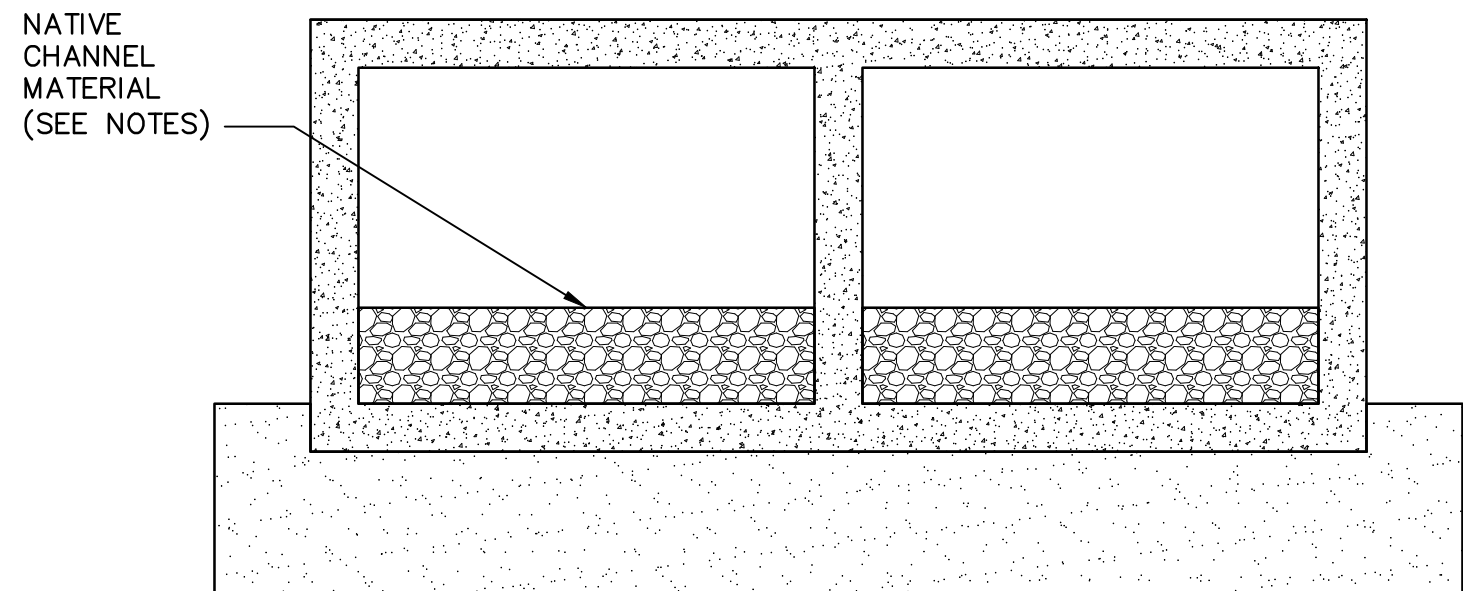


- DESIGN NOTES:
1. CONCRETE 5,000 PSI @ 28 DAYS
 2. REINFORCEMENT ASTM A-615 GRADE 60, 1" MIN. COVER
 3. DESIGNED FOR H-20 LOADING

	FLOOR	VERT. FT	FLAT TOP
WEIGHT	1,750 lbs.	1,435 lbs.	
VOLUME		60 gal.	

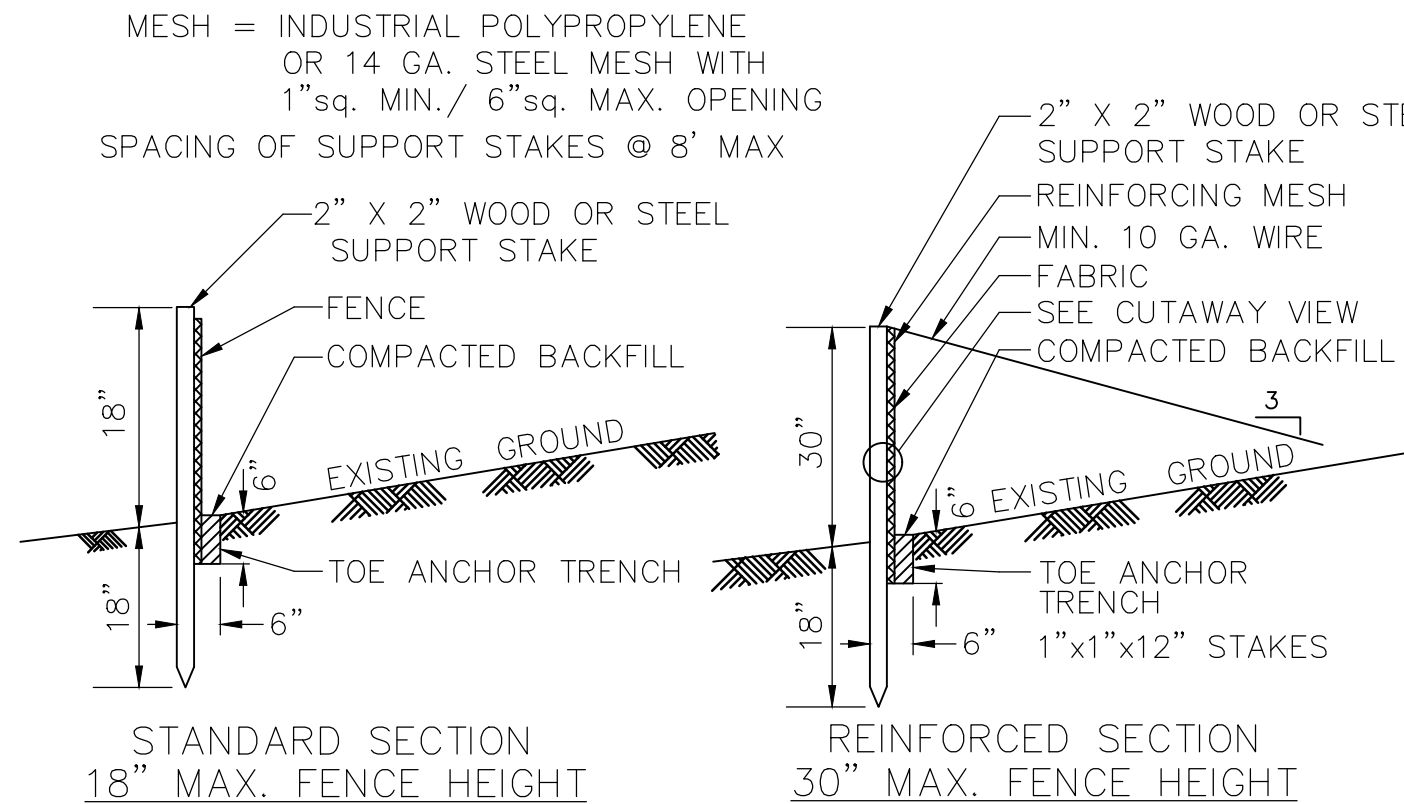
04 MA DCR STANDARD DROP INLET DETAIL

C-10 NOT TO SCALE



05 STREAM CHANNEL MATERIAL DETAIL

C-07 NOT TO SCALE



FILTER FENCE BARRIER MAINTENANCE

THE FENCE INSTALLATION SHALL BE INSPECTED AFTER EVERY PRECIPITATION EVENT OR AT LEAST ONCE EVERY WEEK. ANY NECESSARY REPAIRS SHALL BE MADE IMMEDIATELY.

ACCUMULATED SEDIMENTS SHALL BE REMOVED AS REQUIRED TO KEEP THE FENCE FUNCTIONAL. IN ALL CASES REMOVE DEPOSITS WHERE THE ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.

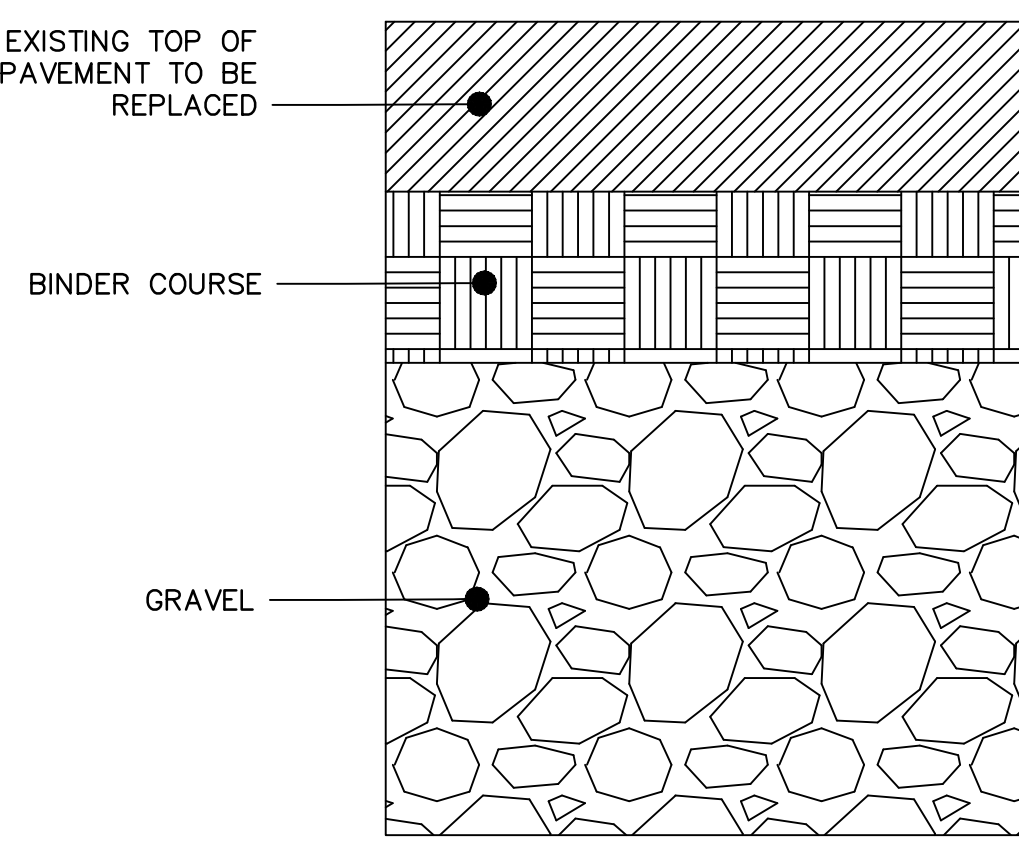
ANY SECTION OF SILT FENCE THAT HAS BEEN UNDERCUT OR OVERTOPPED MUST IMMEDIATELY BE REPLACED WITH A ROCK FILTER OUTLET.

FILTER FABRIC WILL BE REPLACED PER MANUFACTURERS RECOMMENDATIONS FOR WEATHERING.

FILTER FABRIC FENCE MUST BE PLACED AT LEVEL EXISTING GRADE. BOTH ENDS OF THE BARRIER MUST BE EXTENDED AT LEAST 8' UP SLOPE AT A 45 DEGREE ANGLE TO THE MAIN BARRIER ALIGNMENT.

02 FILTER FABRIC FENCE DETAIL

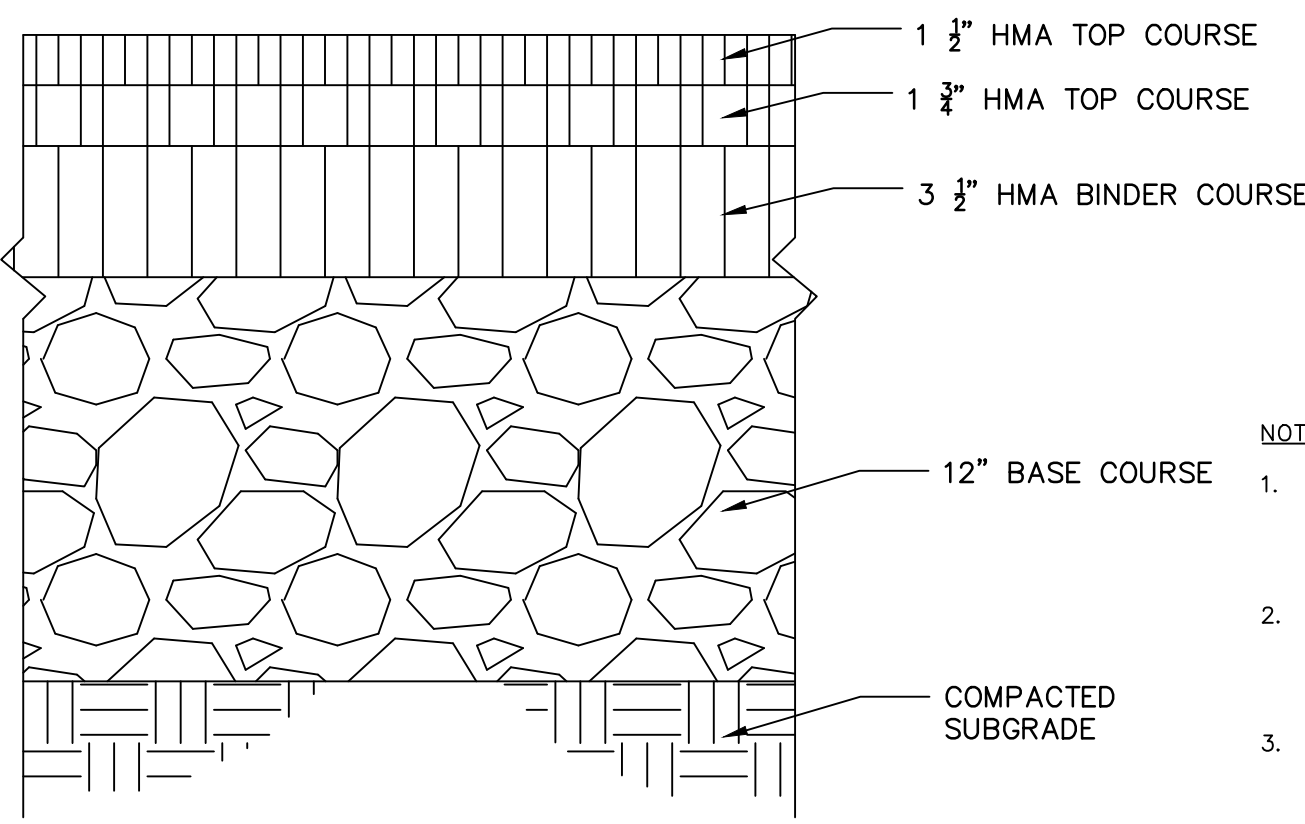
C-04 NOT TO SCALE



- NOTES:
1. RESURFACING OF ROADWAYS TO BE ACCOMPLISHED BY MILLING 2.75" DOWN FROM EXISTING GRADE AND RESURFACING.
 2. RESURFACING WILL EXTEND ONLY TO EXISTING GRADES OR AS SHOWN, CONSTRUCTION EQUIPMENT TO OPERATE ONLY ON EXISTING IMPERVIOUS SURFACES.
 3. ALL EXCAVATED MATERIAL TO BE HAULED OFFSITE TO AUTHORIZED DISPOSAL FACILITY.

07 PAVEMENT RESURFACING CROSS SECTION

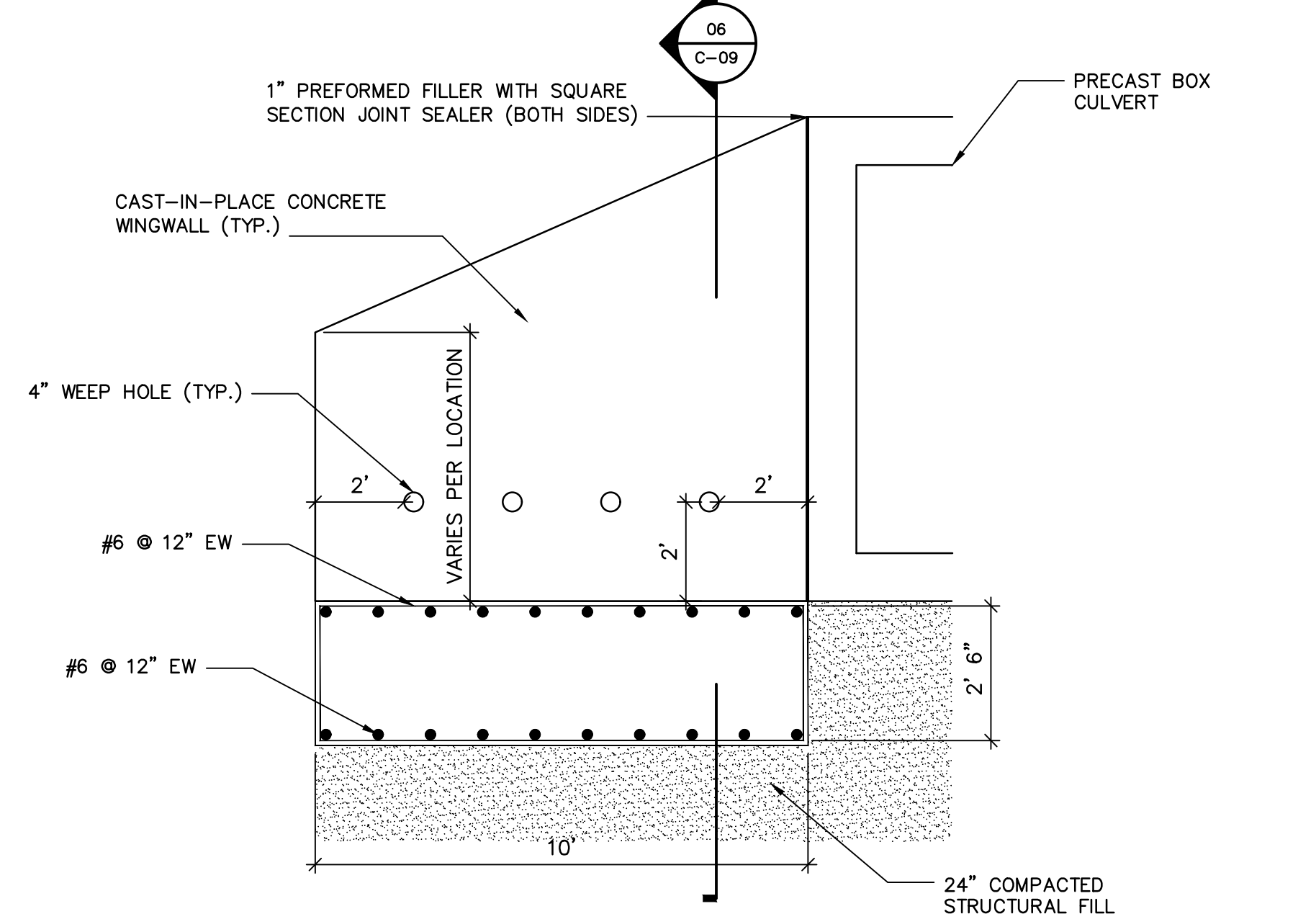
C-07 NOT TO SCALE



- NOTES:
1. MILL AND PAVE OF ROADWAYS TO BE ACCOMPLISHED BY MILLING 2.75" DOWN FROM EXISTING GRADE AND REPAVING.
 2. FULL DEPTH RECONSTRUCTION OF ROADWAYS ALONG EDGES AS INDICATED TO BE ACCOMPLISHED CONSISTENT WITH CROSS SECTION.
 3. ALL EXCAVATED MATERIAL TO BE HAULED OFFSITE TO AUTHORIZED DISPOSAL FACILITY.

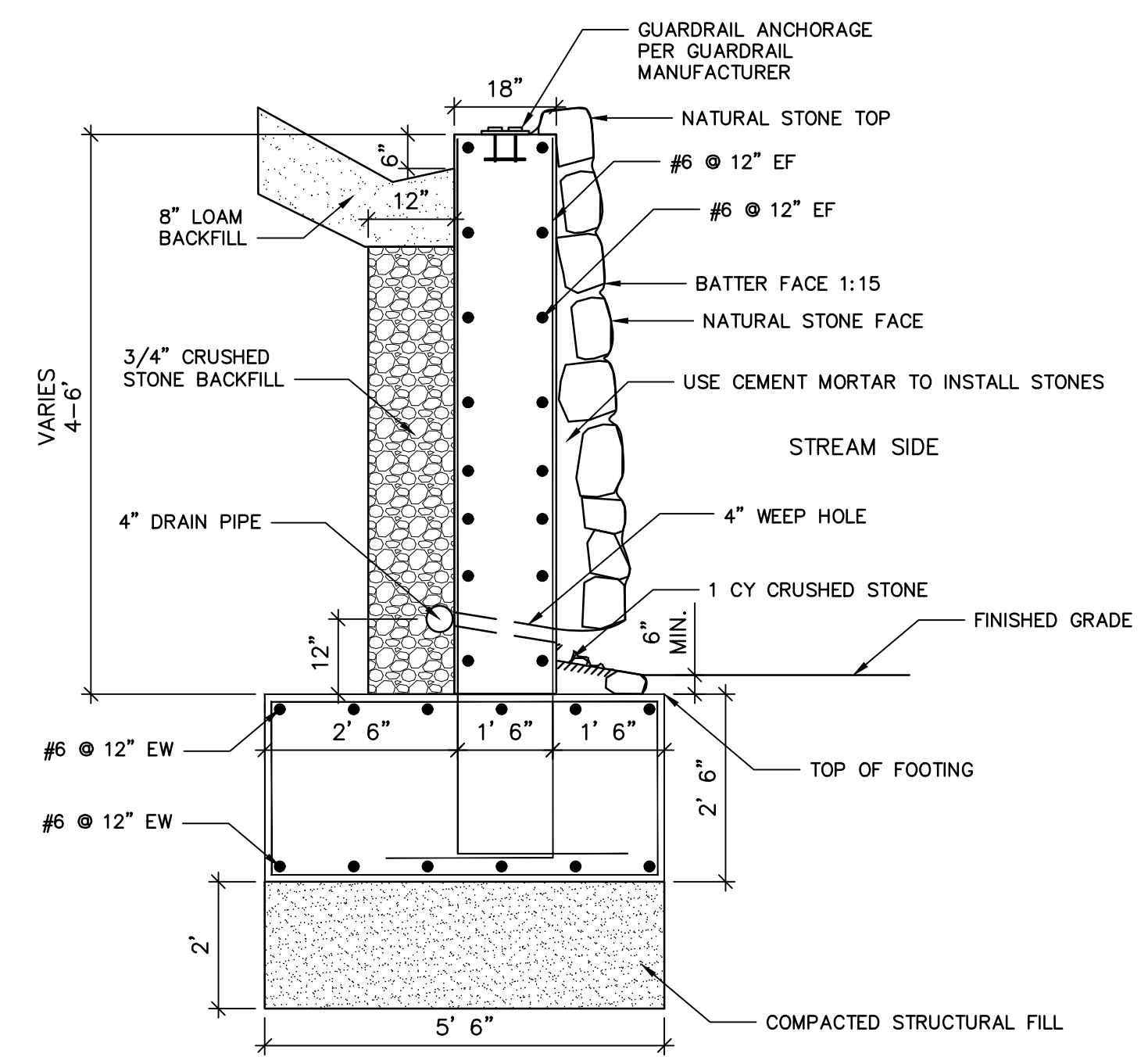
08 FULL DEPTH PAVEMENT RESTORATION SECTION

C-07 SCALE: NTS



03 WINGWALL DETAIL

C-07 NOT TO SCALE



- NOTES:
1. PROVIDE POSITIVE DRAINAGE BEHIND WALL USING 4" DIA. PERFORATED FRENCH DRAIN PIPE.
 2. CONCRETE USE IN WING WALLS AND FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS.

06 WINGWALL WITH NATURAL STONE FACE SECTION

C-07 NOT TO SCALE



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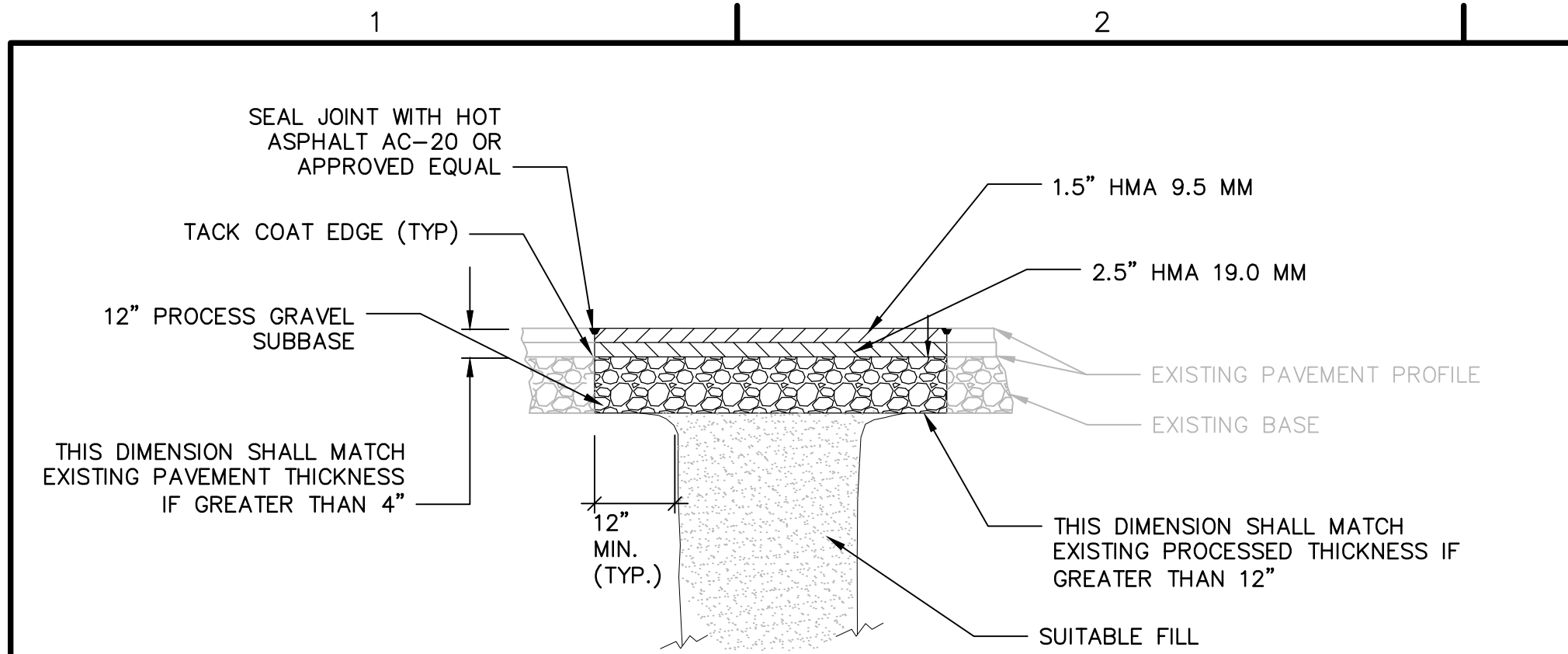
SHEET TITLE
CIVIL

CIVIL DETAILS 1

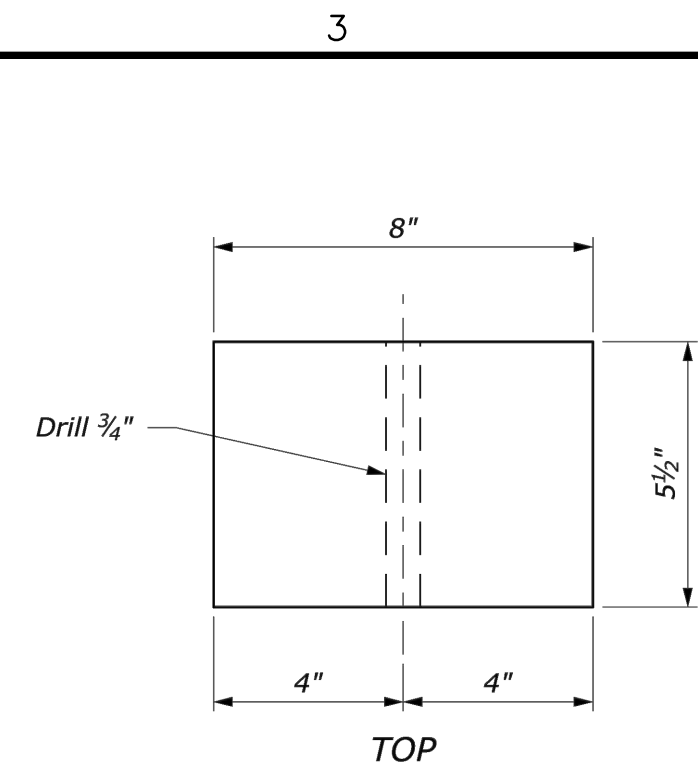
SCALE:
AS SHOWN

DRAWING NO.:
C-11

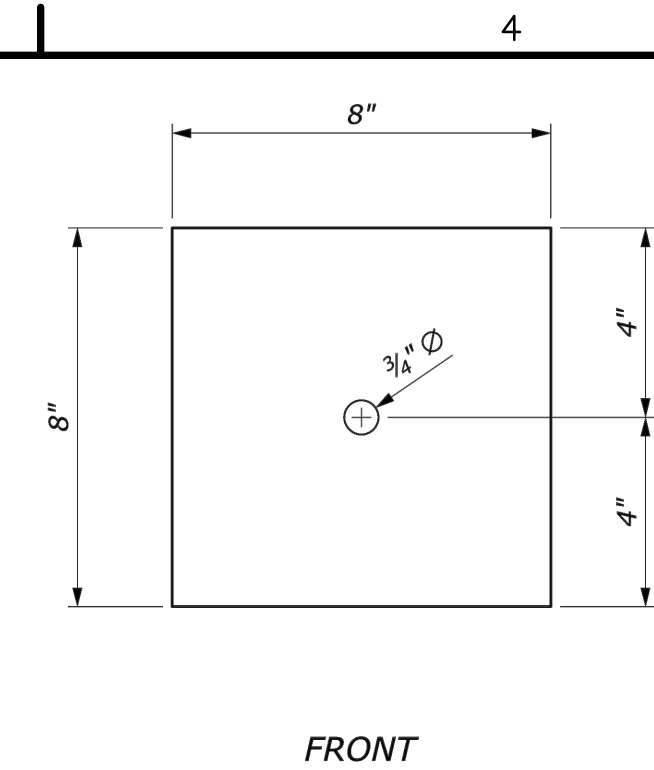
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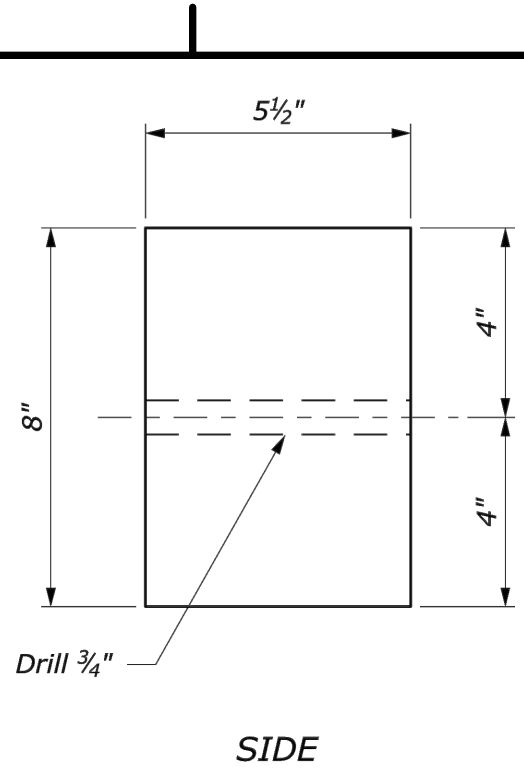
01 PERMANENT TRENCH PAVEMENT REPAIR
C-10 NOT TO SCALE



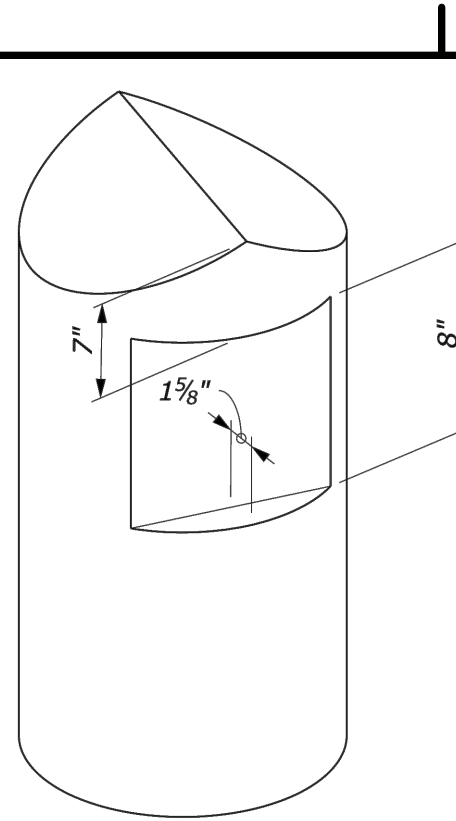
02 STEEL-BACKED LOG RAIL BLOCKOUT
C-07 NOT TO SCALE



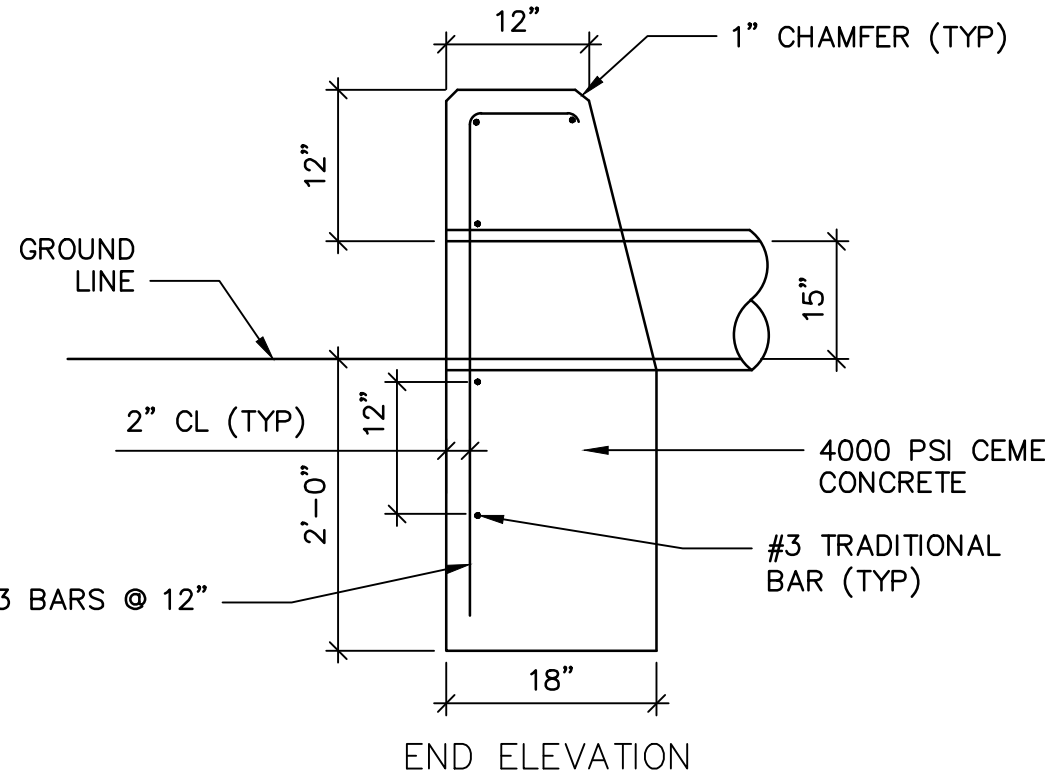
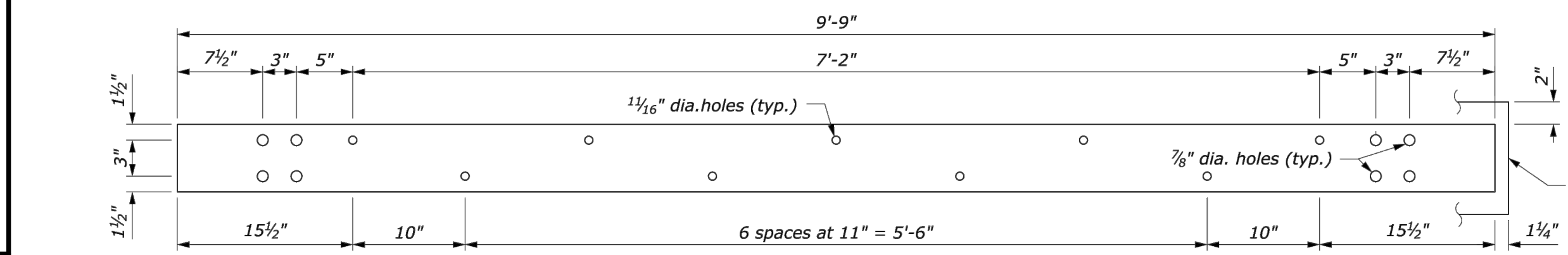
WOOD BLOCK-OUT
8" x 5 1/2" x 8"



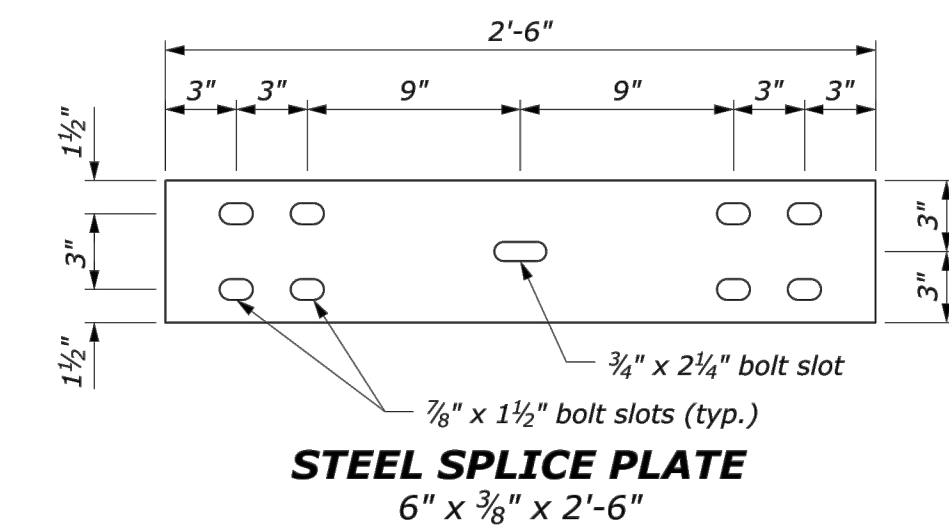
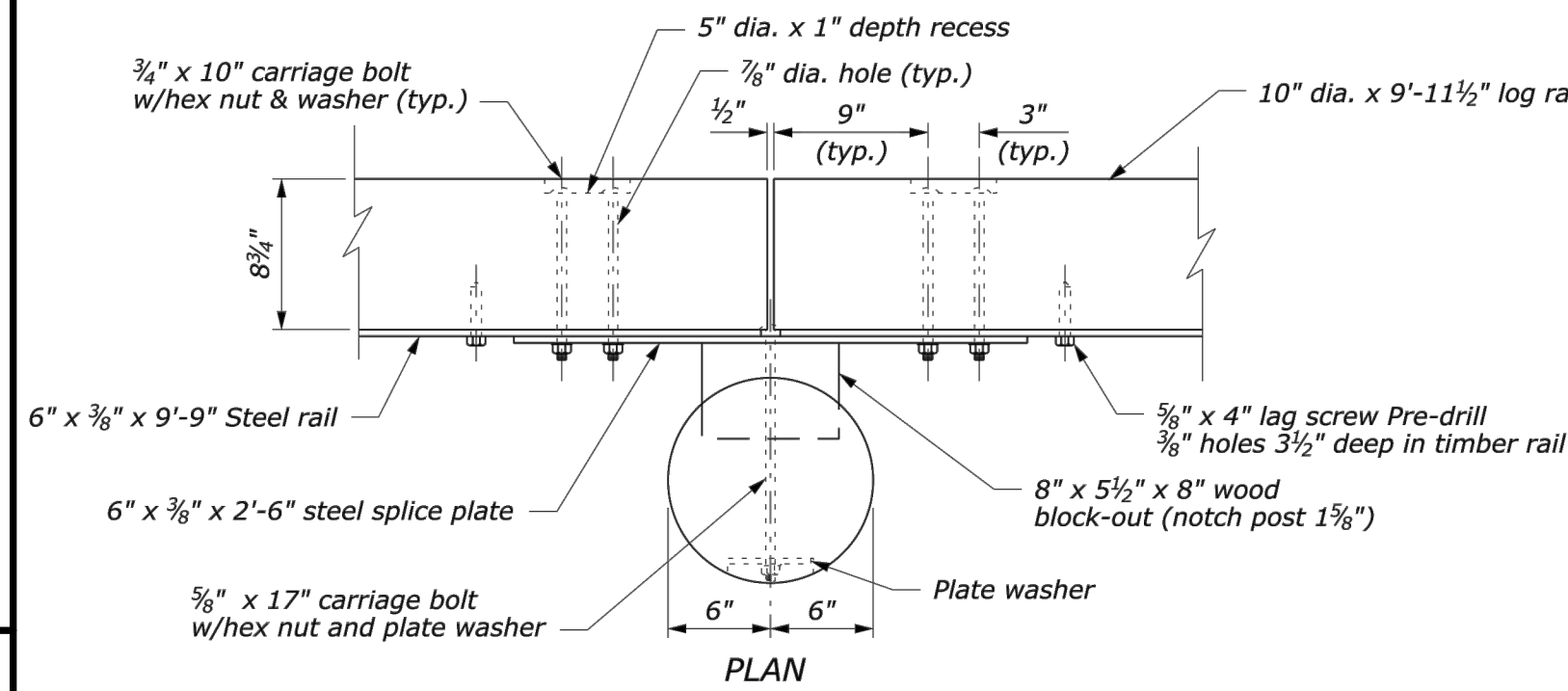
POST NOTCH FOR WOOD BLOCK-OUT



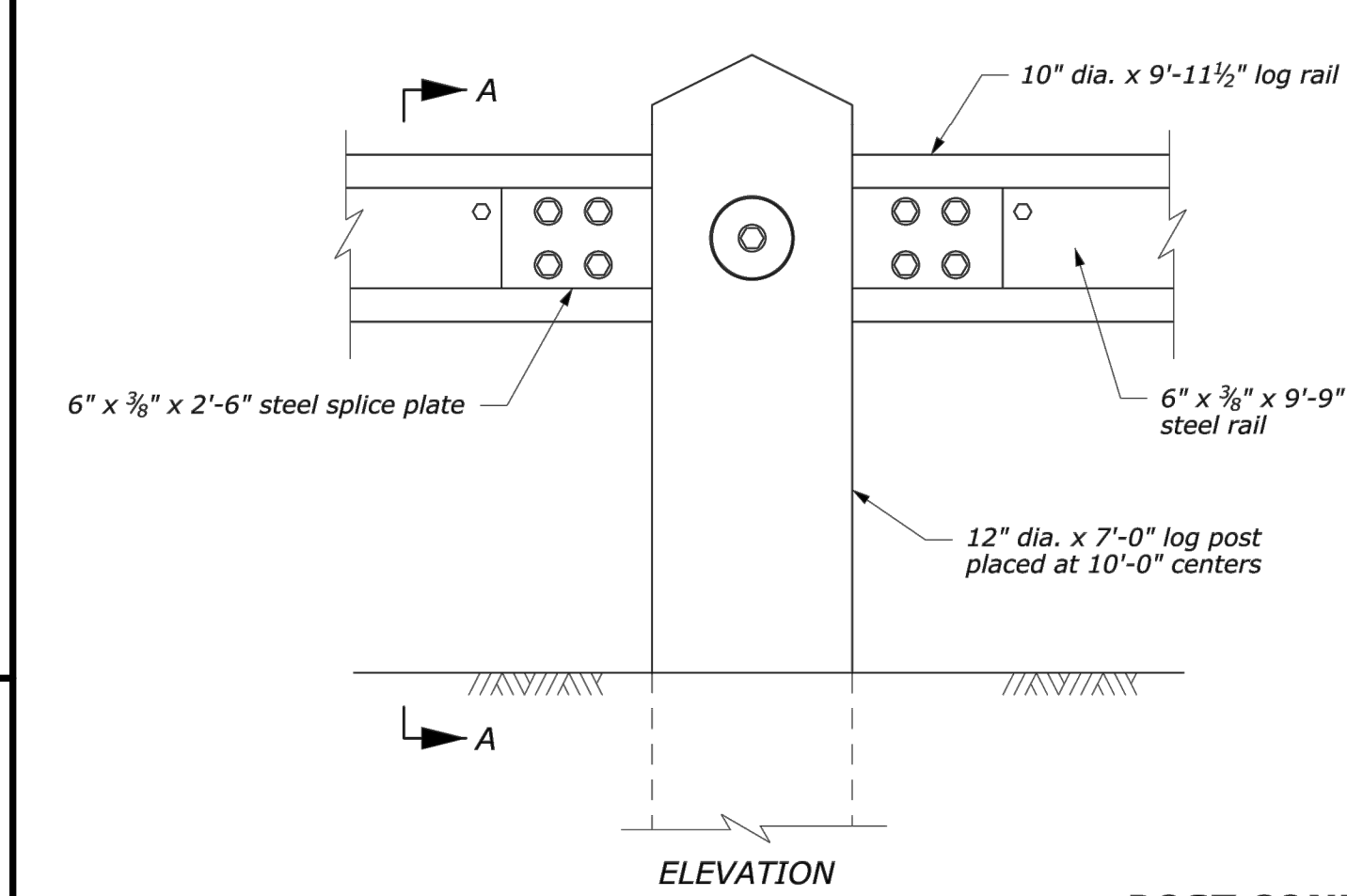
- NOTES:
1. INSTALL LOGS FOR RAILS BUTT TO BUTT AND TIP TO TIP. A 2" MAXIMUM TAPER BETWEEN THE BUTT AND TIP ENDS OF INDIVIDUAL LOGS IS PERMITTED.
 2. 20 FOOT LOGS ARE ACCEPTABLE FOR RAILS PROVIDED THE 2" MAXIMUM TAPER REQUIREMENT IS MET AND ROADWAY CURVATURE PERMITS.
 3. MAKE SPLICES IN RAIL ELEMENTS AT POSTS ONLY.
 4. FIELD CUT LOG ENDS AND DRESS AS NECESSARY TO OBTAIN TIGHT FITTING BUTT JOINTS IN FULL CONTACT WITH EACH OTHER AT THE LOG ENDS. TRIM TRAFFIC EXPOSED FACES OF LOG ENDS AT THE JOINTS AND ELSEWHERE AND DRESS AS NECESSARY TO OBTAIN A SMOOTH SURFACE WITH NO PROTRUSIONS.
 5. DRESS BACK FACE OF LOG RAIL MEMBERS TO PROVIDE A FLAT SURFACE WIDE ENOUGH TO ACCOMMODATE A 6" STEEL RAIL.
 6. APPLY AN APPROVED TINTED BROWN COLOR STAIN TO ALL EXPOSED SURFACES OF LOGS. APPLY STAIN EITHER AS A PART OF OR SUBSEQUENT TO PRESERVATIVE TREATMENT.
 7. TREAT ALL FIELD CUTS AND DRILL HOLES WITH TWO APPLICATIONS OF THE SAME PRESERVATIVE AND STAIN AS THE RAILS AND POSTS.
 8. THE NOMINAL BOLT LENGTH IS 16". BOLT LENGTHS WILL VARY ACCORDING TO LOG SIZE. EXTRA LONG THREADED BOLTS MAY BE USED, PROVIDED THEY ARE FIELD CUT SO THAT NONE OF THE SHANK PROTRUDES BEYOND THE BACK OF THE POST.
 9. SEE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION U.S. CUSTOMARY STANDARD 617-81.



STEEL RAIL
6" x 3/8" x 9'-9"



STEEL SPLICE PLATE
6" x 3/8" x 2'-6"



POST CONNECTION

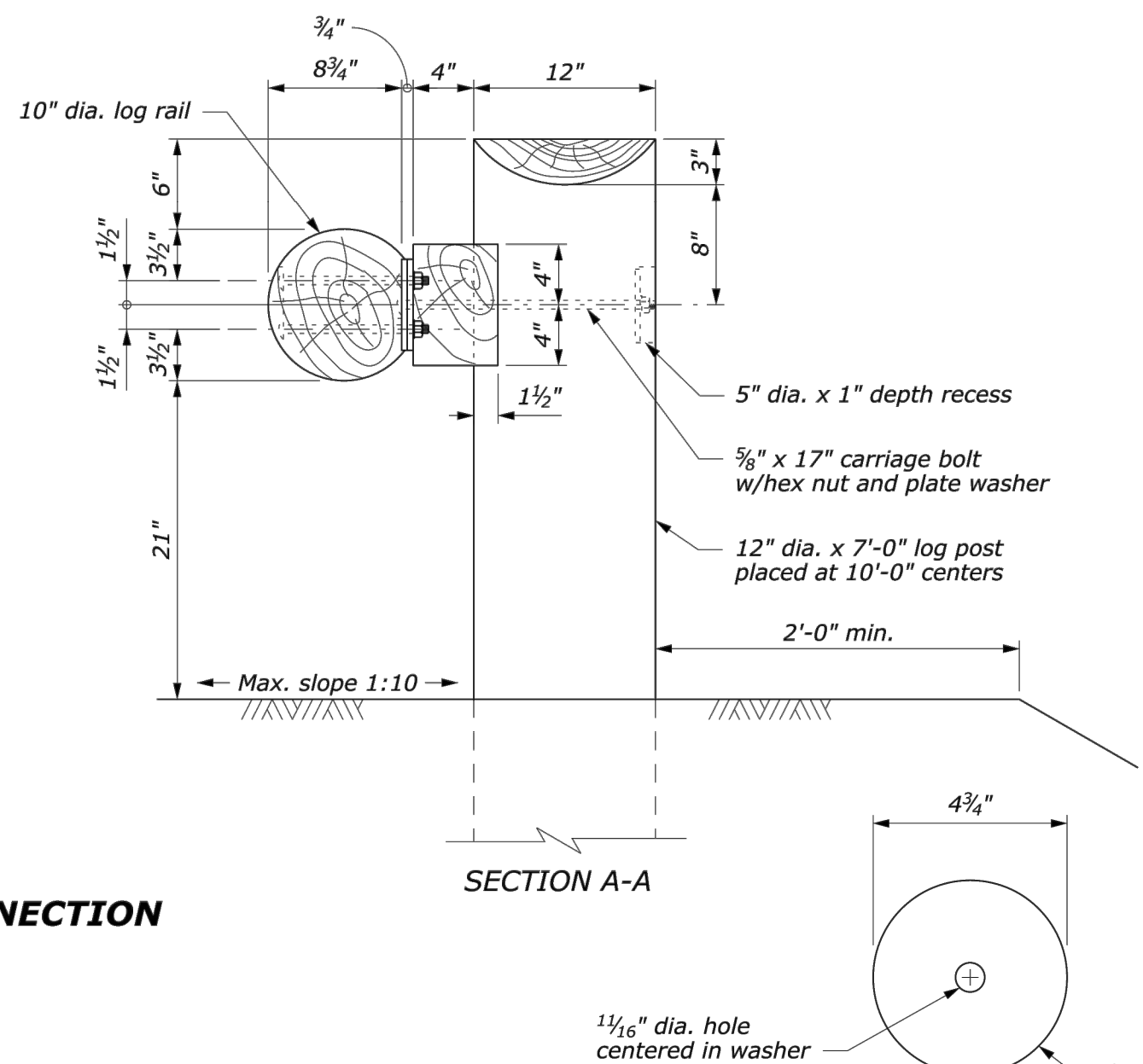
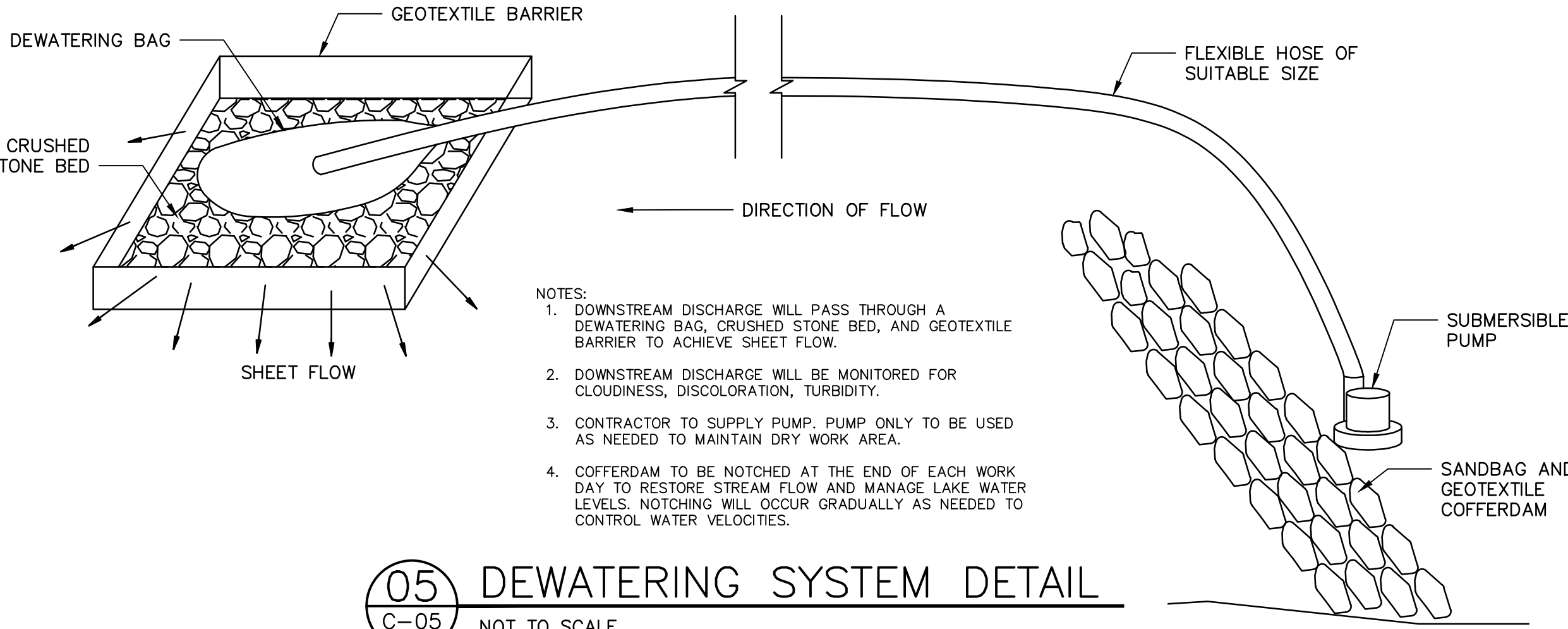


PLATE WASHER

03 STEEL-BACKED LOG RAIL
C-07 NOT TO SCALE

- NOTES:
1. SEE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION U.S. CUSTOMARY STANDARD 617-80.



05 DEWATERING SYSTEM DETAIL
C-05 NOT TO SCALE

- NOTES:
1. DOWNSTREAM DISCHARGE WILL PASS THROUGH A DEWATERING BAG, CRUSHED STONE BED, AND GEOTEXTILE BARRIER TO ACHIEVE SHEET FLOW.
 2. DOWNSTREAM DISCHARGE WILL BE MONITORED FOR CLOUDINESS, DISCOLORATION, TURBIDITY.
 3. CONTRACTOR TO SUPPLY PUMP. PUMP ONLY TO BE USED AS NEEDED TO MAINTAIN DRY WORK AREA.
 4. COFFERDAM TO BE NOTCHED AT THE END OF EACH WORK DAY TO RESTORE STREAM FLOW AND MANAGE LAKE WATER LEVELS. NOTCHING WILL OCCUR GRADUALLY AS NEEDED TO CONTROL WATER VELOCITIES.



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SHEET TITLE

CIVIL

CIVIL DETAILS 2

SCALE:
AS SHOWN

DRAWING NO.:
C-12

SHEET NO.: 14 OF 16



1. CONES OR DRUMS SHALL BE OFFSET AT LEAST 2' FROM THE EDGE LINE (MEASURED FROM THE CENTER OF MARKING TO EDGE OF CONE/DRUM WEIGHT).
2. CONES MAY BE USED FOR ALL DAYTIME OPERATIONS. FOR NIGHT WORK, DRUMS SHOULD BE USED TO FORM THE TAPER(S) AND CONES CAN BE USED ALONG THE TANGENT SECTION OF THE WORK SETUP.

CHANNELIZING DEVICE PLACEMENT WITH TRAFFIC CARRIED ON BOTH SIDES

MASSDOT STANDARD 851.1.1 CONES & DRUMS



NOTES:

1. THE MINIMUM LENGTH FOR TYPE III BARRICADES SHALL BE 48 INCHES. EACH BARRICADE RAIL SHALL BE 8 TO 12 INCHES WIDE. BARRICADES USED ON FREEWAYS, EXPRESSWAYS, AND OTHER HIGH-SPEED ROADWAYS SHALL HAVE A MINIMUM OF 270 SQUARE INCHES OF RETROFLECTIVE AREA FACING ROAD USERS.
2. STRIPES ON BARRICADE RAILS SHALL BE ALTERNATING ORANGE AND WHITE RETROFLECTIVE STRIPES SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION ROAD USERS ARE TO PASS. STRIPES SHALL BE 6 INCHES WIDE.
3. WHERE BARRICADES EXTEND ENTIRELY ACROSS A ROADWAY, THE STRIPES SHOULD SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH ROAD USERS MUST TURN.
4. WHERE BOTH RIGHT AND LEFT TURNS ARE PROVIDED, THE BARRICADE STRIPES SHOULD SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE OR BARRICADES.
5. WHERE NO TURNS ARE INTENDED, THE STRIPES SHOULD BE POSITIONED TO SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE OR BARRICADES.
6. ALL BOLTS SHALL BE GRADE 5, WITH TWO F844 WASHERS, ONE LOCK WASHER, AND ONE HEX HEAD NUT ON EACH BOLT.

NOTE: TWO DISTINCT ROAD CLOSURES/ DETOURS ARE REQUIRED FOR THE WORK, DESIGNATED AS PHASE 1 AND PHASE 2 ON THIS SHEET. CONTRACTOR SHALL UTILIZE THE PHASE 1 DETOUR DURING WORK ON THE UPSTREAM CULVERT AND THE PHASE 2 DETOUR DURING WORK ON THE DOWNSTREAM CULVERT, AS SHOWN.

LEGEND:

PHASE 1 DETOUR:

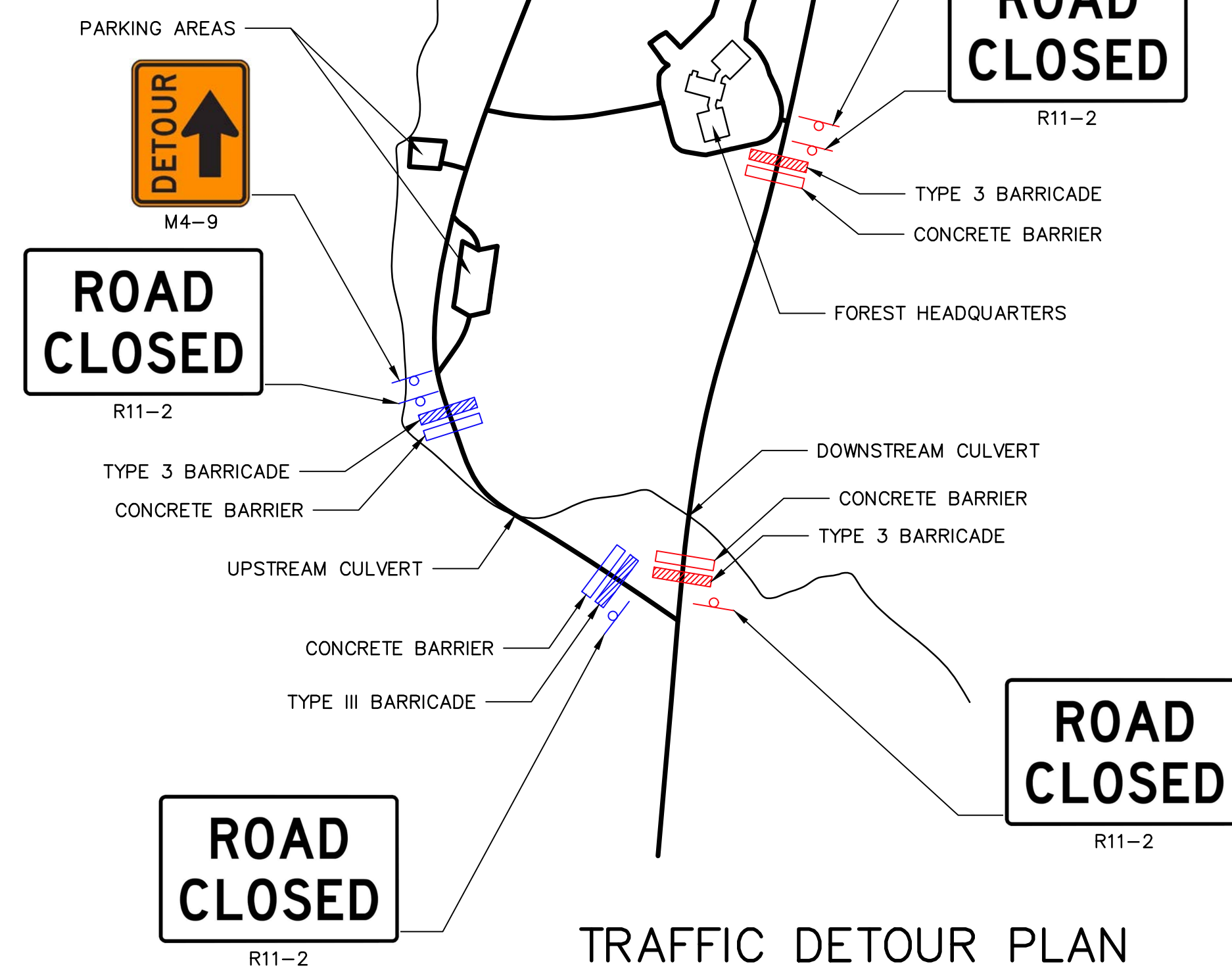
TYPE III BARRICADE

CONCRETE BARRIER ☐

SIGN 

PHASE 2 DETOUR:

TYPE III BARRICADE

CONCRETE BARRIER SIGN 

TRAFFIC DETOUR PLAN

NOT TO SCALE

Appendix C

HMA Inspection Form

HMA PAVEMENT FIELD INSPECTION FORM

Project #:		Park / Road / Lot:		Date:	
Location of Work:				Weather:	
Plant:		Mix Type:		Gmm:	

HMA TEMPERATURE

Test #	Result	Target	Range	Location, Station, or Tonnage	
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
DCR QA:			Cont. QC:	Date:	

LOOSE THICKNESS OF HMA

Based on 1 1/2" +/- .3 Compacted Lift.

Test #	Result	Target	Range	Location, Station, or Tonnage	
		1.9	1.4" - 2.3"		
		1.9	1.4" - 2.3"		
		1.9	1.4" - 2.3"		
		1.9	1.4" - 2.3"		
		1.9	1.4" - 2.3"		
		1.9	1.4" - 2.3"		
		1.9	1.4" - 2.3"		
DCR QA:			Cont. QC:	Date:	

DENSITY GAUGE RESULTS

Test #	Result	Range	Location, Station, or Tonnage	
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
DCR QA:			Cont. QC:	Date:

Comments:

HMA PAVEMENT FIELD INSPECTION FORM

Project #:		Park / Road / Lot:		Date:	
Location of Work:				Weather:	
Plant:		Mix Type:		Gmm:	

HMA TEMPERATURE

Test #	Result	Target	Range	Location, Station, or Tonnage	
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
DCR QA:			Cont. QC:	Date:	

LOOSE THICKNESS OF HMA

Based on 2" +/- .3 Compacted Lift.

Test #	Result	Target	Range	Location, Station, or Tonnage	
		2.5"	1.9" - 3.1"		
		2.5"	1.9" - 3.1"		
		2.5"	1.9" - 3.1"		
		2.5"	1.9" - 3.1"		
		2.5"	1.9" - 3.1"		
		2.5"	1.9" - 3.1"		
		2.5"	1.9" - 3.1"		
DCR QA:			Cont. QC:	Date:	

DENSITY GAUGE RESULTS

Test #	Result	Range	Location, Station, or Tonnage	
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
DCR QA:			Cont. QC:	Date:

Comments:

HMA PAVEMENT FIELD INSPECTION FORM

Project #:		Park / Road / Lot:		Date:	
Location of Work:				Weather:	
Plant:		Mix Type:		Gmm:	

HMA TEMPERATURE

Test #	Result	Target	Range	Location, Station, or Tonnage	
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
		> 250 F	250 - 325 F		
DCR QA:			Cont. QC:	Date:	

LOOSE THICKNESS OF HMA

Based on 3" +/- .3 Compacted Lift.

Test #	Result	Target	Range	Location, Station, or Tonnage	
		3.75	2.9" - 4.7"		
		3.75	2.9" - 4.7"		
		3.75	2.9" - 4.7"		
		3.75	2.9" - 4.7"		
		3.75	2.9" - 4.7"		
		3.75	2.9" - 4.7"		
		3.75	2.9" - 4.7"		
DCR QA:			Cont. QC:	Date:	

DENSITY GAUGE RESULTS

Test #	Result	Range	Location, Station, or Tonnage	
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
		91.5 - 98.5%		
DCR QA:			Cont. QC:	Date:

Comments:

HMA PAVEMENT FIELD INSPECTION FORM 2

Project #:		Park / Road / Lot:		Date:	
Location of Work:				Weather:	
Plant:		Mix Type:			
Inspection Location:					
Station:		Offset:			

Inspection Component	Inspection Attribute	Minimum Inspection Frequency	Point of Inspection	Inspection Method	Contractor QC	DCR QA
Milling Workmanship	Milling Depth, Cross-Slope & Profile	Once per 500 ft per milled lane	Milled Surface	Check Measurement		
	Uniform Surface texture	Per QC Plan	Milled Surface	Visual Check		
	Milled Surface Roughness	Once per 500 ft per milled lane	Milled Surface per 415.61 : Milled Surface Inspection	10-ft standard straightedge		
	Sawcut Limit Vertical Face	Per QC Plan	Sawcut Limits	Visual Check		
Materials	HMA Mixture Type (Correct Type)	1 Per Day	At Paving Site	Visual Check & Delivery Ticket		
	Joint Sealer (Correct Type)	1 Per Day	At Paving Site	Check Manufacturer COC		
Workmanship	Joint Location & Alignment	50% of Sublots, Once per Joint	At Finished Joint	Visual Check		
	Sawcut Joint Vertical Face	50% of Sublots, Once per Joint	Joint Vertical Face	Visual Check		
	Joint Sealer Application Rate	50% of Sublots, Once per Joint	Joint Vertical Face	Visual Check & Check Measurement		
	Physical Segregation	50% of Sublots, Once per Lane	Compacted HMA	Visual Check		
	Cross-Slope Joint	50% of Sublots, Once per Lane	Compacted HMA	Check Measurement		
	Tightness	50% of Sublots, Once per Joint	Compacted HMA	Visual Check		
	Joint Surface Deviations	50% of Sublots, Once per Joint	At Finished Joint	10-ft standard straightedge		
	Wheel Path Deviations	50% of Sublots, per Wheel Path	Wheel Path	10-ft standard straightedge		

As each of the above items are completed and inspected, please initial the appropriate box above, and sign and date below.

Comments:	

Milling:	DCR QA:	Cont. QC:	Date:
Materials:	DCR QA:	Cont. QC:	Date:
Workmanship:	DCR QA:	Cont. QC:	Date: