KAL

COMMONWEALTH OF MASSACHUSETTS

massDOT
Massachusetts Department of Transportation
Highway Division

CONTRACT DOCUMENTS AND SPECIAL PROVISIONS

PROPOSAL NO.	609506-136647
P.V. =	$4,385,000.00
PLANS	YES

FOR

Federal Aid Project No. PRC(PRC80)-004S(013)X
Ledge Removal along Route 8, between MM 28.002 and MM 27.998

in the Town of

BECKET

In accordance with the STANDARD SPECIFICATIONS
for HIGHWAYS and BRIDGES dated 2026

This Proposal to be opened and read: **WEDNESDAY, OCTOBER 14, 2026 at 2:00 P.M.**

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DOCUMENT 00104

NOTICE TO CONTRACTORS

Electronic proposals for the following project will be received through the internet using www.bidx.com until the date and time stated below and will be posted on www.bidx.com forthwith after the bid submission deadline. No paper copies of bids will be accepted. All Bidders must have a valid vendor code issued by MassDOT in order to bid on projects. Bidders need to apply for a Digital ID at least 14 days prior to a scheduled bid opening date with www.bidx.com.

WEDNESDAY, OCTOBER 14, 2026 at 2:00 P.M. **
BECKET
Federal Aid Project No. PRC(PRC80)-004S(013)X
Ledge Removal along Route 8, between MM 28.002 and MM 27.998
****Date Subject to Change**

PROJECT VALUE = $4,385,000.00

Bidders must be pre-qualified by the Department in the HIGHWAY - CONSTRUCTION category to bid on the above project. An award will not be made to a Contractor who is not pre-qualified by the Department prior to the opening of Proposals.

All prospective Bidders who intend to bid on this project must obtain "Request Proposal Form (R109)". The blank "Request Proposal Form (R109)" can be obtained at: https://www.mass.gov/prequalification-of-horizontal-construction-firms.

All prospective Bidders must complete and e-mail an electronic copy of "Request Proposal Form (R109)" to the MassDOT Director of Prequalification for approval: prequal.r109@dot.state.ma.us.

Proposal documents for official bidders are posted on www.bidx.com. Other interested parties may receive informational Contract Documents containing the Plans and Special Provisions, free of charge.

Bids will be considered, and the contract awarded in accordance with statutes governing such contracts in accordance with Massachusetts General Laws Chapter 30 § 39M.

The Project Bids File Attachments folder for proposals at www.bidx.com shall be used for submitting at the time of bid required information such as the Bid Bond required document, and other documents that may be requested in the proposal.

NOTICE TO CONTRACTORS (Continued)

All parties who wish to have access to information plans and specification must send a "Request for Informational Documents" to MassDOTBidDocuments@dot.state.ma.us.

A Proposal Guaranty in the amount of 5% of the value of the bid is required.

This project is subject to the schedule of prevailing wage rates as determined by the Commissioner of the Massachusetts Department of Labor and Workforce Development, and the Division of Occupational Safety, and the United States Department of Labor.

The Massachusetts Department of Transportation, in accordance with Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby affirmatively ensures that for any contract entered into pursuant to this advertisement, all bidders, including disadvantaged business enterprises, will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin in consideration for an Award.

This Proposal contains the "STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)". The goals and timetables applicable to this proposal for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all work, are contained in Appendices A and B-80 of the above specifications.

The Contractor (hereinafter includes consultants) will comply with the Acts and Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration (FHWA), as they may be amended from time to time, which are herein incorporated by reference and made a part of this Contract as contained in Appendices C and D of the above specifications.

NOTICE TO CONTRACTORS (Continued)

PRICE ADJUSTMENTS

This Contract contains price adjustments for hot mix asphalt and Portland cement mixtures, diesel fuel, and gasoline. For reference the base prices are as follows: liquid asphalt $712.50 per ton, Portland cement $452.13 per ton, diesel fuel $4.693 per gallon, and gasoline $3.341 per gallon, and Steel Base Price Index 384.0. MassDOT posts the **Price Adjustments** on their Highway Division's website at
https://www.mass.gov/massdot-contract-price-adjustments

This Contract contains Price Adjustments for steel. See Document 00813 - PRICE ADJUSTMENT FOR STRUCTURAL STEEL AND REINFORCING STEEL for their application and base prices.

MassDOT projects are subject to the rules and regulations of the Architectural Access Board (521 CMR 1.00 et seq.)

Prospective bidders and interested parties can access this information and more via the internet at WWW.COMMBUYS.COM.

BY: Phillip Eng, Interim MassDOT Secretary
Jonathan L. Gulliver, Undersecretary and Highway Administrator
SATURDAY, SEPTEMBER 5, 2026

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DOCUMENT 00210

REQUIREMENTS OF MASSACHUSETTS GENERAL LAWS
CHAPTER 30, SECTION 39R;
CHAPTER 30, SECTION 39O

July 1, 1981, updated October 2016

M.G.L. c. 30, § 39R. Award of Contracts; Accounting Statements; Annual Financial Statements; Definitions.

(a) The words defined herein shall have the meaning stated below whenever they appear in this section:

(1) “Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to sections thirty-eight A1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A to forty-four H, inclusive, of chapter one hundred and forty-nine, which is for an amount or estimated amount greater than one hundred thousand dollars.

(2) "Contract" means any contract awarded or executed pursuant to sections thirty-eight A1/2 to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A through forty-four H, inclusive, of chapter one hundred and forty-nine, which is for amount or estimated amount greater than one hundred thousand dollars.

(3) “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.

(4) “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 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.

(5) “Audit", when used in regard to 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.

(6) "Accountant's Report", when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which he has made and sets forth his opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefor shall be stated. An accountant's report shall include as a part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of the financial condition of the contractor.

(7) “Management", when used herein, means the chief executive officers, partners, principals or other person or persons primarily responsible for the financial and operational policies and practices of the contractor.

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

(b) Subsection (a)(2) hereof notwithstanding, every agreement or contract awarded or executed pursuant to sections thirty-eight A 1/2 to thirty-eight O, inclusive, of chapter seven, or eleven C of chapter twenty-five A, and pursuant to section thirty-nine M of chapter thirty or to section forty-four A through H, inclusive, of chapter one hundred and forty-nine, shall provide that:

(1) The contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the contractor, and

(2) Until the expiration of six years after final payment, the office of inspector general, and the commissioner of capital asset management and maintenance shall have the right to examine any books, documents, papers or records of the contractor or of his subcontractors that directly pertain to, and involve transactions relating to, the contractor or his subcontractors, and

(3) If the agreement is a contract as defined herein, the contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the awarding authority, including in his description 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, and

(4) If the agreement is a contract as defined herein, the contractor has filed a statement of management on internal accounting controls as set forth in paragraph (c) below prior to the execution of the contract, and

(5) If the agreement is a contract as defined herein, the contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in paragraph (d) below.

(c) Every contractor awarded a contract shall file with the awarding authority 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

i. to permit preparation of financial statements in conformity with generally accepted accounting principles, and

ii. 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.

Every contractor awarded a contract shall also file with the awarding authority a statement prepared and signed by an independent certified public accountant, stating that he 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 this paragraph and paragraph (b) above are consistent with the result of management's evaluation of the system of internal accounting controls; and

(2) whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.

(d) Every contractor awarded a contract by the commonwealth or by any political subdivision thereof shall annually file with the commissioner of capital asset management and maintenance during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of 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 awarding authority upon request.

(e) The office of inspector general, the commissioner of capital asset management and maintenance and any other awarding authority shall enforce the provisions of this section. The commissioner of capital asset management and maintenance may after providing an opportunity for the inspector general and other interested parties to comment, promulgate pursuant to the provisions of chapter thirty A such rules, regulations and guidelines as are necessary to effectuate the purposes of this section. Such rules, regulations and guidelines may be applicable to all awarding authorities. A contractor's failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to section forty-four C of chapter one hundred and forty-nine.

(f) Records and statements required to be made, kept or filed under the provisions of this section shall not be public records as defined in section seven of chapter four and shall not be open to public inspection; provided, however, that such records and statements shall be made available pursuant to the provisions of clause (2) of paragraph (b).

M.G.L. c. 30, § 39O: Suspension, Delay, or Interruption or Failure to Act by Awarding Authority; Adjustment in Contract Price; Submission of Claims.

Section 39O. Every contract subject to the provisions of section thirty-nine M of this chapter or subject to section forty-four A of chapter one hundred forty-nine shall contain the following provisions (a) and (b) in their entirety and, in the event a suspension, delay, interruption or failure to act of the awarding authority increases the cost of performance to any subcontractor, that subcontractor shall have the same rights against the general contractor for payment for an increase in the cost of his performance as provisions (a) and (b) give the general contractor against the awarding authority, but nothing in provisions (a) and (b) shall in any way change, modify or alter any other rights which the general contractor or the subcontractor may have against each other.

(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.

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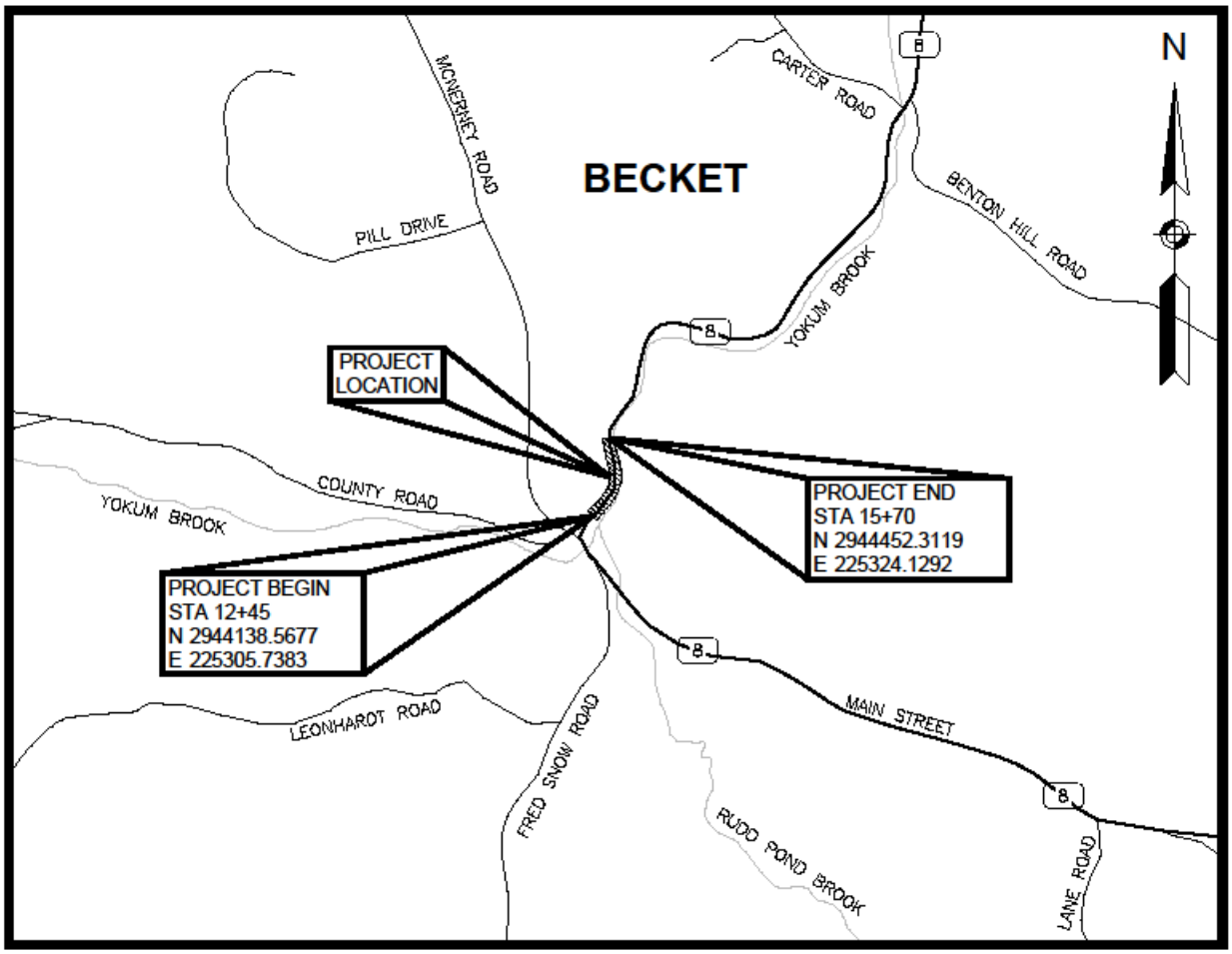
DOCUMENT 00331

LOCUS MAP

BECKET
Federal Aid Project No. PRC(PRC80)-004S(013)X
Ledge Removal along Route 8, between MM 28.002 and MM 27.998



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DOCUMENT 00439

Final Report ☐

Interim Report ☐

CONTRACTOR PROJECT EVALUATION FORM

For instructions on using this form, see Engineering Directive E-10-002, Dated 4/20/2010

Date: _____

City/Town: _____ Contractor: _____

Project: _____ Address: _____

F.A. No. _____ Contract Number: _____

Bid Price: _____ Notice to Proceed: _____

Funds: State: _____ Fed Aid: _____ Current Contract Completion Date: _____

Date Work Started: _____ Date Work Completed*: _____

Contractor's Superintendent: _____

Division: (indicates class of work) Highway: _____ Bridge: _____ Maintenance: _____

*If work was NOT completed within specified time (including extensions) give reasons on following page.

	Excellent 10	Very Good 9	Average 8	7	Fair 6	5	Poor 4	% Rating
1. Workmanship								x 2=
2. Safety								x 2=
3. Schedule								x 1.5=
4. Home Office Support								x 1=
5. Subcontractors Performance								x 1=
6. Field Supervision/ Superintendent								x 1=
7. Contract Compliance								x 0.5=
8. Equipment								x 0.5=
9. Payment of Accounts								x 0.5=
(use back for additional comments)						**Overall Rating:**		

(Give explanation of items 1 through 9 on the following page in numerical order if overall rating is below 80%. Use additional sheets if necessary.)

_____ _____

District Construction Engineer's Signature/Date Resident Engineer's Signature/Date

_____

Contractor's Signature Acknowledging Report/Date

Contractor Requests Meeting with the District: No ☐ Yes ☐ Date Meeting Held: _____

Contractor's Comments/Meeting Notes (extra sheets may be added to this form and noted here if needed): _____

_____

_____

CONTRACTOR PROJECT EVALUATION FORM (Continued)

Date: _____ Contract Number:_____

INFORMATION FOR DISTRICT HIGHWAY DIRECTORS RELATING TO PREQUALIFICATION

A deduction shall be recommended for unsatisfactory performance if computed overall rating is under 80%.
A deduction may be recommended for this project being completed late due to the Contractor's fault.

RECOMMENDATIONS FOR DEDUCTIONS FROM CONTRACTORS' ASSIGNED FACTOR
(*Write Yes or No in space provided*)

I recommend a deduction for Contractor's unsatisfactory performance: _____

I recommend a deduction for project completed late:_____

Signed: _____
District Highway Director

EXPLANATION OF RATINGS 1 – 9:_____

WORK NOT COMPLETED WITHIN SPECIFIED TIME: _____

Revised: 04/28/17

*** END OF DOCUMENT ***

DOCUMENT 00440

Final Report ☐

Interim Report ☐

SUBCONTRACTOR PROJECT EVALUATION FORM

For instructions on using this form, see Engineering Directive E-10-002, Dated 4/20/2010

Date: _____

City/Town: _____ Subcontractor: _____

Project: _____ Address: _____

F.A. No.: _____ Contract Number: _____

Prime Contractor _____ Current Contract Completion Date: _____

Date Work Started: _____ Date Work Completed*: _____

Subcontractor's Superintendent: _____

Type of Work Performed by Subcontractor: _____

*If work was NOT completed within specified time (including extensions) give reasons on following page.

	Excellent 10	Very Good 9	Average 8	7	Fair 6	5	Poor 4	% Rating
1. Workmanship								x 2=
2. Safety								x 2=
3. Schedule								x 1.5=
4. Home Office Support								x 1.5=
5. Field Supervision/ Superintendent								x 1=
6. Contract Compliance								x 1=
7. Equipment								x 0.5=
8. Payment of Accounts								x 0.5=
(use back for additional comments)							**Overall Rating:**	

(Give explanation of items 1 through 8 on the following page in numerical order if overall rating is below 80%. Use additional sheets if necessary.)

_____ _____

District Construction Engineer's Signature/Date Resident Engineer's Signature/Date

_____ _____

Contractor Signature Acknowledging Report/Date Subcontractor Signature Acknowledging Report/Date

Subcontractor Requests Meeting with the District: No ☐ Yes ☐ Date Meeting Held: _____

Subcontractor's Comments / Meeting Notes (extra sheets may be added to this form and noted here if needed):

_____

_____

Contractor's Comments: _____

_____

SUBCONTRACTOR PROJECT EVALUATION FORM (Continued)

Date: _____ Contract Number:_____

INFORMATION FOR DISTRICT HIGHWAY DIRECTORS RELATING TO PREQUALIFICATION

A deduction shall be recommended for unsatisfactory performance if computed overall rating is under 80%.
A deduction may be recommended for this project being completed late due to the Contractor's fault.

RECOMMENDATIONS FOR DEDUCTIONS FROM CONTRACTORS' ASSIGNED FACTOR
(*Write Yes or No in space provided*)

I recommend a deduction for Contractor's unsatisfactory performance: _____

I recommend a deduction for project completed late:_____

Signed: _____
District Highway Director

EXPLANATION OF RATINGS 1 – 8: _____

WORK NOT COMPLETED WITHIN SPECIFIED TIME: _____

Revised: 04/28/17

*** END OF DOCUMENT ***

DOCUMENT 00710
GENERAL CONTRACT PROVISIONS
Revised: 03-31-26

NOTICE OF AVAILABILITY

The STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES dated 2026, the SUPPLEMENTAL SPECIFICATIONS , the 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS; the 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING and the CONSTRUCTION STANDARD DETAILS are available online at https://www.mass.gov/massdot-highway-division-manuals-and-publications

SPECIAL PROVISIONS FOR RIGHT-TO-KNOW ACT REQUIREMENTS

The Contractor's attention is directed to Massachusetts General Laws, Chapter 111F, commonly known as the Right-To-Know Act, and to the regulations promulgated pursuant thereto. Among the provisions of the Right-To-Know Act is a requirement that employers make available to employees Materials Safety Data Sheets (MSDS) for any substance on the Massachusetts Substance List (MSL) to which employees are, have been, or may be exposed.

To ensure prompt compliance with these regulations and legislation, the Contractor shall:

1. Deliver to the Department, prior to the start of any work under this contract, copies of MSDS for all MSL substances to be used, stored, processed or manufactured at the worksite by the Contractor.

2. Train employees of the Department, who may be exposed to MSL substances as a result of the Contractor's work under this contract, with regard to those specific substances in accordance with requirements of the Right-To-Know Act.

3. Observe all safety precautions recommended on the MSDS for any MSL substance to be used, stored, processed, or manufactured at the worksite by the Contractor.

4. Inform the Department in writing regarding specific protective equipment recommended in the MSDS for MSL substances to which employees of the Department may be exposed as a result of the Contractor's work under this contract.

The Department shall not be liable for any delay or suspension of work caused by the refusal of its employees to perform any work due to the Contractor's failure to comply with the Right-To-Know Act. The Contractor agrees to hold the Department or the Commissioner of the Department harmless and fully indemnified for any and all claims, demands, fines, actions, complaints, and causes of action resulting from or arising out of the Contractor's failure to comply with the requirements of the Right-To-Know Act.

ALTERNATIVE DISPUTE RESOLUTION
Forum, Choice of Law and Mediations:

Any actions arising out of a contract shall be governed by the laws of Massachusetts and shall be brought and maintained in a State or federal court in Massachusetts which shall have exclusive jurisdiction thereof. MassDOT and the Contractor may both agree to mediation of any claim and will share the costs of such mediation pro rata based on the number of parties involved.

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DOCUMENT 00715

SUPPLEMENTAL SPECIFICATIONS

JUNE 30, 2026

The 2026 *Standard Specifications for Highways and Bridges* are amended by the following modifications, additions and deletions. These Supplemental Specifications prevail over those published in the Standard Specifications.

The Specifications Committee has issued these Supplemental Specifications for inclusion into each proposal until such time as they are updated or incorporated into the next Standard Specifications.

Contractors are cautioned that these Supplemental Specifications are dated and will change as they are updated.

DIVISION I

GENERAL REQUIREMENTS AND COVENANTS

SECTION 5.00: CONTROL OF WORK

Subsection 5.03: Conformity with Plans and Specifications
Change the MGL reference in the first sentence to Chapter 30, Section 39I (from Section 39L).

DIVISION II

CONSTRUCTION DETAILS

SECTION 200: DRAINAGE

SUBSECTION 227: DRAINAGE SYSTEM SEDIMENT

Subsection 227.30, Method of Measurement
Change the subsection number to 227.80

Subsection 227.31, Basis of Payment
Change the subsection number to 227.81

Subsection 227.31, Payment Items
Change the subsection number to 227.82

SECTION 400: SUB-BASE, BASE COURSE, SHOULDERS, PAVEMENT AND BERMS

SUBSECTION 430: CEMENT CONCRETE BASE COURSE

Subsection 430.40: General
Change Applied Crack Sealer to Hot Applied Crack Sealer.

SUBSECTION 476: CEMENT CONCRETE PAVEMENT

Subsection 476.20: Materials
Delete Preformed Bituminous Joint Filler for Concrete - M3.05.5 and add the following in M number sequence:

Preformed Expansion Joint Filler	M9.14.0

SUBSECTION 477: MILLED RUMBLE STRIPS

Subsection 477: Milled Rumble Strips
Replace this subsection with the following:

DESCRIPTION

477.20: General

The work consists of constructing rumble strips on roadways by milling grooves into finished surfaces. Milled Rumble Strips are categorized as Type A, Type B, Type C, or Type D. Type A are rectangular milled grooves at regular intervals in the paved surface, Type B rumble strips are rectangular grooves at regular intervals with designed gaps between intervals to accommodate bicyclists, and Type C and Type D rumble strips form continuous grooves in the paved surface in the form of a vertical sinusoidal wave pattern.

CONSTRUCTION METHODS

477.61: Equipment

The equipment shall self-align with the slope of the roadway surface and/or any irregularities in the roadway surface.

The Contractor shall demonstrate to the Engineer the ability to achieve the desired groove without tearing or snagging the roadway surface prior to beginning the work.

477.62: Installation of Rumble Strips

Rumble strips shall be installed in accordance with the locations, dimensions, and Type shown on the plans.

Type A and Type B rumble strips shall be installed after the longitudinal pavement markings they supplement (typically edge lines or channelizing lines) are in place. Installation of any diagonal or chevron pavement markings that cross the Type A or Type B rumble strips shall only occur after the rumble strips are in place.

Type C rumble strips shall be installed after the location of the longitudinal pavement markings they supplement (typically center lines) has been laid out, but before the pavement markings are installed. The pavement markings shall only be installed after the Type C rumble strips are in place.

Type D rumble strips shall be installed after the longitudinal pavement markings they supplement (typically center lines) are in place.

477.63: Control of the Work Area

At the end of each working day, all equipment shall be moved to a location where it does not present a hazard to traffic. The pavement shall be cleaned by sweeping and the work area shall be reopened to traffic.

Pavement millings shall become the property of the Contractor and shall be removed and disposed of off-site.

COMPENSATION

477.80: Method of Measurement

Milled Rumble Strip (Type A), Milled Rumble Strip (Type C), and Milled Rumble Strip (Type D) will be measured by the total length of installed rumble strip. Milled Rumble Strip (Type B) will be measured by the total length of installed rumble strip excluding the designed gaps. Breaks at castings, bridge decks, intersections or other breaks will not be measured for payment for all types.

477.81: Basis of Payment

Payment for Milled Rumble Strip (Type A), Milled Rumble Strip (Type B), Milled Rumble Strip (Type C), and Milled Rumble Strip (Type D) will be made at the contract unit price per foot of rumble strips, complete in place. Such payment will be full compensation for furnishing all equipment and labor for satisfactorily performing the work including cleanup and disposal of excess materials.

477.82: Payment Items

Item number	Description	Unit
477.	Milled Rumble Strip (Type A)	Foot
477.1	Milled Rumble Strip (Type B)	Foot
477.2	Milled Rumble Strip (Type C)	Foot
477.3	Milled Rumble Strip (Type D)	Foot

SUBSECTION 482: SAWCUTTING

Subsection 482.80: Method of Measurement
Replace this subsection with the following:

Sawcutting, when included in the Contract as its own bid item, will be measured for payment by the foot along the cut line, regardless of depth.

SECTION 600: HIGHWAY GUARD, FENCES AND WALLS

SUBSECTION 628: IMPACT ATTENUATORS

Subsection 628.82: Payment Items
Replace this subsection with the following:

Item number	Description	Unit
628.302	Permanent Impact Attenuator, Non-Redirective, TL-2	Each
628.303	Permanent Impact Attenuator, Non-Redirective, TL-3	Each
628.304	Temporary Impact Attenuator, Non-Redirective, TL-2	Each
628.305	Temporary Impact Attenuator, Non-Redirective, TL-3	Each
628.312	Permanent Impact Attenuator, Redirective, TL-2	Each
628.313	Permanent Impact Attenuator, Redirective, TL-3	Each
628.314	Temporary Impact Attenuator, Redirective, TL-2	Each
628.315	Temporary Impact Attenuator, Redirective, TL-3	Each
628.322	Permanent Impact Attenuator, Low-Maintenance, TL-2	Each
628.323	Permanent Impact Attenuator, Low-Maintenance, TL-3	Each

SECTION 800: TRAFFIC CONTROL DEVICES

SUBSECTION 813: WIRING, GROUNDING AND SERVICE CONNECTIONS

Subsection 813.20: General
Replace this subsection with the following:

This work shall consist of furnishing and installing wire and cable of the type and size indicated for traffic signals and other traffic control devices, ITS systems, highway lighting and related electrical systems, equipment grounding systems, new ground electrodes or connections to existing ground electrodes, power pedestals, and all materials and equipment necessary to deliver power to such systems.

Service points shown on the plans are approximate only. The Contractor shall determine exact locations for both overhead and underground service access points. The Contractor shall determine riser elevations or connections/routing to manhole facilities from the serving utility, and arrange to complete the service connections.

All work under this Subsection shall comply with the MEC and the National Electrical Safety Code.

Subsection 813.41: Grounding and Bonding Conductions
Replace this subsection with the following:

Grounding and bonding conductors shall conform to M8.16.10: Type 10 Grounding and Bonding Conductors (Solid or Stranded, Insulated or Bare).

Subsection 813.42: Ground Rods
Replace this subsection with the following:

Ground rods shall consist of driven rod(s) conforming to M8.17.0: Ground Rod or other devices approved for the purpose.

Subsection 813.44: Power Pedestal
Add this subsection in numerical order:

A Power Pedestals shall consist of a side-of-post mounted lockable load center enclosure, a load center with circuit breakers, an exterior-mounted electrical meter, signal post and base, equipment bonding, ground rod(s) conforming to 813.42: Ground Rods, and a cement concrete foundation. The enclosure, lock, circuit breakers, signal post and base, and foundation shall all be included in the Shop Drawing submission.

The enclosure shall be rated to meet or exceed NEMA 3R and be suitable for post-mounting and shall be sized appropriately to house the load center. The enclosure shall be capable of being secured with an integrated locking mechanism or by a Contractor-supplied padlock; regardless of locking mechanism, it shall be operated with a #2 key.

The circuit breakers shall be designed for single-phase, 3-wire, 120/240 VAC. Circuit breakers shall provide a means to manually operate a circuit and/or automatically open a circuit that is in overload or short circuit conditions. All circuit breakers shall be UL listed and have CSA certification.

The enclosure shall be furnished with a meter socket installed. The meter socket shall be approved by the servicing electrical utility.

The signal post and base shall conform to M10.05.1: Signal Posts and Bases and the Plans. The Contractor shall supply a square aluminum base with a natural or anodized finish and a Schedule 80 aluminum post with a brushed or spun finish, unless otherwise indicated in the Plans.

The Contractor shall supply mounting equipment recommended by the enclosure manufacturer to side-mount the cabinet to the post.

Bonding for the Power Pedestal shall utilize a #8 AWG or larger ASTM-B3 wire.

The cement concrete foundation shall conform to the Plans and M4.02.0: Concrete Produced by Stationary and Truck Mixers, M4.03.0: Concrete Produced by Volumetric Mixers, M4.06.1: Conventional Concrete, M4.09.0: Precast, Prestressed, and Prefabricated Concrete Products, M4.11.0: Evaporation Reducing Materials, and M4.12.0: Curing Materials, as applicable.

Subsection 813.64: Power Pedestal
Add this subsection in numerical order:

No work shall commence until Shop Drawings have been approved.

The Power Pedestal Cabinet shall be mounted side-of-post to the Signal Post, per the manufacturer's recommendations. The Power Pedestal Cabinet should be installed directly below the meter socket, per the Plans. If dissimilar metals are present, they shall be electrically insulated to prevent galvanic corrosion.

The Contractor shall supply the appropriate type (single pole or double pole) and number of circuit breakers included within the Power Pedestal Cabinet to provide the recommended AC power to each device receiving power from the Cabinet. The circuit breakers shall be clearly labeled as to which device they are powering (e.g. RRFB-1, RRFB-2, Warning Beacon, Speed Feedback Sign, etc.).

The Power Pedestal shall be grounded and bonded per 813.61: Equipment Grounding and Bonding and 813.62: Grounding Electrodes.

Subsection 813.80.E: Power Pedestal
Add this subsection in numerical order:

Power Pedestals will be measured by the number of Power Pedestals each furnished and installed.

Subsection 813.81.E: Power Pedestal
Add this subsection in numerical order:

Power Pedestals will be paid for at the contract unit price for each installed in place. This includes all labor and materials required for a working system.

All costs associated with grounding and bonding of Power Pedestals shall be considered incidental to the item.

All costs associated with providing service connections to Power Pedestals shall be paid for under their respective pay items.

Subsection 813.82: Payment Items
Change the unit of measure for items 813.80 and 813.81 to Each and add the following pay item:

Subsection 815.82: Payment Items
Delete payment items 818.90 to 818.94, 819.39, 819.832, 819.52, 819.53, 819.60 to 819.64, 819.70, 819.71, 819.72, 819.800, 819.801, 819.802, 819.803,:819.810, 819.811, 819.820, 819.821, 819.850, 819.851, 819.852.

Add the following payment item:

813.90	Power Pedestal	Each

SUBSECTION 819: TRAFFIC SIGNAL DETECTION

Subsection 819: Traffic Signal Detection
Add this subsection:

DESCRIPTION

819.20: General

Work under this Subsection consists of furnishing and installing detection devices for vehicles, bicycles, pedestrians, and other road users.

MATERIALS

819.40: General

Materials shall meet the requirements specified in the following Subsections of Division III, Materials:

Material	Section
Vehicle Detection Systems	M10.08.0
Passive Stop Line Detectors	M10.08.1
Passive Advanced Detectors	M10.08.2
Pedestrian Detectors	M10.09.0
Pedestrian Pushbutton Assembly	M10.09.1
APS Pushbutton Assembly	M10.09.2

The Contractor shall furnish Vehicle Detection Systems (VDS) and Pedestrian Detectors that are listed on the QTCE.

Any software, firmware, cables, or adapters required to program, adjust, fine-tune, or monitor VDS or Pedestrian Detectors shall be provided by the Contractor. VDS and Pedestrian Detectors shall have the latest versions of software and/or firmware installed prior to inspection. Manufacturer updates to software and/or firmware shall be included at no cost for the life of the products.

819.40.A: Vehicle Detection Systems

A VDS shall consist of one or more Internet Protocol (IP) -based detector/sensor assemblies and a cabinet interface device that is installed in a Traffic Signal Controller Cabinet or similar device.

Stop Line VDS shall be capable of providing motor vehicle and bicycle detection at all locations shown on the Plans. The Contractor may furnish a VDS that utilizes a single detector/sensor or multiple, as long as all stop line motor vehicle and bicycle detection zones are encompassed and the traffic signal or other device utilizing the detection can operate per the Plans. All Passive Stop Line Detectors required to provide stop line detection at an intersection shall be included in the cost of a single Stop Line Vehicle Detection System.

If the Contractor furnishes a Stop Line VDS that does not utilize an integrated video monitoring system, a separate video monitoring system per 819.41: Video Monitoring System shall be furnished and installed at no additional cost.

Advanced VDS shall be capable of providing motor vehicle detection on a single approach, at the location shown on the Plans. The Contractor Shall furnish Passive Advanced Detectors that utilize, and are compatible with, the same interface device installed in the Traffic Signal Controller Cabinet, or similar device, as the Stop Line VDS.

All VDSs shall be furnished with manufacturer-supplied mounting hardware.

If multiple VDSs over multiple locations are supplied under a single contract, all components furnished by the Contractor shall be of the same make and model.

819.40.B: Pedestrian Detectors

Pedestrian Pushbutton Assembly and Accessible Pedestrian Signal (APS) Pushbutton Assembly shall both include a pushbutton, sign, housing, manufacturer-specified mounting hardware, and wiring. The Contractor shall review the Contract Documents to determine if one or more in-cabinet control units are required to meet the pedestrian detector type and operational requirements. In-cabinet control units shall be considered incidental to the cost of the item.

The Contractor shall provide a pushbutton housing that conforms to the shape of the pole it is mounted to or shall furnish and install a manufacturer-supplied saddle to provide a flush, secure fit, at no additional cost.

An APS Pushbutton Assembly shall include a pedestrian pushbutton sign that conforms to the Plans. If the sign is not integral to the housing, separate mounting equipment shall be furnished and installed by the Contractor. All costs associated with the sign and mounting equipment shall be considered incidental to the cost of the item.

819.41: Video Monitoring System

When required by 819.40.A: Vehicle Detection Systems, the Contractor shall furnish and install a Video Monitoring System. The Video Monitoring System shall consist of one or more IP-based 4K, 1080p, H.264 dome-type CCTV cameras; mounting hardware, including but not limited to: brackets, bands, straps, posts, plates, and pole mount adapters; power distribution and conditioning equipment including surge suppression; and all necessary cabling and wiring.

All equipment provided for the Video Monitoring System shall be commercial, off-the-shelf products. Custom equipment designed specifically for the Contract will not be accepted. All cabling and wiring shall be recommended by the manufacturer and rated for outdoor use. Any special wiring or connectors required by the manufacturer shall be identified in the Shop Drawings.

The Video Monitoring System shall conform to National Electrical Manufactures Association (NEMA) standards, Underwriters' Laboratory (UL), and Military Standards (MIL), as applicable. All components of the Video Monitoring System shall be new and still under production by the manufacturer. Obsolete, no longer produced, and/or no longer supported components will not be accepted.

The Video Monitoring System shall be capable of operating in temperatures ranging from -29°F to +165°F.

The camera shall meet or exceed the requirements found in Table 819.41-1:

Table 819.41-1: Minimum Camera Requirements

Feature	Requirement
Zoom Ratio	The minimum zoom ratio shall be 30x Optical and 12x Digital
Camera Type	The camera shall be an IP-type CCTV camera.
Auto Focus	The camera shall include auto focus with a selection for manual override of auto focus.
Lens Aperture Ratio	Typical: F/1.6 to F/4.7 (wide to telephoto)
On-Screen Direction	The CCTV camera shall display on-screen azimuth indications.
Privacy Zones	The CCTV camera shall be programmable to blank out up to 8, four-sided areas to electronically block portions of the camera's field of view from being

Feature	Requirement
	displayed. These privacy zones shall move and adjust sizing synchronously with camera movements and degree of lens zooming.
On-Screen Labels, Text and Titles	The CCTV camera shall display a minimum of 20 programmable characters for on-screen camera ID, preset position, sector, and alarm titles.
On-Screen Labels, Text and Title Positioning	The position of the on-screen text shall be adjustable to appear at selectable positions on the CCTV camera screen image.
Number of Pixels	The camera shall provide a minimum of 1280H x 720V effective pixels. The camera shall be capable of being configured to operate at all standard lower resolutions down to 320H x 180V effective pixels.
Image Sensor Size	The camera shall include an image sensor of 1/1.8 in., nominal.
Lens Focal Length	The camera shall include a zoom lens of 4.3 mm to 129 mm, minimum focal length.
Color and Black & White Image Selection	The camera shall have Color and Black & White video image display modes incorporating both automatic and manual override image mode selection. The camera shall transition automatically to a Black & White mode (when in automatic mode) when the luminance level reaches a user predefined threshold. At all times the camera shall provide a full motion video output at 30 frames per second.
Image Stabilization	The CCTV camera shall incorporate electronic image stabilization to reduce the effects of vibration and wind gusts on the displayed video image.
Automatic Iris	The camera shall include both automatic iris control and an override for manual iris adjustments.
Wide Dynamic Range	The CCTV camera's wide dynamic range shall be 120 dB.
CCTV Camera Optical Sensitivity	The camera's sensitivity shall be sufficient to provide a clear, usable color video image display with a scene illumination of ≤ 0.1 lux at an aperture of F1.6, nominal.
Power Input	The power input for the CCTV camera and dome shall be PoE+.
Alarms	No alarm contacts shall be wired.

The Contractor shall mount the camera at a location that optimizes line-of-sight for all approaches. The view of each approach shall have a clear line of sight, free from obstructions from trees, overhead wires, buildings, and/or other obstructions. If the Contractor is unable to provide a clear line of sight for all approaches to the satisfaction of the Engineer, a second camera, including mounting hardware, cabling, and wiring, shall be furnished and installed on a different traffic signal structure at no additional cost.

The Contractor shall be responsible for the following items prior to installation:

- Ensure that all components are assembled and factory-tested prior to delivery to the project site.
- Fully configure the camera settings, including but not limited to: camera resolution, camera address, default settings, and pre-set and home positions, per the direction of the Engineer.
- Coordinate with the Engineer to set the camera address number to provide unique identification that is compatible with the CCTV camera addressing schema utilized by the Department.

The Contractor shall deliver the camera(s) fully assembled to the project site.

The Contractor shall provide up to 3 hard copy sets of operating manuals, service manuals, and maintenance instructions for all components of the system. At the request of the Engineer, the number of copies may be reduced if the manuals are provided in .pdf file format.

819.42: Material Warranties

All components of Vehicle Detection Systems, including Video Monitoring Systems, and Pedestrian Detectors shall include a minimum two-year manufacturer's replacement warranty that will commence upon acceptance by the Engineer. The warranty shall cover any manufacturing defects of the products.

Construction Methods

819.60: General

The Contractor shall use discretion in installing the detectors/sensors at locations that optimize the performance of the VDS and to eliminate false calls. The Contractor shall notify the Engineer if the size or location of the detection zones differs from what is shown in the Plans. At the direction of the Engineer, the Contractor will be required to readjust the location of the detection zones and/or modify the detection channels if false calls are observed or the traffic signal system is not operating per the Plans due to the performance of the VDS; this work shall be considered incidental to the cost of the item.

The Contractor shall use manufacturer-specified mounting hardware for all detectors/sensors. If mounted to mast arms or strain poles, any addition weight or wind loading from the detector/sensor shall be accounted for in the structural calculations.

The Contractor shall install the cabinet interface device in the traffic signal controller cabinet. The cabinet interface device shall be connected to the Field Monitoring Unit (FMU) or an ethernet switch in the traffic signal controller cabinet. All communication between devices shall be IP-based. Use of external communications that are not routed through the FMU is prohibited.

The Contractor shall furnish and install low voltage power cabling surge protection equipment required for all data and power lines associated with VDS, Video Monitoring Systems, and/or Pedestrian Detection Systems entering the traffic signal controller cabinet.

The Contractor shall install the manufacturer-specified cable between the detectors/sensors to the cabinet interface device in the traffic signal controller cabinet via traffic signal structures, conduit, and/or pullboxes. This shall include all connectors, sealing tape, and incidental work to complete the connection(s). All equipment installation and wiring shall be installed in a neat and orderly manner and per the manufacturer's specifications.

The VDS shall be powered through one of the power outlets available on the FMU. The VDS shall be capable of being powered down and remotely restarted through remote control of the power outlet on the FMU.

Under the supervision of the Engineer, the Contractor shall install the VDS software that allows visual confirmation of the detection zones on Department computers.

The Contractor shall install Pedestrian Detectors at the location(s) and mounting height shown on the Plans.

The Contractor shall mount and orient the APS Pushbutton Assembly in a manner so that the vibrotactile arrow is aligned parallel to the crosswalk.

Prior to acceptance, the Contractor shall furnish all passwords for Vehicle Detection Systems and Pedestrian Detectors to the Engineer. The use of default passwords is prohibited.

819.61: Programming APS Pushbuttons

Each APS Pushbutton shall have an audible walk indication during the associated walk interval. The duration of the audible walk indication shall match the duration of the walk interval unless the pedestrian signal is programmed to rest in walk. If programmed to rest in walk, the audible walk indication shall be limited to 7 seconds in length but may be recalled by a subsequent button press during the walk interval.

The APS Pushbutton locator tone and audible walk indication shall be programmed to broadcast at volume 5 dBA louder than ambient sound, except when audible beaconing is provided in response to an extended pushbutton press. The broadcast volume shall be programmed to not exceed 100 dBA at 3 ft. from the emitter, regardless of ambient noise conditions.

The locator tone shall have a duration of 0.15 seconds or less and shall repeat at 1-second intervals.

The locator tone shall be active during all signal intervals, except for the following conditions:

- When the audible walk indication is being broadcast.
- If the signal is programmed to rest in walk, the locator tone shall resume 7 seconds after the start of the walk interval.
- The locator tone shall be disabled if the traffic control signal or pedestrian hybrid beacon is operating in an emergency or fault flashing mode.

The locator tone shall be active during the flashing yellow and alternating flashing red intervals of a pedestrian hybrid beacon phasing sequence.

Upon button press, the locator tone at that pushbutton shall be interrupted and a speech message of “Wait” shall be broadcast.

The normal status of the pilot light shall be dark. The pilot light shall illuminate upon button press and stay illuminated until the start of the walk interval, when it shall return to dark. If the associated pedestrian phase is set to pedestrian recall, the pilot light shall stay illuminated for all intervals except for the walk interval.

The audible walk indication shall an audible tone unless a speech message is called for in the Plans. The audible tone shall repeat at 8 to 10 ticks per second, in multiple frequencies, with the dominant component at 880 Hz.

If a speech message is used, the following shall apply:

- For exclusive pedestrian phases, during the walk interval the speech message shall be: “walk sign is on for all crossings.” This message shall be broadcast a single instance.
- *For concurrent pedestrian phases, during the walk interval the speech message shall be: “[STREET NAME]. Walk sign is on for [STREET NAME].” This message shall be broadcast a single instance.
- If the signal is programmed to rest in walk, the concurrent pedestrian speech message shall be repeated upon each subsequent button press.

*Note: See Plans for Street Name information.

The vibrotactile arrow shall vibrate during the walk interval.

The Contractor shall include a fault relay that will default to placing a constant pedestrian call from any pushbutton assembly that fails to communicate back to the in-cabinet control unit.

The Contractor shall connect the in-cabinet control unit to the Field Monitoring Unit (FMU) via an open ethernet port.

819.62: VDS Testing and Evaluation

After the VDS is installed, but prior to acceptance, the Contractor shall conduct an evaluation of the system in the presence of the Engineer. The purpose of the evaluation is to certify the system is operating per the requirements of M10.08.0: Vehicle Detection Systems, M10.08.1: Passive Stop Line Detectors, and M10.08.2: Passive Advanced Detectors, as applicable. The Contractor shall submit their testing and evaluation plan as a part of the Shop Drawing submittal.

The testing and evaluation shall take place for a minimum of 30 minutes under moderate live traffic conditions. Testing shall not be conducted during inclement weather.

If the Engineer determines that the system does not meet the operational requirements, the Contractor will be required to adjust the location, orientation, and/or number of detector/sensors. The Contractor may also adjust the location of the detection zones at this time. Upon completion of this work, the system shall be reevaluated in the presence of the Engineer. This process shall be repeated until the operational requirements are met.

All costs associated with testing and evaluation of the VDS, including the repositioning or addition of new materials, shall be considered incidental to the item.

Compensation

819.80: Method of Measurement

Stop Line Vehicle Detection Systems will be measured as each system furnished and installed.

Advanced Vehicle Detection Systems will be measured as each system furnished and installed.

Pedestrian Pushbuttons and APS Pushbuttons will be measured as each pushbutton furnished and installed.

819.81: Basis of Payment

Stop Line Vehicle Detection Systems will be paid for each system installed at an intersection. For the purposes of this work, an intersection shall be defined as all roadway, path, and/or trail approaches controlled by a single traffic signal controller. Where a Video Monitoring System is required per 819.40: General, it shall be included in the cost of Item 819.840.

Advanced Vehicle Detection System will be paid for each system installed on an intersection approach.

Pedestrian Pushbutton and APS Pushbutton will be paid for each pushbutton assembly installed. The pedestrian sign mounted directly above the pushbutton shall be considered incidental to the item.

The unit cost of each vehicle detection system or pushbutton item shall include all wiring, cabling, mounting hardware, software, firmware, video monitoring system (if required), testing, calibrating, Department Acceptance, training, and all other labor and materials required for the system(s) to operate per the Plans.

819.82: Payment Items

Item number	Description	Unit
819.840	Stop Line Vehicle Detection System	Each
819.845	Advanced Vehicle Detection System	Each
819.850	Pedestrian Pushbutton	Each
819.855	APS Pushbutton	Each

SUBSECTION 850: TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE OPERATIONS

Subsection 850.25: Arrow Board
Subsection 850.45: Arrow Board
Subsection 850.65: Arrow Board
Delete these subsections.

Subsection 850.80: Method of Measurement
Delete the 7th paragraph beginning with "Arrow Board will be measured …"

Subsection 850.81: Basis of Payment
Delete the 7th paragraph beginning with "Arrow Board will be paid for …"

Subsection 850.82: Payment Items
Revise description and unit of item 852. to Safety Signing for Traffic Management / Square Foot.
Delete item number 856.

SUBSECTION 856: CONNECTED WORK ZONE NOTIFICATION SYSTEM AND ASSOCIATED DEVICES

Subsection 856: Connected Work Zone Notification System and Associated Devices
Add this new subsection.

DESCRIPTION

856.20: General

The Connected Work Zone Notification System (CWZNS) is a system of field devices that transmit real-time location-based data about work zones. CWZNS field device data is provided in a Work Zone Data Exchange (WZDx) Device Feed in accordance with the United States Department of Transportation (USDOT) WZDx Specification. The Device Feed is consumed by the MassDOT Work Zone Manager (WZM) application.

The Contractor shall be responsible for furnishing, installing, repositioning, operating, maintaining, and removing these CWZNS devices.

MATERIALS

856.40: General

Materials shall meet the requirements specified in the following Subsections of Division III, Materials:

Material	Section
Connected Work Zone Notification System Devices	M10.18.0
Location Marker	M10.18.1
Connected Arrow Board	M10.18.2

End Location Markers shall conform to M10.18.1: Location Marker and include power and communication status lights and an on/off switch.

856.41: Arrow Board

Arrow Boards shall consist of a matrix of yellow elements that may be illuminated in flashing or sequential patterns, on a non-reflective, black background. The light output from the Arrow Board shall meet the minimum legibility distance, per the MUTCD. The elements shall be capable of at least 50% dimming from full brilliance to avoid nighttime glare. Arrow Boards that are continuously operational in both daylight and nighttime conditions shall automatically adjust the light output based upon ambient light conditions.

The mounting height of the Arrow Board, when in operation, shall be per the Plans.

The minimum dimensions and number of elements for Arrow Boards shall be per Table 856.41-1.

Table 856.41-1: Arrow Board Dimensions and Elements

Item Numbers	MUTCD Type	Minimum Dimensions (width by height)	Minimum Number of Elements
856.060, 856.160	B	60 in. by 30 in.	13
856.096, 856.196	C	96 in. by 48 in.	15

Arrow Boards shall be capable of the following operating modes, per the MUTCD:

- Four Corners Flashing Caution
- Alternating Diamond Caution
- Flashing Arrow (left or right)
- Sequential Chevron (left or right)
- Flashing Double Arrow

Arrow Boards that are categorized as "Connected Arrow Boards" (Items 856.160 and 856.196) shall meet the requirements of M10.18.2: Connected Arrow Board in addition to the requirements of an Arrow Board described in this Subsection.

856.42: Shop Drawings

Within 30 days of the Notice to Proceed, the Contractor shall submit to the Engineer for review and approval cut sheets for each model of CWZNS device to be used. The cut sheets shall document device specifications, including details of how the CWZNS device will communicate. Work that requires the use of CWZNS devices shall not commence until the submission has been approved.

CONSTRUCTION METHODS

856.60: General

At least 15 days prior to deploying CWZNS devices, the Contractor shall visit the site to verify cellular coverage. If the devices the Contractor plans to deploy do not have coverage, the Contractor shall swap out the cellular modem, SIM card, or both to a carrier that provides coverage. If no adequate cellular coverage exists from 4G LTE or 5G providers, the Contractor shall immediately notify the Engineer.

The Contractor shall install CWZNS devices at the locations shown on the Plans.

Per the WZDx Specification Device Feed, an End Location Marker shall have a single MarkedLocation with the "type" property as "work-zone-end".

The Contractor shall install and power on the End Location Marker coinciding with the deployment of the temporary traffic control setup that calls for its use. The Contractor shall power down and remove the Location Marker at the conclusion of the removal of the temporary traffic control setup. If the location of the work moves during a work shift, the Contractor shall power down the Location Marker, relocate it, and then power it back on.

The operating mode for the Arrow Board or Connected Arrow Board shall be per the Plans. When activated, the minimum element on-time shall be 50% for the flashing mode, with equal intervals of 25% for each sequential phase. The flashing rate shall be not less than 25 or more than 40 flashes per minute.

If a Connected Arrow Board is being used to transmit its location without utilizing other arrow board functions, such as operating a Flashing Arrow, the arrow board shall remain dark and removed from the roadway or protected from approaching traffic while the data is being transmitted.

The Contractor shall be responsible for remediating any CWZNS device that is not operating as specified, at no additional cost to the Department.

CWZNS devices that are lost, stolen, vandalized, damaged, destroyed, or deemed unacceptable while their use is required on the project shall be replaced by the Contractor at no additional cost to the Department.

COMPENSATION

856.80: Method of Measurement

Arrow Boards and Connected Arrow Boards will be measured by the Day. Each period of up to 24 hours during which an Arrow Board or Connected Arrow Board is in use will be measured as one day, regardless of the number of times that the unit is positioned, repositioned, removed, or returned to service.

End Location Markers will be measured by the Day. Each period of up to 24 hours during which a End Location Marker is in use will be measured as one day, regardless of the number of times that the unit is positioned, repositioned, removed, or returned to service.

856.81: Basis of Payment

Arrow Boards and Connected Arrow Boards will be paid for at the contract unit price per day which shall include full compensation for labor and materials, positioning, repositioning, and removing or returning to service.

End Location Markers will be paid for at the contract unit price per day which shall include full compensation for labor and materials, positioning, repositioning, and removing or returning to service.

If an End Location Marker is attached to another traffic control device that is not otherwise called for in the Plans or Specifications, that ancillary device shall be considered incidental to the cost of the End Location Marker.

Licenses, fees, communication costs, power costs, and access to real-time and recorded data associated with the Device Feed for CWZNS devices shall be considered incidental to the cost of the item.

The Department will not pay for CWZNS devices that fail to operate as specified.

856.82: Payment Items

Item number	Description	Unit
856.060	Arrow Board (Type B)	Day
856.096	Arrow Board (Type C)	Day
856.160	Connected Arrow Board (Type B)	Day
856.196	Connected Arrow Board (Type C)	Day
856.201	End Location Marker	Day

SECTION 900: STRUCTURES

SUBSECTION 901: CEMENT CONCRETE

Subsection 901.20: Materials

Delete Asphaltic Materials – M3, Preformed Bituminous Fiber Joint Filler – M3.05.3 and add the following in M number sequence:

Preformed Expansion Joint Filler	M9.14.0

SUBSECTION 983: REVETMENT

Subsection 983.40: General
Delete Preformed Bituminous Fiber Joint Filler – M3.05.3 and add the following in M number sequence:

Preformed Expansion Joint Filler	M9.14.0

DIVISION III

MATERIALS SPECIFICATIONS

SECTION M3: ASPHALTIC MATERIALS

Subsection M3.05.5: Preformed Bituminous Joint Filler for Concrete
Delete this subsection.

SECTION M9: MISCELLANEOUS MATERIALS

Subsection M9.14.0: Preformed Expansion Joint Filler
Replace this subsection with the following:

Preformed expansion joint filler for concrete applications and structural construction shall meet the requirements specified herein. The Contractor shall provide certified test data which documents compliance with the required physical properties. The certified test data shall be submitted to the Engineer for approval.

Table M9.14.0-1: Types of Preformed Expansion Joint Filler

Specification	Type and Description
AASHTO M 153	Type I – Sponge Rubber Type II – Cork Type III – Self-Expanding Cork Type IV – Polyurethane-Bonded Recycled Rubber
AASHTO M 213	Type I – Asphalt-Saturated Cellulosic Fiber Type II – Asphalt Binder-Cork with Asphalt-Saturated or Glass Fiber Felt Type III – Polyurethane-Bonded Recycled Rubber
ASTM D1752	Type IV – Recycled PVC
ASTM D7174	Type I – Closed-Cell Polyethylene or Blended Polyethylene Foam
ASTM D8139	Type I – Closed-Cell Polypropylene Foam

Subsection M9.14.2: Closed Cell Foam Joint Filler
Delete this subsection:

M10.03.1: Field Monitoring Unit

All Field Monitoring Units (FMU) shall be compatible with the MassDOT Critical Operations Multi-jurisdictional Modular System (MCOMMS), cloud-based management system.

Subsection M9.14.2: Closed Cell Foam Joint Filler
Delete this subsection:

SECTION M10: TRAFFIC CONTROL DEVICES

Subsection M10.03.1: Field Monitoring Unit
Add these new subsections:

M10.03.1: Field Monitoring Unit

All Field Monitoring Units (FMU) shall be compatible with the MassDOT Critical Operations Multi-jurisdictional Modular System (MCOMMS), cloud-based management system.

FMUs shall be capable of operating independently from the brand of traffic signal controller, vehicle and pedestrian detection systems, battery backup system (BBS), and any other Ethernet-based, web accessible device present in the traffic signal controller cabinet.

M10.03.1.A: Hardware

The FMU shall communicate via an Ethernet port with an RJ45 connector and have an integrated Ethernet switch with a minimum of four ports.

The FMU shall be powered via standard 120 VAC input power. The FMU shall include an integrated battery and battery charging/monitoring circuit that will allow the FMU to fully function even if all other electrical service to the cabinet has been interrupted. The battery shall continue to supply the FMU with power for a minimum of 5 hours on a single charge.

The FMU shall have an integrated GPS that will allow for automated telemetry without additional configuration. The GPS shall be capable of providing a time sync pulse to the internal clock of a connected traffic signal controller. The FMU shall utilize the integrated GPS to geolocate itself on a map via the FMU management software.

M10.03.1.B: Software

The configuration of the FMU shall be accomplished by accessing FMU management software via an internet browser. It shall be possible to configure the FMU without any special software.

The FMU shall operate without requiring a static IP address. The only configuration required at the FMU is to enter the URL to the host of the FMU management software.

The FMU shall utilize HTTPS protocols and XML data structure for communications with the FMU management software. The data shall be scalable for future expansion; proprietary protocols shall not be used.

M10.03.1.C: Wireless Connectivity

The FMU shall be supplied with an internal 4G LTE cellular modem.

The modem shall support future upgrades to 5G service, when available, and shall be compatible with SIM cards from multiple cellular carriers.

M10.03.1.D: Remote Access

Remote access to any traffic signal cabinet component that has a web interface via the FMU shall not require the end user to create a separate Virtual Private Network (VPN) connection.

Subsection M10.08.0: Vehicle Detection Systems
Subsection M10.08.0: Vehicle Detection Systems
Subsection M10.08.0: Vehicle Detection Systems
Add theses new subsections:

M10.08.0: Vehicle Detection Systems

Vehicle Detection Systems (VDS) shall be capable of detecting the presence of all motor vehicle types and bicycles in designated areas and sending corresponding detector outputs to a traffic signal controller.

All in-cabinet components of VDS shall be compatible with the following standards:

- ATCC 5301 v02
- ATC 5201 v06
- NEMA TS2 environmental standards

Through an ethernet-based connection to the detection module and/or cabinet interface device in the field or through the internal network of the traffic signal controller cabinet, the VDS shall support remote management of motor vehicle and bicycle detection configurations and access to data including:

- The number, location, and size of detection zones.
- Configuration of the detector channel and assigned phase for each zone.
- Configuration of detection zones for signal performance measurement data collection.
- The ability to add and remove users.
- Signal performance data:
  - Monitoring and recording the status of the phase and detector channels from the traffic signal controller through the SIU bus at a frequency of no less than 10 times per second.
  - Estimation of the speed of vehicles at defined, user-configurable points, such as entering or exiting a detection zone.
  - Retrieval of the signal performance data through an http-based Application Programming Interface (API), or equivalent process, in .xml, .json, or .csv format.
  - The data shall be available in a per vehicle format, be viewable in real time, and store at least 168 hours of data locally on the device.

VDS shall be capable of supporting user-based restrictions to limit functionality, including:

- The ability to make changes to the VDS settings.
- The ability to view imagery or digital video streams.
- The ability to view and download signal performance data.

VDS shall be capable of automatically determining if the system's ability to accurately detect vehicles and shall default to a constant call state if this system error is detected.

VDS shall be capable of classifying vehicles based upon length and/or number of axles.

VDS shall be capable of performing all detection, classification, and data collection functions in the absence of an internet connection.

VDS shall be capable of providing remote access to the latest images or digital video stream of all IP video units through either an HTTP request or through a Real Time Streaming Protocol compatible with RFC2326 standards. VDS that do not utilize video shall be able to display the current state of the vehicle detection zones and approximate vehicle locations in a digital twin model of the intersection.

M10.08.1: Passive Stop Line Detectors

Passive Stop Line Detectors shall demonstrate a reliability of 99% or greater for vehicle detection functions.

Passive Stop Line Detectors shall be able to track and classify turning movements for all motor vehicle types and bicycles and shall demonstrate an accuracy of 95% or greater for turning movement counts.

M10.08.2: Passive Advanced Detectors

Passive Advanced Detectors shall be capable of detecting all motor vehicle types at a minimum distance of 600 ft upstream of the stop line.

Subsection M10.09.0: Pedestrian Detectors
Subsection M10.09.1: Pedestrian Pushbutton Assembly
Subsection M10.09.2: APS Pushbutton Assembly
Add theses new subsections:

M10.09.0: Pedestrian Detectors

Pedestrian Detectors shall be capable of detecting the presence of pedestrians and placing a corresponding call for a phase in a traffic signal controller or similar device.

Pedestrian Detectors may be pushbuttons or passive detection devices.

Components of Pedestrian Detectors shall meet NEMA TS2 compliance for temperature and humidity, mechanical shock and vibration, transient voltage protection, transient suppression, and electrical reliability.

If Pedestrian Detectors include an in-cabinet control unit, it shall meet the following requirements:

- Operate on a cabinet-supplied 120 VAC power source.
- Include labelled LED indicators for each channel operation.
- Include a 10/100BaseT, RJ45 ethernet connector port.
- Capable of communication with the Pedestrian Detectors to allow for remote programming and firmware updates via the ethernet connection.
- Capable of supporting a minimum of 4 pedestrian detectors per NEMA pedestrian phase and up to 16 pushbuttons.
- Will automatically reset upon loss of internal communication.

M10.09.1: Pedestrian Pushbutton Assembly

A Pedestrian Pushbutton Assembly shall consist of a pushbutton, a sign, and a housing to mount those devices to a post.

The pushbutton shall be a minimum of 2 in. in diameter and the force to activate it shall be no greater than 5 lbs. The pushbutton must be weather-tight and tamper-resistant.

The pushbutton shall meet one of the following criteria:

- A normally open, mechanical phenolic enclosed, positive-acting, spring-loaded, audible (i.e., click) snap-action switch with single pole, single throw contacts; or
- A piezo-driven solid state switch rated for a minimum of 50 V, a minimum of 20 million cycles, and capable of providing an audible indication of actuation.

The pushbutton shall have an operating voltage range of 12 to 36 VDC.

The housing shall be yellow.

Housings that include an integral sign mount for the pedestrian pushbutton sign shall be capable of mounting a 9 in. by 12 in. or 9 in. by 15 in. sign (width by height).

M10.09.2: APS Pushbutton Assembly

An APS Pushbutton Assembly shall meet all of the requirements of M10.09.1: Pedestrian Pushbutton Assembly, and the following.

The pushbutton shall have a vibrotactile arrow. The arrow shall have high visual contrast (light on dark or dark on light).

APS Pushbutton Assembly shall be capable of the following:

- Emitting a locator tone.
- Providing two types of audible walk indications: an audible tone in multiple frequencies and a speech message. The type of audible walk indication will be programmed by Contractor per the Plans.
- Emitting sound via one or more speakers that automatically adjust to ambient noise and shall also be capable of being capped at a preprogrammed level.
- Providing three functions as a result of an extended pushbutton press: increased crossing time, audible beaconing, and speech pushbutton information. The function of the extended pushbutton press will be programmed by the Contractor per the Plans.

APS Pushbutton Assembly shall include a latching red LED pilot light.

Subsection M10.18.: Connected Work Zone Notification System Devices
Add this new subsection.

M10.18.0: Connected Work Zone Notification System Devices

Connected Work Zone Notification System (CWZNS) devices shall include the following:

- An internal 4G LTE or 5G cellular modem. The modem shall be compatible with SIM cards from multiple cellular carriers, or the device shall be capable of using a cellular modem from more than one cellular carrier.
- An integrated GPS that will allow for automated telemetry without additional configuration.
- A self-contained power source that can be recharged without manual intervention. The power source shall enable uninterrupted operation of the CWZNS field device.
- Mounting and supporting hardware and wiring necessary to complete a working system.

CWZNS devices shall be capable of operating in temperatures ranging from -40°F to +122°F with no degradation in operation due to rain, fog, snow, ice, darkness, dust, or road debris.

CWZNS devices shall be physically and digitally secured to prevent unauthorized access.

When powered on, real-time data from CWZNS devices shall be provided in a USDOT Work Zone Data Exchange (WZDx) Specification Device Feed version 4.2. The Device Feed shall then be able to be consumed by the MassDOT Work Zone Manager (WZM) application. The Device Feed shall meet the following requirements:

- Each manufacturer of CWZNS field devices and Smart Work Zone (SWZ) field devices shall provide a single statewide Device Feed (a single URL) that consists of that manufacturer's field devices that are used by or under the direction of the Department.
- The Device Feed shall be made available via an HTTP GET request. The response shall be the WZDx Device Feed JSON object without a wrapper or paging.
- The Device Feed shall be public or use "Basic" HTTP Authentication.
- The Device Feed shall be provided over HTTPS.
- The Device Feed shall reflect changes in CWZNS field device status (e.g., display changed or device moved) no later than 60 seconds after they occur.
- For each CWZNS field device, the "update date" property shall be no older than 60 minutes, except when it has stopped communicating or is otherwise in error.
- The "id" property of each CWZNS field device feature in the Device Feed shall stay the same for the duration of the Contract and shall be a Universally Unique IDentifier (UUID) to guarantee uniqueness between feeds and over time.

M10.18.1: Location Marker

Location Markers shall meet the requirements of M10.18.0: Connected Work Zone Notification System Devices.

Location Markers may be standalone devices or an attachment to a channelizing device. Either type shall be certified to comply with the relevant minimum TL-3 testing requirements of the *Manual on Assessing Safety Hardware*.

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END OF SUPPLEMENTAL SPECIFICATIONS

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**CONTRACT PROVISIONS FOR
FEDERAL-AID CONSTRUCTION CONTRACTS**

I. General
II. Nondiscrimination
III. Davis-Bacon and Related Act Provisions
IV. Contract Work Hours and Safety Standards Act Provisions
V. Subletting or Assigning the Contract
VI. Safety: Accident Prevention
VII. False Statements Concerning Highway Projects
VIII. Implementation of Clean Air Act and Federal Water Pollution Control Act
IX. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
X. Certification Regarding Use of Contract Funds for Lobbying
XI. Use of United States-Flag Vessels

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only).

I. GENERAL

1. Historically, contracting agencies using Federal-aid highway funds were required to ensure Form FHWA-1273 was physically incorporated into all contracts and subcontracts. Effective June 10, 2026, this requirement was eliminated [91 FR 25492]. Future use of Form FHWA-1273 is now optional on the part of the contracting agency using Federal-aid highway funds. FHWA continues to make Form FHWA-1273 available as a convenience to contracting agencies. Contracting agencies must continue to ensure compliance with the provisions cited in Form FHWA-1273 in accordance with the provisions regardless of the use of Form FHWA-1273. Accordingly, the contracting agency retains the authority to determine whether the contractor must use Form FHWA-1273 to physically incorporate required contract provisions in each subcontract and in lower tier contracts. Where permitted by the contracting agency, the contractor may choose other ways to include required contract provisions in each subcontract, besides incorporating Form FHWA-1273. Contract provisions in Form FHWA-1273 are not required to be physically included in subcontracts for design services on Federal-aid design-build contracts, or in purchase orders, rental agreements and other agreements for supplies or services.

The applicable provisions of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor or design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents.

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION

The contractor and all subcontractors must comply with the following policies: 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27, including any amendments thereto.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27, including any amendments thereto.

The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract.

1.Assurances Required:

a. The requirements of 49 CFR Part 26, including any amendments thereto, and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26, including any amendments thereto, in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

(1) Withholding monthly progress payments;
(2) Assessing sanctions;
(3) Liquidated damages; and/or
(4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E, including any amendments thereto, are incorporated by reference. 49 CFR Part 21.

III. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided,* That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH–1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in 29 CFR part 1, a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

(i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;

(ii) The classification is used in the area by the construction industry; and

(iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is used in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the

classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30–day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. *Fringe benefits not expressed as an hourly rate.* Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided,* That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph 2.a. of this section or Section IV, paragraph 3.a., or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

3. Records and certified payrolls (29 CFR 5.5)

a. *Basic record requirements* (1) *Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) *Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act); daily and weekly number

of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) *Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in 40 U.S.C. 3141(2)(B) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements* (1) *Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (*e.g.,* the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH–347 or in any other format desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division website at *https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347/.pdf* or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) *Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3; and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) *Use of Optional Form WH–347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under 18 U.S.C. 1001 and 31 U.S.C. 3729.

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with 29 CFR part 30, including any amendments thereto.

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section III. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs (1) through (11) of this section, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the

contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility. a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of 40 U.S.C. 3144(b) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, 18 U.S.C. 1001.

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or 29 CFR part 1 or 3;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or 29 CFR part 1 or 3; or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or 29 CFR part 1 or 3.

IV. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* $33 as of January 15, 2025 (See 90 FR 1859) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section III paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, 31 U.S.C. 3901–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

V. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” in paragraph 1. of this section refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;
(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph 1. of this section is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however,

contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VI. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

VIII. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of $150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

IX. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this

covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

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2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

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3. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

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4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

* * * * *

X. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

XI. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (40 U.S.C. sections 14501(d) and 14701 and the Appalachian Regional Commission Code as authorized under 40 U.S.C. section 14302)
This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 40 U.S.C. 14501 allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

DOCUMENT 00811

SPECIAL PROVISIONS
MONTHLY PRICE ADJUSTMENT FOR HOT MIX ASPHALT (HMA) MIXTURES
Revised: 02/03/2023

This provision applies to all projects using greater than 100 tons of hot mix asphalt (HMA) mixtures containing liquid asphalt cement as stipulated in the Notice to Contractors section of the bid documents.

Price Adjustments will be based on the variance in price, for the liquid asphalt component only, between the Base Price and the Period Price. They shall not include transportation or other charges. Price Adjustments will occur on a monthly basis.

Base Price
The Base Price of liquid asphalt on a project as listed in the Notice to Contractors section of the bid documents is a fixed price determined by the Department at the time of the bid using the same method as the determination of the Period Price detailed below. The Base Price shall be used in all bids.

Period Price
The Period Price is the price of liquid asphalt for each monthly period as determined by the Department using the average selling price per standard ton of PG64-28 paving grade (primary binder classification) asphalt, FOB manufacturer's terminal, as listed under the "East Coast Market - New England, Boston, Massachusetts area" section of the Poten & Partners, Inc. "Asphalt Weekly Monitor". This average selling price is listed in the issue having a publication date of the second Friday of the month and will be posted as the Period Price for that month. The Department will post this Period Price on its website at https://www.mass.gov/service-details/massdot-current-contract-price-adjustments following its receipt of the relevant issue of the "Asphalt Weekly Monitor". Poten and Partners has granted the Department the right to publish this specific asphalt price information sourced from the Asphalt Weekly Monitor.

Price Adjustment Determination, Calculation and Payment
The Contract Price of the HMA mixture will be paid under the respective item in the Contract. Price Adjustments, as herein provided, either upwards or downwards, will be made after the work has been performed using the monthly period price for the month during which the work was performed.

Price Adjustments will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

The Price Adjustment applies only to the actual virgin liquid asphalt content in the mixture placed on the job in accordance with the approved Job Mix Formula.

Price Adjustments will be separate payment items. The pay item numbers are 999.401 for a positive price adjustment (a payment) and 999.402 for a negative price adjustment (a deduction). Price Adjustments will be calculated using the following equation:

Price Adjustment = Tons of HMA Placed X Liquid Asphalt Content % X RAP Factor X (Period Price - Base Price)

No Price Adjustment will be allowed beyond the Completion Date of this Contract, unless there is a Department-approved extension of time.

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DOCUMENT 00812

SPECIAL PROVISIONS
MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL AND GASOLINE –
ENGLISH UNITS
Revised: 02/01/2021

This monthly fuel price adjustment is inserted in this contract because the national and worldwide energy situation has made the future cost of fuel unpredictable. This adjustment will provide for either additional compensation to the Contractor or repayment to the Commonwealth, depending on an increase or decrease in the average price of diesel fuel or gasoline.

This adjustment will be based on fuel usage factors for various items of work developed by the Highway Research Board in Circular 158, dated July 1974. These factors will be multiplied by the quantities of work done in each item during each monthly period and further multiplied by the variance in price from the Base Price to the Period Price.

The Base Price of Diesel Fuel and Gasoline will be the price as indicated in the Department's web site https://www.mass.gov/service-details/massdot-current-contract-price-adjustments for the month in which the contract was bid, which includes State Tax.

The Period Price will be the average of prices charged to the State, including State Tax for the bulk purchases made during each month.

This adjustment will be effected only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

No adjustment will be paid for work done beyond the extended completion date of any contract.

Any adjustment (increase or decrease) to estimated quantities made to each item at the time of final payment will have the fuel price adjustment figured at the average period price for the entire term of the project for the difference of quantity.

The fuel price adjustment will apply only to the following items of work at the fuel factors shown:

ITEMS COVERED	FUEL FACTORS	
	Diesel	Gasoline
Excavation: and Borrow Work: Items 120, 120.1, 121, 123, 124, 125, 127, 129.3, 140, 140.1, 141, 142, 143, 144, 150, 150.1, 151 and 151.1 (Both Factors used)	0.29 Gallons / CY.	0.15 Gallons / CY
Surfacing Work: All Items containing Hot Mix Asphalt	2.90 Gallons / Ton	Does Not Apply

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DOCUMENT 00813

SPECIAL PROVISIONS

PRICE ADJUSTMENTS FOR STRUCTURAL STEEL AND REINFORCING STEEL

September 10, 2026

This special provision applies to all projects containing the use of structural steel and/or reinforcing steel as specified elsewhere in the Contract work. It applies to all structural steel and all reinforcing steel, as defined below, on the project. Compliance with this provision is mandatory, i.e., there are no "opt-in" or "opt-out" clauses. Price adjustments will be handled as described below and shall only apply to unfabricated reinforcing steel bars and unfabricated structural steel material, consisting of rolled shapes, plate steel, sheet piling, pipe piles, steel castings and steel forgings.

Price adjustments will be variances between Base Prices and Period Prices. Base Prices and Period Prices are defined below.

Price adjustments will only be made if the variances between Base Prices and Period Prices are 5% or more. A variance can result in the Period Price being either higher or lower than the Base Price. Once the 5% threshold has been achieved, the adjustment will apply to the full variance between the Base Price and the Period Price.

Price adjustments will be calculated by multiplying the number of pounds of unfabricated structural steel material or unfabricated reinforcing steel bars on a project by the index factor calculated as shown below under Example of a Period Price Calculation.

Price adjustments will ***not*** include guardrail panels or the costs of shop drawing preparation, handling, fabrication, coatings, transportation, storage, installation, profit, overhead, fuel costs, fuel surcharges, or other such charges not related to the cost of the unfabricated structural steel and unfabricated reinforcing steel.

The weight of steel subject to a price adjustment shall not exceed the final shipping weight of the fabricated part by more than 10%.

Base Prices and Period Prices are defined as follows:

Base Prices of unfabricated structural steel and unfabricated reinforcing steel on a project are fixed prices determined by the Department and found in the table below. While it is the intention of the Department to make this table comprehensive, some of a project's unfabricated structural steel and/or unfabricated reinforcing steel may be inadvertently omitted. Should this occur, the Contractor shall bring the omission to the Department's attention so that a contract alteration may be processed that adds the missing steel to the table and its price adjustments to the Contract.

The Base Price Date is the month and year of the most recent finalized period price index at the time that MassDOT opened bids for the project. The Base Price Index for this contract is the Steel PPI listed in the Notice to Contractors.

Period Prices of unfabricated structural steel and unfabricated reinforcing steel on a project are variable prices that have been calculated using the Period Price Date and an index of steel prices to adjust the Base Price.

The Period Price Date is the date the steel was delivered to the fabricator as evidenced by an official bill of lading submitted to the Department containing a description of the shipped materials, weights of the shipped materials and the date of shipment. This date is used to select the Period Price Index.

The index used for the calculation of Period Prices is the U.S. Department of Labor Bureau of Labor Statistics Producer Price Index (PPI) Series ID WPU101702 (Not Seasonally Adjusted, Group: Metals and Metal Products, Item: Semi-finished Steel Mill Products.) As this index is subject to revision for a period of up to four (4) months after its original publication, no price adjustments will be made until the index for the period is finalized, i.e., the index is no longer suffixed with a "(P)".

Period Prices are determined as follows:

Period Price = Base Price X Index Factor
Index Factor = Period Price Index / Base Price Index

Example of a Period Price Calculation:

Calculate the Period Price for December 2009 using a Base Price from March 2009 of $0.82/Pound for 1,000 Pounds of ASTM A709 (AASHTO M270) Grade A36 Structural Steel Plate.

The Period Price Date is December 2009. From the PPI website*, the Period Price Index = 218.0.

The Base Price Date is March 2009. From the PPI website*, the Base Price Index = 229.4.

Index Factor = Period Price Index / Base Price Index = 218.0 / 229.4 = 0.950
Period Price = Base Price X Index Factor = $0.82/Pound X 0.950 = $0.78/Pound

Since $0.82 - $0.78 = $0.04 is less than 5% of $0.82, no price adjustment is required.

If the $0.04 difference shown above was greater than 5% of the Base Price, then the price adjustment would be 1,000 Pounds X $0.04/Pound = $40.00. Since the Period Price of $0.78/Pound is less than the Base Price of $0.82/Pound, indicating a drop in the price of steel between the bid and the delivery of material, a credit of $40.00 would be owed to MassDOT. When the Period Price is higher than the Base Price, the price adjustment is owed to the Contractor.

* To access the PPI website and obtain a Base Price Index or a Period Price Index, go to http://data.bls.gov/cgi-bin/srgate

End of example.

The Contractor will be paid for unfabricated structural steel and unfabricated reinforcing steel under the respective contract pay items for all components constructed of either structural steel or reinforced Portland cement concrete under their respective Contract Pay Items.

Price adjustments, as herein provided for, will be paid separately as follows:

Structural Steel
Pay Item Number 999.449 for positive (+) pay adjustments (payments to the Contractor)

Pay Item Number 999.457 for negative (-) pay adjustments (credits to MassDOT Highway Division)

Reinforcing Steel
Pay Item Number 999.466 for positive (+) pay adjustments (payments to the Contractor)

Pay Item Number 999.467 for negative (-) pay adjustments (credits to MassDOT Highway Division)

No price adjustment will be made for price changes after the Contract Completion Date, unless the MassDOT Highway Division has approved an extension of Contract Time for the Contract.

TABLE

Steel Type		Price per Pound
1	ASTM A615/A615M Grade 60 (AASHTO M31 Grade 60 or 420) Reinforcing Steel	$0.59
2	ASTM A27 (AASHTO M103) Steel Castings, H-Pile Points & Pipe Pile Shoes (See Note below.)	$0.83
3	ASTM A668 / A668M (AASHTO M102) Steel Forgings	$0.83
4	ASTM A108 (AASHTO M169) Steel Forgings for Shear Studs	$0.85
5	ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Plate	$0.89
6	ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Shapes	$0.84
7	ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Plate	$0.89
8	ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Shapes	$0.84
9	ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Plate	$0.92
10	ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Shapes	$0.85
11	ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W 345W Structural Steel Plate	$0.92
12	ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W or 345W Structural Steel Shapes	$0.85
13	ASTM A709/A709M Grade HPS 50W / AASHTO M270M/M270 Grade HPS 50W or 345W Structural Steel Plate	$0.97
14	ASTM A709/A709M Grade HPS 70W / AASHTO M270M/M270 Grade HPS 70W or 485W Structural Steel Plate	$1.04
15	ASTM A514/A514M-05 Grade HPS 100W / AASHTO M270M/M270 Grade HPS 100W or 690W Structural Steel Plate	$1.59
16	ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Plate	$0.92
17	ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Shapes	$0.85
18	ASTM A276 Type 316 Stainless Steel	$4.78
19	ASTM A240 Type 316 Stainless Steel	$4.78
20	ASTM A148 Grade 80/50 Steel Castings (See Note below.)	$1.64
21	ASTM A53 Grade B Structural Steel Pipe	$1.04
22	ASTM A500 Grades A, B, 36 & 50 Structural Steel Pipe	$1.04
23	ASTM A252, Grades 240 (36 KSI) & 414 (60 KSI) Pipe Pile	$0.83
24	ASTM 252, Grade 2 Permanent Steel Casing	$0.83
25	ASTM A36 (AASHTO M183) for H-piles, steel supports and sign supports	$0.87
26	ASTM A328 / A328M, Grade 50 (AASHTO M202) Steel Sheetpiling	$1.57
27	ASTM A572 / A572M, Grade 50 Sheetpiling	$1.57
28	ASTM A36/36M, Grade 50	$0.89
29	ASTM A570, Grade 50	$0.87
30	ASTM A572 (AASHTO M223), Grade 50 H-Piles	$0.89
31	ASTM A1085 Grade A (50 KSI) Steel Hollow Structural Sections (HSS), heat-treated per ASTM A1085 Supplement S1	$1.04
32	AREA 140 LB Rail and Track Accessories	$0.54

NOTE: Steel Castings are generally used only on moveable bridges. Cast iron frames, grates and pipe are not "steel" castings and will not be considered for price adjustments.

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DOCUMENT 00814

SPECIAL PROVISIONS
PRICE ADJUSTMENT FOR PORTLAND CEMENT CONCRETE MIXES

January 12, 2009

This provision applies to all projects using greater than 100 Cubic Yards (76 Cubic Meters) of Portland cement concrete containing Portland cement as stipulated in the Notice to Contractors section of the Bid Documents. This Price Adjustment will occur on a monthly basis.

The Price Adjustment will be based on the variance in price for the Portland cement component only from the Base Price to the Period Price. It shall not include transportation or other charges.

The Base Price of Portland cement on a project is a fixed price determined at the time of bid by the Department by using the same method as for the determination of the Period Price (see below) and found in the Notice to Contractors.

The Period Price of Portland cement will be determined by using the latest published price, in dollars per ton (U.S.), for Portland cement (Type I) quoted for Boston, U.S.A. in the **Construction Economics** section of *ENR Engineering News-Record* magazine or at the ENR website http://www.enr.com under **Construction Economics**. The Period Price will be posted on the MassDOT website the Wednesday immediately following the publishing of the monthly price in ENR, which is normally the first week of the month.

The Contract Price of the Portland cement concrete mix will be paid under the respective item in the Contract. The price adjustment, as herein provided, upwards or downwards, will be made after the work has been performed, using the monthly period price for the month during which the work was performed.

The price adjustment applies only to the actual Portland cement content in the mix placed on the job in accordance with the Standard Specifications for Highways and Bridges, Division III, Section M4.02.01. No adjustments will be made for any cement replacement materials such as fly ash or ground granulated blast furnace slag.

The Price Adjustment will be a separate payment item. It will be determined by multiplying the number of cubic yards of Portland cement concrete placed during each monthly period times the Portland cement content percentage times the variance in price between the Base Price and Period Price of Portland cement.

This Price Adjustment will be paid only if the variance from the Base Price is 5% or more for a monthly period. The complete adjustment will be paid in all cases with no deduction of the 5% from either upward or downward adjustments.

No Price Adjustment will be allowed beyond the Completion Date of this Contract, unless there is a Department-approved extension of time.

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DOCUMENT 00820

THE COMMONWEALTH OF MASSACHUSETTS SUPPLEMENTAL EQUAL EMPLOYMENT OPPORTUNITY, NON-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM

I. Definitions

For purposes of this contract,

"Minority" means a person who meets one or more of the following definitions:

(a) American Indian or Native American means: all persons having origins in any of the original peoples of North America and who are recognized as an Indian by a tribe or tribal organization.
(b) Asian means: All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian sub-continent, or the Pacific Islands, including, but Not limited to China, Japan, Korea, Samoa, India, and the Philippine Islands.
(c) Black means: All persons having origins in any of the Black racial groups of Africa, including, but not limited to, African-Americans, and all persons having origins in any of the original peoples of the Cape Verdean Islands.
(d) Eskimo or Aleut means: All persons having origins in any of the peoples of Northern Canada, Greenland, Alaska, and Eastern Siberia.
(e) Hispanic means: All persons having their origins in any of the Spanish-speaking peoples of Mexico, Puerto Rico, Cuba, Central or South America, or the Caribbean Islands.

"State construction contract" means a contract for the construction, reconstruction, installation, demolition, maintenance or repair of a building or capital facility, or a contract for the construction, reconstruction, alteration, remodeling or repair of a public work undertaken by a department, agency, board, or commission of the commonwealth.

"State assisted construction contract" means a contract for the construction, reconstruction, installation, demolition, maintenance or repair of a building or capital facility undertaken by a political subdivision of the commonwealth, or two or more political subdivisions thereof, an authority, or other instrumentality and whose costs of the contract are paid for, reimbursed, grant funded, or otherwise supported, in whole or in part, by the commonwealth.

II. Equal Opportunity, Non-Discrimination and Affirmative Action

During the performance of this Contract, the Contractor and all subcontractors (hereinafter collectively referred to as "the Contractor") for a state construction contract or a state assisted construction contract, for him/herself, his/her assignees and successors in interest, agree to comply with all applicable equal employment opportunity, non-discrimination and affirmative action requirements, including but not limited to the following:

In connection with the performance of work under this contract, the Contractor shall not discriminate against any employee or applicant for employment because of race, color, religious creed, national origin, sex, sexual orientation, genetic information, military service, age, ancestry or disability, shall not discriminate in the selection or retention of subcontractors, and shall not discriminate in the procurement of materials and rentals of equipment.

The aforesaid provision shall include, but not be limited to, the following: employment upgrading, demotion, or transfer; recruitment advertising, layoff or termination; rates of pay or other forms of compensation; conditions or privileges of employment; and selection for apprenticeship or on-the-job training opportunity. The Contractor shall comply with the provisions of chapter 151B of the Massachusetts General Laws, as amended, and all other applicable anti-discrimination and equal opportunity laws, all of which are herein incorporated by reference and made a part of this Contract.

The Contractor shall post hereafter in conspicuous places, available for employees and applicants for employment, notices to be provided by the Massachusetts Commission Against Discrimination setting forth the provisions of the Fair Employment Practices Law of the Commonwealth (Massachusetts General Laws Chapter l51 B).

In connection with the performance of work under this contract, the Contractor shall undertake, in good faith, affirmative action measures to eliminate any discriminatory barriers in the terms and conditions of employment on the grounds of race, color, religious creed, national origin, sex, sexual orientation, genetic information, military service, age, ancestry or disability. Such affirmative action measures shall entail positive and aggressive measures to ensure nondiscrimination and to promote equal opportunity in the areas of hiring, upgrading, demotion or transfer, recruitment, layoff or termination, rate of compensation, apprenticeship and on-the-job training programs. A list of positive and aggressive measures shall include, but not be limited to, advertising employment opportunities in minority and other community news media; notifying minority, women and other community-based organizations of employment opportunities; validating all job specifications, selection requirements, and tests; maintaining a file of names and addresses of each worker referred to the Contractor and what action was taken concerning such worker; and notifying the administering agency in writing when a union with whom the Contractor has a collective bargaining agreement has failed to refer a minority or woman worker. These and other affirmative action measures shall include all actions required to guarantee equal employment opportunity for all persons, regardless of race, color, religious creed, national origin, sex, sexual orientation, genetic information, military service, age, ancestry or disability. One purpose of this provision is to ensure to the fullest extent possible an adequate supply of skilled tradesmen for this and future Commonwealth public construction projects.

III. Minority and Women Workforce Participation

Pursuant to his/her obligations under the preceding section, the Contractor shall strive to achieve on this project the labor participation goals contained herein. Said participation goals shall apply in each job category on this project including but not limited to bricklayers, carpenters, cement masons, electricians, ironworkers, operating engineers and those classes of work enumerated in Section 44F of Chapter 149 of the Massachusetts General Laws. The participation goals for this project shall be 15.3% for minorities and 6.9% for women. The participation goals, as set forth herein, shall not be construed as quotas or set-asides; rather, such participation goals will be used to measure the progress of the Commonwealth's equal opportunity, non-discrimination and affirmative action program. Additionally, the participation goals contained herein should not be seen or treated as a floor or as a ceiling for the employment of particular individuals or group of individuals.

IV. Liaison Committee

At the discretion of the agency that administers the contract for the construction project there may be established for the life of the contract a body to be known as the Liaison Committee. The Liaison Committee shall be composed of one representative each from the agency or agencies administering the contract for the construction project, hereinafter called the administering agency, a representative from the Office of Affirmative action, and such other representatives as may be designated by the administering agency. The Contractor (or his/her agent, if any, designated by him/her 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.

V. Reports and Records

The Contractor shall prepare projected workforce tables on a quarterly basis when required by the administering agency. 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 also, when updated, to the administering agency and the Liaison Committee when required.

The Contractor shall prepare weekly reports in a form approved by the administering agency, unless information required is required to be reported electronically by the administering agency, the number of hours worked in each trade by each employee, identified as woman, minority, or non-minority. Copies of these shall be provided at the end of each such week to the administering agency and the Liaison Committee.

Records of employment referral orders, prepared by the Contractor, shall be made available to the administering agency on request.

The Contractor will provide all information and reports required by the administering agency on instructions issued by the administering agency and will permit access to its facilities and any books, records, accounts and other sources of information which may be determined by the administering agency to effect the employment of personnel. This provision shall apply only to information pertinent to the Commonwealth's supplementary non-discrimination, equal opportunity and access and opportunity 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 administering agency and shall set forth what efforts he has made to obtain the information.

VI. Access to Work Site

A designee of the administering agency and a designee of the Liaison Committee shall each have a right to access the work site.

VII. Solicitations for Subcontracts, and for the Procurement of Materials and Equipment

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 equal opportunity.

VIII. Sanctions

Whenever the administering agency believes the General or Prime Contractor or any subcontractor may not be operating in compliance with the provisions of the Fair Employment Practices Law of the Commonwealth (Massachusetts General Laws Chapter 151B), the administering agency may refer the matter to the Massachusetts Commission Against Discrimination ("Commission") for investigation.

Following the referral of a matter by the administering agency to the Massachusetts Commission Against Discrimination, and while the matter is pending before the MCAD, the administering agency may withhold payments from contractors and subcontractors when it has documentation that the contractor or subcontractor has violated the Fair Employment Practices Law with respect to its activities on the Project, or if the administering agency determines that the contractor has materially failed to comply with its obligations and the requirements of this Section. The amount withheld shall not exceed a withhold of payment to the General or Prime Contractor of 1/100 or 1% of the contract award price or $5,000, whichever sum is greater, or, if a subcontractor is in non-compliance, a withhold by the administering agency from the General Contractor, to be assessed by the General Contractor as a charge against the subcontractor, of 1/100 or 1% of the subcontractor price, or $1,000 whichever sum is greater, for each violation of the applicable law or contract requirements. The total withheld from anyone General or Prime Contractor or subcontractor on a Project shall not exceed $20,000 overall. No withhold of payments or investigation by the Commission or its agent shall be initiated without the administering agency providing prior notice to the Contractor.

If, after investigation, the Massachusetts Commission Against Discrimination finds that a General or Prime Contractor or subcontractor, in commission of a state construction contract or state-assisted construction contract, violated the provisions of the Fair Employment Practices Law, the administering agency may convert the amount withheld as set forth above into a permanent sanction, as a permanent deduct from payments to the General or Prime Contractor or subcontractor, which sanction will be in addition to any such sanctions, fines or penalties imposed by the Massachusetts Commission Against Discrimination.

No sanction enumerated under this Section shall be imposed by the administering agency except after notice to the General or Prime Contractor or subcontractor and an adjudicatory proceeding, as that term is used, under Massachusetts General Laws Chapter 30A, has been conducted.

IX. Severability

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

X. Contractor's Certification

After award and prior to the execution of any contract for a state construction contract or a state assisted construction contract, the Prime or General Contractor shall certify that it will comply with all provisions of this Document 00820 Supplemental Equal Employment Opportunity, Non-Discrimination and Affirmative Action Program, by executing Document 00859 Contractor/Subcontractor Certification Form.

XI. Subcontractor Requirements

Prior to the award of any subcontract for a state construction contract or a state assisted construction contract, the Prime or General Contractor shall provide all prospective subcontractors with a complete copy of this Document 00820 entitled "Supplemental Equal Employment Opportunity, Non-Discrimination and Affirmative Action Program" and will incorporate the provisions of this Document 00820 into any and all contracts or work orders for all subcontractors providing work on the Project. In order to ensure that the said subcontractor's certification becomes a part of all subcontracts under the prime contract, the Prime or General Contractor shall certify in writing to the administering agency that it has complied with the requirements as set forth in the preceeding paragraph by executing Document 00859 Contractor/Subcontractor Certification Form.

Rev'd 03/07/14

*** END OF DOCUMENT ***

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DOCUMENT 00821

ELECTRONIC REPORTING REQUIREMENTS
CIVIL RIGHTS PROGRAMS AND CERTIFIED PAYROLL

Implemented on March 2, 2009 Revised June 04, 2019

The Massachusetts Department Of Transportation (MassDOT) has replaced the CHAMP reporting system with Equitable Business Opportunity Solution (EBO), a new web-based civil rights reporting software system. This system is capable of handling both civil rights reporting requirements and certified payrolls. The program's functions include the administration of Equal Employment Opportunity (EEO) requirements, On-The-Job Training requirements (OJT), Disadvantage Business Enterprise (DBE) and/or Minority / Women's Business Enterprise (M/WBE) subcontracting requirements, and the electronic collection of certified payrolls associated with MassDOT projects. In addition, this system is used to generate various data required as part of the American Recovery and Reinvestment Act (ARRA). Contractors are responsible for all coordination with all sub-contractors to ensure timely and accurate electronic submission of all required data.

Contractor and Sub-Contractor EBO User Certification

All contractors and sub-contractors must use the EBO software system. The software vendor, Internet Government Solutions (IGS), has developed an online EBO Training Module that is available to contractors and sub-contractors. This module is a self-tutorial which allows all users in the company to access the training, complete the tutorial, and become certified as EBO users for a one time fee of $75.00. This is the only cost to contractors and sub-contractors associated with the EBO software system. The online EBO Training Module can be accessed at www.ebotraining.com. Click the "Register My Company" button on the login page to begin your training registration. Questions regarding EBO online training should be directed to Gerry Anguilano, IGS at (440) 238-1684.

MassDOT will track contractors and sub-contractors who have successfully completed the on-line training module. All persons performing civil rights program and/or certified payroll functions should be EBO certified.

Vetting of Firms and Designated Firm Individuals

Contractors must authorize a Primary Log-In ID Holder who has completed EBO on-line training to have access to the EBO system by completing and submitting the "Request For EBO System Log-In/Password Form" located on the MassDOT website at: https://www.mass.gov/how-to/how-to-get-an-ebo-login
Contractors must also agree to comply with the EBO system user agreement located on the MassDOT website.

All subcontracts entered into on a project must include language that identifies the submission and training requirements that the sub-contractor must perform. Sub-contractors will be approved by the respective District Office of MassDOT through the existing approval process. When new sub-contractors, who have not previously worked for MassDOT, are initially selected by a general contractor, the new sub-contractor must be approved by the District before taking the EBO on-line training module.

Interim Reporting Requirements

Until MassDOT is satisfied that the EBO system is fully operational and functioning as designed, contractors and sub-contractors will be required to submit certified payrolls manually. There will be a transition period where dual reporting, through manual and electronic submission, will be required. MassDOT, however, will notify contractors and sub-contractors when they may cease manual submission of certified payrolls.

*** END OF DOCUMENT ***

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DOCUMENT 00859

CONTRACTOR/SUBCONTRACTOR CERTIFICATION FORM ‡

The contractor shall submit this completed document 00859 to MassDOT for each subcontract.

_____ **(Contractor)** **Date:**_____

_____**(Subcontractor)** ☐ District Approved Subcontractor

Contract No: 136647 **Project No.** 609506 **Federal Aid No.:** PRC(PRC80)-004S(013)X

Location: BECKET

Project Description: Ledge Removal along Route 8, between MM 28.002 and MM 27.998

PART 1 CONTRACTOR CERTIFICATION: I hereby certify, as an authorized official of this company, that to the best of my knowledge, information and belief, the company is in compliance with all applicable federal and state laws, rules, and regulations governing fair labor and employment practices, that the company will not discriminate in their employment practices, that the company will make good faith efforts to comply with the minority employee and women employee workforce participation ratio goals and specific affirmative action steps contained in Contract Document 00820 The Commonwealth of Massachusetts Supplemental Equal Employment Opportunity, Non-Discrimination and Affirmative Action Program, and that the company will comply with the special provisions and documentation indicated below (as checked).

I further hereby certify, as an authorized official of this company, that the special provisions and documentation indicated below (as checked) have been or are included in, and made part of, the Subcontractor Agreement entered into with the firm named above.

☐ **This is not a Federally-aided construction project**

Document #

☐ 00718 –Participation By Minority Or Women's Business Enterprises and SDVOBE†
☐ 00761 –Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion
☐ 00820 – MA Supplemental Equal Employment Opportunity, Non-Discrimination, and Affirmative Action Program
☐ 00821 – Electronic Reporting Requirements, Civil Rights Programs, and Certified Payroll
☐ 00859 – Contractor/Subcontractor Certification Form (this document)
☐ 00860 – MA Employment Laws
☐ 00861 – Applicable State Wage Rates in the Contract Proposal**
☐ B00842 – MA Schedule of Participation By Minority or Women Business Enterprises (M/WBEs)†
☐ B00843 – MA Letter of Intent – M/WBEs†

** Does not apply to Material Suppliers, unless performing work on-site
† Applies only if Subcontractor is a M/WBE; only include these forms for the particular M/WBE Entity

☐ B00844 - Schedule of Participation By SDVOBE
☐ B00845 - Letter of Intent – SDVOBE
☐ B00846 – M/WBE or SDVOBE Joint Check Arrangement Approval Form
☐ B00847 – Joint Venture Affidavit

☐ **This is a Federally-aided construction project (Federal Aid Number is present)**

Document #

☐ 00719 – Special Provisions for Participation by Disadvantaged Business Enterprises†
☐ 00760 - Form FHWA 1273 - Required Contract Provisions for Federal-Aid Construction Contracts
☐ 00820 – MA Supplemental Equal Employment Opportunity, Non-Discrimination and Affirmative Action Program
☐ 00821 – Electronic Reporting Requirements, Civil Rights Programs and Certified Payroll
☐ 00859 – Contractor/Subcontractor Certification Form (this document)
☐ 00860 – MA Employment Laws
☐ 00870 – Standard Federal Equal Employment Opportunity Construction Contract Specifications Executive Order 11246, (41 CFR Parts 60-4.2 and 60-4.3 (Solicitations and Equal Opportunity Clauses)*
☐ 00875 – Federal Trainee Special Provisions

☐ B00853 – Schedule of Participation by Disadvantaged Business Enterprise†
☐ B00854 – Letter of Intent – DBEs†
☐ B00855 – DBE Joint Check Arrangement Approval Form
☐ B00856 – Joint Venture Affidavit
☐ 00861/00880 - Applicable state and federal wage rates from Contract Proposal**

*Applicable only to Contracts or Subcontracts in excess of $10,000
**Does not apply to Material Suppliers, unless performing work on-site
† Applies only if Subcontractor is a DBE; only include these forms for the particular DBE Entity

Signed this _____ Day of _____, 20_____ Under The Pains And Penalties Of Perjury.

_____ _____
(Print Name and Title) (Authorized Signature)

PART 2

PART 2 SUBCONTRACTOR CERTIFICATION: I hereby certify, as an authorized official of this company, that the required documents in Part 1 above were physically incorporated in our Agreement/Subcontract with the Contractor and give assurance that this company will fully comply or make every good faith effort to comply with the same. I further certify that:

1. This company recognizes that if this is a Federal-Aid Project, then this Contract is covered by the equal employment opportunity laws administered and enforced by the United States Department of Labor ("USDOL"), Office of Federal Contract Compliance Programs ('OFCCP"). By signing below, we acknowledge that this company has certain reporting obligations to the OFCCP, as specified by 41 CFR Part 60-4.2.
2. This company further acknowledges that any contractor with fifty (50) or more employees on a Federal-aid Contract with a value of fifty-thousand ($50,000) dollars or more must annually file an EEO-1 Report (SF 100) to the EEOC, Joint Reporting Committee, on or before September 30th, each year, as specified by 41 CFR Part 60-1.7a.
3. For more information regarding the federal reporting requirements, please contact the USDOL, OFCCP Regional Office, at 1-646-264-3170 or EEO-1, Joint Reporting Committee at 1-866-286-6440.
4. This company ☐ has, ☐ has not, participated in a previous contract or subcontract subject to the Equal Opportunity clauses set forth in 41 CFR Part 60-4 and Executive Order 11246, and where required, has filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance Programs or the EEO Commission all reports due under the applicable filing requirements.
5. This company is in full compliance with applicable Federal and Commonwealth of Massachusetts laws, rules, and regulations and is not currently debarred or disqualified from bidding on or participating in construction contracts in any jurisdiction of the United States. See : https://www.mass.gov/service-details/contractors-and-vendors-suspended-or-debarred-by-massdot
6. This company is properly registered and in good standing with the Office of the Secretary of the Commonwealth.

Signed this _____ Day of _____, 20_____, Under The Pains And Penalties Of Perjury.

Firm: _____
Address: _____
_____
_____
Telephone Number:_____
Federal I.D. Number:_____
Estimated Start Date:_____
Estimated Completion Date:_____
Estimated Dollar Amount:_____

_____
(Print Name and Title)

_____
(Authorized Signature)

_____
(Date)

Rev'd 09/02/22

*** END OF DOCUMENT ***

DOCUMENT 00860

COMMONWEALTH OF MASSACHUSETTS PUBLIC EMPLOYMENT LAWS

Revised February 20, 2019

The Contractor's attention is directed to Massachusetts General Laws, Chapter 149, Sections 26 through 27H, and 150A. This contract is considered to fall within the ambit of that law, which provides that in general, the Prevailing Rate or Total Rate must be paid to employees working on projects funded by the Commonwealth of Massachusetts or any political subdivision including Massachusetts Department of Transportation (MassDOT).

A Federal Aid project is also subject to the Federal Minimum Wage Rate law for construction. When comparing a state minimum wage rate, monitored by the Massachusetts Attorney General, versus federal minimum wage rate, monitored by the U.S. Department of Labor Wage and Hour Division, for a particular job classification the higher wage is at all times to be paid to the affected employee.

Every contractor or subcontractor engaged in this contract to which sections twenty-seven and twenty-seven A apply will keep a true and accurate record of all mechanics and apprentices, teamsters, chauffeurs and laborers employed thereon, showing the name, address and occupational classification of each such employee on this contract, and the hours worked by, and the wages paid to, each such employee, and shall furnish to the MassDOT's Resident Engineer, on a weekly basis, a copy of said record, in a form approved by MassDOT and in accordance with M.G.L. c. 149, § 27B, signed by the employer or his/her authorized agent under the penalties of perjury.

Each such contractor or subcontractor shall preserve its payroll records for a period of three years from the date of completion of the contract.

The Prevailing Wage Rate generally includes the following:

Minimum Hourly Wage + Employer Contributions to Benefit Plans = Prevailing Wage Rate or Total Rate

Any employer who does not make contributions to Benefit Plans must pay the total Prevailing Wage Rate directly to the employee.

Any deduction from the Prevailing Wage Rate or Total Rate for contributions to benefit plans can only be for a Health & Welfare, Pension, or Supplementary Unemployment plan meeting the requirements of the Employee Retirement Income Security Act (ERISA) of 1974. The maximum allowable deduction for these benefits from the prevailing wage rate cannot be greater than the amount allowed by Executive Office of Labor (EOL) for the specified benefits. Any additional expense of providing benefits to the employees is to be borne by the employer and cannot be deducted from the Minimum Hourly Wage. If the employer's benefit expense is less than that so provided by EOL the difference will be paid directly to the employee. The rate established must be paid to all employees who perform work on the project.

When an employer makes deductions from the Minimum Hourly Wage for an employee's contribution to social security, state taxes, federal taxes, and/or other contribution programs, allowed by law, the employer shall furnish each employee a suitable pay slip, check stub or envelope notifying the employee of the amount of the deductions.

No contractor or subcontractor contracting for any part of the contract week shall require or permit any laborer or mechanic to be employed on such work in excess of forty hours in any workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times his basic rate of pay for all hours worked in excess of forty hours in such workweek, whichever is the greater number of overtime hours.

Apprentice Rates are permitted only when there is an Apprentice Agreement registered with the Massachusetts Division of Apprentice Training in accordance with M.G.L. c. 23, § 11E-11L.

The Prevailing Wage Rates issued for each project shall be the rates paid for the entire project. The Prevailing Wage Rates must be posted on the job site at all times and be visible from a public way.

In addition, each such contractor and subcontractor shall furnish to the MassDOT's Resident Engineer, within fifteen days after completion of its portion of the work, a statement, executed by the contractor or subcontractor or by any authorized officer or employee of the contractor or subcontractor who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

Date: _____

I , _____do hereby state:
(Name of signatory party) (Title)

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

_____
(Contractor or Subcontractor)

on the _____
(MassDOT Project Location and Contract Number)

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 _____

The above-mentioned copies of payroll records and statements of compliance shall be available for inspection by any interested party filing a written request to the MassDOT's Resident Engineer for such inspection and copying.

Massachusetts General Laws c. 149, §27, requires annual updates to prevailing wage schedules for all public construction contracts lasting longer than one year. MassDOT will request the required updates and furnish them to the Contractor. The Contractor is required to pay no less than the wage rates indicated on the annual updated wage schedules.

MassDOT will request the updates no later that two week before the anniversary of the Notice to Proceed date of the contract to allow for adequate processing by the Department of Labor Standards (DLS). The effective date for the new rates will be the anniversary date of the contract (i.e. the notice to proceed date), regardless of the date of issuance on the schedule from DLS.

All bidders are cautioned that the aforementioned laws require that employers pay to covered employees no less than the applicable minimum wages. In addition, the same laws require that the applicable prevailing wages become incorporated as part of this contract. The prevailing minimum wage law establishes serious civil and criminal penalties for violations, including imprisonment and exclusion from future public contracts. Bidders are cautioned to carefully read the relevant sections of the Massachusetts General Laws.

*** END OF DOCUMENT ***

DOCUMENT 00861

STATE PREVAILING WAGE RATES

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THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS
Prevailing Wage Rates

MAURA HEALEY
Governor
KIM DRISCOLL
Lt. Governor

As determined by the Director under the provisions of the Massachusetts General Laws, Chapter 149, Sections 26 to 27H

LAUREN JONES
Secretary
MICHAEL FLANAGAN
Director

Awarding Authority:	Massachusetts Highway	**City/Town:**	BECKET
Wage Request No:	20260904125650	**Job Location:**	Route 8, between MM 28.002 and MM 27.998
Description of Work:	BECKET - Federal Aid Project No. PRC(PRC80)-004S(013)X Ledge Removal along Route 8, between MM 28.002 and MM 27.998		
Contract Number:	136647		

§§ 26-27D Construction Project

This Prevailing Wage Schedule establishes the minimum wage rates that employees on this public works construction project must be paid. The project's Wage Request Number is listed above and on all pages of this Schedule. This schedule applies **only** to this specific project.

Awarding Authority Responsibilities

- You must include this Prevailing Wage Schedule (PWS) or an appropriate reference to it in all advertisements and calls for bids.
- The PWS must be incorporated in its entirety into all contracts for this project (G.L. c. 149, § 27).
- The wage rates on this PWS will remain in effect for the duration of the project. **Exception:** You must request an updated schedule for any multi-year construction project no later than 2 weeks before the project's yearly anniversary date.
  - For CM AT RISK projects, the anniversary date is the earlier of the signing date of: (a) the GMP Amendment; or (b) the first amendment to permit procurement of construction services.
  - For all other construction projects, the anniversary date is the date the contract was signed by the Awarding Authority and the General Contractor.
- You must also request an updated PWS if you have not opened bids or selected a contractor within 90 days of the date of issuance on this PWS.
  - For CM AT RISK projects, the earlier of (a) the signing date of the GMP Amendment; or (b) the bid for the first construction scope of work must be within 90 days of the date of issuance on this Schedule.
- You must provide any updated PWS to all contractors working on the project, including general and sub-contractors.
- You must keep the contractors' weekly certified payroll records and Statements of Compliance on file for **3 years.**
- Awarding authorities have other prevailing wage responsibilities not listed above. Learn more at: **[Prevailing wage: for awarding authorities | Mass.gov]** and G.L. c. 149, §§ 26-27D.

Contractor Responsibilities

- You must pay all employees who perform construction work on this project at least the wage rate listed on this PWS. **Warning!** If you do not follow this requirement, you can face civil fines, criminal charges, or private lawsuits.
- You must post this PWS at the worksite where it can be easily seen. (G.L. c. 149, § 27)
- You must file weekly payroll reports and a Statement of Compliance with the awarding authority (**not** DLS). You can file payroll reports by mail or email and must keep them on file for 3 years. Each weekly payroll report must include each employees' name, address, occupational classification(s), hours worked, and wages paid. Find a sample report at: mass.gov/dols/pw.
- You cannot pay any employees at the apprentice rates listed on this PWS unless they are registered with the Massachusetts Division of Apprentice Standards (DAS). Qualifying apprentices must be paid at the applicable step rate and must carry their apprentice ID card during all work hours on the project. Apprentices **not** registered with DAS must be paid at the listed journeyworker's rate, even if they are registered with a different federal/state public agency or private entity. For every week in which apprentice rates are paid, a copy of each apprentice's apprentice ID card issued by DAS shall be attached to the certified payroll records.
- If you don't know what classification or rate applies to the work being performed, you must ask DLS; paying the wrong rate subjects you to enforcement.
- Please contact DLS if you have any questions about the Prevailing Wage Schedule: (617) 626-6953 or **DLS.Feedback@mass.gov**

Employees who are **not** paid the wage listed on the Prevailing Wage Schedule (PWS) may file a complaint with the Attorney General's Fair Labor Division: **www.mass.gov/ago/fld**; **(617) 727-3465.**

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
(2 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	6/1/2026	$41.95	$16.17	$21.78	$0.00	$0.00	$79.90
	12/1/2026	$41.95	$16.17	$23.52	$0.00	$0.00	$81.64
	1/1/2027	$41.95	$16.77	$23.52	$0.00	$0.00	$82.24
(3 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	6/1/2026	$42.02	$16.17	$21.78	$0.00	$0.00	$79.97
	12/1/2026	$42.02	$16.17	$23.52	$0.00	$0.00	$81.71
	1/1/2027	$42.02	$16.77	$23.52	$0.00	$0.00	$82.31
(4 & 5 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	6/1/2026	$42.14	$16.17	$21.78	$0.00	$0.00	$80.09
	12/1/2026	$42.14	$16.17	$23.52	$0.00	$0.00	$81.83
	1/1/2027	$42.14	$16.77	$23.52	$0.00	$0.00	$82.43
ADS/SUBMERSIBLE PILOT PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 3) For apprentice rates see "Apprentice- PILE DRIVER"	8/1/2024	$117.16	$10.08	$11.62	$12.67	$0.00	$151.53
AIR TRACK OPERATOR LABORERS LABORERS - ZONE 4 (BUILDING & SITE) For apprentice rates see "Apprentice- LABORER"	6/1/2026	$36.97	$10.90	$9.75	$6.60	$0.00	$64.22
	12/1/2026	$39.39	$10.90	$9.75	$6.60	$0.00	$66.64
	6/1/2027	$40.79	$10.90	$9.75	$6.60	$0.00	$68.04
	12/1/2027	$42.19	$10.90	$9.75	$6.60	$0.00	$69.44
	6/1/2028	$43.69	$10.90	$9.75	$6.60	$0.00	$70.94
	12/1/2028	$45.19	$10.90	$9.75	$6.60	$0.00	$72.44
AIR TRACK OPERATOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 4 (HEAVY & HIGHWAY) For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"	6/1/2026	$37.75	$10.90	$9.75	$6.60	$0.00	$65.00
	12/1/2026	$39.04	$10.90	$9.75	$6.60	$0.00	$66.29
ASBESTOS WORKER (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 HEAT & FROST INSULATORS LOCAL 6 (SPRINGFIELD)	12/1/2025	$40.32	$14.50	$4.30	$6.25	$0.00	$65.37
ASPHALT RAKER LABORERS LABORERS - ZONE 4 (BUILDING & SITE) For apprentice rates see "Apprentice- LABORER"	6/1/2026	$36.47	$10.90	$9.75	$6.60	$0.00	$63.72
	12/1/2026	$38.89	$10.90	$9.75	$6.60	$0.00	$66.14
	6/1/2027	$40.29	$10.90	$9.75	$6.60	$0.00	$67.54
	12/1/2027	$41.69	$10.90	$9.75	$6.60	$0.00	$68.94
	6/1/2028	$43.19	$10.90	$9.75	$6.60	$0.00	$70.44
	12/1/2028	$47.26	$9.90	$9.25	$5.53	$0.00	$71.94
	6/1/2205	$34.29	$9.90	$0.00	$0.00	$0.00	$44.19
	12/1/2205	$36.79	$9.90	$9.25	$5.53	$0.00	$61.47
	6/1/2206	$39.29	$9.90	$9.25	$5.53	$0.00	$63.97
	12/1/2206	$41.46	$9.90	$9.25	$5.53	$0.00	$66.14
	6/1/2207	$43.11	$9.90	$9.25	$5.53	$0.00	$67.79
	12/1/2207	$44.51	$9.90	$9.25	$5.53	$0.00	$69.19
	6/1/2208	$46.01	$9.90	$9.25	$5.53	$0.00	$70.69
	12/1/2208	$44.94	$10.90	$9.75	$6.60	$0.00	$72.19
ASPHALT RAKER (HEAVY & HIGHWAY)	6/1/2026	$37.25	$10.90	$9.75	$6.60	$0.00	$64.50

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS LABORERS - ZONE 4 (HEAVY & HIGHWAY)	12/1/2026	$38.54	$10.90	$9.75	$6.60	$0.00	$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
BARCO-TYPE JUMPING TAMPER LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2026	$36.47	$10.90	$9.75	$6.60	$0.00	$63.72
	12/1/2026	$38.89	$10.90	$9.75	$6.60	$0.00	$66.14
	6/1/2027	$40.29	$10.90	$9.75	$6.60	$0.00	$67.54
	12/1/2027	$41.69	$10.90	$9.75	$6.60	$0.00	$68.94
	6/1/2028	$43.19	$10.90	$9.75	$6.60	$0.00	$70.44
	12/1/2028	$47.26	$9.90	$9.25	$5.53	$0.00	$71.94
	6/1/2205	$34.29	$9.90	$0.00	$0.00	$0.00	$44.19
	12/1/2205	$36.79	$9.90	$9.25	$5.53	$0.00	$61.47
	6/1/2206	$39.29	$9.90	$9.25	$5.53	$0.00	$63.97
	12/1/2206	$41.46	$9.90	$9.25	$5.53	$0.00	$66.14
	6/1/2207	$43.11	$9.90	$9.25	$5.53	$0.00	$67.79
	12/1/2207	$44.51	$9.90	$9.25	$5.53	$0.00	$69.19
	6/1/2208	$46.01	$9.90	$9.25	$5.53	$0.00	$70.69
	12/1/2208	$44.94	$10.90	$9.75	$6.60	$0.00	$72.19
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2026	$36.97	$10.90	$9.75	$6.60	$0.00	$64.22
	12/1/2026	$39.39	$10.90	$9.75	$6.60	$0.00	$66.64
	6/1/2027	$40.79	$10.90	$9.75	$6.60	$0.00	$68.04
	12/1/2027	$42.19	$10.90	$9.75	$6.60	$0.00	$69.44
	6/1/2028	$43.69	$10.90	$9.75	$6.60	$0.00	$70.94
	12/1/2028	$45.19	$10.90	$9.75	$6.60	$0.00	$72.44
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 4 (HEAVY & HIGHWAY)	6/1/2026	$37.75	$10.90	$9.75	$6.60	$0.00	$65.00
	12/1/2026	$39.04	$10.90	$9.75	$6.60	$0.00	$66.29
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
BOILER MAKER BOILERMAKERS LOCAL 29 BOILERMAKERS LOCAL 29	1/1/2024	$48.12	$7.07	$14.60	$6.00	$0.00	$75.79

Apprentice: BOILER MAKER

Effective Date: 1/1/2024

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	65.00	$31.28	$7.07	$9.32	$3.90	$0.00	$51.57
2	65.00	$31.28	$7.07	$9.32	$3.90	$0.00	$51.57
3	70.00	$33.68	$7.07	$10.03	$4.20	$0.00	$54.98
4	75.00	$36.09	$7.07	$10.74	$4.50	$0.00	$58.40
5	80.00	$38.50	$7.07	$11.45	$4.80	$0.00	$61.82
6	85.00	$40.90	$7.07	$12.18	$5.10	$0.00	$65.25
7	90.00	$43.31	$7.07	$12.88	$5.40	$0.00	$68.66
8	95.00	$45.71	$7.07	$13.62	$5.70	$0.00	$72.10

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice to Journeyworker Ratio: 1:4							
BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 (SPRINGFIELD/PITTSFIELD)	8/1/2026	$58.56	$12.84	$15.57	$5.89	$0.00	$92.86
	2/1/2027	$59.96	$12.84	$15.57	$5.89	$0.00	$94.26

Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.28	$12.84	$15.57	$5.89	$0.00	$63.58
2	60.00	$35.14	$12.84	$15.57	$5.89	$0.00	$69.44
3	70.00	$40.99	$12.84	$15.57	$5.89	$0.00	$75.29
4	80.00	$46.85	$12.84	$15.57	$5.89	$0.00	$81.15
5	90.00	$52.70	$12.84	$15.57	$5.89	$0.00	$87.00

Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)

Effective Date: 2/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.98	$12.84	$15.57	$5.89	$0.00	$64.28
2	60.00	$35.98	$12.84	$15.57	$5.89	$0.00	$70.28
3	70.00	$41.97	$12.84	$15.57	$5.89	$0.00	$76.27
4	80.00	$47.97	$12.84	$15.57	$5.89	$0.00	$82.27
5	90.00	$53.96	$12.84	$15.57	$0.00	$0.00	$82.37

Apprentice to Journeyworker Ratio: 1:5							
CAISSON & UNDERPINNING BOTTOM MAN LABORERS LABORERS - FOUNDATION AND MARINE For apprentice rates see "Apprentice- LABORER"	6/1/2026	$50.40	$10.90	$9.75	$9.80	$0.00	$80.85
	12/1/2026	$51.90	$10.90	$9.75	$9.80	$0.00	$82.35
CAISSON & UNDERPINNING LABORER LABORERS LABORERS - FOUNDATION AND MARINE For apprentice rates see "Apprentice- LABORER"	6/1/2026	$49.25	$10.90	$9.75	$9.80	$0.00	$79.70
	12/1/2026	$50.75	$10.90	$9.75	$9.80	$0.00	$81.20
CAISSON & UNDERPINNING TOP MAN LABORERS LABORERS - FOUNDATION AND MARINE For apprentice rates see "Apprentice- LABORER"	6/1/2026	$49.58	$10.90	$9.75	$9.80	$0.00	$80.03
	12/1/2026	$51.08	$10.90	$9.75	$9.80	$0.00	$81.53
CARBIDE CORE DRILL OPERATOR LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2026	$36.47	$10.90	$9.75	$6.60	$0.00	$63.72
	12/1/2026	$38.89	$10.90	$9.75	$6.60	$0.00	$66.14
	6/1/2027	$40.29	$10.90	$9.75	$6.60	$0.00	$67.54
	12/1/2027	$41.69	$10.90	$9.75	$6.60	$0.00	$68.94
	6/1/2028	$43.19	$10.90	$9.75	$6.60	$0.00	$70.44
	12/1/2028	$47.26	$9.90	$9.25	$5.53	$0.00	$71.94

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	6/1/2205	$34.29	$9.90	$0.00	$0.00	$0.00	$44.19
	12/1/2205	$36.79	$9.90	$9.25	$5.53	$0.00	$61.47
	6/1/2206	$39.29	$9.90	$9.25	$5.53	$0.00	$63.97
	12/1/2206	$41.46	$9.90	$9.25	$5.53	$0.00	$66.14
	6/1/2207	$43.11	$9.90	$9.25	$5.53	$0.00	$67.79
	12/1/2207	$44.51	$9.90	$9.25	$5.53	$0.00	$69.19
	6/1/2208	$46.01	$9.90	$9.25	$5.53	$0.00	$70.69
	12/1/2208	$44.94	$10.90	$9.75	$6.60	$0.00	$72.19

For apprentice rates see "Apprentice- LABORER"

CARPENTER	9/1/2026	$44.76	$9.19	$11.25	$6.90	$0.00	$72.10
CARPENTERS CARPENTERS LOCAL 336 - BERKSHIRE COUNTY	3/1/2027	$45.66	$9.19	$11.25	$6.90	$0.00	$73.00

Apprentice: CARPENTER

Effective Date: 9/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$20.14	$9.19	$0.00	$1.40	$0.00	$30.73
2	45.00	$20.14	$9.19	$0.00	$1.40	$0.00	$30.73
3	55.00	$24.62	$9.19	$0.00	$2.76	$0.00	$36.57
4	55.00	$24.62	$9.19	$0.00	$2.76	$0.00	$36.57
5	70.00	$31.33	$9.19	$11.21	$4.14	$0.00	$55.87
6	70.00	$31.33	$9.19	$11.21	$4.14	$0.00	$55.87
7	80.00	$35.81	$9.19	$11.23	$5.52	$0.00	$61.75
8	80.00	$35.81	$9.19	$11.23	$5.52	$0.00	$61.75

Apprentice: CARPENTER

Effective Date: 3/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$20.55	$9.19	$0.00	$1.40	$0.00	$31.14
2	45.00	$20.55	$9.19	$0.00	$1.40	$0.00	$31.14
3	55.00	$25.11	$9.19	$0.00	$2.76	$0.00	$37.06
4	55.00	$25.11	$9.19	$0.00	$2.76	$0.00	$37.06
5	70.00	$31.96	$9.19	$11.21	$4.14	$0.00	$56.50
6	70.00	$31.96	$9.19	$11.21	$4.14	$0.00	$56.50
7	80.00	$36.53	$9.19	$11.23	$5.52	$0.00	$62.47
8	80.00	$36.53	$9.19	$11.23	$5.52	$0.00	$62.47

Apprentice to Journeyworker Ratio: 1:5

CARPENTER WOOD FRAME	10/1/2025	$27.37	$7.38	$4.47	$1.00	$0.00	$40.22
CARPENTERS CARPENTERS-ZONE 3 (Wood Frame)	10/1/2026	$28.47	$7.38	$4.47	$1.00	$0.00	$41.32

All Aspects of New Wood Frame Work

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: CARPENTER WOOD FRAME

Effective Date: 10/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$16.42	$7.38	$0.00	$0.00	$0.00	$23.80
2	60.00	$16.42	$7.38	$0.00	$0.00	$0.00	$23.80
3	65.00	$17.79	$7.38	$0.00	$1.00	$0.00	$26.17
4	70.00	$19.16	$7.38	$0.00	$1.00	$0.00	$27.54
5	75.00	$20.53	$7.38	$3.80	$1.00	$0.00	$32.71
6	80.00	$21.90	$7.38	$3.80	$1.00	$0.00	$34.08
7	85.00	$23.26	$7.38	$3.80	$1.00	$0.00	$35.44
8	90.00	$24.63	$7.38	$3.80	$1.00	$0.00	$36.81

Apprentice: CARPENTER WOOD FRAME

Effective Date: 10/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$17.08	$7.38	$0.00	$0.00	$0.00	$24.46
2	60.00	$17.08	$7.38	$0.00	$0.00	$0.00	$24.46
3	65.00	$18.51	$7.38	$0.00	$1.00	$0.00	$26.89
4	70.00	$19.93	$7.38	$0.00	$1.00	$0.00	$28.31
5	75.00	$21.35	$7.38	$3.80	$1.00	$0.00	$33.53
6	80.00	$22.78	$7.38	$3.80	$1.00	$0.00	$34.96
7	85.00	$24.20	$7.38	$3.80	$1.00	$0.00	$36.38
8	90.00	$25.62	$7.38	$3.80	$1.00	$0.00	$37.80

Apprentice to Journeyworker Ratio: 1:5

CEMENT MASONRY/PLASTERING	7/1/2026	$49.32	$13.20	$16.30	$2.93	$1.69	$83.44
PLASTERERS AND CEMENT MASONS LOCAL 534	1/1/2027	$50.51	$13.20	$16.30	$2.93	$1.69	$84.63
Plasterers and Cement Masons - Zone 2	7/1/2027	$51.70	$13.20	$16.30	$2.93	$1.69	$85.82
	1/1/2028	$52.89	$13.20	$16.30	$2.93	$1.69	$87.01

Apprentice: CEMENT MASONRY/PLASTERING

Effective Date: 7/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$24.66	$13.20	$16.30	$0.00	$0.00	$54.16
2	60.00	$29.59	$13.20	$16.30	$2.93	$1.69	$63.71
3	65.00	$32.06	$13.20	$16.30	$2.93	$1.69	$66.18
4	70.00	$34.52	$13.20	$16.30	$2.93	$1.69	$68.64
5	75.00	$36.99	$13.20	$16.30	$2.93	$1.69	$71.11
6	80.00	$39.46	$13.20	$16.30	$2.93	$1.69	$73.58
7	90.00	$44.39	$13.20	$16.30	$2.93	$0.00	$76.82

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: CEMENT MASONRY/PLASTERING							
Effective Date: 1/1/2027							
Step / Percent		**Apprentice Base Wage**					
1 / 50.00		$25.26	$16.30	$16.30	$0.00	$0.00	$57.86
2 / 60.00		$30.31	$16.30	$16.30	$2.93	$1.69	$67.53
3 / 65.00		$32.83	$16.30	$16.30	$2.93	$1.69	$70.05
4 / 70.00		$35.36	$16.30	$16.30	$2.93	$1.69	$72.58
5 / 75.00		$37.88	$16.30	$16.30	$2.93	$1.69	$75.10
6 / 80.00		$40.41	$16.30	$16.30	$2.93	$1.69	$77.63
7 / 90.00		$45.46	$16.30	$16.30	$2.93	$0.00	$80.99
Apprentice to Journeyworker Ratio: 1:5							
CHAIN SAW OPERATOR	6/1/2026	$36.47	$10.90	$9.75	$6.60	$0.00	$63.72
LABORERS	12/1/2026	$38.89	$10.90	$9.75	$6.60	$0.00	$66.14
LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2027	$40.29	$10.90	$9.75	$6.60	$0.00	$67.54
	12/1/2027	$41.69	$10.90	$9.75	$6.60	$0.00	$68.94
	6/1/2028	$43.19	$10.90	$9.75	$6.60	$0.00	$70.44
	12/1/2028	$47.26	$9.90	$9.25	$5.53	$0.00	$71.94
	6/1/2205	$34.29	$9.90	$0.00	$0.00	$0.00	$44.19
	12/1/2205	$36.79	$9.90	$9.25	$5.53	$0.00	$61.47
	6/1/2206	$39.29	$9.90	$9.25	$5.53	$0.00	$63.97
	12/1/2206	$41.46	$9.90	$9.25	$5.53	$0.00	$66.14
	6/1/2207	$43.11	$9.90	$9.25	$5.53	$0.00	$67.79
	12/1/2207	$44.51	$9.90	$9.25	$5.53	$0.00	$69.19
	6/1/2208	$46.01	$9.90	$9.25	$5.53	$0.00	$70.69
	12/1/2208	$44.94	$10.90	$9.75	$6.60	$0.00	$72.19
For apprentice rates see "Apprentice- LABORER"							
DELEADER (BRIDGE)	1/1/2026	$59.56	$10.35	$12.00	$12.60	$0.00	$94.51
PAINTERS LOCAL 35							
PAINTERS LOCAL 35 - ZONE 3							
Apprentice: DELEADER (BRIDGE)							
Effective Date: 1/1/2026							
Step / Percent		**Apprentice Base Wage**					
1 / 50.00		$29.78	$10.35	$0.00	$0.00	$0.00	$40.13
2 / 55.00		$32.76	$10.35	$0.00	$6.93	$0.00	$50.04
3 / 60.00		$35.74	$10.35	$0.00	$7.56	$0.00	$53.65
4 / 65.00		$38.71	$10.35	$0.00	$8.19	$0.00	$57.25
5 / 70.00		$41.69	$10.35	$12.00	$8.82	$0.00	$72.86
6 / 75.00		$44.67	$10.35	$12.00	$9.45	$0.00	$76.47
7 / 80.00		$47.65	$10.35	$12.00	$10.08	$0.00	$80.08
8 / 90.00		$53.60	$10.35	$12.00	$11.34	$0.00	$87.29
Apprentice to Journeyworker Ratio: 1:1							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
DEMO: ADZEMAN	6/1/2026	$49.30	$10.90	$9.75	$9.65	$0.00	$79.60
LABORERS	12/7/2026	$50.80	$10.90	$9.75	$9.65	$0.00	$81.10
LABORERS - ZONE 4 (BUILDING & SITE)	6/7/2027	$52.40	$10.90	$9.75	$9.65	$0.00	$82.70
	12/6/2027	$54.00	$10.90	$9.75	$9.65	$0.00	$84.30
	6/5/2028	$55.68	$10.90	$9.75	$9.65	$0.00	$85.98
	12/4/2028	$57.35	$10.90	$9.75	$9.65	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BACKHOE/LOADER/HAMMER OPERATOR	6/1/2026	$50.30	$10.90	$9.75	$9.65	$0.00	$80.60
LABORERS	12/7/2026	$51.80	$10.90	$9.75	$9.65	$0.00	$82.10
LABORERS - ZONE 4 (BUILDING & SITE)	6/7/2027	$53.40	$10.90	$9.75	$9.65	$0.00	$83.70
	12/6/2027	$55.00	$10.90	$9.75	$9.65	$0.00	$85.30
	6/5/2028	$56.68	$10.90	$9.75	$9.65	$0.00	$86.98
	12/4/2028	$58.35	$10.90	$9.75	$9.65	$0.00	$88.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BURNERS	6/1/2026	$50.05	$10.90	$9.75	$9.65	$0.00	$80.35
LABORERS	12/7/2026	$51.55	$10.90	$9.75	$9.65	$0.00	$81.85
LABORERS - ZONE 4 (BUILDING & SITE)	6/7/2027	$53.15	$10.90	$9.75	$9.65	$0.00	$83.45
	12/6/2027	$54.75	$10.90	$9.75	$9.65	$0.00	$85.05
	6/5/2028	$56.43	$10.90	$9.75	$9.65	$0.00	$86.73
	12/4/2028	$58.10	$10.90	$9.75	$9.65	$0.00	$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: CONCRETE CUTTER/SAWYER	6/1/2026	$50.30	$10.90	$9.75	$9.65	$0.00	$80.60
LABORERS	12/7/2026	$51.80	$10.90	$9.75	$9.65	$0.00	$82.10
LABORERS - ZONE 4 (BUILDING & SITE)	6/7/2027	$53.40	$10.90	$9.75	$9.65	$0.00	$83.70
	12/6/2027	$55.00	$10.90	$9.75	$9.65	$0.00	$85.30
	6/5/2028	$56.68	$10.90	$9.75	$9.65	$0.00	$86.98
	12/4/2028	$58.35	$10.90	$9.75	$9.65	$0.00	$88.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: JACKHAMMER OPERATOR	6/1/2026	$50.05	$10.90	$9.75	$9.65	$0.00	$80.35
LABORERS	12/7/2026	$51.55	$10.90	$9.75	$9.65	$0.00	$81.85
LABORERS - ZONE 4 (BUILDING & SITE)	6/7/2027	$53.15	$10.90	$9.75	$9.65	$0.00	$83.45
	12/6/2027	$54.75	$10.90	$9.75	$9.65	$0.00	$85.05
	6/5/2028	$56.43	$10.90	$9.75	$9.65	$0.00	$86.73
	12/4/2028	$58.10	$10.90	$9.75	$9.65	$0.00	$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: WRECKING LABORER	6/1/2026	$49.30	$10.90	$9.75	$9.65	$0.00	$79.60
LABORERS	12/7/2026	$50.80	$10.90	$9.75	$9.65	$0.00	$81.10
LABORERS - ZONE 4 (BUILDING & SITE)	6/7/2027	$52.40	$10.90	$9.75	$9.65	$0.00	$82.70
	12/6/2027	$54.00	$10.90	$9.75	$9.65	$0.00	$84.30
	6/5/2028	$55.68	$10.90	$9.75	$9.65	$0.00	$85.98
	12/4/2028	$57.35	$10.90	$9.75	$9.65	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"							
DIVER	8/1/2024	$78.11	$10.08	$11.62	$12.67	$0.00	$112.48
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 3)							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Diver wage 70/80/90 2A $69.83, 3A $91.79,4A $102.14 Total Rate							
DIVER TENDER PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 3)	8/1/2024	$49.19	$10.08	$11.62	$12.67	$0.00	$83.56
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Piledriver wage 70/80/90 2A $54.20, 3A $73.93,4A $82.05 Total Rate							
DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 3)	8/1/2024	$83.69	$10.08	$11.62	$12.67	$0.00	$118.06
For apprentice rates see "Apprentice- PILE DRIVER"							
DIVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 3)	8/1/2024	$117.16	$10.08	$11.62	$12.67	$0.00	$151.53
For apprentice rates see "Apprentice- PILE DRIVER"							
DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE - SEIU LOCAL 888 DRAWBRIDGE - SEIU LOCAL 888	7/1/2020	$26.77	$6.67	$3.93	$0.00	$0.16	$37.53
ELECTRICIAN (Including Core Drilling) ELECTRICIANS LOCAL 7 ELECTRICIANS LOCAL 7	6/28/2026 1/3/2027	$54.41 $55.56	$14.00 $14.25	$8.43 $8.47	$7.03 $7.09	$0.00 $0.00	$83.87 $85.37

Apprentice: ELECTRICIAN (Including Core Drilling)

Effective Date: 6/28/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$21.76	$7.80	$0.63	$0.00	$0.00	$30.19
2	45.00	$24.48	$7.80	$0.70	$0.00	$0.00	$32.98
3	50.00	$27.21	$14.00	$7.53	$0.00	$0.00	$48.74
4	55.00	$29.93	$14.00	$7.61	$0.00	$0.00	$51.54
5	65.00	$35.37	$14.00	$9.84	$0.00	$0.00	$59.21
6	70.00	$38.09	$14.00	$11.30	$0.00	$0.00	$63.39

Apprentice: ELECTRICIAN (Including Core Drilling)

Effective Date: 1/3/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$22.22	$7.95	$0.63	$0.00	$0.00	$30.80
2	45.00	$25.00	$7.95	$0.70	$0.00	$0.00	$33.65
3	50.00	$27.78	$14.25	$7.53	$0.00	$0.00	$49.56
4	55.00	$30.56	$14.25	$7.61	$0.00	$0.00	$52.42
5	65.00	$36.11	$14.25	$9.84	$0.00	$0.00	$60.20
6	70.00	$38.89	$14.25	$11.30	$0.00	$0.00	$64.44

Apprentice to Journeyworker Ratio: 2:3

ELEVATOR CONSTRUCTOR	1/1/2026	$69.23	$16.38	$11.06	$10.70	$0.00	$107.37

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
ELEVATOR CONSTRUCTORS LOCAL 41 ELEVATOR CONSTRUCTORS LOCAL 41	1/1/2027	$72.23	$16.48	$11.16	$11.00	$0.00	$110.87

Apprentice: ELEVATOR CONSTRUCTOR

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$34.62	$16.38	$0.00	$0.00	$0.00	$51.00
2	55.00	$38.08	$16.38	$11.06	$10.70	$0.00	$76.22
3	65.00	$45.00	$16.38	$11.06	$10.70	$0.00	$83.14
4	70.00	$48.46	$16.38	$11.06	$10.70	$0.00	$86.60
5	80.00	$55.38	$16.38	$11.06	$10.70	$0.00	$93.52

Apprentice: ELEVATOR CONSTRUCTOR

Effective Date: 1/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$36.12	$16.48	$0.00	$0.00	$0.00	$52.60
2	55.00	$39.73	$16.48	$11.16	$11.00	$0.00	$78.37
3	65.00	$46.95	$16.48	$11.16	$11.00	$0.00	$85.59
4	70.00	$50.56	$16.48	$11.16	$11.00	$0.00	$89.20
5	80.00	$57.78	$16.48	$11.16	$11.00	$0.00	$96.42

Apprentice to Journeyworker Ratio: 1:1

ELEVATOR CONSTRUCTOR HELPER	1/1/2026	$48.46	$16.38	$11.06	$10.70	$0.00	$86.60
ELEVATOR CONSTRUCTORS LOCAL 41 ELEVATOR CONSTRUCTORS LOCAL 41	1/1/2027	$50.56	$16.48	$11.16	$11.00	$0.00	$89.20
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"							
FENCE & BEAM RAIL ERECTOR	6/1/2026	$36.47	$10.90	$9.75	$6.60	$0.00	$63.72
LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	12/1/2026	$38.64	$10.90	$9.75	$6.60	$0.00	$65.89
	6/1/2027	$40.29	$10.90	$9.75	$6.60	$0.00	$67.54
	12/1/2027	$41.69	$10.90	$9.75	$6.60	$0.00	$68.94
	6/1/2028	$43.19	$10.90	$9.75	$6.60	$0.00	$70.44
	12/1/2028	$44.69	$10.90	$9.75	$6.60	$0.00	$71.94
For apprentice rates see "Apprentice- LABORER"							
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY)	6/1/2026	$37.25	$10.90	$9.75	$6.60	$0.00	$64.50
LABORERS LABORERS - ZONE 4 (HEAVY & HIGHWAY)	12/1/2026	$38.54	$10.90	$9.75	$6.60	$0.00	$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
FIELD ENG.INST/ROD-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	6/1/1999	$18.84	$4.80	$4.10	$0.00	$0.00	$27.74
FIELD ENG.PARTY CHIEF:BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	6/1/1999	$21.33	$4.80	$4.10	$0.00	$0.00	$30.23

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
FIELD ENG.SURVEY CHIEF-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	6/1/1999	$22.33	$4.80	$4.10	$0.00	$0.00	$31.23
FIRE ALARM INSTALLER ELECTRICIANS LOCAL 7 ELECTRICIANS LOCAL 7	6/28/2026 1/3/2027	$54.41 $55.56	$14.00 $14.25	$8.43 $8.47	$7.03 $7.09	$0.00 $0.00	$83.87 $85.37
For apprentice rates see "Apprentice- ELECTRICIAN"							
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING ELECTRICIANS LOCAL 7 ELECTRICIANS LOCAL 7	6/28/2026 1/3/2027	$54.41 $55.56	$14.00 $14.25	$8.43 $8.47	$7.03 $7.09	$0.00 $0.00	$83.87 $85.37
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"							
FLAGGER & SIGNALER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 4 (HEAVY & HIGHWAY)	6/1/2026 12/1/2026	$29.21 $29.21	$10.90 $10.90	$9.75 $9.75	$6.60 $6.60	$0.00 $0.00	$56.46 $56.46
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
FLOORCOVERER FLOORCOVERERS LOCAL 2168 FLOORCOVERERS LOCAL 2168 ZONE III	9/1/2026 3/1/2027	$45.29 $46.19	$8.56 $8.56	$11.25 $11.25	$6.90 $6.90	$0.00 $0.00	$72.00 $72.90

Apprentice: FLOORCOVERER

Effective Date: 9/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$20.38	$8.56	$0.00	$1.38	$0.00	$30.32
2	45.00	$20.38	$8.56	$0.00	$1.38	$0.00	$30.32
3	55.00	$24.91	$8.56	$0.00	$2.76	$0.00	$36.23
4	55.00	$24.91	$8.56	$0.00	$2.76	$0.00	$36.23
5	70.00	$31.70	$8.56	$11.25	$4.14	$0.00	$55.65
6	70.00	$31.70	$8.56	$11.25	$4.14	$0.00	$55.65
7	80.00	$36.23	$8.56	$11.25	$5.52	$0.00	$61.56
8	80.00	$36.23	$8.56	$11.25	$5.52	$0.00	$61.56

Apprentice: FLOORCOVERER

Effective Date: 3/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$20.79	$8.56	$0.00	$1.38	$0.00	$30.73
2	45.00	$20.79	$8.56	$0.00	$1.38	$0.00	$30.73
3	55.00	$25.40	$8.56	$0.00	$2.76	$0.00	$36.72
4	55.00	$25.40	$8.56	$0.00	$2.76	$0.00	$36.72
5	70.00	$32.33	$8.56	$11.25	$4.14	$0.00	$56.28
6	70.00	$32.33	$8.56	$11.25	$4.14	$0.00	$56.28
7	80.00	$36.95	$8.56	$11.25	$5.52	$0.00	$62.28
8	80.00	$36.95	$8.56	$11.25	$5.52	$0.00	$62.28

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice Notes

Steps are 750 hrs.

Apprentice to Journeyworker Ratio: 1:1

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) GLAZIERS LOCAL 1333 GLAZIERS LOCAL 1333	6/1/2026	$44.73	$11.20	$8.40	$6.05	$0.00	$70.38
	6/1/2027	$46.73	$11.60	$8.55	$6.60	$0.00	$73.48
	6/1/2028	$48.73	$12.00	$8.70	$7.20	$0.00	$76.63

Apprentice: GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$22.37	$11.20	$8.40	$6.05	$0.00	$48.02
2	56.25	$25.16	$11.20	$8.40	$6.05	$0.00	$50.81
3	62.50	$27.96	$11.20	$8.40	$6.05	$0.00	$53.61
4	68.75	$30.75	$11.20	$8.40	$6.05	$0.00	$56.40
5	75.00	$33.55	$11.20	$8.40	$6.05	$0.00	$59.20
6	81.25	$36.34	$11.20	$8.40	$6.05	$0.00	$61.99
7	87.50	$39.14	$11.20	$8.40	$6.05	$0.00	$64.79
8	93.75	$41.93	$11.20	$8.40	$6.05	$0.00	$67.58

Apprentice: GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)

Effective Date: 6/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$23.37	$11.60	$8.55	$6.60	$0.00	$50.12
2	56.25	$26.29	$11.60	$8.55	$6.60	$0.00	$53.04
3	62.50	$29.21	$11.60	$8.55	$6.60	$0.00	$55.96
4	68.75	$32.13	$11.60	$8.55	$6.60	$0.00	$58.88
5	75.00	$35.05	$11.60	$8.55	$6.60	$0.00	$61.80
6	81.25	$37.97	$11.60	$8.55	$6.60	$0.00	$64.72
7	87.50	$40.89	$11.60	$8.55	$6.60	$0.00	$67.64
8	93.75	$43.81	$11.60	$8.55	$6.60	$0.00	$70.56

Apprentice to Journeyworker Ratio: 3:1

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 63 SHEETMETAL WORKERS LOCAL 63	7/1/2026	$43.48	$13.24	$11.01	$9.92	$2.13	$79.78
	1/1/2027	$43.48	$13.54	$11.01	$11.12	$2.13	$81.28
	7/1/2027	$44.98	$13.54	$11.01	$11.12	$2.13	$82.78
	1/1/2028	$46.48	$13.54	$11.01	$11.12	$2.13	$84.28

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 7 ELECTRICIANS LOCAL 7	6/28/2026	$54.41	$14.00	$8.43	$7.03	$0.00	$83.87
	1/3/2027	$55.56	$14.25	$8.47	$7.09	$0.00	$85.37

For apprentice rates see "Apprentice- ELECTRICIAN"

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING - AIR)	7/1/2026	$43.48	$13.24	$11.01	$9.92	$2.13	$79.78
SHEETMETAL WORKERS LOCAL 63	1/1/2027	$43.48	$13.54	$11.01	$11.12	$2.13	$81.28
SHEETMETAL WORKERS LOCAL 63	7/1/2027	$44.98	$13.54	$11.01	$11.12	$2.13	$82.78
	1/1/2028	$46.48	$13.54	$11.01	$11.12	$2.13	$84.28
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (TESTING AND BALANCING -WATER)	3/17/2026	$52.26	$13.85	$10.85	$7.10	$0.00	$84.06
PLUMBERS & PIPEFITTERS LOCAL 104	9/17/2026	$54.26	$13.85	$10.85	$7.10	$0.00	$86.06
PLUMBERS & PIPEFITTERS LOCAL 104	3/17/2027	$56.26	$13.85	$10.85	$7.10	$0.00	$88.06
	9/17/2027	$60.26	$13.85	$10.85	$7.10	$0.00	$92.06
	3/17/2028	$60.26	$13.85	$10.85	$7.10	$0.00	$92.06
	9/17/2028	$62.26	$13.85	$10.85	$7.10	$0.00	$94.06
	3/17/2029	$64.26	$13.85	$10.85	$7.10	$0.00	$96.06
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HVAC MECHANIC	3/17/2026	$52.26	$13.85	$10.85	$7.10	$0.00	$84.06
PLUMBERS & PIPEFITTERS LOCAL 104	9/17/2026	$54.26	$13.85	$10.85	$7.10	$0.00	$86.06
PLUMBERS & PIPEFITTERS LOCAL 104	3/17/2027	$56.26	$13.85	$10.85	$7.10	$0.00	$88.06
	9/17/2027	$60.26	$13.85	$10.85	$7.10	$0.00	$92.06
	3/17/2028	$60.26	$13.85	$10.85	$7.10	$0.00	$92.06
	9/17/2028	$62.26	$13.85	$10.85	$7.10	$0.00	$94.06
	3/17/2029	$64.26	$13.85	$10.85	$7.10	$0.00	$96.06
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HYDRAULIC DRILLS (HEAVY & HIGHWAY)	6/1/2026	$37.75	$10.90	$9.75	$6.60	$0.00	$65.00
LABORERS	12/1/2026	$39.04	$10.90	$9.75	$6.60	$0.00	$66.29
LABORERS - ZONE 4 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
INSULATOR (PIPES & TANKS)	9/1/2026	$47.22	$16.15	$11.46	$11.49	$0.00	$86.32
HEAT & FROST INSULATORS LOCAL 6							
HEAT & FROST INSULATORS LOCAL 6 (SPRINGFIELD)							

Apprentice: INSULATOR (PIPES & TANKS)

Effective Date: 9/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$23.61	$16.15	$11.21	$5.75	$0.00	$56.72
2	60.00	$28.33	$16.15	$11.26	$6.89	$0.00	$62.63
3	70.00	$33.05	$16.15	$11.31	$8.04	$0.00	$68.55
4	80.00	$37.78	$16.15	$11.36	$9.19	$0.00	$74.48

Apprentice to Journeyworker Ratio: 1:4

IRONWORKER/WELDER	3/16/2026	$42.46	$9.25	$12.75	$11.25	$0.00	$75.71
IRONWORKERS LOCAL 7							
IRONWORKERS LOCAL 7 (SPRINGFIELD AREA)							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: IRONWORKER/WELDER							
Effective Date: 3/16/2026							
Step / Percent / Apprentice Base Wage							
1 / 70.00		$29.72	$9.25	$12.75	$1.25	$0.00	$52.97
2 / 80.00		$33.97	$9.25	$12.75	$1.25	$0.00	$57.22
3 / 90.00		$38.21	$9.25	$12.75	$1.25	$0.00	$61.46
4 / 0.00		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
5 / 0.00		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
6 / 0.00		$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Apprentice to Journeyworker Ratio: 1:4							
JACKHAMMER & PAVING BREAKER OPERATOR LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2026	$36.47	$10.90	$9.75	$6.60	$0.00	$63.72
	12/1/2026	$38.89	$10.90	$9.75	$6.60	$0.00	$66.14
	6/1/2027	$40.29	$10.90	$9.75	$6.60	$0.00	$67.54
	12/1/2027	$41.69	$10.90	$9.75	$6.60	$0.00	$68.94
	6/1/2028	$43.19	$10.90	$9.75	$6.60	$0.00	$70.44
	12/1/2028	$47.26	$9.90	$9.25	$5.53	$0.00	$71.94
	6/1/2205	$34.29	$9.90	$0.00	$0.00	$0.00	$44.19
	12/1/2205	$36.79	$9.90	$9.25	$5.53	$0.00	$61.47
	6/1/2206	$39.29	$9.90	$9.25	$5.53	$0.00	$63.97
	12/1/2206	$41.46	$9.90	$9.25	$5.53	$0.00	$66.14
	6/1/2207	$43.11	$9.90	$9.25	$5.53	$0.00	$67.79
	12/1/2207	$44.51	$9.90	$9.25	$5.53	$0.00	$69.19
	6/1/2208	$46.01	$9.90	$9.25	$5.53	$0.00	$70.69
	12/1/2208	$44.94	$10.90	$9.75	$6.60	$0.00	$72.19
For apprentice rates see "Apprentice- LABORER"							
LABORER LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2026	$36.22	$10.90	$9.75	$6.60	$0.00	$63.47
	12/1/2026	$38.64	$10.90	$9.75	$6.60	$0.00	$65.89
	6/1/2027	$40.04	$10.90	$9.75	$6.60	$0.00	$67.29
	12/1/2027	$41.44	$10.90	$9.75	$6.60	$0.00	$68.69
	6/1/2028	$42.94	$10.90	$9.75	$6.60	$0.00	$70.19
	12/1/2028	$44.44	$10.90	$9.75	$6.60	$0.00	$71.69
Apprentice: LABORER							
Effective Date: 6/1/2026							
Step / Percent / Apprentice Base Wage							
1 / 60.00		$21.73	$10.90	$9.75	$6.60	$0.00	$48.98
2 / 70.00		$25.35	$10.90	$9.75	$6.60	$0.00	$52.60
3 / 80.00		$28.98	$10.90	$9.75	$6.60	$0.00	$56.23
4 / 90.00		$32.60	$10.90	$9.75	$6.60	$0.00	$59.85

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: LABORER

Effective Date: 12/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$23.18	$10.90	$9.75	$6.60	$0.00	$50.43
2	70.00	$27.05	$10.90	$9.75	$6.60	$0.00	$54.30
3	80.00	$30.91	$10.90	$9.75	$6.60	$0.00	$58.16
4	90.00	$34.78	$10.90	$9.75	$6.60	$0.00	$62.03

Apprentice to Journeyworker Ratio: 1:5

LABORER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 4 (HEAVY & HIGHWAY)	6/1/2026	$37.00	$10.90	$9.75	$6.60	$0.00	$64.25
	12/1/2026	$38.29	$10.90	$9.75	$6.60	$0.00	$65.54

Apprentice: LABORER (HEAVY & HIGHWAY)

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$22.20	$10.90	$9.75	$6.60	$0.00	$49.45
2	70.00	$25.90	$10.90	$9.75	$6.60	$0.00	$53.15
3	80.00	$29.60	$10.90	$9.75	$6.60	$0.00	$56.85
4	90.00	$33.30	$10.90	$9.75	$6.60	$0.00	$60.55

Apprentice: LABORER (HEAVY & HIGHWAY)

Effective Date: 12/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$22.97	$10.90	$9.75	$6.60	$0.00	$50.22
2	70.00	$26.80	$10.90	$9.75	$6.60	$0.00	$54.05
3	80.00	$30.63	$10.90	$9.75	$6.60	$0.00	$57.88
4	90.00	$34.46	$10.90	$9.75	$6.60	$0.00	$61.71

Apprentice to Journeyworker Ratio: 1:5

LABORER: CARPENTER TENDER LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2026	$36.22	$10.90	$9.75	$6.60	$0.00	$63.47
	12/1/2026	$38.64	$10.90	$9.75	$6.60	$0.00	$65.89
	6/1/2027	$40.04	$10.90	$9.75	$6.60	$0.00	$67.29
	12/1/2027	$41.44	$10.90	$9.75	$6.60	$0.00	$68.69
	6/1/2028	$42.94	$10.90	$9.75	$6.60	$0.00	$70.19
	12/1/2028	$44.44	$10.90	$9.75	$6.60	$0.00	$71.69

For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2026	$36.22	$10.90	$9.75	$6.60	$0.00	$63.47
	12/1/2026	$38.64	$10.90	$9.75	$6.60	$0.00	$65.89
	6/1/2027	$40.04	$10.90	$9.75	$6.60	$0.00	$67.29
	12/1/2027	$41.44	$10.90	$9.75	$6.60	$0.00	$68.69

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	6/1/2028	$42.94	$10.90	$9.75	$6.60	$0.00	$70.19
	12/1/2028	$44.44	$10.90	$9.75	$6.60	$0.00	$71.69
For apprentice rates see "Apprentice- LABORER"							
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2026	$35.67	$10.90	$9.75	$5.41	$0.00	$61.73
	12/1/2026	$36.96	$10.90	$9.75	$5.41	$0.00	$63.02
	6/1/2027	$38.26	$10.90	$9.75	$5.41	$0.00	$64.32
	12/1/2027	$39.56	$10.90	$9.75	$5.41	$0.00	$65.62
	6/5/2028	$40.91	$10.90	$9.75	$5.41	$0.00	$66.97
	12/4/2028	$42.26	$10.90	$9.75	$5.41	$0.00	$68.32
For apprentice rates see "Apprentice- LABORER"							
LABORER: MASON TENDER LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2026	$38.22	$10.90	$9.75	$6.60	$0.00	$65.47
	12/1/2026	$40.64	$10.90	$9.75	$6.60	$0.00	$67.89
	6/1/2027	$42.04	$10.90	$9.75	$6.60	$0.00	$69.29
	12/1/2027	$43.44	$10.90	$9.75	$6.60	$0.00	$70.69
	6/1/2028	$44.94	$10.90	$9.75	$6.60	$0.00	$72.19
	12/1/2028	$46.44	$10.90	$9.75	$6.60	$0.00	$73.69
For apprentice rates see "Apprentice- LABORER"							
LABORER: MASON TENDER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 4 (HEAVY & HIGHWAY)	6/1/2026	$37.25	$10.90	$9.75	$6.60	$0.00	$64.50
	12/1/2026	$38.54	$10.90	$9.75	$6.60	$0.00	$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
LABORER: MULTI-TRADE TENDER LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2026	$36.22	$10.90	$9.75	$6.60	$0.00	$63.47
	12/1/2026	$38.64	$10.90	$9.75	$6.60	$0.00	$65.89
	6/1/2027	$40.04	$10.90	$9.75	$6.60	$0.00	$67.29
	12/1/2027	$41.44	$10.90	$9.75	$6.60	$0.00	$68.69
	6/1/2028	$42.94	$10.90	$9.75	$6.60	$0.00	$70.19
	12/1/2028	$44.44	$10.90	$9.75	$6.60	$0.00	$71.69
For apprentice rates see "Apprentice- LABORER"							
LABORER: TREE REMOVER LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2026	$36.22	$10.90	$9.75	$6.60	$0.00	$63.47
	12/1/2026	$38.64	$10.90	$9.75	$6.60	$0.00	$65.89
	6/1/2027	$40.04	$10.90	$9.75	$6.60	$0.00	$67.29
	12/1/2027	$41.44	$10.90	$9.75	$6.60	$0.00	$68.69
	6/1/2028	$42.94	$10.90	$9.75	$6.60	$0.00	$70.19
	12/1/2028	$44.44	$10.90	$9.75	$6.60	$0.00	$71.69
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"							
LASER BEAM OPERATOR LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2026	$36.47	$10.90	$9.75	$6.60	$0.00	$63.72
	12/1/2026	$38.89	$10.90	$9.75	$6.60	$0.00	$66.14
	6/1/2027	$40.29	$10.90	$9.75	$6.60	$0.00	$67.54
	12/1/2027	$41.69	$10.90	$9.75	$6.60	$0.00	$68.94
	6/1/2028	$43.19	$10.90	$9.75	$6.60	$0.00	$70.44
	12/1/2028	$47.26	$9.90	$9.25	$5.53	$0.00	$71.94
	6/1/2205	$34.29	$9.90	$0.00	$0.00	$0.00	$44.19
	12/1/2205	$36.79	$9.90	$9.25	$5.53	$0.00	$61.47
	6/1/2206	$39.29	$9.90	$9.25	$5.53	$0.00	$63.97

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2206	$41.46	$9.90	$9.25	$5.53	$0.00	$66.14
	6/1/2207	$43.11	$9.90	$9.25	$5.53	$0.00	$67.79
	12/1/2207	$44.51	$9.90	$9.25	$5.53	$0.00	$69.19
	6/1/2208	$46.01	$9.90	$9.25	$5.53	$0.00	$70.69
	12/1/2208	$44.94	$10.90	$9.75	$6.60	$0.00	$72.19
For apprentice rates see "Apprentice- LABORER"							
LASER BEAM OPERATOR (HEAVY & HIGHWAY)	6/1/2026	$37.25	$10.90	$9.75	$6.60	$0.00	$64.50
LABORERS LABORERS - ZONE 4 (HEAVY & HIGHWAY)	12/1/2026	$38.54	$10.90	$9.75	$6.60	$0.00	$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
MARBLE & TILE FINISHERS	8/1/2026	$47.05	$12.84	$15.10	$5.68	$0.00	$80.67
BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE	2/1/2027	$48.17	$12.84	$15.10	$5.68	$0.00	$81.79

Apprentice: MARBLE & TILE FINISHERS

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$23.53	$12.84	$15.10	$5.41	$0.00	$56.88
2	60.00	$28.23	$12.84	$15.10	$5.41	$0.00	$61.58
3	70.00	$32.94	$12.84	$15.10	$5.41	$0.00	$66.29
4	80.00	$37.64	$12.84	$15.10	$5.41	$0.00	$70.99
5	90.00	$42.35	$12.84	$15.10	$5.41	$0.00	$75.70

Apprentice: MARBLE & TILE FINISHERS

Effective Date: 2/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$24.09	$12.84	$15.10	$5.68	$0.00	$57.71
2	60.00	$28.90	$12.84	$15.10	$5.68	$0.00	$62.52
3	70.00	$33.72	$12.84	$15.10	$5.68	$0.00	$67.34
4	80.00	$38.54	$12.84	$15.10	$5.68	$0.00	$72.16
5	90.00	$43.35	$12.84	$15.10	$5.68	$0.00	$76.97

Apprentice to Journeyworker Ratio: 1:5

MILLWRIGHT (Zone 3) MILLWRIGHTS LOCAL 1121 MILLWRIGHTS LOCAL 1121 - Zone 3	1/5/2026	$45.20	$10.58	$11.47	$9.75	$0.00	$77.00

Apprentice: MILLWRIGHT (Zone 3)

Effective Date: 1/5/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	$24.86	$10.58	$0.00	$5.36	$0.00	$40.80
2	65.00	$29.38	$10.58	$0.00	$6.34	$0.00	$46.30

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: MILLWRIGHT (Zone 3)

Effective Date: 1/5/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
3	75.00	$33.90	$10.58	$11.47	$7.31	$0.00	$63.26
4	85.00	$38.42	$10.58	$11.47	$8.29	$0.00	$68.76

Apprentice Notes

Step 1&2 Appr. indentured after 1/6/2020 receive no pension,

Apprentice to Journeyworker Ratio: 1:4

MORTAR MIXER LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2026	$36.47	$10.90	$9.75	$6.60	$0.00	$63.72
	12/1/2026	$38.89	$10.90	$9.75	$6.60	$0.00	$66.14
	6/1/2027	$40.29	$10.90	$9.75	$6.60	$0.00	$67.54
	12/1/2027	$41.69	$10.90	$9.75	$6.60	$0.00	$68.94
	6/1/2028	$43.19	$10.90	$9.75	$6.60	$0.00	$70.44
	12/1/2028	$47.26	$9.90	$9.25	$5.53	$0.00	$71.94
	6/1/2205	$34.29	$9.90	$0.00	$0.00	$0.00	$44.19
	12/1/2205	$36.79	$9.90	$9.25	$5.53	$0.00	$61.47
	6/1/2206	$39.29	$9.90	$9.25	$5.53	$0.00	$63.97
	12/1/2206	$41.46	$9.90	$9.25	$5.53	$0.00	$66.14
	6/1/2207	$43.11	$9.90	$9.25	$5.53	$0.00	$67.79
	12/1/2207	$44.51	$9.90	$9.25	$5.53	$0.00	$69.19
	6/1/2208	$46.01	$9.90	$9.25	$5.53	$0.00	$70.69
	12/1/2208	$44.94	$10.90	$9.75	$6.60	$0.00	$72.19

For apprentice rates see "Apprentice- LABORER"

Operating Engineers 98 - Classification 1 OPERATING ENGINEERS LOCAL 98 OPERATING ENGINEERS LOCAL 98	6/1/2026	$47.55	$14.80	$12.50	$3.50	$0.00	$78.35
	12/1/2026	$49.51	$14.80	$12.50	$3.50	$0.00	$80.31
	6/1/2027	$51.16	$14.80	$12.50	$3.50	$0.00	$81.96
	12/1/2027	$52.80	$14.80	$12.50	$3.50	$0.00	$83.60

Bulldozer; Shovels; Backhoe; Combination Backhoe Loader 3/4 yd & Over; Grader; Trenching Machine; Front End Loader over 5.5 yds; Automatic Grader-Excavator, Micro Pile & Other Pile Driving Machine; Geothermal Drill; John Henry Rock Drill; Horizontal Drilling Machine; Concrete Pump with Boom.

Apprentice: Operating Engineers 98 - Classification 1

Effective Date: 6/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$28.53	$14.80	$12.50	$3.50	$0.00	$59.33
2	70.00	$33.29	$14.80	$12.50	$3.50	$0.00	$64.09
3	80.00	$38.04	$14.80	$12.50	$3.50	$0.00	$68.84
4	90.00	$42.80	$14.80	$12.50	$3.50	$0.00	$73.60

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: Operating Engineers 98 - Classification 1

Effective Date: 12/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$29.71	$14.80	$12.50	$3.50	$0.00	$60.51
2	70.00	$34.66	$14.80	$12.50	$3.50	$0.00	$65.46
3	80.00	$39.61	$14.80	$12.50	$3.50	$0.00	$70.41
4	90.00	$44.56	$14.80	$12.50	$3.50	$0.00	$75.36

Apprentice to Journeyworker Ratio: 1:6

Operating Engineers 98 - Classification 10	6/1/2026	$51.05	$14.80	$12.50	$3.50	$0.00	$81.85
OPERATING ENGINEERS LOCAL 98	12/1/2026	$53.01	$14.80	$12.50	$3.50	$0.00	$83.81
OPERATING ENGINEERS LOCAL 98	6/1/2027	$54.66	$14.80	$12.50	$3.50	$0.00	$85.46
	12/1/2027	$56.30	$14.80	$12.50	$3.50	$0.00	$87.10

Crawler & Truck Crane; Dragline; Derrick; Clamshell; Tower Crane; Self-Propelled Hydraulic Crane; Boom Truck.

Operating Engineers 98 - Classification 2	6/1/2026	$47.24	$14.80	$12.50	$3.50	$0.00	$78.04
OPERATING ENGINEERS LOCAL 98	12/1/2026	$49.20	$14.80	$12.50	$3.50	$0.00	$80.00
OPERATING ENGINEERS LOCAL 98	6/1/2027	$50.85	$14.80	$12.50	$3.50	$0.00	$81.65
	12/1/2027	$52.49	$14.80	$12.50	$3.50	$0.00	$83.29

Front End Loader 4 - 5.5 yds; Scraper over 21 yds; Sonic & Vibratory Hammers; Mechanic; Forklift over 3 ton; Asphalt Paver; Transfer Machine; Road Planer / Milling Machine.

Operating Engineers 98 - Classification 3	6/1/2026	$47.02	$14.80	$12.50	$3.50	$0.00	$77.82
OPERATING ENGINEERS LOCAL 98	12/1/2026	$48.98	$14.80	$12.50	$3.50	$0.00	$79.78
OPERATING ENGINEERS LOCAL 98	6/1/2027	$50.63	$14.80	$12.50	$3.50	$0.00	$81.43
	12/1/2027	$52.27	$14.80	$12.50	$3.50	$0.00	$83.07

Scraper up to 21 yds; Front End Loader up to 4 yds; Pumpcrete Machine; Concrete Batch Plant on Site; Grout Pumps; Well Point Operator; Hydro-Vac Truck; Grease Truck.

Operating Engineers 98 - Classification 3A	6/1/2026	$46.41	$14.80	$12.50	$3.50	$0.00	$77.21
OPERATING ENGINEERS LOCAL 98	12/1/2026	$48.37	$14.80	$12.50	$3.50	$0.00	$79.17
OPERATING ENGINEERS LOCAL 98	6/1/2027	$50.02	$14.80	$12.50	$3.50	$0.00	$80.82
	12/1/2027	$51.66	$14.80	$12.50	$3.50	$0.00	$82.46

Asphalt Roller; Self-Powered Rollers & Compactors; Tractors; York Rakes.

Operating Engineers 98 - Classification 4	6/1/2026	$43.79	$14.80	$12.50	$3.50	$0.00	$74.59
OPERATING ENGINEERS LOCAL 98	12/1/2026	$45.75	$14.80	$12.50	$3.50	$0.00	$76.55
OPERATING ENGINEERS LOCAL 98	6/1/2027	$47.40	$14.80	$12.50	$3.50	$0.00	$78.20
	12/1/2027	$49.04	$14.80	$12.50	$3.50	$0.00	$79.84

Hoists; Conveyors; Power Pavement Breaker; Power Broom; Generators over 30 KW.

Operating Engineers 98 - Classification 5	6/1/2026	$42.67	$14.80	$12.50	$3.50	$0.00	$73.47
OPERATING ENGINEERS LOCAL 98	12/1/2026	$44.63	$14.80	$12.50	$3.50	$0.00	$75.43
OPERATING ENGINEERS LOCAL 98	6/1/2027	$46.28	$14.80	$12.50	$3.50	$0.00	$77.08
	12/1/2027	$47.92	$14.80	$12.50	$3.50	$0.00	$78.72

Compressor (315 to 900 cu ft.); Pumps (4 - 6 in. discharge).

PAINTER (BRIDGES/TANKS)	1/1/2026	$59.56	$10.35	$12.00	$12.60	$0.00	$94.51
PAINTERS LOCAL 35							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
PAINTERS LOCAL 35 - ZONE 3							

Apprentice: PAINTER (BRIDGES/TANKS)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.78	$10.35	$0.00	$0.00	$0.00	$40.13
2	55.00	$32.76	$10.35	$0.00	$6.93	$0.00	$50.04
3	60.00	$35.74	$10.35	$0.00	$7.56	$0.00	$53.65
4	65.00	$38.71	$10.35	$0.00	$8.19	$0.00	$57.25
5	70.00	$41.69	$10.35	$12.00	$8.82	$0.00	$72.86
6	75.00	$44.67	$10.35	$12.00	$9.45	$0.00	$76.47
7	80.00	$47.65	$10.35	$12.00	$10.08	$0.00	$80.08
8	90.00	$53.60	$10.35	$12.00	$11.34	$0.00	$87.29

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	1/1/2026	$42.03	$10.35	$12.00	$8.35	$0.00	$72.73

* If 30% or more of surfaces to be painted are new construction,
NEW paint rate shall be used.
PAINTERS LOCAL 35
PAINTERS LOCAL 35 - ZONE 3

Apprentice: PAINTER (SPRAY OR SANDBLAST, NEW) *

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$21.02	$10.35	$0.00	$0.00	$0.00	$31.37
2	55.00	$23.12	$10.35	$0.00	$4.59	$0.00	$38.06
3	60.00	$25.22	$10.35	$0.00	$5.01	$0.00	$40.58
4	65.00	$27.32	$10.35	$0.00	$5.43	$0.00	$43.10
5	70.00	$29.42	$10.35	$12.00	$5.85	$0.00	$57.62
6	75.00	$31.52	$10.35	$12.00	$6.26	$0.00	$60.13
7	80.00	$33.62	$10.35	$12.00	$6.68	$0.00	$62.65
8	90.00	$37.83	$10.35	$12.00	$7.52	$0.00	$67.70

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	1/1/2026	$39.35	$10.35	$12.00	$8.35	$0.00	$70.05

PAINTERS LOCAL 35
PAINTERS LOCAL 35 - ZONE 3

Apprentice: PAINTER (SPRAY OR SANDBLAST, REPAINT)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$19.68	$10.35	$0.00	$0.00	$0.00	$30.03
2	55.00	$21.64	$10.35	$0.00	$4.59	$0.00	$36.58

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: PAINTER (SPRAY OR SANDBLAST, REPAINT)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
3	60.00	$23.61	$10.35	$0.00	$5.01	$0.00	$38.97
4	65.00	$25.58	$10.35	$0.00	$5.43	$0.00	$41.36
5	70.00	$27.55	$10.35	$12.00	$5.85	$0.00	$55.75
6	75.00	$29.51	$10.35	$12.00	$6.26	$0.00	$58.12
7	80.00	$31.48	$10.35	$12.00	$6.68	$0.00	$60.51
8	90.00	$35.42	$10.35	$12.00	$7.52	$0.00	$65.29

Apprentice to Journeyworker Ratio: 1:1

PAINTER / TAPER (BRUSH, NEW) *	1/1/2026	$40.63	$10.35	$12.00	$8.35	$0.00	$71.33

* If 30% or more of surfaces to be painted are new construction,
NEW paint rate shall be used.
PAINTERS LOCAL 35
PAINTERS LOCAL 35 - ZONE 3

Apprentice: PAINTER / TAPER (BRUSH, NEW) *

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$20.32	$10.35	$0.00	$0.00	$0.00	$30.67
2	55.00	$22.35	$10.35	$0.00	$4.59	$0.00	$37.29
3	60.00	$24.38	$10.35	$0.00	$5.01	$0.00	$39.74
4	65.00	$26.41	$10.35	$0.00	$5.43	$0.00	$42.19
5	70.00	$28.44	$10.35	$12.00	$5.85	$0.00	$56.64
6	75.00	$30.47	$10.35	$12.00	$6.26	$0.00	$59.08
7	80.00	$32.50	$10.35	$12.00	$6.68	$0.00	$61.53
8	90.00	$36.57	$10.35	$12.00	$7.52	$0.00	$66.44

Apprentice to Journeyworker Ratio: 1:1

PAINTER / TAPER (BRUSH, REPAINT)	1/1/2026	$37.95	$10.35	$12.00	$8.35	$0.00	$68.65

PAINTERS LOCAL 35
PAINTERS LOCAL 35 - ZONE 3

Apprentice: PAINTER / TAPER (BRUSH, REPAINT)

Effective Date: 1/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$18.98	$10.35	$0.00	$0.00	$0.00	$29.33
2	55.00	$20.87	$10.35	$0.00	$4.59	$0.00	$35.81
3	60.00	$22.77	$10.35	$0.00	$5.01	$0.00	$38.13
4	65.00	$24.67	$10.35	$0.00	$5.43	$0.00	$40.45
5	70.00	$26.57	$10.35	$12.00	$5.85	$0.00	$54.77
6	75.00	$28.46	$10.35	$12.00	$6.26	$0.00	$57.07

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: PAINTER / TAPER (BRUSH, REPAINT)							
Effective Date: 1/1/2026							
Step / Percent		**Apprentice Base Wage**					
7 / 80.00		$30.36	$10.35	$12.00	$6.68	$0.00	$59.39
8 / 90.00		$34.16	$10.35	$12.00	$7.52	$0.00	$64.03
Apprentice to Journeyworker Ratio: 1:1							
PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY) LABORERS LABORERS - ZONE 4 (HEAVY & HIGHWAY)	6/1/2026	$37.00	$10.90	$9.75	$6.60	$0.00	$64.25
	12/1/2026	$38.29	$10.90	$9.75	$6.60	$0.00	$65.54
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
PANEL & PICKUP TRUCKS DRIVER TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	6/1/2026	$41.78	$16.17	$21.78	$0.00	$0.00	$79.73
	12/1/2026	$41.78	$16.17	$23.52	$0.00	$0.00	$81.47
	1/1/2027	$41.78	$16.77	$23.52	$0.00	$0.00	$82.07
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 3)	8/1/2024	$49.19	$10.08	$11.62	$12.67	$0.00	$83.56
For apprentice rates see "Apprentice- PILE DRIVER"							
PILE DRIVER PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 3)	8/1/2024	$49.19	$10.08	$11.62	$12.67	$0.00	$83.56
Apprentice: PILE DRIVER							
Effective Date: 8/1/2024							
Step / Percent		**Apprentice Base Wage**					
1 / 45.00		$22.14	$10.08	$0.00	$2.53	$0.00	$34.75
2 / 55.00		$27.05	$10.08	$0.00	$5.07	$0.00	$42.20
3 / 70.00		$34.43	$10.08	$11.62	$7.60	$0.00	$63.73
4 / 80.00		$39.35	$10.08	$11.62	$10.14	$0.00	$71.19
Apprentice to Journeyworker Ratio: 1:5							
PIPELAYER LABORERS LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2026	$36.47	$10.90	$9.75	$6.60	$0.00	$63.72
	12/1/2026	$38.89	$10.90	$9.75	$6.60	$0.00	$66.14
	6/1/2027	$40.29	$10.90	$9.75	$6.60	$0.00	$67.54
	12/1/2027	$41.69	$10.90	$9.75	$6.60	$0.00	$68.94
	6/1/2028	$43.19	$10.90	$9.75	$6.60	$0.00	$70.44
	12/1/2028	$47.26	$9.90	$9.25	$5.53	$0.00	$71.94
	6/1/2205	$34.29	$9.90	$0.00	$0.00	$0.00	$44.19
	12/1/2205	$36.79	$9.90	$9.25	$5.53	$0.00	$61.47
	6/1/2206	$39.29	$9.90	$9.25	$5.53	$0.00	$63.97
	12/1/2206	$41.46	$9.90	$9.25	$5.53	$0.00	$66.14
	6/1/2207	$43.11	$9.90	$9.25	$5.53	$0.00	$67.79

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2207	$44.51	$9.90	$9.25	$5.53	$0.00	$69.19
	6/1/2208	$46.01	$9.90	$9.25	$5.53	$0.00	$70.69
	12/1/2208	$44.94	$10.90	$9.75	$6.60	$0.00	$72.19
For apprentice rates see "Apprentice- LABORER"							
PIPELAYER (HEAVY & HIGHWAY)	6/1/2026	$37.25	$10.90	$9.75	$6.60	$0.00	$64.50
LABORERS LABORERS - ZONE 4 (HEAVY & HIGHWAY)	12/1/2026	$38.54	$10.90	$9.75	$6.60	$0.00	$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
PLUMBER & PIPEFITTER	3/17/2026	$52.76	$13.85	$10.85	$7.10	$0.00	$84.56
PLUMBERS & PIPEFITTERS LOCAL 104 PLUMBERS & PIPEFITTERS LOCAL 104	9/17/2026	$54.26	$13.85	$10.85	$7.10	$0.00	$86.06
	3/17/2027	$56.26	$13.85	$10.85	$7.10	$0.00	$88.06
	9/17/2027	$60.26	$13.85	$10.85	$7.10	$0.00	$92.06
	3/17/2028	$60.26	$13.85	$10.85	$7.10	$0.00	$92.06
	9/17/2028	$64.26	$13.85	$10.85	$7.10	$0.00	$96.06
	3/17/2029	$64.26	$13.85	$10.85	$7.10	$0.00	$96.06

Apprentice: PLUMBER & PIPEFITTER

Effective Date: 3/17/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$23.74	$13.50	$10.85	$0.00	$0.00	$48.09
2	50.00	$26.38	$13.50	$10.85	$0.00	$0.00	$50.73
3	55.00	$29.02	$13.50	$10.85	$0.00	$0.00	$53.37
4	60.00	$31.66	$13.50	$10.85	$0.00	$0.00	$56.01
5	65.00	$34.29	$13.50	$10.85	$0.00	$0.00	$58.64
6	70.00	$36.93	$13.50	$10.85	$0.00	$0.00	$61.28
7	75.00	$39.57	$13.50	$10.85	$0.00	$0.00	$63.92
8	80.00	$42.21	$13.50	$10.85	$0.00	$0.00	$66.56
9	85.00	$44.85	$13.50	$10.85	$7.10	$0.00	$76.30
10	85.00	$44.85	$13.50	$10.85	$7.10	$0.00	$76.30

Apprentice: PLUMBER & PIPEFITTER

Effective Date: 9/17/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$24.42	$13.85	$10.85	$0.00	$0.00	$49.12
2	50.00	$27.13	$13.85	$10.85	$0.00	$0.00	$51.83
3	55.00	$29.84	$13.85	$10.85	$0.00	$0.00	$54.54
4	60.00	$32.56	$13.85	$10.85	$0.00	$0.00	$57.26
5	65.00	$35.27	$13.85	$10.85	$0.00	$0.00	$59.97
6	70.00	$37.98	$13.85	$10.85	$0.00	$0.00	$62.68
7	75.00	$40.70	$13.85	$10.85	$0.00	$0.00	$65.40
8	80.00	$43.41	$13.85	$10.85	$0.00	$0.00	$68.11
9	85.00	$46.12	$13.85	$10.85	$7.10	$0.00	$77.92
10	85.00	$46.12	$13.85	$10.85	$7.10	$0.00	$77.92

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice Notes							
**1:1,2:5,3:9,4:12							
Apprentice to Journeyworker Ratio: 1:1							
PNEUMATIC CONTROLS (TEMP.)	3/17/2026	$52.76	$13.85	$10.85	$7.10	$0.00	$84.56
PLUMBERS & PIPEFITTERS LOCAL 104	9/17/2026	$54.26	$13.85	$10.85	$7.10	$0.00	$86.06
PLUMBERS & PIPEFITTERS LOCAL 104	3/17/2027	$56.26	$13.85	$10.85	$7.10	$0.00	$88.06
	9/17/2027	$60.26	$13.85	$10.85	$7.10	$0.00	$92.06
	3/17/2028	$62.26	$13.85	$10.85	$7.10	$0.00	$94.06
	9/17/2028	$62.26	$13.85	$10.85	$7.10	$0.00	$94.06
	3/17/2029	$64.26	$13.85	$10.85	$7.10	$0.00	$96.06
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY)	6/1/2026	$37.25	$10.90	$9.75	$6.60	$0.00	$64.50
LABORERS	12/1/2026	$38.54	$10.90	$9.75	$6.60	$0.00	$65.79
LABORERS - ZONE 4 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
POWDERMAN & BLASTER	6/1/2026	$37.22	$10.90	$9.75	$6.60	$0.00	$64.47
LABORERS	12/1/2026	$39.64	$10.90	$9.75	$6.60	$0.00	$66.89
LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2027	$41.04	$10.90	$9.75	$6.60	$0.00	$68.29
	12/1/2027	$42.44	$10.90	$9.75	$6.60	$0.00	$69.69
	6/1/2028	$43.94	$10.90	$9.75	$6.60	$0.00	$71.19
	12/1/2028	$45.44	$10.90	$9.75	$6.60	$0.00	$72.69
For apprentice rates see "Apprentice- LABORER"							
POWDERMAN & BLASTER (HEAVY & HIGHWAY)	6/1/2026	$38.00	$10.90	$9.75	$6.60	$0.00	$65.25
LABORERS	12/1/2026	$39.29	$10.90	$9.75	$6.60	$0.00	$66.54
LABORERS - ZONE 4 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
READY-MIX CONCRETE DRIVER	5/1/2024	$26.14	$11.82	$7.25	$0.00	$0.00	$45.21
TEAMSTERS 404 - Construction Service (Northampton)							
TEAMSTERS 404 - Construction Service (Northampton)							
RIDE-ON MOTORIZED BUGGY OPERATOR	6/1/2026	$36.47	$10.90	$9.75	$6.60	$0.00	$63.72
LABORERS	12/1/2026	$38.89	$10.90	$9.75	$6.60	$0.00	$66.14
LABORERS - ZONE 4 (BUILDING & SITE)	6/1/2027	$40.29	$10.90	$9.75	$6.60	$0.00	$67.54
	12/1/2027	$41.69	$10.90	$9.75	$6.60	$0.00	$68.94
	6/1/2028	$43.19	$10.90	$9.75	$6.60	$0.00	$70.44
	12/1/2028	$47.26	$9.90	$9.25	$5.53	$0.00	$71.94
	6/1/2205	$34.29	$9.90	$0.00	$0.00	$0.00	$44.19
	12/1/2205	$36.79	$9.90	$9.25	$5.53	$0.00	$61.47
	6/1/2206	$39.29	$9.90	$9.25	$5.53	$0.00	$63.97
	12/1/2206	$41.46	$9.90	$9.25	$5.53	$0.00	$66.14
	6/1/2207	$43.11	$9.90	$9.25	$5.53	$0.00	$67.79
	12/1/2207	$44.51	$9.90	$9.25	$5.53	$0.00	$69.19
	6/1/2208	$46.01	$9.90	$9.25	$5.53	$0.00	$70.69
	12/1/2208	$44.94	$10.90	$9.75	$6.60	$0.00	$72.19
For apprentice rates see "Apprentice- LABORER"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
ROOFER (Coal tar pitch) ROOFERS LOCAL 248 ROOFERS LOCAL 248 For apprentice rates see "Apprentice- ROOFER"	7/16/2026	$44.73	$10.85	$8.95	$10.00	$0.00	$74.53
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) ROOFERS LOCAL 248 ROOFERS LOCAL 248	7/16/2026	$44.23	$10.85	$8.95	$10.00	$0.00	$74.03
ROOFER SLATE / TILE / PRECAST CONCRETE ROOFERS LOCAL 248 ROOFERS LOCAL 248 For apprentice rates see "Apprentice- ROOFER"	7/16/2026	$44.73	$10.85	$8.95	$10.00	$0.00	$74.53
SHEETMETAL WORKER SHEETMETAL WORKERS LOCAL 63 SHEETMETAL WORKERS LOCAL 63	7/1/2026	$43.48	$13.24	$11.01	$9.92	$2.13	$79.78
	1/1/2027	$43.48	$13.54	$11.01	$11.12	$2.13	$81.28
	7/1/2027	$44.98	$13.54	$11.01	$11.12	$2.13	$82.78
	1/1/2028	$46.48	$13.54	$11.01	$11.12	$2.13	$84.28

Apprentice: SHEETMETAL WORKER

Effective Date: 7/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$19.57	$5.96	$4.95	$0.00	$0.85	$31.33
2	50.00	$21.74	$6.62	$5.51	$0.00	$0.94	$34.81
3	55.00	$23.91	$7.28	$9.91	$0.00	$1.15	$42.25
4	60.00	$26.09	$7.94	$9.91	$0.00	$1.23	$45.17
5	65.00	$28.26	$8.60	$9.91	$0.00	$1.31	$48.08
6	70.00	$30.44	$9.27	$9.91	$0.00	$1.39	$51.01
7	75.00	$32.61	$9.93	$9.91	$0.00	$1.47	$53.92
8	80.00	$34.78	$10.59	$9.91	$9.92	$1.78	$66.98
9	85.00	$36.96	$11.25	$9.91	$9.92	$1.86	$69.90
10	90.00	$39.13	$11.92	$9.91	$9.92	$1.94	$72.82

Apprentice: SHEETMETAL WORKER

Effective Date: 1/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$19.57	$6.09	$4.95	$0.00	$0.85	$31.46
2	50.00	$21.74	$6.77	$5.51	$0.00	$0.94	$34.96
3	55.00	$23.91	$7.45	$9.91	$0.00	$1.15	$42.42
4	60.00	$26.09	$8.36	$9.91	$0.00	$1.23	$45.59
5	65.00	$28.26	$8.86	$9.91	$0.00	$1.31	$48.34
6	70.00	$30.44	$9.48	$9.91	$0.00	$1.39	$51.22
7	75.00	$32.61	$10.15	$9.91	$0.00	$1.47	$54.14
8	80.00	$34.78	$10.83	$9.91	$11.12	$1.78	$68.42
9	85.00	$36.96	$11.51	$9.91	$11.12	$1.86	$71.36
10	90.00	$39.13	$12.18	$9.91	$11.12	$1.94	$74.28

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice to Journeyworker Ratio: 1:3							
SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	6/1/2026	$42.24	$16.17	$21.78	$0.00	$0.00	$80.19
	12/1/2026	$42.24	$16.17	$23.52	$0.00	$0.00	$81.93
	1/1/2027	$42.24	$16.77	$23.52	$0.00	$0.00	$82.53
SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	6/1/2026	$42.53	$16.17	$21.78	$0.00	$0.00	$80.48
	12/1/2026	$42.53	$16.17	$23.52	$0.00	$0.00	$82.22
	1/1/2027	$42.53	$16.77	$23.52	$0.00	$0.00	$82.82
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 669 SPRINKLER FITTERS LOCAL 669	7/1/2026	$56.54	$13.60	$7.45	$9.41	$0.00	$87.00
	10/1/2026	$56.54	$13.60	$7.45	$9.41	$0.00	$87.00
	1/1/2027	$56.54	$14.55	$7.50	$9.41	$0.00	$88.00
	4/1/2027	$59.83	$14.55	$7.50	$9.41	$0.00	$91.29
	7/1/2027	$59.83	$14.55	$7.50	$9.41	$0.00	$91.29
	10/1/2027	$59.83	$14.55	$7.50	$9.41	$0.00	$91.29
	1/1/2028	$59.83	$15.50	$7.55	$9.41	$0.00	$92.29

Apprentice: SPRINKLER FITTER

Effective Date: 7/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	43.00	$28.36	$9.64	$0.00	$0.00	$0.00	$38.00
2	48.00	$31.66	$9.64	$0.00	$0.00	$0.00	$41.30
3	52.00	$34.29	$13.60	$7.45	$1.15	$0.00	$56.49
4	56.00	$36.93	$13.60	$7.45	$1.15	$0.00	$59.13
5	59.00	$38.91	$13.60	$7.45	$1.40	$0.00	$61.36
6	64.00	$42.21	$13.60	$7.45	$1.40	$0.00	$64.66
7	68.00	$44.85	$13.60	$7.45	$1.40	$0.00	$67.30
8	72.00	$47.48	$13.60	$7.45	$1.40	$0.00	$69.93
9	76.00	$50.12	$13.60	$7.45	$1.40	$0.00	$72.57
10	80.00	$52.76	$13.60	$7.45	$1.40	$0.00	$75.21

Apprentice: SPRINKLER FITTER

Effective Date: 10/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	43.00	$28.36	$0.00	$0.00	$0.00	$0.00	$28.36
2	48.00	$31.66	$0.00	$0.00	$0.00	$0.00	$31.66
3	52.00	$34.29	$0.00	$0.00	$1.15	$0.00	$35.44
4	56.00	$36.93	$0.00	$0.00	$1.15	$0.00	$38.08
5	59.00	$38.91	$0.00	$0.00	$1.40	$0.00	$40.31
6	64.00	$42.21	$0.00	$0.00	$1.40	$0.00	$43.61
7	68.00	$44.85	$0.00	$0.00	$1.40	$0.00	$46.25
8	72.00	$47.48	$0.00	$0.00	$1.40	$0.00	$48.88
9	76.00	$50.12	$0.00	$0.00	$1.40	$0.00	$51.52
10	80.00	$52.76	$0.00	$0.00	$1.40	$0.00	$54.16

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice to Journeyworker Ratio: 1:1							
TELECOMMUNICATION TECHNICIAN	6/28/2026	$54.41	$14.00	$8.43	$7.03	$0.00	$83.87
TELECOMMUNICATION TECHNICIAN	1/3/2027	$55.56	$14.25	$8.47	$7.09	$0.00	$85.37
ELECTRICIANS LOCAL 7							
ELECTRICIANS LOCAL 7							

For apprentice rates and ratios see "Apprentice- ELECTRICIAN"

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 6/28/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$21.76	$7.80	$0.63	$0.00	$0.00	$30.19
2	45.00	$24.48	$7.80	$0.70	$0.00	$0.00	$32.98
3	50.00	$27.21	$14.00	$7.53	$0.00	$0.00	$48.74
4	55.00	$29.93	$14.00	$7.61	$0.00	$0.00	$51.54
5	65.00	$35.37	$14.00	$9.84	$0.00	$0.00	$59.21
6	70.00	$38.09	$14.00	$11.30	$0.00	$0.00	$63.39

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 1/3/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$22.22	$7.95	$0.63	$0.00	$0.00	$30.80
2	45.00	$25.00	$7.95	$0.70	$0.00	$0.00	$33.65
3	50.00	$27.78	$14.25	$7.53	$0.00	$0.00	$49.56
4	55.00	$30.56	$14.25	$7.61	$0.00	$0.00	$52.42
5	65.00	$36.11	$14.25	$9.84	$0.00	$0.00	$60.20
6	70.00	$38.89	$14.25	$11.30	$0.00	$0.00	$64.44

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice to Journeyworker Ratio: 1:1							
TERRAZZO FINISHERS	8/1/2026	$69.09	$12.84	$15.57	$8.02	$0.00	$105.52
BRICKLAYERS LOCAL 3	2/1/2027	$70.49	$12.84	$15.57	$8.02	$0.00	$106.92
BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE							

Apprentice: TERRAZZO FINISHERS

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$34.55	$12.84	$15.57	$8.02	$0.00	$70.98
2	60.00	$41.45	$12.84	$15.57	$8.02	$0.00	$77.88
3	70.00	$48.36	$12.84	$15.57	$8.02	$0.00	$84.79
4	80.00	$55.27	$12.84	$15.57	$8.02	$0.00	$91.70
5	90.00	$62.18	$12.84	$15.57	$8.02	$0.00	$98.61

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Apprentice: TERRAZZO FINISHERS

Effective Date: 2/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$35.25	$12.84	$15.57	$8.02	$0.00	$71.68
2	60.00	$42.29	$12.84	$15.57	$8.02	$0.00	$78.72
3	70.00	$49.34	$12.84	$15.57	$8.02	$0.00	$85.77
4	80.00	$56.39	$12.84	$15.57	$8.02	$0.00	$92.82
5	90.00	$63.44	$12.84	$15.57	$8.02	$0.00	$99.87

Apprentice to Journeyworker Ratio: 1:5

TERRAZZO MECHANIC	8/1/2026	$70.17	$12.84	$15.57	$7.99	$0.00	$106.57
BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 (SPR/PITT) - MARBLE & TILE	2/1/2027	$71.57	$12.84	$15.57	$7.99	$0.00	$107.97

Apprentice: TERRAZZO MECHANIC

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$35.09	$12.84	$15.57	$7.99	$0.00	$71.49
2	60.00	$42.10	$12.84	$15.57	$7.99	$0.00	$78.50
3	70.00	$49.12	$12.84	$15.57	$7.99	$0.00	$85.52
4	80.00	$56.14	$12.84	$15.57	$7.99	$0.00	$92.54
5	90.00	$63.15	$12.84	$15.57	$7.99	$0.00	$99.55

Apprentice: TERRAZZO MECHANIC

Effective Date: 2/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$35.79	$12.84	$15.57	$7.99	$0.00	$72.19
2	60.00	$42.94	$12.84	$15.57	$7.99	$0.00	$79.34
3	70.00	$50.10	$12.84	$15.57	$7.99	$0.00	$86.50
4	80.00	$57.26	$12.84	$15.57	$7.99	$0.00	$93.66
5	90.00	$64.41	$12.84	$15.57	$7.99	$0.00	$100.81

Apprentice to Journeyworker Ratio: 1:5

TEST BORING DRILLER	6/1/2026	$53.25	$10.90	$9.75	$9.80	$0.00	$83.70
LABORERS LABORERS - FOUNDATION AND MARINE	12/1/2026	$54.75	$10.90	$9.75	$9.80	$0.00	$85.20

For apprentice rates see "Apprentice- LABORER"

TEST BORING DRILLER HELPER	6/1/2026	$49.37	$10.90	$9.75	$9.80	$0.00	$79.82
LABORERS LABORERS - FOUNDATION AND MARINE	12/1/2026	$50.87	$10.90	$9.75	$9.80	$0.00	$81.32

For apprentice rates see "Apprentice- LABORER"

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
TEST BORING LABORER	6/1/2026	$49.25	$10.90	$9.75	$9.80	$0.00	$79.70
LABORERS LABORERS - FOUNDATION AND MARINE	12/1/2026	$50.75	$10.90	$9.75	$9.80	$0.00	$81.20
For apprentice rates see "Apprentice- LABORER"							
TRAILERS FOR EARTH MOVING EQUIPMENT	6/1/2026	$42.82	$16.17	$21.78	$0.00	$0.00	$80.77
TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/1/2026	$42.82	$16.17	$23.52	$0.00	$0.00	$82.51
	1/1/2027	$42.82	$16.77	$23.52	$0.00	$0.00	$83.11
TUNNEL WORK - COMPRESSED AIR	6/1/2026	$61.48	$10.90	$9.75	$10.25	$0.00	$92.38
LABORERS LABORERS (COMPRESSED AIR)	12/1/2026	$62.98	$10.90	$9.75	$10.25	$0.00	$93.88
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	6/1/2026	$63.48	$10.90	$9.75	$10.25	$0.00	$94.38
LABORERS LABORERS (COMPRESSED AIR)	12/1/2026	$64.98	$10.90	$9.75	$10.25	$0.00	$95.88
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR	6/1/2026	$53.55	$10.90	$9.75	$10.25	$0.00	$84.45
LABORERS LABORERS (FREE AIR TUNNEL)	12/1/2026	$55.05	$10.90	$9.75	$10.25	$0.00	$85.95
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR (HAZ. WASTE)	6/1/2026	$55.55	$10.90	$9.75	$10.25	$0.00	$86.45
LABORERS LABORERS (FREE AIR TUNNEL)	12/1/2026	$57.05	$10.90	$9.75	$10.25	$0.00	$87.95
For apprentice rates see "Apprentice- LABORER"							
VAC-HAUL	6/1/2026	$42.24	$16.17	$21.78	$0.00	$0.00	$80.19
TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/1/2026	$42.24	$16.17	$23.52	$0.00	$0.00	$81.93
	1/1/2027	$42.24	$16.77	$23.52	$0.00	$0.00	$82.53
WAGON DRILL OPERATOR (HEAVY & HIGHWAY)	6/1/2026	$37.25	$10.90	$9.75	$6.60	$0.00	$64.50
LABORERS LABORERS - ZONE 4 (HEAVY & HIGHWAY)	12/1/2026	$38.54	$10.90	$9.75	$6.60	$0.00	$65.79
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
WATER METER INSTALLER	3/17/2026	$52.76	$13.85	$10.85	$7.10	$0.00	$84.56
PLUMBERS & PIPEFITTERS LOCAL 104 PLUMBERS & PIPEFITTERS LOCAL 104	9/17/2026	$54.26	$13.85	$10.85	$7.10	$0.00	$86.06
	3/17/2027	$56.26	$13.85	$10.85	$7.10	$0.00	$88.06
	9/17/2027	$60.26	$13.85	$10.85	$7.10	$0.00	$92.06
	3/17/2028	$62.26	$13.85	$10.85	$7.10	$0.00	$94.06
	9/17/2028	$62.26	$13.85	$10.85	$7.10	$0.00	$94.06
	3/17/2029	$64.26	$13.85	$10.85	$7.10	$0.00	$96.06

For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"

Outside Electrical

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
EQUIPMENT OPERATOR OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42 OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42 For apprentice rates see "Apprentice- LINEMAN"	9/1/2019	$44.67	$8.00	$12.55	$0.00	$0.00	$65.22
GROUNDMAN OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42 OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42 For apprentice rates see "Apprentice- LINEMAN"	9/1/2019	$30.58	$8.00	$5.48	$0.00	$0.00	$44.06
GROUNDMAN / TRUCK DRIVER OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42 OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42 For apprentice rates see "Apprentice- LINEMAN"	9/1/2019	$39.97	$8.00	$10.96	$0.00	$0.00	$58.93
HEAVY EQUIPMENT OPERATOR OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42 OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42 For apprentice rates see "Apprentice- LINEMAN"	9/1/2019	$47.01	$8.00	$13.22	$0.00	$0.00	$68.23
JOURNEYMAN LINEMAN OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42 OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42	9/1/2019	$51.71	$8.00	$15.55	$0.00	$0.00	$75.26

Apprentice: JOURNEYMAN LINEMAN

Effective Date: 9/1/2019

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$31.03	$8.00	$3.43	$0.00	$0.00	$42.46
2	65.00	$33.61	$8.00	$3.51	$0.00	$0.00	$45.12
3	70.00	$36.20	$8.00	$3.59	$0.00	$0.00	$47.79
4	75.00	$38.78	$8.00	$5.16	$0.00	$0.00	$51.94
5	80.00	$41.37	$8.00	$5.24	$0.00	$0.00	$54.61
6	85.00	$43.95	$8.00	$5.32	$0.00	$0.00	$57.27
7	90.00	$46.54	$8.00	$7.40	$0.00	$0.00	$61.94

Apprentice to Journeyworker Ratio: 1:2

TELEDATA CABLE SPLICER OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42 OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42	2/4/2019	$30.73	$4.70	$0.92	$2.25	$0.00	$38.60
TELEDATA LINEMAN/EQUIPMENT OPERATOR OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42 OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42	2/4/2019	$28.93	$4.70	$0.89	$2.25	$0.00	$36.77
TELEDATA WIREMAN/INSTALLER/TECHNICIAN OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42 OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42	2/4/2019	$28.93	$4.70	$0.89	$2.25	$0.00	$36.77
TRACTOR-TRAILER DRIVER OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42	9/1/2019	$44.67	$8.00	$12.55	$0.00	$0.00	$65.22

Outside Electrical

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
OUTSIDE ELECTRICAL WORKERS - WEST LOCAL 42							

Additional Apprentice Information

All apprentices must be registered with the Division of Apprenticeship Training(DAS) in accordance with M.G.L.c. 23, §§ 11E-11L. Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the hourly prevailing wage rate established by the Commissioner under the provisions of M.G.L.c. 149, §§ 26-27D.

Apprentice ratios are established by DAS pursuant to M.G.L.c. 23, §§ 11E-11L. Ratios are expressed as the allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified. The ratios listed herein have been taken from relevant private collective bargaining agreements(CBAs) and are provided for illustrative purposes only. They have not been independently verified as being accurate or continuing to be accurate.

Parties having questions regarding what ratio to use should contact DAS.

DOCUMENT 00870

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS
Revised August 19, 2026

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted:

   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority.

   c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

   d. "Minority" includes:

      (i) Black (all persons having origins in any of the black African racial groups not of Hispanic origin);
      (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
      (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
      (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $ 10,000 the provisions of the specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (41 CFR 60-4.5 and 23 CFR Part 230) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in Paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

    a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

    b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

    c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

    d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

    e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

    f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

    g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

    h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

k. Validate all tests and other selection requirements are in compliance with 41 CFR Part 60-3 and 23 CFR Part 230.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables of affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11 The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered by the Office of Federal Contract Compliance programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8 and 23 CFR Part 230.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as many be required by the Government and keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

APPENDIX A

The following goals and timetables for female utilization shall be included in all Federal and federally assisted construction contracts and subcontracts in excess of $ 10,000. The goals are applicable to the Contractor's aggregate on-site construction workforce whether or not part of that workforce is performing work on a Federal or federally-assisted construction contract or subcontract.

Area covered: Goal for Women apply nationwide

Goals and Timetables

Timetable	Goals (percent)
From Apr. 1, 1980 until further notice	6.9

APPENDIX B-80

Until further notice, the following goals for minority utilization in each construction craft and trade shall included in all Federal or federally assisted construction contracts and subcontracts in excess of $ 10,000 to be performed in the respective geographical areas. The goals are applicable to each nonexempt contractor's total on- site construction workforce, regardless of whether or not part of that workforce is performing work on a Federal, federally assisted or nonfederally related project, contract or subcontract.

Construction contractors participating in an approved Hometown Plan (see 41 CFR 6-4.5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the area covered by the Hometown Plan. With regard to all their other covered construction work, such contractors are required to comply with the applicable SMSA or EA goal contained in this Appendix B-80.

Economic Areas

STATE:	Goals (percent)
MASSACHUSETTS	
004 Boston MA: SMSA Counties: 1123 Boston-Lowell-Brockton-Lawrence-Haverhill, MA-NH	4.0
MA Essex, MA Middlesex, MA Norfolk, MA Plymouth, MA Suffolk, NH Rockingham.	
5403 Fall River- New Bedford MA, Bristol	1.6
9243 Worcester-Fitchburg-Leominster, MA	1.6
6323 Springfield-Chicopee-Holyoke MA-CT MA Hampden, MA Hampshire	4.8
Non-SMSA Counties: MA Barnstable, MA Dukes, MA Nantucket	3.6
Non-SMSA Counties: MA Franklin	5.9

APPENDIX C

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. **Compliance with Regulations:** The contractor (hereinafter includes consultants) will comply with the Acts and Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, Federal Highway Administration (FHWA), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Non-discrimination:** The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin (including limited English proficiency), age, sex, disability, or low-income status in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.

3. **Solicitations for Subcontractors, including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to nondiscrimination on the grounds of race, color, national origin (including limited English proficiency), age, sex, disability, or low-income status.

4. **Information and Reports:** The contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto, and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Massachusetts Department of Transportation (MassDOT) or FHWA to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information, the contractor will so certify to MassDOT or FHWA, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of a contractor's noncompliance with the Nondiscrimination provisions of this contract, MassDOT will impose such contract sanctions as it or FHWA may determine to be appropriate, including, but not limited to:

    a. withholding payments to the contractor under the contract until the contractor complies; and/or
    b. cancelling, terminating, or suspending a control, in whole or in part.

6. **Incorporation of Provisions:** The contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The contractor will take action with respect to any subcontract or procurement as MassDOT or FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request MassDOT to enter into any litigation to protect the interests of MassDOT. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

APPENDIX D

During the performance of this contact, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor," which includes consultants) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

PERTINENT NON-DISCRIMINATION AUTHORITIES:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21

- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-Aid programs and projects)

- Federal-Aid Highway Act of 1973 (23 U.S.C. § 324 *et seq.*) (prohibits discrimination on the basis of sex)

- Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794 *et seq.*), as amended (prohibits discrimination on the basis of disability) and 49 CFR Part 27

- The Age Discrimination Act of 1975, as amended (42 U.S.C. § 6101 *et seq.*) (prohibits discrimination on the basis of age)

- Airport and Airway Improvement Act of 1982 (49 U.S.C. § 471, Section 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex)

- The Civil Rights Restoration Act of 1987 (PL 100-209) (broadened the scope, coverage, and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975, and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of Federal-Aid recipients, sub-recipients, and contractors, whether such programs or activities are Federally funded or not)

- Titles II and III of the Americans with Disabilities Act (42 U.S.C. §§ 12131-12189), as implemented by Department of Transportation regulations at 49 CFR parts 37 and 38 (prohibits discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities)

- The Federal Aviation Administration's Non-Discrimination Statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex)

- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (ensures discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations)

- Executive Order 13166, Improving Access to Services for People with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100)

- Title IX of the Education Amendments Act of 1972, as amended (20 U.S.C. 1681 *et seq.*) (prohibits discrimination on the basis of sex in education programs or activities)

*** END OF DOCUMENT ***

DOCUMENT 00875
TRAINEE SPECIAL PROVISIONS
Revised October, 2016

THE REQUIRED NUMBER OF TRAINEES TO BE TRAINED UNDER THIS CONTRACT WILL BE **2**

The contractor shall provide on-the job training aimed at developing full journeyworkers in the type of trade of job classification involved.

In the event that a contractor subcontracts a portion of the contract work, the General Contractor shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided, however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this training special provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year of apprenticeship or training.

The number of trainees shall be distributed among the work classifications on the basis of the contractor's needs and the availability of journeyworkers in the various classifications within a reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Massachusetts Department Of Transportation (MassDOT) for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyworker status is a primary objective of the Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority and women trainees (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that have been taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and shall not be used, to discriminate against any applicant for training.

No employee shall be trained under this Special Provision in any classification in which he or she has successfully completed a training course leading to journeyworker status or in which he or she has been employed as a journeyworker. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the finding in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Massachusetts Department Of Transportation and the Federal Highway Administration. The Massachusetts Department Of Transportation and the Federal Highway Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyworker status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work on the classification covered by the program. It is the intention of these provisions that training is to be provided in the construction crafts rather that clerk-typist or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc. where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the Federal Highway Administration division office. Some offsite training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Reimbursement

Under these Training Special Provisions, reimbursement will be as follows:

The Contractor will only be reimbursed 80 cents for each hour of on the job training as specified in the approved Training Program.

The Contractor is advised and encouraged that it may train additional persons in excess of the number specified and will be reimbursed as stated above. Reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other source does not specifically prohibit the contractor from receiving other reimbursement.

If less than full training specified in the approved training programs is provided, payment to the contractor will be made at a rate of 80 cents for each hour of training completed under this contract. However, no payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainee as a journeyworker, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirements of this Training Special Provision.

Payment

Trainees will be paid:

1. Percentage (%) of the journeyworker's rate as provided in the existing programs approved by the Department of Labor or Transportation as of September 15, 1970.

2. For journeyworker programs submitted by the Contractor and approved by Massachusetts Department Of Transportation and the Federal Highway Administration at least 60 percent of the appropriate minimum journeyworker's rate specified in the contract for the first half of the training period, 75 percent for the third quarter if the training period, and 90 percent for the last quarter of the training period.

3. For skilled laborer programs, the minimum starting wage rate of unskilled laborer. At the conclusion of training, he or she will be paid the minimum wage rate of the Classification for programs submitted by the Contractor and approved by the Massachusetts Department Of Transportation and the Federal Highway Administration.

4. For the purposes of meeting the legal requirements of State Prevailing Wage Law, please be advised that no person may be paid the Apprentice wage rate as listed on a MA Prevailing Wage Rates schedule, unless that person and program is registered with the Department of Labor Standards/Division of Apprentice Standards (DLS/DAS). Any person or program not registered with DLS/DAS, regardless of whether or not they are registered with any other federal, state, local, or private entity must be paid the journeyworker’s rate for the trade.

The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily complete.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

Form FHWA-1409, Federal-aid Highway Construction Contracting Semi Annual Training Report, shall be submitted as per instructions on the Form.

*** END OF DOCUMENT ***

DOCUMENT 00880

Revised January 12, 2022

DEPARTMENT OF LABOR

Employment Standards Administration

MINIMUM WAGES FOR FEDERAL AND FEDERALLY ASSISTED CONTRACTS

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"General Decision Number: MA20260016 05/18/2026

State: Massachusetts

Construction Types: Highway

Counties: Massachusetts Counties of
Berkshire

Modification Number	Publication Date
0	01/02/2026
1	05/18/2026

ENGI0004-019 06/01/2025

	Rates	Fringes
POWER EQUIPMENT OPERATOR GROUP 2 MILLING MACHINE; PAVER (ASPHALT, AGGREGATE, AND CONCRETE) FOOTNOTE FOR POWER EQUIPMENT OPERATORS: A. PAID HOLIDAYS: NEW YEAR'S DAY, WASHINGTON'S BIRTHDAY, LABOR DAY, MEMORIAL DAY, INDEPENDENCE DAY, PATRIOT'S DAY, COLUMBUS DAY, VETERAN'S DAY, THANKSGIVING DAY, CHRISTMAS DAY	$ 57.83	33.70
POWER EQUIPMENT OPERATOR GROUP 2 BULLDOZER; GRADER/BLADE FOOTNOTE FOR POWER EQUIPMENT OPERATORS: A. PAID HOLIDAYS: NEW YEAR'S DAY, WASHINGTON'S BIRTHDAY, LABOR DAY, MEMORIAL DAY, INDEPENDENCE DAY, PATRIOT'S DAY, COLUMBUS DAY, VETERAN'S DAY, THANKSGIVING DAY, CHRISTMAS DAY	$ 57.83	33.70
POWER EQUIPMENT OPERATOR GROUP 1 BROOM/SWEEPER; CRANE; GRADALL; POST DRIVER (GUARDRAIL/FENCES) FOOTNOTE FOR POWER EQUIPMENT OPERATORS: A. PAID HOLIDAYS: NEW YEAR'S DAY, WASHINGTON'S BIRTHDAY, LABOR DAY, MEMORIAL DAY, INDEPENDENCE DAY, PATRIOT'S DAY, COLUMBUS DAY, VETERAN'S DAY, THANKSGIVING DAY, CHRISTMAS DAY	$ 57.18	33.70

POWER EQUIPMENT OPERATOR GROUP 1
BACKHOE/EXCAVATOR/TRACKHOE; BOBCAT/SKID STEER/SKID
LOADER; LOADER FOOTNOTE FOR POWER EQUIPMENT
OPERATORS: A. PAID HOLIDAYS: NEW YEAR'S DAY,
WASHINGTON'S BIRTHDAY, LABOR DAY, MEMORIAL DAY,
INDEPENDENCE DAY, PATRIOT'S DAY, COLUMBUS DAY,
VETERAN'S DAY, THANKSGIVING DAY, CHRISTMAS DAY.....$ 57.18
33.70

ENGI0098-010 12/01/2024

Rates
Fringes
POWER EQUIPMENT OPERATOR GROUP 4 ROLLER FOOTNOTE
FOR POWER EQUIPMENT OPERATORS: A. PAID HOLIDAYS:
NEW YEAR'S DAY, WASHINGTON'S BIRTHDAY, LABOR DAY,
MEMORIAL DAY, INDEPENDENCE DAY, PATRIOT'S DAY,
COLUMBUS DAY, VETERAN'S DAY, THANKSGIVING DAY,
CHRISTMAS DAY.....$ 39.12
31.04

IRON0007-027 09/16/2025

Rates
Fringes
IRONWORKER: ORNAMENTAL AND STRUCTURAL.....$ 41.89
33.90

LABO0473-007 12/01/2024

Rates
Fringes
TRAFFIC CONTROL (FLAGGER).....$ 27.01
26.65
LABORER (COMMON OR GENERAL).....$ 31.54
26.65

LABO0596-005 06/01/2025

Rates
Fringes
LABORER (FORM WORK ONLY).....$ 35.00
26.91

PAIN0035-023 07/01/2024

	Rates	Fringes
PAINTER: STEEL	$ 56.76	36.00

SUMA2014-006 01/11/2017

	Rates	Fringes
TRUCK DRIVER: FLATBED TRUCK	$ 48.53	0.00
TRUCK DRIVER: DUMP TRUCK	$ 38.94	12.00
TRUCK DRIVER: CONCRETE TRUCK	$ 33.69	15.79
TRAFFIC CONTROL: LABORER-CONES/ BARRICADES/BARRELS - SETTER/MOVER/SWEEPER	$ 43.73	15.06
PAINTER: SPRAY (LINESTRIPING)	$ 38.30	17.43
OPERATOR: PILEDRIVER	$ 43.87	18.04
OPERATOR: MECHANIC	$ 48.14	17.02
OPERATOR: FORKLIFT	$ 51.63	0.00
LABORER: LANDSCAPE	$ 36.62	16.00
LABORER: CONCRETE SAW (HAND HELD/WALK BEHIND)	$ 44.43	14.18
LABORER: ASPHALT, INCLUDES RAKER, SHOVELER, SPREADER AND DISTRIBUTOR	$ 33.10	18.09
IRONWORKER, REINFORCING	$ 46.21	21.27
ELECTRICIAN	$ 47.13	13.41
CEMENT MASON/CONCRETE FINISHER	$ 52.13	20.89
CARPENTER	$ 44.11	21.41

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least $13.65 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract from May 11, 2026, through December 31, 2026. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than SU , UAVG , SA , or SC denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The SU identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

SU wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The SA identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the SA identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination
b) an existing published wage determination
c) an initial WHD letter setting forth a position on a wage determination matter
d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION

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DOCUMENT A00801

SPECIAL PROVISIONS

BECKET
Federal Aid Project No. PRC(PRC80)-004S(013)X
Ledge Removal along Route 8, between MM 28.002 and MM 27.998

Labor participation goals for this Project shall be 15.3% for minorities and 6.9% for women for each job category. The goals are applicable to both Contractor's and Subcontractor's on-site construction workforce. Refer to Document 00820 for details.

SCOPE OF WORK

All work under this Contract shall be done in conformance with the *2026 Standard Specifications for Highways and Bridges, the Supplemental Specifications* contained in this book, the *Construction Standard Details* in effect as of July 2026, the *1990 Standard Drawings for Signs and Supports*, the 2015 *Overhead Signal Structure and Foundation Standard Drawings*, the *11th Edition of the Manual on Uniform Traffic Control Devices (MUTCD)* and the *January 2026 Massachusetts Amendments to the MUTCD*, *the 1968 Standard Drawings for Traffic Signals and Highway Lighting*, the latest edition of The *American Standard for Nursery Stock*, the Plans and these Special Provisions.

The proposed improvements will include the removal of existing rock slope along a 325-foot length along Route 8, north of McNerney Road. The existing rock is weathered and fractured and has been detaching from the rock face and falling onto Route 8, impacting motorists and causing unsafe driving conditions. The existing rock face will be removed back 14-feet from the road edge and a soil nail/rock anchor wall will be installed with a shotcrete architectural Ashlar finish.

The cross-section width of the road will be maintained in the proposed conditions consisting of two 11-foot travel lanes, 1-foot shoulder on the east side and the 1-foot shoulder and 4-foot paved water way (PWW) along the west side of the roadway. Sidewalks and bicycle lanes are not proposed for this project. The proposed roadway surface within the limits of work will be milled & overlaid with Hot Mix Asphalt, SUPERPAVE Surface Course.

Existing drainage patterns and infrastructure will remain unchanged in the proposed condition. No new pavement or impervious surfaces are to be added to the proposed condition. The existing catch basins along the west side on Route 8 will be inspected to determine if replacement is needed. The existing outfalls on the east side of Main Street will be maintained and no new outfalls are planned for this project.

Traffic management will require to maintain one-lane alternating traffic during portions of the work operations with the use of temporary traffic signals as shown in the contract documents. Temporary roadway closures shall be implemented during blasting operations with advanced notice and approval from MassDOT.

CONTRACTOR QUESTIONS AND ADDENDUM ACKNOWLEDGEMENTS

Prospective bidders are required to submit all questions to the Construction Contracts Engineer by 3:00 P.M. on the Tuesday of the previous week before the scheduled bid opening date. Any questions received after this time will not be considered for review by the Department.

Contractors should email questions and addendum acknowledgements to the following email address massdotspecifications@dot.state.ma.us The MassDOT proposal number and municipality is to be placed in the subject line.

NONCONFORMING COMPRESSIVE STRENGTH OF CEMENT CONCRETE

Concrete with compressive strength test results failing to attain the limits specified in Table 901.64-3 of 901.64.B: Acceptance Testing shall be evaluated for structural adequacy and serviceability at the Contractors' expense. The Department will review all production records, the concrete test records, petrographic analysis report, field notes, and the placement records for the concrete in question. If the Engineer determines the material is found to be adequate to remain in place, payment shall be adjusted in accordance with the following formula:

$$P = \frac{2(fc - f'c)(UP)(Q)}{f'c}$$

Where:

P = pay adjustment for substandard concrete
$f'c$ = specified minimum compressive strength at 28 days
fc = substandard concrete cylinder compressive strength at 56 days
Q = quantity of concrete represented by the acceptance cylinders tested
UP = unit contract price or the lump sum breakdown price per cubic yard for the class of concrete involved complete in place

HOLIDAY WORK RESTRICTIONS

(Supplementing Subsection 7.09)

The District Highway Director (DHD) may authorize work to continue during these specified time periods if it is determined by the District that the work will not negatively impact the traveling public. DHD may allow work in those areas on a case by case basis and where work is behind barrier and will not impact traffic

Below are the holiday work restrictions:

New Years Day (Federal Holiday)
No work on major arterial roadways from 5:00 AM on the day before until the normal start of business on the next subsequent business day. No work on local roadways on the holiday without permission by the DHD and the local police chief.

HOLIDAY WORK RESTRICTIONS (Continued)

Martin Luther King's Birthday (Federal Holiday)
No work restrictions due to traffic concerns, however work on local roadways requires permission by the DHD and local police chief.

President's Day (Federal Holiday)
No work restrictions due to traffic concerns, however work on local roadways requires permission by the DHD and local police chief.

Evacuation Day (Suffolk County State Holiday)
No work restrictions due to traffic concerns.

Patriot's Day (State Holiday)
Work restrictions will be in place for Districts 3 and 6 along the entire Boston Marathon route and any other locations that the DHD in those districts determine are warranted so as to not to impact the marathon. All other districts work restrictions will be as per DHD.

Mother's Day
No work on Western Turnpike and Metropolitan Highway System from 5:00 AM on the Friday before, until the normal start of business on the following day.

Memorial Day (Federal Holiday)
No work on major arterial roadways from 5:00 AM on the Friday before, until the normal start of business on the following day.

Bunker Hill Day (Suffolk County State Holiday)
No work restrictions due to traffic concerns.

Juneteenth
No work restrictions due to traffic concerns, however work on local roadways requires permission by the DHD and local police chief.

Independence Day (Federal Holiday)
No work on major arterial roadways from 5:00 AM on the day before until the normal start of business on the next subsequent business day. No work on local roadways on the holiday without permission by the DHD and the local police chief.

Labor Day (Federal Holiday)
No work on major arterial roadways from 5:00 AM on the Friday before, until the normal start of business on the following day.

Columbus Day (Federal Holiday)
No work on major arterials from 5:00 AM on the Friday before, until the normal start of business on the following day

HOLIDAY WORK RESTRICTIONS (Continued)

Veterans' Day (Federal Holiday)
No work restrictions due to traffic concerns.

Thanksgiving Day (Federal Holiday)
No work on major arterials from 5:00 AM two days before until the normal start of business on the following Monday.

Christmas Day (Federal Holiday)
No work on major arterial roadways from 5:00 AM on the day before until the normal start of business on the next subsequent business day.

AVOIDANCE AND PROTECTION OF SENSITIVE RESOURCE AREAS DURING CONSTRUCTION ACTIVITIES

The Contractor is hereby alerted to the presence of a "Sensitive Resource Areas" located along the west side of Main Street (Route 8): a dry laid stone foundation near Station 10 + 75 LT. The stone foundation is shown as "retain and protect" on the MassDOT project plans. Prior to construction, MassDOT shall direct the Contractor to install temporary high visibility fencing around the boundaries of the stone foundation. No stumping, excavation, grading or filling activities, or storage of equipment, vehicles or materials shall take place beyond the temporary fencing within the Sensitive Resource Areas. The temporary fencing may be permanently removed only upon the completion of the project. The temporary fencing will be paid for under Item 657.

SOIL STOCKPILING DIRECTIVE P-22-001

Any stockpiling of soil must be performed in compliance with Policy Directive P-22-001, Off-Site Stockpiling of Soil from MassDOT Construction Projects. This directive limits the allowable locations for off-site stockpiling of soil generated during MassDOT projects and includes various requirements that must be satisfied by the contractor prior to off-site stockpiling. The Contractor is responsible for identifying a suitable stockpile location.

CONTAMINATED SOIL

Soil to be removed from the project area shall not be assumed to be uncontaminated and must be evaluated prior to off-site management for potential contamination with hazardous materials. No soil may be disposed of off-site without proper assessment by the contractor and approval from the Resident Engineer (RE), District Environmental Engineer (DEE), or the project designee.

SUBSECTION 8.02 SCHEDULE OF OPERATIONS

Replace this subsection with the following:

An integrated cost and schedule controls program shall be implemented by the Contractor to track and document the progress of the Work from Notice to Proceed (NTP) through the Contractor Field Completion (CFC) Milestone. The Contractor's schedules will be used by the Engineer to monitor project progress, plan the level-of-effort required by the Department's work force and consultants and as a critical decision-making tool. Accordingly, the Contractor shall ensure that it complies fully with the requirements specified herein and that its schedules are both accurate and updated as required by the specification throughout the life of the project. Detailed requirements are provided in Division II, Section 722 Construction Scheduling.

TRUCK SAFETY DEVICES

(Supplementing Subsection 7.04: Motor Vehicles)

All motor vehicles subject to Section 7 of Chapter 90 to be operated under this Contract shall be equipped with safety devices as provided therein and in 540 CMR 4.00.

By December 31, 2025, the Contractor shall certify to the Registry of Motor Vehicles, in a manner prescribed by the Registrar, that all applicable vehicles are equipped with Lateral Protective Devices, Convex Mirrors, Cross Over Mirror(s) and Back Up Cameras in accordance with the requirements of 540 CMR 4.00.

The Contractor shall provide evidence satisfactory to the Department to demonstrate compliance with the above certification requirement for all applicable vehicles operated under this Contract by the Contractor and its subcontractors and vendors in a manner set forth by the Department. Thereafter, the Contractor shall have an affirmative obligation to continue to provide such evidence of compliance on an ongoing basis and no later than 7 days after certification with the Registry of Motor Vehicles of any additional vehicles operated under this Contract by the Contractor and its subcontractors and vendors.

Non-compliance with respect to a vehicle that is subject to 540 CMR 4.00 may subject the Contractor to statutory fines as established in M.G.L. c. 90, § 7 and/or contractual remedies up to and including termination of the Contract.

SUBSECTION 8.14 UTILITY COORDINATION, DOCUMENTATION, AND MONITORING RESPONSIBILITIES

A. GENERAL

In accordance with the provisions of Section 8.00 Prosecution and Progress, utility coordination is a critical aspect to this Contract. This section defines the responsibility of the Contractor and MassDOT, with regard to the initial utility relocation plan and changes that occur as the prosecution of the Work progresses. The Engineer, with assistance from the Contractor shall coordinate with Utility companies that are impacted by the Contractor's operations. To support this effort, the Contractor shall provide routine and accurate schedule updates, provide notification of delays, and provide documentation of the steps taken to resolve any conflicts for the temporary and/or permanent relocations of the impacted utilities. The Contractor shall provide copies to the Engineer of the Contractor communication with the Utility companies, including but not limited to:

SUBSECTION 8.14 (Continued)

- Providing advanced notice, for all utility-related meetings initiated by the Contractor.
- Providing meeting minutes for all utility-related meetings that the Contractor attends.
- Providing all test pit records.
- Request for Early Utility work requirements of this section (see below).
- Notification letters for any proposed changes to Utility start dates and/or sequencing.
- Written notification to the Engineer of all apparent utility delays within seven (7) Calendar Days after a recognized delay to actual work in the field – either caused by a Utility or the Contractor.
- Any communication, initiated by the Contractor, associated with additional Right-of-Way needs in support of utility work.
- Submission of completed Utility Completion Forms.

B. PROJECT UTILITY COORDINATION (PUC) FORM

The utility schedule and sequence information provided in the Project Utility Coordination Form (if applicable) is the best available information at the time of the bid and has been considered in setting the contract duration. The Contractor shall use all of this information in developing the bid price and the Baseline Schedule Submission, inclusive of the individual utility durations sequencing requirements, and any work that has been noted as potentially concurrent utility installations.

C. INITIATION OF UTILITY WORK

The Engineer will issue all initial notice-to-proceed dates to each Utility company based on either the:

1) Contractor's accepted Baseline Schedule
2) An approved Early Utility Request in the form of an Early Utility sub-net schedule (in accordance with the requirements of this Subsection)
3) An approved Proposal Schedule

C.1 - BASELINE SCHEDULE – UTILITY BASIS

The Contractor shall provide a Baseline Schedule submission in accordance with the requirements of Subsection 8.02 and inclusive of all of the information provided in the PUC Form that has been issued in the Contract documents. This is to include the utility durations, sequencing of work, allowable concurrent work, and all applicable considerations that have been depicted on the PUC Form.

C.2 – EARLY UTILITY REQUEST – (aka SUBNET SCHEDULE) PRIOR TO THE BASELINE

All early utility work is defined as any anticipated/required utility relocations that need to occur prior to the Baseline Schedule acceptance. In all cases of proposed early utility relocation, the Contractor shall present all known information at the pre-construction conference in the form of a 'sub-net' schedule showing when each early utility activity needs to be issued a notice-to-proceed. The Contractor shall provide advance notification of this intent to request early utility work in writing at or prior to the Pre-Construction meeting. Prior to officially requesting approval for early utility work, the Contractor shall also coordinate with MassDOT and all utility companies (private, state or municipal) which may be impacted by the Contract. If this request is acceptable to the Utilities and to MassDOT, the Engineer will issue a notice-to-proceed to the affected Utilities, based on these accepted dates.

SUBSECTION 8.14 (Continued)

C.3 – PROPOSAL SCHEDULE - CHANGES TO THE PUC FORM

If the Contractor intends to submit a schedule (in accordance with MassDOT Standard Specifications, Division I, Subsection 8.02) that contains durations or sequencing that vary from those provided in the Project Utility Coordination (PUC) Form, the Contactor must submit this as an intended change, in the form of a Proposal Schedule and in accordance with MassDOT Standard Specifications, Division I, Subsection 8.02. These proposed changes are subject to the approval of the Engineer and the impacted utilities, in the form of this Proposal Schedule and a proposed revision to the PUC form. The Contractor shall not proceed with any changes of this type without written authorization from the Engineer, that references the approved Proposal Schedule and PUC form changes. The submission of the Baseline Schedule should not include any of these types of proposed utility changes and should not delay the submission of the Baseline Schedule. As a prerequisite to the Proposal Schedule submission, and in advance of the utility notification(s) period, the Contractor shall coordinate the proposed utility changes with the Engineer and the utility companies, to develop a mutually agreed upon schedule, prior to the start of construction.

D. UTILITY DELAYS

The Contractor shall notify the Engineer upon becoming aware that a Utility owner is not advancing the work in accordance with the approved utility schedule. Such notice shall be provided to the Engineer no later than seven (7) calendar days after the occurrence of the event that the Contractor believes to be a utility delay. After such notice, the Engineer and the Contractor shall continue to diligently seek the Utility Owner's cooperation in performing their scope of Work.

In order to demonstrate that a critical path delay has been caused by a third-party Utility, the Contractor must demonstrate, through the requirements of the monthly Progress Schedule submissions and the supporting contract records associated with Subsection 8.02, 8.10 and 8.14, that the delays were beyond the control of the Contractor.

All documentation provided in this section is subject to the review and verification of the Engineer and, if required, the Utility Owner. In accordance with MassDOT Specifications, Division I, Subsection 8.10, a Time Extension will be granted for a delay caused by a Utility, only if the actual duration of the utility work is in excess of that shown on the Project Utility Coordination Form, and only if;

1) proper Notification of Delay was provided to MassDOT in accordance with the time requirements that are specified in this Section
2) the utility delay is a critical path impact to the Baseline Schedule (or most recently approved Progress Schedule)

E. LOCATION OF UTILITIES

The locations of existing utilities are shown on the Contract drawings as an approximation only. The Contractor shall perform a pre-construction utility survey, including any required test pits, to determine the location of all known utilities no later than thirty (30) calendar days before commencing physical site work in the affected area.

SUBSECTION 8.14 (Continued)

F. POST UTILITY SURVEY – NOTIFICATION

Following completion of a utility survey of existing locations, the Contractor will be responsible to notify the Engineer of any known conflicts associated with the actual location of utilities prior to the start of the work. The Engineer and the Contractor will coordinate with any utility whose assets are to be affected by the Work of this Contract. A partial list of utility contact information is provided in the Project Utility Coordination Form.

G. MEETINGS AND COOPERATION WITH UTILITY OWNERS

The Contractor shall notify the Engineer in advance of any meeting they initiate with a Utility Owner's representative to allow MassDOT to participate in the meeting if needed.

Prior to the Pre-Construction Meeting, the Contractor should meet with all Utility Owners who will be required to perform utility relocations within the first 6 months of the project, to update the affected utilities of the Project Utility Coordination Form and all other applicable Contract requirements that impact the Utilities. The Contractor shall copy the Engineer on any correspondence between the Utility Owner and the Contractor.

H. FORCE ACCOUNT / UTILITY MONITORING REQUIREMENTS

The Engineer will be responsible for recording daily Utility work force reports. The start, suspension, re-start, and completion dates of each of the Utilities, within each phase of the utility relocation work, will be monitored and agreed to by the Engineer and the Contractor as the work progresses.

I. ACCESS AND INSPECTION

The Contractor shall be responsible for allowing Utility owners access to their own utilities to perform the relocations and/or inspections. The Contractor shall schedule their work accordingly so as not to delay or prevent each utility from maintaining their relocation schedule.

COMPLIANCE WITH THE NATIONAL DEFENSE AUTHORIZATION ACT

(Supplementing Subsection 7.01)

On all projects, the "Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment" Regulation (2 CFR 200.216) prohibits the Contractor from using or furnishing the following telecommunications equipment or services:

- Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
- For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
- Telecommunications or video surveillance services provided by such entities or using such equipment.

COMPLIANCE WITH THE NATIONAL DEFENSE AUTHORIZATION ACT (Continued)

- Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

This prohibition applies to all products manufactured by the aforementioned companies, including any individual components or parts.

By submitting a bid on a project, the Contractor certifies that all work will be in compliance with the terms of 2 CFR 200.216. The Contractor shall submit a COC indicating compliance with the above provisions for all telecommunications equipment or services included in the Contract.

Payment for the item in which the materials are incorporated may be withheld until these COCs are received. Any cost involved in furnishing the certificate(s) shall be borne by the Contractor.

ENVIRONMENTAL PERMITTING

An Order of Conditions (DEP File #102-0508) has been obtained from the Becket Conservation Commission under the Wetlands Protection Act. If field conditions and/or Contractor-proposed erection, demolition, storage, or other procedures not originally allowed by existing environmental permits require work to occur in or otherwise impact water or wetland resource areas, the Contractor is advised that no associated work can occur until all required environmental permits have been either amended or obtained allowing such work. The Contractor must notify the District 1 Highway Director and Resident Engineer in writing at least 60 days prior to desired commencement of the proposed activity. All environmental submittals, including any contact with Local, State, or Federal environmental agencies, must be coordinated with the District 1 Environmental Engineer. The Contractor is expected to fully cooperate with requests for information and provide same in a timely manner. The Contractor is further advised that the Department will not entertain a delay claim due to the time required to modify or obtain the environmental permits.

NORTHERN LONG-EARED BAT AND TRICOLORED BAT PROTECTION

The northern long-eared bat (*Myotis septentrionalis*; NLEB) and tricolored bat (*Perimyotis subflavus*; TCB) are listed as federally endangered or proposed endangered, respectfully, under the Endangered Species Act (ESA). The U.S. Fish and Wildlife Service (USFWS) developed this guidance to address ESA compliance and promote conservation of NLEB and TCB. MassDOT, on behalf of FHWA, submitted a Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key Consultation through Information for Planning and Consultation (IPaC) and generated a May Affect, Not Likely to Adversely Affect (NLAA) determination (See US Fish and Wildlife iPaC Consultation dated December 09, 2025) Subsequently, the project has completed Section 7 consultation under the ESA.

NORTHERN LONG-EARED BAT AND TRICOLORED BAT PROTECTION (Continued)

In advance of the uplisting of the TCB to endangered under the ESA, the following Avoidance and Minimization Measures (AMMs) must be strictly adhered to in order to protect NLEB and TCB and to be in compliance with the ESA. Contact MassDOT Environmental Services - Wildlife Unit Supervisor for questions about project limits, restrictions, or conservation measures.

General AMMs

- The Contractor shall ensure all personnel working in on the project site are aware of all environmental commitments related to NLEB and TCB, including all applicable AMMs. NLEB and TCB information (https://www.fws.gov/midwest/endangered/mammals/nleb/ and https://www.fws.gov/species/tricolored-bat-perimyotis-subflavus) shall be made available to all personnel.
- On May 29 – June 10, 2025 , MassDOT Highway Division Environmental Services conducted a northern long-eared bat summer presence/absence survey, in accordance with the 2025 survey guidelines. The survey did confirm the presence of NLEB and/or TCB. If work is proposed by the Contractor past May 29th, 2030, additional review is required by the MassDOT Highway Division's Environmental Services Section, and additional review and restrictions may be required by the USFWS.

Lighting AMMs

- Direct temporary lighting away from suitable habitat during the active season: **April 15 to September 30**

Tree Removal AMMs

- *If additional cutting is proposed by the Contractor that is outside the scope of this contract, additional review is required by the MassDOT Highway Division's Environmental Services Section, and additional review and restrictions may be required by the USFWS.*
- Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits).
- No tree cutting, trimming, or removal of trees and/or woody vegetation >3-inch in diameter shall be conducted between **April 15 to September 30**
- the appropriate follow up or mitigation actions.

BIDDERS LIST

Pursuant to the provisions of 49 CFR Part 26.11 all official bidders will be required to report the names, addresses and telephone numbers of all firms that submitted bids or quotes in connection with this project. Failure to comply with a written request for this information within 15 business days may result in a recommendation to the Prequalification Committee that prequalification status be suspended until the information is received.

The Department will survey all firms that have submitted bids or quotes during the previous year prior to setting the annual goal and shall request that each firm report its age and gross receipts for the year.

BUILD AMERICA BUY AMERICA PREFERENCE

On Federally-aid projects the Buy America (23.CFR § 635.410) and Build America, Buy America Act. requires the following,

(1) all iron and steel used in the project are produced in the United States--this means all manufacturing processes, from the initial melting stage through the application of coatings, must occur in the United States. Foreign steel and iron can be used if the cost of the materials does not exceed 0.1% of the total Contract cost or $2,500, whichever is greater. The action of applying a coating to a covered material (i.e., steel and iron) is deemed a manufacturing process subject to Buy America. Coating includes epoxy coating, galvanizing, painting and any other coating that protects or enhances the value of a material subject to requirements of Build America, Buy America. Steel used for temporary support of excavation, including H piles, soldier piles, and sheeting when the steel is required to be left in place is subject to requirements of Build America, Buy America. Temporary steel, shall remain in place when it falls within the influence zone of the soil supporting any structure or railroad tracks.

(2) all manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States and

(3) all construction materials are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States. "Construction materials" includes an article, material, or supply—other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives—that is or consists primarily of:

- non-ferrous metals,
- plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables),
- glass (including optic glass),
- lumber; or
- drywall.

The Buy America preference only applies to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America preference apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project but are not an integral part of the structure or permanently affixed to the infrastructure project.

All articles, materials, and supplies should be classified as an iron or steel product, a manufactured product, or another product as specified by law or in 2 CFR part 184 (such other products specified by law or in 2 CFR part 184 include "excluded materials" and "construction materials"); an article, material, or supply must not be considered to fall into multiple categories.

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.

For this project the Massachusetts Department of Environmental Protection File Number is 102- 0508.

EVERSOURCE EMERGENCY TELEPHONE NUMBERS

ELECTRIC:
Outage/ Emergency: 800-592-2000 or 844-726-7562
New Service: 1-888-633-3797 (1-888-need pwr)
Customer Support: 1-800-340-9822

Eversource Contact for Blasting
Isaiah Provencher
Supervisor, Electric Field Operations
Isaiah.Provencher@eversource.com
Cell: 413-212-9640
Office: 413-499-9097

VERIZON EMERGENCY TELEPHONE NUMBERS

William D. Cyrulik, william.cyrulik@verizon.com
Local CXM Manager-Pittsfield
1899 East Street
Pittsfield Ma 01201
413-553-7737

BLASTING

The contractor will be responsible for coordinating blasting activities within 100’ of the existing utility poles and wires along the east side of Route 8 (Main Street), specifically poles #38, #39 and #56 with both Eversource Electric West and Verizon personnel. Please refer to the PUC form for enabling work to be completed by Eversource prior to blasting. All existing poles and overhead wires are to remain in place throughout blasting activities. The extent of the coordination shall be discussed at the initial utility meeting to confirm the extent to which each utility wants to be contacted regarding blasting near the guy.

The day before any scheduled blast the contractor shall contact both Verizon and Eversource personnel to alert them of the scheduled time for the blast and to confirm if they want a designated person to be called at the time of the blast to confirm outcome of the blast.

BLASTING (Continued)

If any damage occurs to the utility poles or overhead wires during the blast, the contractor shall immediately call both Verizon and Eversource contacts and set a safety area around the damaged utility. Contacts for Verizon and Eversource are listed above

All costs related to coordination with the utilities for blasting activities, repair of any damaged utility infrastructure, and providing temporary traffic control shall be the responsibility of the contractor. All costs will be considered incidental to the blasting items and there will be no compensation or time extension for work related to the blasting activities.

EMERALD ASH BORER ADVISORY

To the extent possible, all trees and brush shall be disposed on site, typically chipped and spread in place. When trees or brush must be removed, such as in urban, or otherwise populated areas, Contractor shall identify proposed location for disposal, and provide written notification to the Engineer for approval. Disposal shall be in city or town of project, or at minimum, within county, of construction operations.

EQUIVALENT SINGLE AXLE LOADS (ESALS)

The estimated traffic level to be used for SUPERPAVE HMA mixture designs for this contract, expressed in Equivalent Single Axle Loads (ESALs) for the design travel lane over a 20-year period, is 0.4 Million 18-kip (80-kn) ESALs.

SUPPLEMENTAL REQUIREMENTS FOR NON-BID ITEMS
(Supplementing Subsection 3.04)

The Contractor will be paid for additional artisans, equipment rental, materials, engineering services and specialty services required to perform the work plus (10%) percent, plus actual increased bond premium.

The Contractor shall be required to furnish certified paid receipts for additional artisans, equipment rental, materials, engineering services and specialty services that are required to perform the work prior to payment by the Department. Increased bond premium for additional artisans, equipment rental, materials, engineering services and specialty services will be paid after a certified paid receipt is submitted showing payment of the increased bond.

ITEM 100.99 STRUCTURE AND GEOTECHNICAL MONITORING LUMP SUM

The work under this item includes furnishing, installing, and recording and interpreting data using a 'Monitoring System' to measure vibrations at and displacements of existing structures including retaining wall, house and barn located in the vicinity of Main Street (Route 8) north of McNerney Road, from approximately Mile Marker 27.998 to Mile Marker 28.002, during construction activities including blasting, earth excavation, soil nail/rock anchor installation, nail testing and installation of permanent cast-in-place concrete with ashlar stone architectural facing.

The Contractor shall engage an experienced geotechnical and vibration monitoring consultant to perform the pre-construction and post-construction surveys; install, monitor, maintain, and report on the Seismographs and Smart Targets; and measure movements and vibrations before and during construction operations, including blasting and soil nail/rock anchor installation.

Pre and Post Construction Survey: This work shall include performing a condition survey of the existing stone retaining wall, barn and house prior to the commencement of work and after completion of work.

For Vibrations: One (1) Seismograph, equipped with a Triaxial Geophone, shall be installed at each existing structure being monitored, or at surface grade immediately adjacent to such structure, at locations appropriate for measuring construction-induced vibrations. The vibration data, consisting of Velocity (in/sec) versus Frequency (Hz) for the three (3) directions (Longitudinal / Vertical / Transversal), including Peak Particle Velocities (PPV), shall be recorded.

For Displacements: The system shall consist of at least six (6) survey "Smart Targets" (STs) on the existing retaining wall, including one at each corner, four (4) STs on the barn, and two (2) STs on the house. The Contractor shall ensure that the STs are functional, reliable and recordable (surveyed by electronic and/or total station equipment) before, during, and after construction activities.

Installation and recording of the Seismographs and Smart Targets involves coordination with other activities at the site and requires access to the exterior of the house and barn. Property ownership is shown on the Plans.

SUBMITTALS

Pre Construction Survey:

A. Submit one (1) Pre-Construction Survey Report to the Engineer and MassDOT for review a minimum of 14 days prior to the start of any construction activities.

B. The Pre-Construction Survey Report shall document the visible condition of all existing structures, including the house, barn, and retaining wall, and shall include written descriptions, photographs, and sketches showing the location of existing stone wall blocks, cracks, settlement, separations, misalignments, leakage, prior repairs, and other visible distress.

ITEM 100.99 (Continued)

C. The report shall identify each structure surveyed, including structure type, location, survey date, and any limitations encountered during the survey.

D. The report shall provide a baseline record of existing conditions for comparison with future monitoring data, observed changes during construction, and post-construction evaluation.

Installation of Vibration and Displacement Monitoring Instruments:

A. Submit a Monitoring Plan to the Engineer and MassDOT for approval a minimum of fourteen (14) days prior to commencement of the baseline monitoring period.

B. The Monitoring Plan shall include Drawings showing the Seismograph and Smart Target locations and identification numbers.

C. The Monitoring Plan shall include the names and qualifications of the instrument installer, surveyor, vibration monitoring consultant, and geotechnical monitoring consultant. The surveyor shall be a Professional Land Surveyor licensed in the State of Massachusetts, and the consultants shall have demonstrated experience on similar projects with references acceptable to the Engineer and MassDOT.

D. The Monitoring Plan shall include a list of materials, including dimensions, range, and accuracy, together with installation and recording procedures/sequences for the Seismographs and Smart Targets.

E. The Monitoring Plan shall include procedures for correlating measured Peak Particle Velocity and measured displacements with construction activities, and a mitigation plan to be implemented if applicable levels are reached or exceeded.

i. The threshold and limiting movements of existing structures shall be as follows:
   - Threshold Horizontal or Vertical Movement: 0.125 inch.
   - Limiting Horizontal or Vertical Movement: 0.25 inch.

ii. Threshold and Limiting peak particle vibration levels shall be as follows:
   - Threshold Level: The Threshold Level shall be equal to 75% of the applicable Limiting Peak Particle Velocity (PPV) value, as shown in Table 1. If any maximum Peak Particle Velocity (PPV) reaches the Threshold Level, the Contractor shall be immediately notified, and remedial action shall be taken, if needed.
   - Limiting Level: All work shall be performed in a manner such that the maximum PPV recorded by the seismograph does not exceed the Limiting Level defined by linear interpolation between the following points (as per the Chart defined by USBM - US Bureau of Mines Report RI8507 and OSMRE – Office of Surface Mining Reclamation and Enforcement) as shown in Table 1 and Figure 1.

ITEM 100.99 (Continued)

Table 1: Threshold and Limiting Levels

Frequency (Hz)	Threshold Level (in/sec) (75% of Limiting Level)	Limiting Level (in/sec)
1	0.15	0.19
4	0.56	0.75
15	0.56	0.75
40	1.5	2.00
100	1.5	2.00

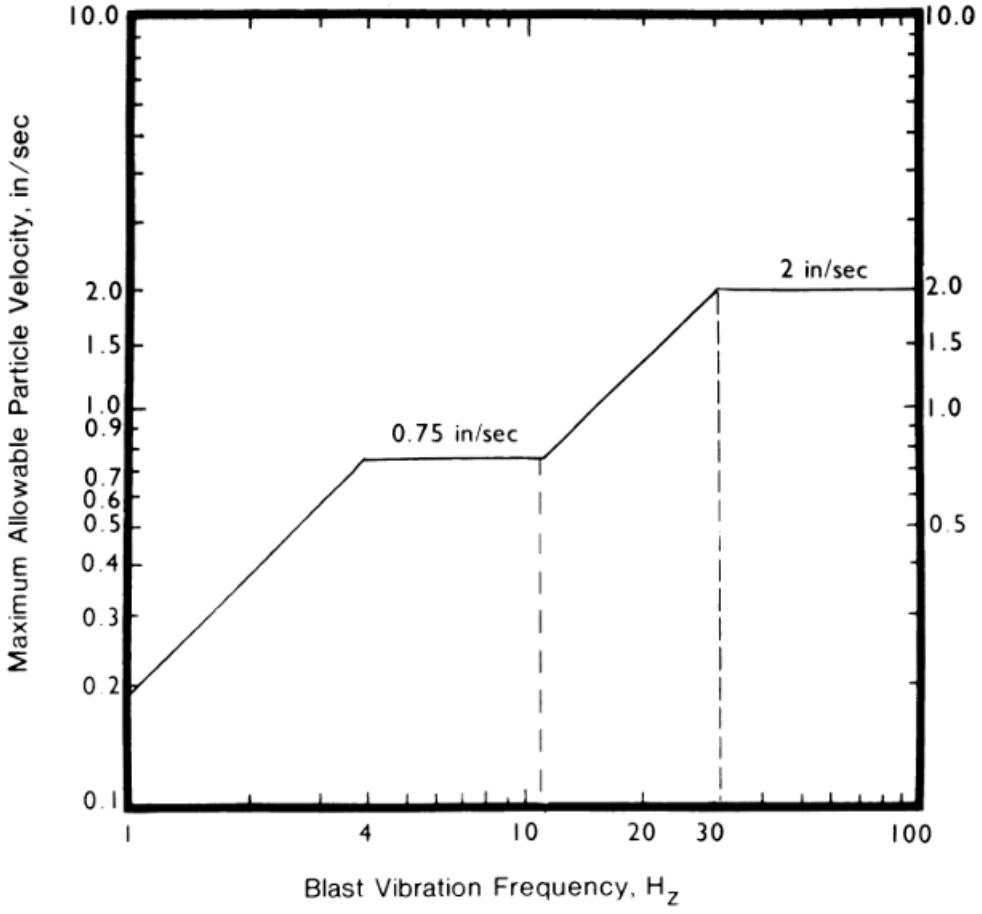

Figure 1: Blasting Level Criteria (Source: Modified from Figure B-1, Bureau of Mines RI8507)

ITEM 100.99 (Continued)

Post-Installation of Vibration and Displacement Monitoring Instruments:

A. Submit As-Built Drawing including instrument identification numbers and surveyed locations.

B. Submit Baseline Readings for each instrument, taken over one (1) week period prior to the start of any construction activities. Baseline readings shall be taken at different times of day and environment conditions (i.e., different ambient air temperature, humidity, sunny/cloudy/rainy, etc.) as practicable to establish the project site trends and natural fluctuation in readings.

C. Submit "Daily Readings" of all installed instruments and transmit them electronically to the Engineer and MassDOT, showing notification of any Threshold or Limiting values, corresponding explanation, and potential action to be taken.

D. Submit a "Monitoring Report" on a weekly basis in a format acceptable to the Engineer and MassDOT. Monitoring reports shall contain tables of monitoring data as well as figures to illustrate vibration and movement. Reports shall provide comparison of current instrument readings to the applicable Threshold Levels, and Limiting Levels as defined herein, including Figures showing all movement monitoring data change since baseline readings to assess trends. Data tables shall include information on the site work activities and environment conditions at the time each reading was taken.

Post Construction Survey:

A. Submit one (1) Post-Construction Survey Report to the Engineer and MassDOT that shall identify each structure by type and location, include the date of survey, and compare the post-construction condition to the Pre-Construction Survey Report, noting any changes in visible condition.

B. The report shall incorporate the Pre-Construction Survey Report for reference and shall establish the final condition of the structures for comparison with the pre-construction baseline and construction monitoring data.

ITEM 100.99 (Continued)

MATERIALS

A. Quality Assurance: A quality assurance inspection of the instrument shall be documented prior to shipment and the documented inspection shall be sent with each instrument.

B. Instruction Manual:
A copy of the instruction manual shall be provided to the Engineer and MassDOT. The manual shall include:
- Step-by-step installation procedure including materials and tools.
- Survey and reporting procedures, including construction or environment factors that might cause any change in measured data, data processing presentation and interpretation.

C. Survey Instruments:
The survey "Smart Target" (ST) system shall monitor deformation of the existing retaining wall, barn and house. The monitoring system shall consist of removable, non-damaging adhesive Smart Targets (stick-on survey points) compatible with the substrate. They shall be equivalent to RS Series as manufactured by Brentsen (www.berntsen.com – Phone:1-800-356-7388). The Smart Targets shall be installed on the faces of the existing retaining wall, barn and house. Each survey point shall consist of a Smart Target with a specific number for tracking and recording.

D. Vibration Instruments:
The seismograph shall be equivalent to Micromate, as manufactured by Instantel (www.instantel.com – Phone: 1-800-267-9111). The seismograph, with an appropriate software, shall have the following features:
- Seismic range: 0.02 to 5 inches per second with an accuracy of +/- 5 percent of the measured peak particle velocity or better, at frequencies between 1 and 100 Hertz, and with a resolution of 0.01 inches per second or less.
- Three channels for vibration monitoring.
- Two power sources: internal rechargeable battery and charger 115 volts AC. Battery must be capable of supplying power to monitor vibrations continuously for up to 10 days.
- Provide computer software to perform analysis and produce reports of continuous monitoring. Continuous monitoring mode must be capable of recording single-component peak particle velocities, and frequency of peaks with an interval of one minute or less.
- Certification shall be provided to indicate that the seismograph is calibrated and maintained in accordance with the equipment manufacturer's calibration requirements and that, where applicable, calibrations are traceable to the National Institute of Standards and Technology.

ITEM 100.99 (Continued)

INSTALLATION

The Engineer and MassDOT shall be presented with an 'Installation Schedule' and be notified at least 24 hours prior to the installation of each instrument.

Installation of the instruments shall be documented at the time of installation. The documentation shall include, but not be limited to:

- The Contractor / Installer name.
- Instrument number, as-built location, orientation, and elevation.
- Instruments' method of installation.
- Date and time of start and completion of installation work.
- Weather conditions at time of installation.
- Comments or notes detailing any issues encountered during installation.

All instruments shall be protected against disturbance and/or damage from traffic, construction equipment, vandalism and installation work.

MONITORING AND RECORDING

Survey Instruments

A. Reference Points: Establish fixed reference points (benchmarks) outside the influence of construction activities. Maintain and protect these reference points. Reestablish reference points if they become lost or damaged.

B. Readings: Readings shall be performed under the supervision of a Professional Surveyor, licensed in the State of Massachusetts, using appropriate equipment to survey locations in three (3) dimensions (Northing, Easting, and Elevation) accurate to within 0.05 inches.

C. Monitoring Schedule: The minimum monitoring shall be twice per day while construction activities are on-going. The monitoring frequency may be reduced or suspended after the construction activities have ceased and instrument readings have stabilized.

D. Threshold Levels and Limiting Levels:

Exceeding Threshold Level - If a level of 0.125" is exceeded, immediately investigate the instrument and determine the legitimacy of the reading. Report the investigation findings in the daily monitoring report. The Engineer may specify an increase in the frequency of monitoring based on the findings of the investigation.

Exceeding Limiting Level - In the event a Limiting Level of 0.25" is exceeded for an instrument, immediately notify the Engineer by telephone or in person. Immediately investigate the instrument and determine the legitimacy of the reading. Report the investigation findings in the daily monitoring report. The Engineer may direct a stoppage of work or impose additional limitations on the Contractor's activities based on the findings of the investigation.

ITEM 100.99 (Continued)

Vibration Instruments

A. The Contractor shall maintain records of the measured vibration levels, including date, time, measured vibration level. The Contractor shall review and evaluate the vibration monitoring data on a daily basis, and shall notify the Engineer within 24-hours of any measurement that exceeds the Threshold Level. The Contractor shall submit a report of the measured vibration levels every week or as requested by the Engineer.

During all monitoring of vibration-producing construction activities, the Contractor shall document all events that are responsible for the measured vibration levels, and submit the documentation to the Engineer with the data.

If vibration measurements exceed the Threshold Level, as defined in Table 1, the Contractor shall take the following actions:

1. Verify measurement reading.
2. Double the frequency of readings.
3. Notify the Engineer. Hold a meeting with representatives of the Contractor, Engineer and MassDOT. Ensure work is being performed in accordance with the Contract Documents and approved submittals. Meeting to be held within 48 hours of exceeding the Threshold Level.
4. Continue work only under enhanced monitoring with doubled frequency of readings and under observation by the Engineer and MassDOT.

If vibration measurements exceed the Limiting Level, as defined above, the Contractor shall take the following actions:

1. Stop vibration-producing construction operations,
2. Verify the measurement reading and proper operation of the seismograph,
3. Notify the Engineer and MassDOT within 2 hours of becoming aware of the measurement exceeding the Limiting Level,
4. Hold a meeting with representatives of the Contractor, the Engineer and MassDOT within 24 hours, and
5. Develop plan of action to reduce construction vibrations to below the Threshold Level before resuming vibration-producing construction activities.
6. Inspect the structure for any visible change in condition.

Based on the conditions identified, follow the steps outlined below:

a. No Damage to Slight damage (as defined by Boscardin and Cording; see Figure 1 below). Modify blasting operations to limit additional damage or impacts to existing structures and submit revised procedures to MassDOT and Engineer for approval. Once revised procedures are approved, proceed with construction operations while monitoring the condition of the existing retaining wall, house and barn. Monitoring shall be continuous during the hours that construction operations are being performed. If damage to any structure is noted to reach the Moderate level (as defined by Boscardin and Cording), stop construction activity. Proceed to Step b.

ITEM 100.99 (Continued)

b. Moderate to severe damage (as defined by Boscardin and Cording; see Figure 1 below). Install preventative measures to prevent further damage to the existing retaining wall, house and barn. Modify blasting operations to limit additional damage or impacts to existing structures and submit revised procedures to MassDOT and Engineer for approval before proceeding with construction activity. Preventative measures may include supplementary support/stabilization. The Engineer, MassDOT, and Town must approve the proposed mitigation plan including additional measures and revised procedures before being implemented. Once the measure is implemented, proceed with revised construction operations while monitoring the condition of the structures. Monitoring shall be continuous during the hours that construction activity is being performed. If additional damage is noted, stop construction activity and repeat the above procedure relative to additional preventative measures and modified construction methods.

In the event the Contractor does not comply with the approved mitigation plan, or continues work in violation of Threshold or Limiting Values being reached or exceeded, the Contractor shall not be allowed to continue work until proper mitigation procedures and corrections have been made as determined by the Engineer and MassDOT. No claims for schedule delays will be allowed due to the Contractor's failure to comply with these requirements.

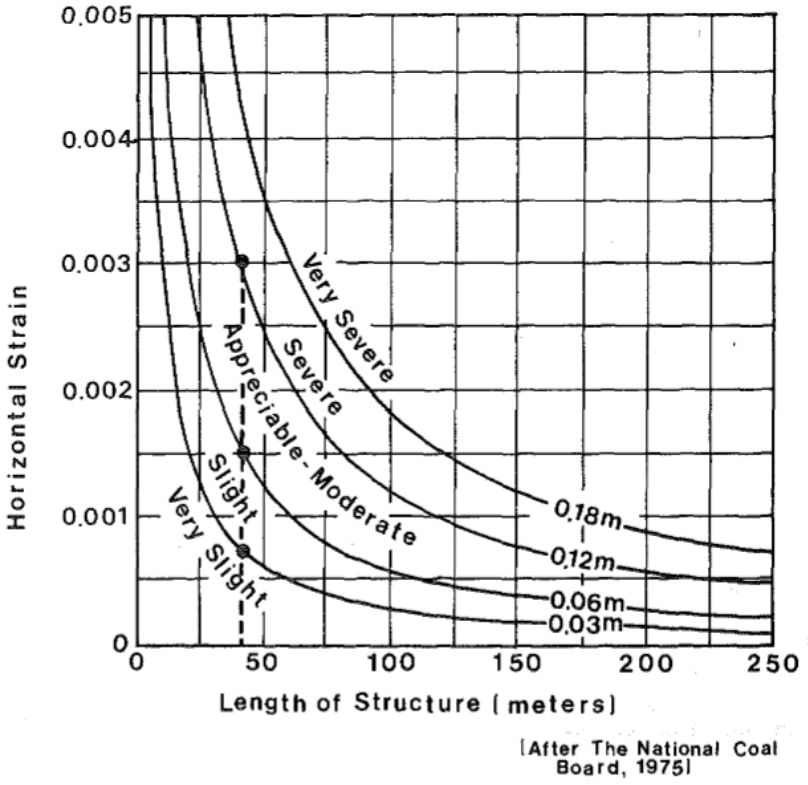

Figure 2: Relationship of Damage to Length of Structure and Horizontal Ground Strain (Boscardin and Cording (1989))

ITEM 100.99 (Continued)

BASIS OF PAYMENT

Item 100.99 will be paid for at the Contract lump sum bid price, which price shall include full compensation for all labor, materials, equipment, transportation, disposal fees, professional services, the collection and processing of all data and reporting, and incidental costs required to complete the work. Preventative and corrective measures that may be required to prevent damage to the structures shall be provided at no additional cost.

ITEM 102.521 TREE AND PLANT PROTECTION FENCE FOOT

The work under this Item shall conform to the relevant provisions of Subsections 644 and 771 of the Standard Specifications and the following:

Work under this item shall consist of furnishing, installing, and maintaining tree and plant protection fence(s) in a vertical and taut position; removing and resetting fencing as may be required; and final removal of protection fence(s) at the completion of construction activities, or as otherwise required by the Engineer.

The purpose of the fencing is to signify a construction work-free zone and physical barrier, thereby preventing damage to tree roots, tree trunks, soil, and all other vegetation within this delineated Tree and Plant Protection Zone (TPPZ), as shown on the Drawings, as required by the Engineer, and as described herein.

Protection shall be for the duration of the construction activities unless otherwise required by the Engineer.

MATERIALS

Tree and plant protection fence(s) shall provide a minimum forty-eight (48) inch tall barrier, that remains vertical and taut. The Fence shall be orange plastic safety fence (recommended where high visibility is necessary), or wooden snow fencing, or other approved material. Posts and anchoring materials shall be incidental to the work.

Per requirements of the Engineer, additional posts, deeper post depths, and/or additional attachments shall be used if the fabric or fence sags, leans or otherwise is not providing visible or physical protection to the TPPZ.

REFERENCES

If requested, the Contractor shall provide to the Engineer one copy of the American National Standards Institute (ANSI) A300 Standard Practices for Tree, Shrub, and Other Woody Plant Maintenance Part 1, Pruning and Part 5, Construction Management Standard. Provision of reference shall be incidental to this item.

ESTABLISHMENT OF THE TPPZ

Fencing shall be used to delineate and establish the TPPZ, adjacent to construction areas, staging areas, stockpile areas, as shown on the Drawings, and/or as required by the Engineer.

Fencing shall be located as close to the work zone limit and as far from tree trunk(s) and plants as possible to maximize the area to be protected. Fence shall run parallel and adjacent to construction activity to create a barrier between the work zone and the root zone or designated limit of plants and soils to be protected.

ITEM 102.521 (Continued)

When construction activities surround (or have the potential to surround) trees or plants to be protected, a circular enclosure shall be used. In these instances, the TPPZ limit shall be the drip line of each tree or as close as possible to the drip line, and/or as shown on the Drawings. The drip line is defined as the outermost limit of tree canopy.

The Contractor shall not engage in any construction activity within the TPPZ without the approval of the Engineer. Activities may including operating, moving, or storing equipment, supplies, or materials; and locating temporary facilities, including trailers or portable toilets, Accessing or traversing the TPPZ shall not be permitted.

METHOD OF WORK

TPPZ fencing shall be installed prior to any construction work or staging activities. Fence(s) shall be repositioned where and as necessary for optimum tree and plant protection. Repositioning shall be incidental to this item. TPPZ fencing shall not be moved without prior approval by the Engineer.

The TPPZ shall be protected at all times from compaction of the soil; damage of any kind to trunks, bark, branches, leaves, and roots of all plants; and contamination of the soil with construction materials, debris, silt, fuels, oils, and any chemicals substance.

After construction activities are completed, or when required by the Engineer, fencing, stakes, and other anchoring materials, if any, shall be removed and disposed off-site by the Contractor.

REQUIRED WORK WITHIN THE TPPZ

In the event that grading, trenching, utility work, or storage is unavoidable within the TPPZ, the Engineer shall be notified. Measures may be required for tree protection and preservations, including air spading; the use of six (6) inch depth of wood chips or approved matting for root protection; pruning of branches; and/or trunk protection. These protection measures shall be paid under applicable contract items.

Landscaping work specified within the TPPZ shall be accomplished by hand tools. Where handwork is not feasible, with permission of the Engineer, work shall be conducted with the smallest mechanized equipment necessary.

TREE AND PLANT INJURY OR LOSS

If the TPPZ is encroached by construction activity without approval, at the discretion of the Engineer, the Contractor may be required to provide a more durable barrier (e.g., Jersey Barriers, chain link fence (if not already in use) to secure the area. Costs of furnishing and installing additional or more durable barrier(s) shall be borne by the Contractor.

In such cases of encroachment, soils shall be considered compacted and tree root injury will be assumed. Action shall be taken as specified below.

ITEM 102.521 (Continued)

In the event that trees designated for protection under this item are injured, including root injury from unapproved trespassing onto the root zone, the Contractor shall, at his own expense, secure the services of an Arborist, described under Item 102.55. The Arborist shall be approved by MassDOT.

In the event of spills, compaction or injury, the Contractor shall take corrective action immediately using methods approved by the Engineer, in coordination with the Arborist.

If, based on the recommendations of the Arborist, the Engineer determines that injuries can be remedied by corrective measures, such as repairing trunk or limb injury, soil compaction remediation, pruning, and/or watering; the injury shall be repaired as soon as possible, within the appropriate season for such work, and according to industry standards.

If, based on the recommendations of the Arborist, the Engineer determines that injuries are irreparable, or that the injuries are such that the tree is sufficiently compromised to pose a future safety hazard, the tree shall be removed. Tree removal shall include cleanup of all wood, grinding of the stump to a depth sufficient to plant a replacement tree or plant, removal of all chips from the stump site, and filling the resulting hole with topsoil. Such tree removal(s), grinding, debris removal, and filling, shall be at the Contractor's expense.

Tree removal from improper or inadequate protection of the TPPZ shall result in the Engineer assessing the Contractor monetary damages consistent with industry standards for assessed value and/or replacement.

Shrubs removals from improper or inadequate protection of the TPPZ shall be replaced with plants of similar species and equal size or the largest size plants reasonably available. The Engineer shall approve the size, quality, and quantity of the replacement plant(s). Each replacement shall include a minimum of one year of watering and establishment care, specified under Section 771.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Tree and Plant Protection Fence will be measured by the FOOT, complete in place, by the length along the top of the fence.

Tree and plant protection fence will be paid for under the contract unit price per FOOT, complete in place and shall include all materials, labor, and equipment required to furnish, install, anchor, maintain, and remove the fence upon completion, as described herein. Posts, temporary footings, anchoring and removal upon completion, shall be incidental to this item.

No separate payment will be made for costs of remedial actions, including addition of more durable barriers, Arborist services, tree or plant removal, shrub replacement and establishment, but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 102.521 (Continued)

Tree damages assessed, due to lack of or improper tree and plant protective measures being taken, shall be deducted from the contract price of the work.

Payment for work under this item will be scheduled as follows:

- Forty (40) percent of the value payment will be made upon installation of fencing.

- Sixty (60) percent of the value payment will be made when fencing materials have been maintained to function as specified, for the intended duration, and removed and disposed off-site at the completion of protection measure requirement.

ITEM 180.01 ENVIRONMENTAL HEALTH AND SAFETY PROGRAM LUMP SUM

The work shall consist of ensuring the health and safety of the Contractor's employees and subcontracting personnel, the Engineer, their representatives, the environment, and public welfare from any on-site chemical contamination present in air, soil, water and sediment.

The Contractor shall prepare and implement a site-specific Environmental Health and Safety Plan (EHASP) which has been approved and stamped by a Certified Industrial Hygienist (CIH) and includes the preparer's name and work experience. The EHASP shall include appropriate components required by OSHA Standard 29 CFR 1910.120(b) and the Massachusetts Contingency plan (MCP) 310 CMR 40.0018 and must comply with all applicable state and federal laws, regulations, standards and guidelines, and provide a degree of protection and training appropriate for implementation on the project. The EHASP shall be a dynamic document with provision for change to reflect new information, new practices or procedures, changing site environmental conditions or other situations which may affect site workers and the public. The EHASP shall be developed and implemented independently from the standard construction HASP required to work on all MassDOT construction projects.

Health and safety procedures provided by the Contractor shall comply with all the appropriate regulations that address employee working conditions, including but not limited to standards established by OSHA and National Institute for Occupational Safety and Health (NIOSH). Equipment used for the purpose of health and safety shall be approved by and meet pertinent standards and specifications of the appropriate regulatory agencies.

A copy of the most up-to-date version of the EHASP shall be maintained on-site at all times by the Contractor. The on-site copy shall contain the signature of the Engineer and each on-site employee of the MassDOT, Contractor, and Subcontractors involved with on-site activities. The employee's signature on the EHASP shall be deemed prima facie evidence that the employee has read and understands the plan. Updated copies of signature sheets shall be submitted to the Engineer.

The EHASP shall specify a Contractor Site Safety and Health Officer responsible for implementation of the EHASP and to oversee all construction activities, including handling, storage, sampling and transport, which require contact with or exposure to potentially hazardous materials.

The level of protection, required to ensure the health and safety of on-site personnel will be stipulated in the EHASP. The Site Safety and Health Officer shall implement the EHASP based on changing site and weather conditions, type of operation or activity, chemical compounds identified on-site, concentration of the chemicals, air monitoring data, physical state of the hazardous materials, potential duration of exposure to hazardous materials, dexterity required to perform work, decontamination procedures, necessary personnel and type of equipment to be utilized.

ITEM 180.01 (Continued)

During implementation of the EHASP, a daily log shall be kept by the Site Safety and Health Officer and a copy shall be provided weekly to the Engineer. This log shall be used to record a description of the weather conditions, levels of personal protection being employed, screening data and any other information relevant to on-site environmental safety conditions. The Site Safety and Health Officer shall sign and date the daily log.

Method of Measurement and Basis of Payment

Preparation and implementation of the Environmental Health and Safety Program, including the monitoring, protection and storage of all contaminated materials, as well as subsequent modifications to the EHASP, will be measured and paid for at the Lump Sum Bid Price.

Payment of 50% of the Environmental Health and Safety Program contract price will be made upon the initial acceptance of the EHASP by the Engineer. Payment of the remaining 50% of the Environmental Health and Safety Program contract price will be made upon completion of the work. The bid price shall include preparation and implementation of the EHASP as well as the cost for its enforcement by the Site Safety and Health Officer along with any necessary revisions and updates. The work of implementing the Environmental Health and Safety Program includes work involving, but not limited to, the monitoring, protection, and storage of all contaminated materials.

ITEM 180.02 PERSONAL PROTECTION LEVEL C UPGRADE HOUR

The work shall consist of providing appropriate personal protective equipment (PPE) for all personnel in an area either containing or suspected of containing a hazardous environment.

Contingencies for upgrading the level of protection for on-site workers will be identified in the EHASP and the Contractor shall have the capability to implement the personal protection upgrade in a timely manner. The protective equipment and its use shall be in compliance with the EHASP and all appropriate regulations and/or standards for employee working conditions.

Personal Protection Level C Upgrade will be measured and paid only upon upgrade to Level C and will be at the contract unit price, per hour, per worker, required in Level C personal protection. No payment will be made to the Contractor to provide Level D PPE.

ITEM 180.03 LICENSED SITE PROFESSIONAL SERVICES HOUR

Within limited areas of the project site, media (i.e. soils, sediments, surface water and/or groundwater) requiring evaluation and/or management under the Massachusetts Contingency Plan (MCP) may be encountered. A Licensed Site Professional (LSP) shall be required to provide the services necessary to comply with the requirements of the MCP. These services may include a site walk, field screening, sampling, analysis and characterization of potentially contaminated media, preparation and implementation of Immediate Response Action (IRA) Plans, Utility-Related Abatement Measure (URAM) and Release Abatement Measure (RAM) Plans, Imminent Hazard Evaluations, status reports, transmittal forms, release notification forms, risk assessments, completion statements, and related documents required pursuant to the MCP. LSP services shall also be necessary to temporarily move material generated on the project to an off-site storage location.

The name and qualifications of the LSP and all environmental technicians to be assigned to the project shall be submitted to the Engineer for approval at least four weeks prior to initial site activities. The LSP shall have a current, valid license issued by the Massachusetts Board of Registration of Hazardous Waste Site Cleanup Professionals. The LSP shall have significant experience in the oversight of MCP activities at active construction sites. Qualification packages for the LSP and each technician shall include a resume, all recent work assignments with responsibilities identified (previous 5 years), and applicable training and certifications. A list of all Notices of Noncompliance, Notice of Audit Findings and Enforcement Orders issued by the Massachusetts Department of Environmental Protection (DEP) shall be submitted for all work assignments listed for the LSP and environmental technicians. Upon approval of the LSP Qualifications, the LSP will be designated as the LSP of Record unless MassDOT designates in writing otherwise. The LSP of Record will serve as the primary point of contact for all hazardous material matters on the project.

The LSP shall evaluate soil and/or sediment with discoloration, odor, elevated field screening results, presence of petroleum liquid or sheen on the groundwater surface, or any abnormal gas or materials in the ground which are known or suspected to be oil or hazardous materials. Excavated soil and sediment which is suspected of petroleum contamination shall be field screened using the jar headspace procedures according to established DEP Guidance. All field screening equipment must be pre-approved by the Engineer. The LSP shall ensure proper on-site calibration of all field screening instrumentation.

The Engineer shall be contacted immediately when observations or any field screening results verify contamination requiring further analysis, and/or enhanced management of suspect media. Any enhanced management of contaminated soil to ensure proper stockpiling and storage is incidental to the LSP Services item. The LSP shall evaluate the need for confirmatory sampling prior to backfill in areas where contaminated material has been excavated and disposed off-site for compliance with applicable regulatory requirements. The Engineer shall approve the locations of the testing sites prior to the sampling.

ITEM 180.03 (Continued)

Contaminated media shall be handled in accordance with all applicable state and federal statutes, regulations, and policies. The LSP shall adequately evaluate contaminated media for compliance with the requirements of the MCP and Department Policies.

The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations and both shall be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations. The LSP shall maintain written records in a clear and concise tabular format which tracks the excavation, stockpiling, analysis and reuse/disposal of all known/suspect contaminated media. These records shall be up-to-date and submitted to the Engineer on a bi-weekly basis. The LSP shall review and summarize the laboratory data from any analyses performed on contaminated media in a tabular format and compare the results to applicable reporting thresholds. A report shall be delivered to the Engineer outlining the material sampling methods, laboratory analysis results, evaluation of applicable regulatory exemptions, reporting obligations, and proposed course of action. The laboratory report together with Chain of Custody forms for all analytical results shall be submitted to the Engineer within 14 days after completion of such analyses.

The LSP and Contractor shall be held responsible for the submission of all MCP-related documents to the Engineer at least 14 days in advance of any timeframe specified in the MCP and for the timely submission of data and tracking information as noted within this Item. All documents prepared under this Item must be reviewed and signed by the approved LSP. The Contractor and LSP shall be responsible for all fines, damages, and enforcement requirements imposed by applicable regulatory agencies for failure to meet regulatory and contract timeframes. No compensation will be provided for such fines, damages, and enforcement actions.

The Contractor and the LSP shall be aware of the reporting requirements for releases of oil and/or other hazardous material (OHM) as set forth in federal and state laws and regulations and shall both be held responsible for performing the work in accordance with all applicable Federal and State laws and regulations.

If the Contractor causes a release of OHM, the Contractor shall be responsible for assessing and remediating the release in accordance with all pertinent State and Federal regulations, including securing the services of a LSP, at his own expense.

The LSP shall coordinate all activities involving both MassDOT and the DEP through the Engineer. Any notification of release shall be approved by the Engineer before submittal to the DEP, except if an imminent hazard condition exists as defined in 309 CMR 4.03(4)(b).

ITEM 180.03 (Continued)

LABORATORY TESTING IN SUPPORT OF LSP SERVICES

Laboratory testing provides for analytical testing in support of LSP services related to maintaining MCP compliance, such as delineating the extent and type of contamination present. Sampling and testing for disposal purposes are not included and are incidental to Items 181.11-181.14.

In order to maintain compliance with the MCP and Department Policies or other regulatory requirements, the LSP shall request approval from the Engineer to obtain samples from various locations and depths within the project area and to perform laboratory analyses on those samples. No sampling shall be conducted without prior approval from the Engineer. The samples shall be delivered to a DEP-certified laboratory using proper chain-of-custody documentation for analyses which, depending upon site conditions and suspected and/or identified contaminants of concern, may include, but are not limited to, metals, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polycyclic aromatic hydrocarbons (PAHs), extractable petroleum hydrocarbons (EPHs) and volatile petroleum hydrocarbons (VPHs). Subsequent testing, depending upon initial results, may be required for Toxicity Characteristic Leaching Procedure (TCLP) analyses (EPA Method 1311) for metals.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

LSP Services for work under this item will be measured per person, per hour of service provided by LSP, Environmental Technicians and other approved personnel. Travel time shall not be included in the billable hours.

The quantity and type of laboratory tests must be approved by the Engineer beforehand. The Contractor will be reimbursed upon satisfactory written evidence of payment. The Contractor may be required to obtain cost estimates from three DEP certified laboratories for the Engineer to choose the service provider.

LSP Services will be paid at the Contractor bid price for each hour, or fraction thereof, spent to perform the work as described above. The bid price shall be a blended rate that includes the cost of the LSP, environmental technicians and other personnel, the performance of all work tasks and field screening, including required equipment, materials and instrumentation, and production of all documentation described above. All requests for payment must be accompanied by the following information: the names of the personnel associated with the work charged under LSP Services, dates and hours worked, work conducted, including, where appropriate, locations as identified on the construction plans, and a copy of the field diary for the dates submitted.

Laboratory testing will be reimbursed upon receipt of paid invoices for testing approved by the Engineer.

This item is for LSP work for compliance with the MCP and Department Policies. LSP hours and any laboratory testing related to off-site disposal of excess soil and sediment is incidental to Items 181.11-181.14 (including, but not limited to, disposal characterization, disposal package preparation, landfill acceptance, shipment paperwork preparation, field screening, and tracking).

ITEM 181.11	**DISPOSAL OF UNREGULATED SOIL**	**TON**
ITEM 181.12	**DISPOSAL OF REGULATED SOIL - IN-STATE FACILITY**	**TON**
ITEM 181.13	**DISPOSAL OF REGULATED SOIL - OUT-OF-STATE FACILITY**	**TON**
ITEM 181.14	**DISPOSAL OF HAZARDOUS WASTE**	**TON**

The work under these Items shall include the transportation and disposal of contaminated material excavated, or excavated and stockpiled. It shall also include the cost of any additional laboratory analyses required by a particular disposal facility beyond the standard disposal test set.

Excavation of existing subsurface materials may include the excavation of contaminated soils. The Contractor shall be responsible for the proper coordination of characterization, transport and disposal, recycling or reuse of contaminated soils. Disposal, recycling or reuse will be referred to as "disposal" for the purposes of this specification. However, regardless of the use of the term herein, there will be no compensation under these items for reuse within the project limits. The Contractor will be responsible for coordinating the activities necessary for characterization, transport and disposal of contaminated soils. Such coordination will include the Engineer and his/her designee overseeing management of contaminated materials. Contaminated soils must be disposed of in a manner appropriate for the soil classification as described below and in accordance with the applicable laws of local, state and federal authorities. The Contractor shall be responsible for identifying disposal facility (ies) licensed to accept the class of contaminated soils to be managed and assure that the facility can accept the anticipated volume of soil contemplated by the project. The Contractor shall be responsible for hiring a Licensed Site Professional (LSP) and all ancillary professional services including laboratories as needed for this work. The Contractor will be responsible for obtaining all permits, approvals, manifests, waste profiles, Bills of Lading, etc. subject to the approval of the Engineer prior to the removal of the contaminated soil from the site. The Contractor and LSP shall prepare and submit to the Engineer for approval all documents required under the Massachusetts Contingency Plan (MCP) and related laws and environmental regulations to conduct characterization, transport, and disposal of contaminated materials.

CLASSES OF CONTAMINATED SOILS

The Contractor and its LSP shall determine if soil excavated or soil to be excavated is unregulated soil or contaminated soil as defined in this section. Such materials shall be given a designation for purposes of reuse or disposal based on the criteria of the MCP. Soils and sediments which are not suitable for reuse will be given a designation for purposes of off-site disposal based on the characterization data and disposal facility license requirements. The Classes of Contaminated Soils are defined as follows:

ITEMS 181.11 through 181.14 (Continued)

UNREGULATED SOIL consists of soil, fill and dredged material with measured levels of oil and hazardous material (OHM) contamination at concentrations below the applicable Reportable Concentrations (RCs) presented in the MCP. Unregulated soil consists of material which may be reused (or otherwise disposed) as fill within the Commonwealth of Massachusetts subject to the non-degradation criteria of the MCP (310 CMR 40.0032(3), in a restricted manner, such that they are sent to a location with equal or higher concentrations of similar contaminants. Disposal areas include licensed disposal facilities, approved industrial settings in areas which will be capped or covered with pavement or loamed and seeded, and for purposes of this project should be reused as fill within the project site construction corridor whenever possible. The material cannot be placed in residential and/or environmentally sensitive (e.g. wetlands) areas. Under no circumstances shall contaminated soils be placed in an uncontaminated or less contaminated area (including the area above the groundwater table if this area shows no sign of contamination).

The Contractor shall submit to MassDOT the proposed disposal location for unregulated soils for approval. If such a disposal location is not a licensed disposal facility, the Contractor shall submit to the Engineer analytical data to characterize the disposal area sufficiently to verify that the unregulated material generated within the MassDOT construction project limits is equal to or less than the contaminant levels at the disposal site and meets the non-degradation requirements of the MCP. In addition, the Contractor shall provide written confirmation from the owner of the proposed disposal location that they have been provided with the analytical data for both the materials to be disposed as well as the disposal site characterization and that s/he agrees to accept this material. A Material Shipping Record or Bill of Lading, as appropriate, shall be used to track the off-site disposal of unregulated soil and a copy, signed by the disposal facility or property owner, shall be provided to the Engineer in order to document legal disposal of the unregulated material.

The cost of on-site disposal of unregulated soil within the project area will be considered incidental to the item of work to which it pertains.

ITEMS 181.11 through 181.14 (Continued)

REGULATED SOIL consists of materials containing measurable levels of OHM that are equal to or exceed the applicable Reportable Concentrations for the site as defined by the MCP, 310 CMR 40.0000. Regulated soil which meets the MCP reuse criteria of the applicable soil/groundwater category for this project area may be reused on site provided that it meets the appropriate geotechnical criteria established by the Engineer. Regulated Soil may be reused (as daily or intermediate cover or pre-cap contouring material) or disposed (as buried waste) at lined landfills within the Commonwealth of Massachusetts or at an unlined landfill that is approved by the Massachusetts Department of Environmental Protection (DEP) for accepting such material, in accordance with DEP Policy #COMM-97-001, or at a similar out-of-state facility. It should be noted that soils which exceed the levels and criteria for disposal at in-state landfills, as outlined in COMM-97-001, may be shipped to an in-state landfill, but require approval from the DEP Division of Solid Waste Management and receiving facility. An additional management alternative for this material is recycling into asphalt. Regulated Soils may also be recycled at a DEP approved recycling facility possessing a Class A recycling permit subject to acceptance by the facility and compliance with DEP Policy #BWSC-94-400. Regulated Soil removed from the site for disposal or treatment must be removed via an LSP approved Bill of Lading, Manifest or applicable material tracking form. This type of facility shall be approved/permitted by the State in which it operates to accept the class of contaminated soil in accordance with all applicable local, state and federal regulations.

HAZARDOUS WASTE consists of materials which must be disposed of at a facility permitted and operated in full compliance with Federal Regulation 40 CFR 260-265, Massachusetts Regulation 310 CMR 30.000, Toxic Substances Control Act (TSCA) regulations, or the equivalent regulations of other states, and all other applicable local, state, and federal regulations. All excavated materials classified as hazardous waste shall be disposed of at an out-of-state permitted facility. This facility shall be a RCRA hazardous waste or TSCA facility, or RCRA hazardous waste incinerator. This type of facility shall be approved/permitted by the State in which it operates to accept hazardous waste in accordance with all applicable local, state and federal regulations and shall be permitted to accept all contamination which may be present in the soil excavate. The Contractor shall ensure that, when needed, the facility can accept TSCA waste materials i.e. polychlorinated biphenyls (PCBs). Hazardous waste must be removed from the site for disposal or treatment via an LSP approved Manifest.

MONITORING/SAMPLING/TESTING REQUIREMENTS

The Contractor shall be responsible for monitoring, sampling and testing during and following excavation of contaminated soils to determine the specific class of contaminated material. Monitoring, sampling and testing frequency and techniques should be performed in accordance with Item 180.03 – LSP Services. Additional sampling and analysis may be necessary to meet the requirements of the disposal facility license. The cost of such additional sampling and analysis shall be included in the bid cost for the applicable disposal items. The Contractor shall obtain sufficient information to demonstrate that the contaminated soil meets the disposal criteria set by the receiving facility that will accept the material.

ITEMS 181.11 through 181.14 (Continued)

No excavated material will be permanently placed on-site or removed for off-site disposal until the results of chemical analyses have been received and the materials have been properly classified. The Contractor shall submit to the Engineer results of field and laboratory chemical analyses tests within seven days after their completion, accompanied by the classification of the material determined by the Contractor, and the intended disposition of the material. The Contractor shall submit to the Engineer for review all plans and documents relevant to LSP services, including but not limited to, all documents that must be submitted to the DEP.

WASTE TRACKING:

Copies of the fully executed Weight Slips/Bills of Lading/ Manifests/Material Shipping Records or other material tracking form received by the Contractor from each disposal facility and for each load disposed of at that facility, shall be submitted to Engineer and the Contractor's LSP within three days of receipt by the Contractor. The Contractor is responsible for preparing and submitting such documents for review and signature by the LSP or other appropriate person with signatory authority, three days in advance of transporting soil off-site. The Contractor shall furnish a form attached to each manifest or other material tracking form for all material removed off-site, certifying that the material was delivered to the site approved for the class of material. If the proposed disposition of the material is for reuse within the project construction corridor, the Contractor shall cooperate with MassDOT to obtain a suitable representative sample(s) of the material to establish its structural characteristics in order to meet the applicable structural requirements as fill for the project.

All material transported off-site shall be loaded by the Contractor into properly licensed and permitted vehicles and transported directly to the selected disposal or recycling facility and be accompanied by the applicable shipping paper. At a minimum, truck bodies must be structurally sound with sealed tail gates, and trucks shall be lined and loads covered with a liner, which shall be placed to form a continuous waterproof tarpaulin to protect the load from wind and rain.

DECONTAMINATION OF EQUIPMENT

Tools and equipment which are to be taken from and reused off site shall be decontaminated in accordance with applicable local, state and federal regulations. This requirement shall include, but not be limited to, all tools, heavy machinery and excavating and hauling equipment used during excavation, stockpiling and handling of contaminated material. Decontamination of equipment is considered incidental to the applicable excavation item.

ITEMS 181.11 through 181.14 (Continued)

REGULATORY REQUIREMENTS

The Contractor shall be responsible for adhering to regulations, specifications and recognized standard practices related to contaminated material handling during excavation and disposal activities. MassDOT shall not be responsible at any time for the Contractor's violation of pertinent State or Federal regulations or endangerment of laborers and others. The Contractor shall comply with all rules, regulations, laws, permits and ordinances of all authorities having jurisdiction including, but not limited to, Massachusetts DEP, the U.S. Environmental Protection Agency (EPA), Federal Department of Transportation (DOT), Massachusetts Water Resources Authority (MWRA), the Commonwealth of Massachusetts and other applicable local, state and federal agencies governing the disposal of contaminated soils.

All labor, materials, equipment and services necessary to make the work comply with such regulations shall be provided by the Contractor without additional cost to MassDOT. Whenever there is a conflict or overlap within the regulations, the most stringent provisions shall apply. The Contractor shall reimburse MassDOT for all costs it incurs, including damages and/or fines, as a result of the Contractor's failure to adhere to the regulations, specifications, recognized standard practices, etc., that relate to contaminated material handling, transportation and disposal.

SUBMITTALS

I. Summary of Sampling Results, Classification of Material and Proposed Disposal Option.

The following information, presented in tabular format, must be submitted to the Engineer for review and approval prior to any reuse on-site or disposal off-site. This requirement is on-going throughout the project duration. At least two weeks prior to the start of any excavation activity, the Contractor shall submit a tracking template to be used to present the information as stipulated below. Excavation will not begin until the format is acceptable to MassDOT.

Characterization Reports will be submitted for all soil, sediment, debris and groundwater characterized through the sampling and analysis program. Each report will include a site plan which identifies the sampling locations represented in the Report. The Construction Plan sheets may be used as a baseplan to record this information.

The Sampling Results will be presented in tabular format. Each sample will be identified by appropriate identification matching the sample identification shown on the Chain of Custody Record. The sample must also be identified by location (e.g. grid number or stockpile number). For each sample, the following information must be listed: the classification (unregulated, regulated, etc.), proposed disposal option for the stockpile or unit of material represented, and, all analytical results.

ITEMS 181.11 through 181.14 (Continued)

Each Characterization Report will include the laboratory analytical report and Chain of Custody Record for the samples included in the Report.

II. Stockpiling, Transport, and Disposal.

At least two weeks prior to the start of any excavation activity, the Contractor shall submit, in writing, the following for review and shall not begin excavation activity until the entire submittal is acceptable to MassDOT.

Excavation and Stockpiling Protocol:
Provide a written description of the management protocols for performing excavation and stockpiling and/or direct loading for transport, referencing the locations and methods of excavating and stockpiling excavated material.

Disposal and Recycling Facilities:

1. Provide the name, address, applicable licenses and approved waste profile for disposal and/or recycling location(s) where contaminated soil will be disposed. Present information substantiating the suitability of proposed sites to receive classifications of materials intended to be disposed there, including the ability of the facility to accept anticipated volumes of material.

2. Provide a summary of the history of compliance actions for each disposal/recycling facility proposed to be used by the Contractor. The compliance history shall include a comprehensive list of any state or federal citations, notices of non-compliance, consent decrees or violations relative to the management of waste (including remediation waste) at the facility. Material should not be sent to facilities which are actively considered by the DEP, USEPA or other responsible agency to be in violation of federal, state or local hazardous waste or hazardous material regulations. MassDOT reserves the right to reject any facility on the basis of poor compliance history.

Transportation:
The name, address, applicable license and insurance certificates of the licensed hauler(s) and equipment and handling methods to be used in excavation, segregation, transport, disposal or recycling.

III. Material Tracking and Analytical Documentation for Reuse/Disposal.

The following documents are required for all excavation, reuse and disposal operations and shall be in the format described. At least two weeks prior to the start of any excavation or demolition activity, the Contractor shall submit the tracking templates required to present the information as stipulated below. Excavation or demolition will not begin until the format is acceptable to MassDOT.

ITEMS 181.11 through 181.14 (Continued)

All soils, sediments and demolition debris must be tracked from the point of excavation to stockpiling to onsite treatment/processing operations to off-site disposal or onsite reuse as applicable.

Demolition Debris:
Demolition debris must be tracked if the debris is stockpiled at a location other than the point of origin or if treatment or material processing is conducted. Identification of locations will be based on the station-offset of the location. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations/comments, quantity, and stockpile ID/processing operation location. For each unit of material tracked, the table will also track reuse of the material on-site, providing reuse date, location of reuse as defined by start and end station, width of reuse location by offset, the fill elevation range, quantity, and finish grade for said location. For demolition debris which is not reused on site, the table will also track disposal of the material as defined by disposal date, quantity and disposal facility. The table must provide a reference to any analytical data generated for the material.

Soil/Sediment:
Soil excavation will be identified based on the station-offset of the excavation location limits. The tracking table will identify date and point of generation, any field screening such as PID or dust monitoring, visual observations, quantity, and stockpile number/location. For each unit of material tracked, the table will also track reuse of the material on-site and disposal of the material off-site using the same categories identified for demolition debris above.

Method Of Measurement And Basis Of Payment

Disposal of contaminated soil shall be measured for payment by the Ton of actual and verified weight of contaminated materials removed and disposed of. The quantities will be determined only by weight slips issued by and signed by the disposal facility. The most cost-effective, legal disposal method shall be used. The work of the LSP for disposal under all of these items shall be incidental to the work with no additional compensation.

ITEM 181.11 Measurement for Disposal of Unregulated Soil shall be under the Contract Unit Price by the weight, in tons, of contaminated materials removed from the site and transported to and disposed of at an approved location or licensed facility, and includes any and all costs for approvals, permits, fees and taxes, additional testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.12 Measurement for Disposal of Regulated Soil – In-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved in-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEMS 181.11 through 181.14 (Continued)

ITEM 181.13 Measurement for Disposal of Regulated Soil - Out-of-State Facility shall be under the Contract Unit Price by the weight in tons of contaminated materials removed from the site and transported to and disposed of at an approved out-of-state facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 181.14 Measurement for Disposal of Hazardous Waste shall be under the Contract Unit Price by the weight in tons of hazardous waste removed from the site and transported to and disposed of at the licensed hazardous waste facility, and includes any and all costs for approvals, permits, fees and taxes, testing/characterization required by the facility beyond the standard disposal test set, decontamination procedures, transportation and disposal.

ITEM 201.4 CATCH BASIN – DOUBLE GRATE EACH

The work under this item shall conform to the relevant provisions of Subsection 201 of the Standard Specifications and the following:

The work under this item will consist of the construction of drainage inlets at the location(s) shown on the plan(s) and constructed with 4-foot sump(s) minimum.

MATERIALS

Catch Basin – Double Grate shall be precast concrete structures with an inside diameter of 5-feet and a 4-foot sump.

Catch Basin – Double Grate shall be precast concrete. The precast inlet shall conform to the latest ASTM Specifications for precast reinforced concrete sections (ASTM C478). Concrete shall have a minimum compressive strength of 4,000 psi. Reinforcing steel shall conform to the latest ASTM A185 Specifications. The drainage inlet shall have a capability of supporting HS 20-44 live load.

All proposed Catch Basin – Double Grate shall be constructed on a bedding of 12 inches of crushed stone conforming to Material Section M2. All excavation and bedding for the structures shall be included in the cost of this item.

Catch Basin – Double Grate shall be as shown on the details. Units shall be precast structures.

The cone sections of catch basins shall be replaced with flat top sections as needed at no additional cost.

All castings located within the pavement area shall not be set to finished grade until after the binder course has been placed.

All frames shall be set in a concrete collar conforming to Construction Standard Detail 223.0.1 prior to placement of the top course pavement. The cost of the concrete collar shall be included in the unit price bid for this item.

METHOD OF MEASUREMENT

Item 201.4 will be measured for payment by the Each catch basin – double grate installed, complete in place.

BASIS OF PAYMENT

Item 201.4 will be paid at the Contract unit price per Each, which price shall include all labor, materials, tools, and equipment required for the construction of the catch basin including walls, base, top, concrete masonry and shall also include excavation, disposal of surplus materials, bedding, backfilling and all incidental costs required to complete the work.

ITEM 201.4 (Continued)

No separate payment will be made for structure depth beyond the standard depth of 6.5'. Catch Basin – Double Grate shall be paid for as a single unit regardless of depth.

Frame and grate, including installations, shall be excluded in the cost of this item, and will be paid for under Item 222.11, Frame and Grate – Double Catch Basin.

ITEM 222.11 FRAME AND GRATE - DOUBLE CATCH BASIN EACH

The work under this item shall conform to the relevant provisions of Subsections 201 and 220 of the Standard Specifications and and the following:

The work to be done under this Item consists of the furnishing and delivering Frame and Grate - Double Catch Basin to the site as shown on the Plans, and as directed by the Engineer.

Frame and Grate - Grates shall be MassDOT Cascade Type. Assemblies will consist of covers and grates that conform to the nominal size, weight, material and load-carrying requirements in MassDOT Construction Standard Details 222.0.0 and 222.1.1 and are on the relevant MassDOT Qualified Construction Materials list. Some dimensions may vary slightly from those shown on the standard details to account for necessary fastening components.

The Contractor shall submit shop drawings of all drainage castings for approval.

METHOD OF MEASUREMENT

Item 222.11 will be measured for payment by the Each frame and grate – double catch basin installed, complete in place.

BASIS OF PAYMENT

Item 222.11 will be paid for at the Contract unit price per Each, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

ITEM 280.1 HOT MIX ASPHALT WATERWAY TON

The work under this item shall conform to the relevant provisions of Subsection 280 of the Standard Specifications and the following:

The work consists of the milling and paving of the existing Paved Waterway as shown on the Plans, and as directed by the Engineer.

The existing Paved Waterway shall be milled and paved at the limits and depths as depicted on the Plans.

METHOD OF MEASUREMENT

Item 280.1 will be measured for payment by the Ton, complete in place.

BASIS OF PAYMENT

Item 280.1 will be paid for at the Contract unit price per Ton, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

ITEM 630.1 HIGHWAY GUARD REMOVED AND STACKED FOOT

The work under this Item shall conform to the relevant provisions of Subsection 630 of the Standard Specifications and the following:

The work shall consist of the removing of highway guardrail from its present locations, transporting and stacking at the Becket Maintenance Depot at 98 Main St, Becket, MA 01223.

METHOD OF MEASUREMENT

Item 630.1 will be measured for payment by the Foot of highway guard removed and stacked, complete in place.

BASIS OF PAYMENT

Item 630.1 will be paid for at the Contract unit price per Foot, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

ITEM 657. TEMPORARY FENCE FOOT

The work under these Items shall conform to the relevant provisions of Subsection 644 of the Standard Specifications and include installation of temporary chain link fencing as shown on the plans and the following:

Work under this item shall include furnishing, installing, removing and resetting and, subsequently, removing a chain link fence and gates to be located as shown on the Plans or as required by the Engineer.

Temporary chain link fences shall be placed around the existing stone walls to protect the walls and area from damage as required by the Engineer and shall meet the requirements of the Standard Specifications and the Construction Standards, except the material need not be in new condition but shall not be deteriorated, not in any way jeopardize the security purposes intended.

Gates, if required by the Engineer, shall be used at locations that are to be opened on a regular basis. All posts including end, corner and intermediate brace posts shall be included in the foot cost. The fencing height shall be approved by the Engineer.

PRODUCTS Unless otherwise indicated, type of temporary chain link fencing shall be Contractor's option. Following types are acceptable: 1. New materials or previously used salvaged chain link fencing in good condition – subject to inspection/approval by the Engineer. 2. Posts: Galvanized steel pipe of diameter to provide rigidity. Post shall be suitable for anchoring with base plates, or inserting in precast concrete blocks.

The Contractor shall inspect the condition of temporary fence daily. Temporary fence that is damaged shall be promptly replaced. The fence shall not be removed until the bridge and roadway work are complete and without prior approval of the Engineer.

METHOD OF MEASUREMENT

Item 657. will be measured for payment by the Foot of temporary fence installed, complete in place.

BASIS OF PAYMENT

Item 657. will be paid for at the Contract unit price per Foot, which price shall include all labor, materials, equipment, and incidental costs required to complete the work including posts, gates, bracing, mounting.

No payment will be made for the final removal of the temporary fence. No payment will be made for any component needed to replace defective components. Fencing that is damaged due to construction accidents, vandalism and/or any other manner shall be replaced without additional compensation to the contractor.

ITEM 665. CHAIN LINK FENCE REMOVED AND STACKED FOOT

The work under this item shall conform to the relevant provisions of Subsection 665 of the Standard Specifications and the following:

The work shall consist of the removing of chain link fence and fabric from its present locations, transporting and stacking at the Becket Maintenance Depot at 98 Main St, Becket, MA 01223.

METHOD OF MEASUREMENT

Item 665. will be measured for payment by the Foot of chain link fence removed and stacked, complete in place.

BASIS OF PAYMENT

Item 665. will be paid for at the Contract unit price per Foot, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

ITEM 697.1 SILT SACK EACH

Work under this item shall conform to the relevant provisions of Subsections 227 and 670 of the Standard Specifications and the following:

The work under this item includes the furnishing, installation, maintenance and removal of a reusable fabric sack to be installed in drainage structures for the protection of wetlands and other resource areas and the prevention of silt and sediment from the construction site from entering the storm water collection system. Devices shall be ACF Environmental (800)-448-3636; Reed & Graham, Inc. Geosynthetics (888)-381-0800; The BMP Store (800)-644-9223; or approved equal.

CONSTRUCTION

Silt sacks shall be installed in retained existing and proposed catch basins and drop inlets within the project limits and as required by the Resident Engineer.

The silt sack shall be as manufactured to fit the opening of the drainage structure under regular flow conditions, and shall be mounted under the grate. The insert shall be secured from the surface such that the grate can be removed without the insert discharging into the structure. The filter material shall be installed and maintained in accordance with the manufacturer's written literature and as directed by the Engineer.

Silt sacks shall remain in place until the placement of the pavement overlay or top course and the graded areas have become permanently stabilized by vegetative growth. All materials used for the filter fabric will become the property of the Contractor and shall be removed from the site.

The Contractor shall inspect the condition of silt sacks after each rainstorm and during major rain events. Silt sacks shall be cleaned periodically to remove and disposed of accumulated debris as required. Silt sacks, which become damaged during construction operations, shall be repaired or replaced immediately at no additional cost to the Department.

When emptying the silt sack, the contractor shall take all due care to prevent sediment from entering the structure. Any silt or other debris found in the drainage system at the end of construction shall be removed at the Contractors expense. The silt and sediment from the silt sack shall be legally disposed of offsite. Under no condition shall silt and sediment from the insert be deposited on site and used in construction.

All curb openings shall be blocked to prevent stormwater from bypassing the device.

All debris accumulated in silt sacks shall be handled and disposed of as specified in Section 227 of the Standard Specifications

ITEM 697.1 (Continued)

COMPENSATION

Silt sacks will be measured and paid at the Contract unit price per each, complete in place, which price shall include all labor, materials, equipment and incidental costs required to complete the work. No separate payment will be made for removal and disposal of the sediment from the insert, but all costs in connection therewith shall be included in the Contract unit price bid.

ITEM 740. ENGINEER'S FIELD OFFICE AND EQUIPMENT (TYPE A) MONTH

The work under this Item shall conform to the relevant provisions of Subsection 740 of the Standard Specifications and the following:

Two computer systems and printer system meeting minimum requirements set forth below including installation, maintenance, power, paper, disks, and other supplies shall be provided at the Resident Engineer's Office:

All equipment shall be UL approved and Energy Star compliant.

The Computer System shall meet the following minimum criteria or better:

Processor:	Intel, 3.5 GHz
System Memory (RAM):	12 GB
Hard Drive:	500 GB
Optical Drive:	DVD-RW/DVD+RW/CD-RW/CD+RW
Graphics Card:	8 GB
Network Adapter:	10/100 Mbit/s
USB Ports:	6 USB 3.0 ports
Keyboard:	Generic
Mouse:	Optical mouse with scroll, MS-Mouse compliant
Video/Audio	the computer system shall be capable of allow video calling and recording:
Video camera	shall be High Definition 1080p widescreen capable video calling and recording with built in microphone. The microphone system shall capture natural audio while filtering out background noise.
Audio	shall be stereo multimedia speaker system delivering premium sound.
OS:	Latest Windows Professional with all security updates
Web Browser:	Latest Internet Explorer with all security updates
Applications:	Latest MS Office Professional with all security updates Latest Adobe Acrobat Professional with all security updates Latest Autodesk AutoCAD LT Antivirus software with all current security updates maintained through the life of the contract.
Monitors:	Two 27" LED with Full HD resolution. Max. resolution 1920 x 1080
Flash drives:	2 (two) - 128GB USB 3.0
Internet access:	High Speed (min. 24 mbps) internet access with wireless router.

ITEM 740. (Continued)

The Multifunction Printer System shall meet the following minimum criteria or better:

Color laser printer, fax, scanner, email and copier all in one with the following minimum capabilities:

- Estimated volume 8,000 pages per month
- LCD touch panel display
- 50 page reversing automatic document feeder (RADF)
- Reduction/enlargement capability
- Ability to copy and print 11” x 17” paper size
- email and network pc connectivity
- Microsoft and Apple compatibility
- ability to overwrite latent images on hard drive
- 600 x 600 dpi capability
- 30 pages per minute print speed (color),
- 4 Paper Trays Standard (not including the bypass tray)
- Automatic duplexing
- Finisher with staple functions
- Standard Ethernet. Print Controller
- Scan documents to PDF, PC and USB
- ability to print with authenticated access protection

The Contractor shall supply a maintenance contract for next day service, and all supplies (toner, staples, paper) necessary to meet estimated monthly usage.

The Engineer's Field Office and the equipment included herein including the computer system, and printer shall remain the property of the Contractor at the completion of the project. Disks, flash drives, and card readers with cards shall become the property of the Department.

Compensation for this work will be made at the contract unit price per month which price includes full compensation for all services and equipment, and incidentals necessary to provide equipment, maintenance, insurance as specified and as directed by the Engineer.

ITEM 751.7 COMPOST BLANKET CUBIC YARD

The work under this Item shall conform to the relevant provisions of Subsection 751 and M1.06.0 Compost of the Standard Specifications and the following:

Work shall consist of furnishing and pneumatically applying compost as a thin mulch blanket (1/2-1 inch depth) over prepared soil to provide temporary soil stabilization and organic matter for plant growth.

SUBMITTALS AND MATERIALS

No materials shall be delivered until the required submittals have been approved by the Engineer. Delivered materials shall match the approved samples. Approval of test results does not constitute final acceptance.

Contractor shall submit to the Engineer samples and certified test results no sooner than 60 days prior to application of compost. Vender certification that material delivered meets the test results shall be submitted if requested.

Compost shall meet the requirements for M1.06.0: Compost, Type 2, as referenced in the MassDOT– Highway Division Standard Specifications for Highways and Bridges, Division III: Materials Specifications, latest edition.

The Engineer shall approve the Contractor's equipment for application.

CONSTRUCTION METHODS

Application of compost material shall not begin until the Engineer has approved the site and soil conditions. Soil preparation shall be as specified under the applicable item for soil placement or for seeding. The Contractor shall notify the Engineer when areas are ready for inspection and application of compost.

Compost blanket shall be pneumatically applied (blown on) to a minimum depth of one half to one inch. Where shown on the plans or when directed by the Engineer depth may be increased to provide berms for sediment control or to otherwise prevent slope erosion.

When compost blanket is proposed with seeding, seed shall be broadcast and shall occur in conjunction with compost blanket, as specified under the relevant item for seeding.

When compost blanket is proposed for areas with planting, compost (and seed if applicable) shall be applied after planting. If compost and seed occur prior to planting, areas shall be regraded and compost and seed reapplied to the satisfaction of the Engineer and at the Contractor’s expense.

ITEM 751.7 (Continued)

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 751.7 will be measured and paid for at the Contract unit price per Cubic Yard which price shall include all labor, materials, equipment, and all incidental costs required to complete the work of pneumatically applying compost.

Surface preparation of substrate receiving compost blanket shall be compensated under the applicable item for placement of loam, sand, ordinary borrow, wetland soil, topsoil rehandled and spread, tilled existing soil, or other specified substrate.

Seeding, if utilized, will be compensated for under the appropriate seeding items.

ITEM 765.411 SHORT GRASSLAND MIX POUND

Work under this item shall consist of furnishing the mix(es) specified below in the required quantity.

SUBMITTALS

1) Pre-Verification of Seed Availability. Within 30 days after the Notice to Proceed, the Contractor shall submit to the Engineer the supplier's verification of availability of seed species in the required quantities and for the anticipated date of seeding. Verification shall be on the supplier's letterhead and notarized by the supplier's notary. Species not expected to be available should be noted and substitutions recommended.

2) Final Verification of Seed Availability. No earlier than 21 days prior to ordering, the Contractor shall submit to the Engineer the supplier's verification of availability of seed species and in the required quantities. Verification shall be on the supplier's letterhead and notarized by the supplier's notary. A copy of this submittal shall be forwarded to the MassDOT Landscape Design Section. Substitutions or changes in the mix at this time must be approved by MassDOT Landscape Design Section.

3) Seed Worksheet provided herein shall be submitted to the Engineer prior to ordering seed to determine the number of pounds of Pure Live Seed required.

4) Seed Tags. The contractor shall submit original seed tags from each bag of seed used on the project or ensure that each tag is photo documented by the Engineer while on the unopened bag.

   Number of tags submitted must correspond to number of bags delivered.

   Species listed on the seed tag shall match the Final Verification of Seed Availability (Submittal #2) unless approved otherwise. Tag must include: variety and species name; lot number; purity; percentage of inert matter; percentage of weeds, noxious seeds, and other crop seeds; germination, dormant or hard seed; total viability; origin of seed; germination test date, net weight, and name and address of seller. The origin of seed must be listed on the seed tag for all species in the mix to provide verification of original (generation 0) seed source. The smallest known geographic area (township, county, ecotype region, etc.) shall be listed. Ecotypes and cultivars shall be as close to Massachusetts as possible and appropriate to the site conditions.

   A copy of this submittal shall be forwarded to the MassDOT Landscape Design Section.

5) Verification of Seed Delivery. Prior to payment, contractor shall submit the Seed Delivery Verification form contained within the contract or the Supplier's Verification on company letterhead or a bill of lading. Supplier verification must include all information requested on the Verification form within this contract. The bill of lading must include variety and species name, lot number, net weight shipped, date of sale, invoice, project or seeding location, and name and address of Supplier. All information must be filled in and complete for acceptance. Information must match the seed tags and quantity of seed used on the job. A copy of this submittal shall be forwarded to the MassDOT Landscape Design Section

ITEM 765.411 (Continued)

6) Seed Sample. If requested or if seed is from a previously opened bag, the contractor may be asked to submit to the Engineer a sample of seed from the seed bag (1-2 cups) at the time of seeding.

SEEDING SEASON

The appropriate seeding seasons are:
Spring: April 1 - May 15
Fall: October 1 - December 1 for dormant seeding

PERMANENT SEED MIX(ES)

Calculating Pure Live Seed (PLS)

Quantities specified are PURE LIVE SEED. Greater quantities of ordered seed may be required to achieve actual specified seeding rates.

Pure Live Seed (PLS) is defined as a percentage calculated by multiplying the percent of pure seed by the percent of viable seed (total germination, hard seed, and dormant seed). For example:

If a seed label indicates 90% purity, 78% germination, 10% hard seed, and 2% dormancy, it is calculated to be 90% x [78 + 10 + 2]% = 81% PLS.

Therefore, each pound of PLS would need 1 pound / 0.81 = 1.2 pounds of seed with a 90% purity and 90% total germination

Seed Mix(es) shall be as specified below. Ecotypes and cultivars shall be as close to Massachusetts as possible and appropriate to the site conditions.

765.411 Short Grassland Mix

Botanical Name	Common Name	% Mix By Weight (PLS)
Grass		
Schizachyrium scoparium 'Albany Pine'	Little Bluestem 'Albany Pine'	57.5%
Elymus virginicus	Virginia Wild Rye	27.0%
Festuca rubra	Creeping Red Fescue	9.0%
Agrostis perennans	Upland Bentgrass	1.5%
Dichanthelium clandestinum'Tioga'	Deertongue grass 'Tioga'	1.0%
		96.0%

ITEM 765.411 (Continued)

Herb/Forb

Chamaecrista fasciculata	Partridge Pea	2.5%
Penstemon digitalis	Beard-tongue	0.5%
Solidago nemoralis	Grey Goldenrod	0.3%
Aster lateriflorus	Calico Aster	0.2%
Achillea millefolium	Common Yarrow	0.1%
Oenothera fruticosa var. fruticosa	Sundrops	0.1%
Pycnanthemum tenuifolium	Slender Mountain Mint	0.1%
Aster pilosus	Heath Aster	0.1%
Aster laevis NY Ecotype	Smooth Aster NY Ecotype	0.1%
		4.0%

Application Rate

765.411 Short Grassland Mix: 15.0 lbs/acre PLS. No cover crop shall be applied.

Any species substitutions shall be with a species having similar characteristics and function. Substitutions must be approved by MassDOT Landscape Design Section per the documentation submittal process.

50% Increase Adjustment for Field Conditions

Seeding under the following conditions requires a 50% increase in the permanent mix at the time of construction:

- Seeding out of season
  OR
- Seeding after Compost Blanket has been applied (unless already increased for out of season).

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 765.411, Short Grassland Mix, will be measured for payment by the pound of Pure Live Seed delivered and complete in place.

Item 765.411, Short Grassland Mix, will be paid at the contract unit price per pound of Pure Live Seed delivered upon approval of all Seed Submittal Documentation. Overseeding required to correct poor germination or establishment shall be incidental to the item.

Application and care of native seed mix will be paid for separately under Item 765.635 Native Seeding and Establishment.

ITEM 765.411 (Continued)

NATIVE SEED WORKSHEET

Project Description: _____ Project No: _____

Contractor: _____Contract No: _____

Seed Mix Number & Description: _____

Contractor: Complete Prior To Ordering

Pounds of Seed Required Per Contract:

_____lbs./acre for _____Acre(s) OR _____ SY

Additional 50% increase if required (out of season or seeding over compost blanket):

_____**lbs. Total Seed Required**

Calculated Quantity for **P**ure **L**ive **S**eed (PLS[1]):

_____ **Total Pounds PLS**

Engineer: Verification at Time of Application

Number pounds delivered to site[2]: _____ Date(s): _____

Actual Seed Bag Tag/s Received or photo documented by Engineer: _____

[1] PLS=% pure seed x % viable seed (total germination, hard seed, and dormant seed).
*[2]Quantity delivered should match pounds **Total Pounds PLS** and **Verification of Seed Delivery**. Pounds should be shown on each Seed Tag.*

ITEM 765.411 (Continued)

SUPPLIER VERIFICATION OF SEED DELIVERY FOR MASSDOT PROJECTS

Date_____

We hereby certify that (*Seed Supplier*):_____

Furnished to (*Contractor*): _____

For use on: (*Project Description*) _____

Project #: _____ Contract #: _____

Pounds of Pure Live Seed: _____

Of Mix (*Description*): _____

Lot Number _____

The material was delivered on (*Date*)_____.

The labels and contents meet all State and Federal regulations. The mixture consists of the following species, including cultivars (as applicable) and ecotype region, and at the following percentages (may be attached separately):

Name (print): _____ Title: _____

Supplier: _____

Signature and Seal: _____

ITEM 765.635 NATIVE SEEDING AND ESTABLISHMENT SQUARE YARD

Work shall conform to the relevant provisions of Subsections 765 and 767 of the Standard Specifications and the following:

The work under this item shall consist of seeding, mowing, and other care to establish a stand of grass in the areas shown on the plans or as required by the Engineer. For the purposes of these specifications, the term "grass" shall apply to all the forbs, grasses, sedges, and rushes included in the materials.

QUALIFICATIONS

Seeding shall be done by a company having a minimum of five years of experience with native seed establishment. Prior to beginning work, the seeding Contractor shall furnish proof of qualifications to the Engineer for approval. Proof of qualifications shall include providing documentation (photos and contacts) to demonstrate knowledge and expertise with native seeding and establishment and proof of having completed successful native seeding projects.

SEEDING SEASON

Seeding seasons for native mixes is April 1 - May 15 and October 1 - December 1 for dormant seeding. Written approval must be obtained for seeding outside the seeding season and, if approved, the permanent seed rate shall be increased by 50%.

Seeding season for cover crops shall be grain oats January 1 – July 31 and grain rye August 1 – December 1.

MATERIAL AND SUBMITTALS

Seed Mixes and Submittals shall be per the item(s) for permanent and annual (cover crop) seed mixes.

Compost Blanket, if used, shall meet the material and submittal requirements for that item.

Hydromulch shall be wood fiber or straw applied per the Standard Specifications and at the rates specified below and per the manufacturer.

A certified statement shall be furnished, prior to start of work, to the Engineer by the Contractor as to the number of pounds of hydromulch, tackifier, and seed, per 100 gallons of water and as applicable to products used. This statement should also specify the number of square yards of seeding that can be covered with the solution specified above.

Fertilizer

No fertilizers shall be applied.

ITEM 765.635 (Continued)

Water

Water, including hose and all other watering equipment required for the work, shall be furnished by the Contractor to the site at no additional cost. Water shall be suitable for irrigation and free from ingredients harmful to plant life. All plants injured or work damaged due to the lack of water or the use of too much water shall be the Contractor's responsibility to correct.

SEEDING

Hand broadcast method shall be used for all areas smaller than half an acre and when specified on the plans for areas over half an acre.

Seeding shall occur within 72 hours of placement of loam and final grading or the Contractor shall propose a reasonable, alternative schedule that shall be approved by the Engineer.

Surface Preparation

No seeding or soil preparation shall be done if soils are muddy or dry and compacted. Bare soils shall be raked to remove large stiff clods, lumps, brush, roots, stumps, litter and other foreign matter. Ruts and depressions shall be filled with additional loam or compost and the soil shall be re-graded to a relatively smooth finish corresponding to the required grades.

When seeding over existing or compacted soil or soil that has sat bare for more than 30 days, surface will be prepared by tilling or raking to a minimum depth of 2 inches prior to seeding and prior to Compost Blanket application (when applied).

Surface preparation shall be compensated for under for loam placement or topsoil rehandled and spread as appropriate to the project.

Jute or coir mesh, when specified in the contract, shall be placed after seeding and per the Standard Specifications and the manufacturer’s instruction.

Surface preparation shall be approved by the Engineer prior to seeding.

Seeding over Various Substrates

Loam: Seeding shall occur within 72 hours of loam placement to prevent loss of topsoil. Seed shall be manually broadcast for areas less than half an acre (each area, not cumulative area) and when specified on the plans. Broadcasting shall be immediately followed by hydromulching as specified below. When not specified on the plans, larger areas may be hydroseeded as specified below.

ITEM 765.635 (Continued)

Compost Blanket: Compost Blanket shall be applied as specified under that item. Seed should be hand broadcast at the same time as compost application to ensure a thin cover of compost over seed.

When seeding is done after application of Compost Blanket the rate shall be increased by 50%. If the Compost Blanket is applied after December 1, seed shall be broadcast or hydroseeding over the compost in the Spring and the rate increased by 50% specified under Seed Application.

Compost Mulch over Modified Rock: Compost Mulch and seed shall be applied as specified under that item. No hydromulch is required.

Cover Crop

Cover crop shall be used when seeding out of season, when specified with the permanent native seed mix under that item, and as required to prevent erosion until the permanent seed establishes.
A cover crop should not be used with a steep slope mix or other permanent mix which already contains either cereal rye or oats in the composition of the mix. A cover crop is not necessary for wetland seeding and is not typically necessary for soil stabilization when seeding in conjunction with a compost blanket application.

Seed Application

All seed shall be mulched as specified herein.

Seed application shall be by broadcast seeding or by hydroseeding as described below.

Broadcast Seeding

Seed shall be broadcast spread using a cyclone or whirlwind seeder or hand broadcast. Small or light-seeded species such as bluestem may be mixed with approved filler to achieve an even distribution. Seed shall not be broadcast when wind velocities are greater than 15 mph.

Broadcast seeding shall be undertaken in two separate passes at ninety degrees to each other. One-half the seeding rate shall be applied in each direction (horizontally and vertically). To ensure seed to soil contact with broadcasting of seed, seeding shall be followed by rolling or tracking with equipment approved by the Engineer.

Broadcast seed shall be mulched with weed-free straw mulch unless seeding is done as part of Compost Blanket in which case it shall be as specified above under seeding with Compost Blanket application. Hydromulching shall be as specified under Hydromulching.

ITEM 765.635 (Continued)

Hydroseeding and Hydromulching

Hydroseed and mulching shall be per the manufacturer's directions and as follows.

Hydroseeding shall only be used for sites over half an acre in size or with permission of the Engineer.

Tank and hoses shall be cleaned from all previous hydroseeding and hydromulching projects. Seed shall be mixed into the slurry immediately before application and slurry applied within 30 minutes after seeds have been placed in the tank. Once seed has been placed in the tank, tank shall be agitated only enough to mix the seeds and keep slurry from separating.

A 2-step process shall be used for seeding in conjunction with hydromulch. Seed shall be applied with 500 lbs/acre of hydromulch in the first pass. A second pass with 1,000 lbs/ acre of hydromulch shall be applied in a second pass. Each pass shall be applied in a different direction.

Once the seed has been added to the tank mixture a one-hour time limit is set for spreading the mixture on the soil. Once the one hour has passed the excess mixture must be discarded.

For broadcast seeding, hydromulch shall be applied immediately following seeding at a rate of 1,000 lbs/acre. Tank shall be cleaned from any previous hydroseeding.

CARE DURING GERMINATION AND ESTABLISHMENT

Contractor shall care for seeded areas as necessary for successful germination. Care will include watering and weed control as necessary to achieve establishment of the specified seeded species after one growing season as specified below.

The contractor shall maintain the stand of grasses to ensure healthy growth of the seeded species. Work shall include mowing or weed-whacking for weed control, watering if necessary, and removal of invasive plants.

Watering shall be sufficient to achieve soil moisture to a depth of 2 inches or more and such moisture is uniform. Method of watering shall not erode or damage soil or grassed surfaces.

General Weed Control: Unless otherwise directed, mowing shall be as specified under Mowing for Weed Control for seed establishment. Weeds shall be mowed prior to weeds setting seed (by the end of July unless otherwise approved).

Control of Invasive and Aggressive Weeds: Invasive and aggressive weeds, including but not limited to mugwort, ragweed, knapweed, foxtail, crabgrass, and chicory must be cut or treated prior to going to seed. Herbicide treatment must be coordinated with MassDOT. Undesired species (such as chicory) introduced due to use of incorrect seed mix shall be removed at the Contractor's expense.

ITEM 765.635 (Continued)

MOWING FOR WEED CONTROL

Mowing for weed control shall be completed after weeds have sprouted and show leaf and bud growth, but prior to setting seed, generally between July 7th and August 1st, unless directed otherwise by the MassDOT Landscape Architect and the Engineer.

Mowing height shall be as needed for weed control, generally to a height of 8 inches and not below 4 inches, unless directed otherwise. Mowing shall be with a brush hog mower or string trimmer other approved equipment. Conventional lawn mowers which cannot achieve the appropriate cut shall not be used.

Contractor shall give 48-hour notice prior to mowing work. Mowing shall only occur in dry sunny weather. Litter pickup should occur prior to mowing in all areas. If required, cut grass shall be raked and removed. Litter pickup and raking and removal of grass shall be incidental to the work.

Mowing equipment shall be approved by the Engineer prior to work.

OVER-SEEDING

Areas of bare ground greater than 2-3 feet in diameter shall be over-seeded with the specified mix during the appropriate season for seeding. Where required for overseeding mowing shall be as close to the soil as possible. Soil that is compacted shall be raked or otherwise roughened prior to over-seeding.

Over-seeding rates and methods shall those specified above under Materials and Methods. Following over-seeding, soil shall be lightly tamped to ensure seed to soil contact and areas shall be mulched with straw mulch and watered with a fine mist to moisten soil to a depth of at least 2 inches.

Over-seeding, mulch, watering, and all work for over-seeding shall be incidental.

DETERMINING SATISFACTORY GRASS ESTABLISHMENT

A well-established stand of the specified seeded species as determined by the Engineer and the MassDOT Landscape Architect will be required for Final Acceptance. The expectation is that an acceptable number and variety of the desired permanent seeded species (not the cover crop) will be visible. Generally:

- A minimum of 75% coverage by the specified permanent seeded species after one growing season. Of that percentage, generally, depending on the mix species:
    - At least 3 types of the permanent seeded grass species shall be visible.
    - At least 3 species of wildflowers shall be visible.
- There will be no significant gaps or bare soil (generally 2-3 feet in diameter or greater).
- There will be no more than 25% coverage by weed species.
- All soil shall be stabilized and there shall be no channeling or erosion.
- There will be no invasive or aggressive species within the stand at the time of acceptance.
- There shall be no evidence of seed from non-native mixes (i.e., clover) due to failure to clean the hydroseeding tank or using incorrect mix.

ITEM 765.635 (Continued)

Invasive and aggressive weeds (such as mugwort, ragweed, knapweed, and chicory) must be cut or treated prior to going to seed for Interim Acceptance. Herbicide treatment must be coordinated with MassDOT.

A warm-season grass mix with perennials will not have uniform growth. A uniform stand of grass may indicate use of an incorrect mix.

ACCEPTANCE OF SEEDING AND ESTABLISHMENT WORK

Conditional Acceptance shall be based on proper application of seed as specified herein.

Interim Acceptance of Care. Seeding will be inspected by mid-July to assess germination and Establishment conditions as described above. When necessary for Interim Acceptance, areas shall be mowed prior to weed species producing seed and as specified above under Weed Control. ***Areas requiring weed control that are not mowed prior to weed seed dispersal will not be approved for Interim Acceptance.*** Seeding that shows good germination and is determined by the Engineer and Landscape Architect to not require weed control at time of inspection shall be accepted for Interim Acceptance payment.

Final Acceptance of Establishment shall be given upon satisfactory Establishment as described above.

If the seeded area fails to meet the requirements of Establishment by the end of the growing season, contractor shall propose and implement remediations and site shall be inspected during the following growing season after July 1st. All remediation shall be at the contractor's expense.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Native Seeding and Establishment will be measured for payment by the square yard, complete in place.

Native Seeding and Establishment will be paid at the Contract unit price by the square yard upon Conditional, Interim, and Final Acceptances as described above. This price shall include all submittals, seeding, rolling to ensure seed-to-soil contact, weed control other than mowing, water, over-seeding, labor, materials, equipment, and all incidental costs required to complete the work of establishing a satisfactory stand of grass.

Native seed and cover crop mixes shall be compensated under the respective items.

Site preparation, including raking, tilling, removal of debris and stones, and other work to the prepare site for seeding shall be compensated under loam placement or topsoil rehandled and spread as relevant to the project. If used, Compost Blanket shall be compensated under the respective item.

Mowing for weed control will be incidental to this item.

ITEM 765.635 (Continued)

Schedule of payment shall be as follows:

30% upon Conditional Acceptance

20% upon Interim Acceptance of Care, except this amount will be reduced to zero and final payment will be reduced accordingly when areas requiring weed control are not mowed as specified in the Interim Acceptance criteria.

50% upon Final Acceptance of Establishment

ITEM 767.121 SEDIMENT CONTROL BARRIER FOOT

The work under this item shall conform to the relevant 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, sedimentation fence shall be used in addition to compost filter tubes and straw bales and shall be compensated under that 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.

ITEM 767.121 (Continued)

Compost Filter Tube

Compost material inside the filter tube shall meet 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.

ITEM 767.121 (Continued)

Sedimentation Fence

Materials and Installation shall be per Section 670.40 and 670.60 of the 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 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 (despite fabric decay) 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 sedimentation fence, shall be removed and disposed off-site by the Contractor.

ITEM 767.121 (Continued)

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).
- Sedimentation 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 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.

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 damage by construction activities shall be repaired or replaced as directed by the Engineer at the Contractors expense.

ITEM 816.81 TEMPORARY TRAFFIC CONTROL SIGNAL LUMP SUM

The work included under this item consists of furnishing all necessary labor, materials, and equipment required to install, complete in place and ready for operation, traffic control signals and related work at the locations shown on the plans.

Temporary Traffic Control Signal Location

Location: Route 8/Main Street (for Alternating Traffic Control)

SCOPE OF TEMPORARY TRAFFIC SIGNAL WORK

Work at the above Locations shall consist of constructing temporary traffic signal systems complete with temporary wooden span poles, portable traffic signal trailers, portable traffic signal posts, camera detection systems that have stop line presence detection, vehicle signal heads, pedestrian signal heads, pedestrian pushbuttons, emergency preemption equipment, new signal controllers and cabinets, electrical cable, electrical service connection and all other equipment, materials and incidental costs necessary to construct, program, operate and maintain a complete and functioning temporary traffic control system to the satisfaction of the Engineer and as specified and shown in the contract documents.

GENERAL REQUIREMENTS

All work under these items shall conform to Section 800 of the Standard Specifications, the 11th Edition of the Manual on Uniform Traffic Control Devices (MUTCD), with Massachusetts Amendments; and the following technical provisions:

Lists of the major temporary traffic signal items required are included on the traffic signal plans.

All temporary traffic signal equipment shall comply with the MassDOT Qualified Traffic Control Equipment (QTCE) List unless otherwise approved by the Engineer.

Temporary wooden span wire poles that have luminaires installed shall be in conformance with the relevant provisions of Subsection 820 of the Standard Specifications. The luminaire shall be installed on the bracket arms with the luminaire parallel to the roadway grade unless otherwise shown on the plans.

Span wire assembly with tether wire shall follow the MassDOT Overhead Signal Structure and Foundation Standard Drawings dated December 2015 in regards to requirements for elevation and roadway clearances and signal connections.

All portable traffic signal trailers with extension arms and/or posts shall be solar power equipped with battery backup. Each unit shall be operable for a minimum of 20 days without solar power. Batteries shall be housed and secured within steel lock down box.

ITEM 816.81 (Continued)

All portable signal trailer with extension arms shall have two signal heads per unit with one signal head located over the approach lane and the other signal head located on the trailer base. Signal head over the approach lane shall have a 16'-6" minimum vertical clearance to the roadway surface.

The Contractor shall make all necessary arrangements with the electric company for the service connections or for any main power cut off when necessary, and bear all charges incurred.

It is the intent of the Plans, Specifications and these Special Provisions to provide and maintain a complete traffic control signal system throughout the project. The Contractor will own, operate and maintain this temporary signal during the entire construction period. Following the completion of construction, the temporary traffic signal equipment shall be removed and become the property of the Contractor with the exception of the traffic signal controller and cabinet.

Signal indications shall be LED. Signal supports may be wooden poles, metal poles or portable trailers.

This specification establishes the performance, test, and quality requirements for Temporary Traffic Control Signal System. The system will be tested and approved prior to the deactivation of the existing signal and activation of the full temporary traffic control signal system.

SUBMITTALS

Contractor to submit shop drawings for the temporary traffic signal components and temporary luminaires.

MATERIALS

Poles

The length of poles supplied shall be 40 feet. The material of the poles may either be wood or metal. Shortening as required shall be from the narrow end. Class 1 poles or better shall be used for traffic signal support poles. Wooden poles shall be either Douglas Fir or Southern Yellow Pine.

CONSTRUCTION METHODS

Span wire poles shall be handled on loading, unloading, and erecting in such a manner that they will not be damaged. Any parts that are damaged due to the Contractor’s operations shall be repaired or replaced at the Contractor’s expense.

Span wire poles shall be placed in the ground a minimum of 12 feet. After each pole is set in the ground, the pole shall be backfilled with select backfill. Backfill shall be free of rocks and debris

and shall be placed in layers of no more than 6 inches before layer compaction. Each layer shall be moistened and thoroughly compacted.

ITEM 816.81 (Continued)

Span wire poles shall be raked sufficiently to be plumb after all loads have been placed.

Span wire poles shall not obstruct a sidewalk, side path or crosswalk so that passage by physically-challenged and/or visually disabled persons is not impaired.

VIDEO DETECTION

The Contractor shall supply and install a video detection system. The system shall also provide full motion video output showing zones highlighted during detection for fine-tuning. All hardware and software within the traffic signal cabinet shall be NEMA TS-2 compliant.

The major components of the video detection system are further described as follows:

A. Prior to installation of the Video Detection System a detailed site survey shall be conducted by a factory trained and certified representative. The site survey shall ensure that the design of the camera, camera location, camera optics, and video/data interconnect is appropriate for the application.

B. The supplier of the Video Detection System shall supervise the installation and testing of the Video Detection System and computer software. A factory certified representative from the supplier shall be on site during installation.

C. The Video Detection System shall provide one National Television Standards Committee (NTSC) color composite video output.

D. The Video Detection System shall provide a minimum of 20 detection zones. The system shall provide flexible, user configurable detection zone placement at any orientation within the field of view of the Video Detection System Camera. It shall be possible to overlap detection zones. It shall be possible to configure the Video Detection System to provide detection signals to the traffic signal controller which are comprised of Boolean combinations of detection zones.

E. The Video Detection System shall provide failsafe operation whereby it places continuous vehicle calls to the traffic signal controller on all detection zones in the event it senses unacceptable video from the Video Detection System Camera.

F. The Video Detection System shall include a configuring device and/or a Windows based computer software that provides for configuring the Video Detection System, viewing real time video, and updating the flash memory of the Video Detection System with updated application software.

G. The Video Detection System shall provide count & presence detection performance with at least 96% accuracy under normal (day and night) conditions.

ITEM 816.81 (Continued)

H. The Video Detection System shall utilize FLASH memory to store the resident application software.

I. The Video Detection System shall be comprised of a Video Detection System Camera, Video Detection System Cable, and Video Detection System Hardware.

J. Video Detection System Cameras

1) The Video Detection System Camera shall operate without degradation over a temperature range of -30 to 140 degrees Fahrenheit at a relative humidity of 10% to 90% condensing.

2) The Video Detection System Cameras shall be housed in a water resistant, dust proof NEMA-4 housing. The housing shall include a rear connector for connection of the Video Detection System Cable. The housing shall be field rotatable to allow for proper alignment between the camera and the traveled road surface.

3) The Video Detection System Cameras shall have a heater to prevent the formation of ice and condensation in cold weather and allow the camera to operate correctly while exposed to precipitation and direct sunlight.

4) The Video Detection System Cameras shall have a sunshield to protect the lens from direct sunlight and direct precipitation exposure.

5) The Video Detection System Cameras shall provide useable video and resolvable features in the video image when those features have luminance levels as low as 0.1 lux at night, and as high as 10,000 lux during the day. The Video Detection System Camera shall contain an automatic gain control (AGC) to provide a satisfactory image over the full range of light levels.

K. Video Detection System Cable

1) The Video Detection System Cable shall interconnect the Video Detection System Camera with the Video Detection System Hardware in the traffic signal control cabinet.

2) The Video Detection System Cable shall meet the design requirements of the Video Detection System Camera manufacturer and shall be designed and manufactured specifically for the Video Detection System Camera supplied.

ITEM 816.81 (Continued)

3) The Video Detection System Cable shall be capable of withstanding the rigors of outdoor environments, including all combinations of precipitation, heat and cold from -30 to 165 degrees Fahrenheit, and direct exposure to sunlight without exhibiting any signs of deterioration over time.

4) The Video Detection System Cable shall be installed with a suitable drip loop to prevent the entrance of water into the housing.

L. Video Detection System Hardware

1) The Video Detection System Hardware shall operate without degradation over a temperature range of -30 to 165 degrees Fahrenheit at a relative humidity of 10% to 90% condensing.

2) The Video Detection System Hardware shall include interface device(s) which shall be installed in the traffic control cabinet.

3) The interface device(s) shall be used to terminate the traffic controller cabinet end of the Video Detection System Cable.

a. The interface device(s) shall contain transient suppression devices for all signals transported on the Video Detection System Cable, including but not limited to video, data, and power.

i. The surge protector shall be electrically connected to the cabinet ground rod.

ii. Surge protectors should have peak surge current protection of at least 10K amperes with a response time of less than 5 nanoseconds. The protector complies when a lab report from an independent test laboratory stating the product passes this specification is submitted with the shop drawings.

iii. Units should be pre-approved or unconditionally warranteed for at least 10 years and certified to comply with the product's published specifications by an independent laboratory.

b. The interface device(s) shall contain a switch or shut-off mechanism that shall allow the user to turn off AC service to all components of the Video Detection System.

ITEM 816.81 (Continued)

c. The interface device(s) shall contain a connector for interfacing to an included configuring device and/or a Windows based computer in the field for the purpose of configuring the Video Detection System, viewing real time video, and for updating the flash memory of the Video Detection System with updated application software.

4) The Video Detection System Hardware shall include all necessary cables for interconnection to the traffic signal controller, AC power service, a modem for transport of NTSC video to the traffic operations center, and a configuring device and/or a Windows based computer in the field.

SIGNAL TIMING

Signal phasing and timing for the temporary control traffic signals shall match the signal phasing and timing provided in the Temporary Traffic Signal Plans.

CONTROLLER AND CABINET

The work shall include furnishing and installing new controller and a new cabinet at each location as shown on the plans. Master controller shall be provided at the Route 27 and Route 9

Westbound Ramp location. The controllers shall be compatible for Advanced Traffic Controller (ATC) and NEMA standards.

The cabinet shall be made of aluminum and mounted to the foundation/pole as shown in the plans.

The cabinet shall be wired with a normally closed switch connected to a user defined input to the controller for remote monitoring of the control cabinets' door open status. The controller cabinet shall also be supplied with a Manual Police Button to manually control the operations of the traffic signal via the Police Door Access Panel.

SIGNAL HEADS

Signal heads attached to span wires shall be rigidly attached to the span wire, with the bottom of the signals at the same height as existing signal heads. 5-inch black louvered back plates shall be

provided on all signal heads as noted on the plans. All signal heads shall be equipped with 12-inch red ball or red arrow light as noted on the Plans.

ITEM 816.81 (Continued)

EMERGENCY VEHICLE PREEMPTION

Optically actuated emergency preemption equipment shall be installed for local control of the signals during the passing of appropriately equipped emergency vehicles through intersections. Temporary Traffic Signal Plans illustrate the proposed locations for the emergency preemption receivers and preempt control of the intersection.

The emergency vehicle preemption control system shall consist of a data-encoded phase selector to be installed within the traffic control cabinet. This unit will serve to validate, identify, classify and record the signal from the optical detectors located on support structures at the intersection.

Upon receiving a valid signal from the detector, the phase selector shall generate a preempt call to the controller initiating a preemption operation as shown on the plans.

The optical detectors shall be single input, single output units used to control one approach.

The Contractor shall install a confirmation strobe at the traffic signal location as shown on the plans.

The Contractor shall verify the final location of all preemption receivers in the field to provide optimal operations.

The Contractor is required to supply material and labor, required or show, for the complete installation of optical preemption equipment including optical detectors, cable, interfacing equipment to the local controller, making electrical connections and all required incidentals.

Prior to ordering, the Contractor shall coordinate with the Town of Natick to ensure that the new preemption equipment is compatible with the Town's existing preemption equipment.

The installer shall install the equipment consistent with the preemption equipment, the manufacturer's recommended installation procedures and electrical diagrams in a neat and workmanlike manner.

TEMPORARY SIGNAL MAINTENANCE

After the Contractor has finished installing the controller and all other associated signal equipment and after the Contactor has set the signal equipment to operate as specified in the Contract Documents, the maintenance of the temporary signal shall begin and continue for the duration of the construction contract. During this period, the Contractor, under the direction of the Engineer, will make necessary adjustments and tests to ensure safe and efficient operation of the equipment.

ITEM 816.81 (Continued)

The Contractor, under the direction of the Engineer, shall make all necessary adjustments to signal heads and signal timing to accommodate the construction staging as shown in the contract plans.

In the event of failure during this period, the Contractor shall repair or replace the malfunctioning parts or equipment, or faulty workmanship, regardless of the cause, within twenty-four (24) hours after having been notified. Failures caused by defective equipment, materials or faulty workmanship shall be corrected to the satisfaction of the Engineer.

The Contractor shall provide the Engineer with the name and telephone number of the person to be notified in the event of failures or malfunctions during the test period.

The cost of the electric energy and telephone charges consumed by the operation of the temporary traffic signal shall be borne by the Contractor. This Item also includes the removal of the temporary traffic signal system and restoration of the site.

BASIS OF PAYMENT

Item 816.81, Temporary Traffic Control Signal, will be paid for at the Contract Lump Sum price, which price shall include all labor, materials, including temporary wooden span poles, portable traffic signal trailers, portable traffic signal posts, vehicle signal heads, pedestrian signal heads, pedestrian pushbuttons, emergency preemption equipment, new signal controllers and cabinets, electrical cable, conduit, pull boxes, electrical service connection, traffic signal controller and cabinet testing and re-testing necessary or incidental to the installation, operation, maintenance and subsequently removing and disposing of a temporary signalized traffic control system to accomplish the temporary traffic control as shown on the plans.

ITEM 853.22 TEMPORARY BARRIER REMOVED AND STACKED FOOT

The work under this Item shall conform to the relevant provisions of Subsection 850 of the Standard Specifications and the following:

The work shall consist of the removing of temporary concrete barrier from its present locations, transporting and stacking at the Becket Maintenance Depot at 98 Main St, Becket, MA 01223.

METHOD OF MEASUREMENT

Item 853.22 will be measured for payment by the Foot of temporary barrier removed and stacked, complete in place.

BASIS OF PAYMENT

Item 853.22 will be paid for at the Contract unit price per Foot, which price shall include all labor, materials, equipment and incidental costs required to complete the work.

ITEM 862.506	**FAST DRY MULTI-COMPONENT PAVEMENT MARKINGS, RECESSED, WET REFLECTIVE (6 INCH WHITE LINE)**	**FOOT**
ITEM 863.506	**FAST DRY MULTI-COMPONENT PAVEMENT MARKINGS, RECESSED, WET REFLECTIVE (6 INCH YELLOW LINE)**	**FOOT**

The work under these items shall conform to the relevant provisions of Subsection 860 of the Standard Specifications and shall consist of grooving a slot in the pavement surface and furnishing and installing Multi-Component Wet Reflective Pavement Markings at the locations shown on the plans or as required by the Engineer.

MATERIALS

Fast Dry Multi-Component Wet Reflective Pavement Markings shall consists of a liquid binder, first drop beads or elements to provide dry and wet retroreflectivity, and second drop glass beads to improve the durability of the pavement marking, reduce track-free times, and provide supplementary dry retroreflectivity. Multi-Component Pavement Marking binders are typically composed of, but not limited to, Epoxies, Polyureas, and Urethanes.

Classification of dry time is based upon the results of the test procedures found in ASTM D711 (73.5 ± 3.5°F at 50 ± 5% relative humidity) when applied with glass beads. Fast Dry Multi-Component Pavement Markings shall have a no track time of 10 minutes or less when tested under ASTM D711. The Contractor shall provide a Certificate of Compliance verifying the product supplied meets the specified dry time requirements per ASTM D711 prior to installation.

The Contractor shall select a liquid binder and bead/element combination that meets these performance specifications.

Second drop beads shall be manufactured from glass of a composition that is highly resistant to traffic wear and to the effects of weathering. If coating is required to meet the performance requirements, the second drop beads shall be coated to ensure satisfactory embedment and adhesion. Second drop beads retained on a No. 40 U.S. Standard Mesh Sieve shall have a minimum crush strength of 30 lbs. when tested in accordance with ASTM D1213.

Second drop beads passing the No. 30 sieve shall have a minimum of 75 percent true spheres when tested in accordance with ASTM D1155. All second drop beads retained on the No. 20 and No. 30 sieves shall have a minimum of 80 percent true spheres as determined by ASTM D1155.

ITEMS 862.506 and 863.506 (Continued)

Second drop beads shall meet the following gradation requirements when tested in accordance with ASTM D1214:

U.S. Standard Sieve No.	Percent Retained
20	3-10
30	15-35
50	45-75
70	0-10
Pan	0-5

CONSTRUCTION METHODS

Installation of the Groove

Prior to cutting out the grooves for all recessed lines, the Contractor shall use a chalk line or other suitable method to layout the proposed pavement markings on the surface course so that the Engineer can inspect the locations. Once the Engineer has inspected and approved the proposed striping layout, the grooves for the proposed pavement markings may be cut. No pavement grooving shall be done without the prior approval of the Engineer.

Groove position shall be a minimum of 4 inches from the edge of the pavement marking to any longitudinal pavement joints. The groove shall not be installed on bridge joints, on drainage structures, or in other areas identified by the Engineer. The groove shall not be installed continuously for intermittent pavement markings, but only where markings are to be applied.

The use of gang stacked diamond cutting blades to grind a smooth square slot is required for producing all grooves. The spacers between blade cuts shall be such that there will be less than a 10 mil rise in the finished groove between the blades. The acceptability of the surface texture will be determined by the Engineer.

The diamond grinder shall have an articulating head so that the slots are installed correctly on grades and super elevated sections.

Grooves that are ground deeper or wider than the specified allowable limits shall be repaired per the direction of the Engineer at no additional cost. Grooves that are ground too shallow, too narrow, or with unacceptable rises between blade cuts shall be reground to the correct size, depth, and surface finish at no additional cost. Slots ground out of alignment shall be patched using an approved method and materials.

Grooves shall be 1 inch ± ¼ inch wider than the pavement marking material. Groove depth shall be 100 mils ±5 mils, unless otherwise approved by the Engineer. Depth shall be consistent across the full width of the groove. Depth plates shall be provided by the Contractor to the Engineer to assure that desired groove depth is achieved.

ITEMS 862.506 and 863.506 (Continued)

Grooves shall be clean, dry and free of laitance, oil, dirt, grease, paint or other foreign contaminants. Shrouds and a vacuum apparatus shall be included as part of the grinder to remove larger pieces of pavement that are ground out. If water is used to clean the groove or the grooving process takes place during rainfall, a minimum of 24 hours of dry time is required prior to the placement of pavement markings.

After the depth, width, length, and surface condition has been approved by the Engineer, an air lance shall be used to remove fine particles from the groove. Air compressors shall initially be blown out away from the application area to prevent compressor condensation build-up from entering the groove. The Contractor shall prevent traffic from traversing the grooves and re-clean grooves, as necessary, prior to application of pavement markings at no additional cost to the Department.

All grooves must be given final approval by the Engineer prior to the placement of pavement markings.

Installation of Multi-Component Wet Reflective Pavement Markings

Installation of wet reflective polyurea pavement markings shall conform to the Manufacturer's specifications and the following:

Application rate for binder and all beads and elements shall consider final pavement surface composition and smoothness in advance of application to ensure proper wet film thickness and embedment of all beads and elements. The Contractor shall provide the Engineer with documentation from the Manufacturer with all recommended application rates in advance of any pavement marking installation.

The minimum uniform wet thickness for the multi-component binder shall be 25-30 mils. The line thickness shall be met across at least the middle ⅔ of the pavement marking width. Depth plates shall be provided by the Contractor to the Engineer to assure that desired thickness is achieved.

The finished white color shall be free from tint, with good opacity and visibility under both daylight and artificial light. The finished yellow color shall be defined by Federal Test Standard 595 - Color Chip Number 13538, using Federal Test Standard 141 (Method 4252). The finished lines shall be uniform in color and have clean, well-defined edges.

First and second drop beads and/or elements shall be applied in a manner that does not induce rolling or bouncing, to ensure that exposed portions of beads are free of binder material. Beads and elements should be embedded in the binder to a depth of approximately 50% of their diameter.

Drop rate for first drop bead or element shall be per the Manufacturer's specifications. Drop rate for second drop glass bead shall be 6.4-10.2 lbs. per gallon. Newly installed pavement markings shall be protected from tracking during the setting period per Subsection 860.63.

ITEMS 862.506 and 863.506 (Continued)

Once the installed pavement markings have been open for traffic for a minimum of 48 hours, the Contractor shall perform retroreflectance readings per the measurement and sampling procedures contained in ASTM D7585 (Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments) using the Referee Evaluation Protocol found in section 6.4. The following tests shall be performed during the measurement and sampling process:

1. ASTM E1710 *(Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer)*; and
2. ASTM E2177 *(Standard Test Method for Measuring the Coefficient of Retroreflected Luminance (R_L) of Pavement Markings in a Standard Condition of Wetness).*

The average initial retroreflectance readings shall exceed the following minimum values:

	***White Markings**	***Yellow Markings**
ASTM E1710 (Dry)	475 mcd/lux/m²	375 mcd/lux/m²
ASTM E2177 (Wet Recovery)	375 mcd/lux/m²	300 mcd/lux/m²

*Observation Angle = 1.05°, Entrance Angle = 88.8°

Pavement markings with measured average initial retroreflectance readings that do not meet the specified minimum values using the procedures outlined in subsection 6.4.5 of ASTM D7585 shall be removed by an approved method and reapplied at no additional cost, unless otherwise required by the Engineer.

METHOD OF MEASUREMENT

Items 862.506 and 863.506 will be measured for payment respectively by the FOOT of Multi-Component Wet Reflective Pavement Markings installed, complete in place, as specified under Subsection 860.80.

BASIS OF PAYMENT

Items 862.506 and 863.506 will be paid at the respective Contract unit prices per FOOT, which prices shall include all material, labor, equipment, and all incidental costs required to complete the work.

ITEM 864.35 SLOTTED PAVEMENT MARKER TWO-WAY YELLOW/YELLOW EACH

The work under this item consists of furnishing and installing two-way yellow/yellow reflectorized pavement markers (slotted in pavement) in accordance with the relevant provisions of Traffic Standard TR.6.5 "Typical Pavement Markings for Conventional Roadways", and the following:

The work shall include cutting the tapered pavement slot to the dimensions shown on the typical details for the two-way markers, application of the manufacturer's recommended epoxy adhesive and placing the reflectorized pavement marker in the proper position within the slot so that the reflectorized face is visible and perpendicular to oncoming traffic and so that the top of the marker is set 1/8± inch below the top of the adjacent pavement. Surface preparation and installation shall be strictly in accordance with the manufacturer's instructions.

Markers shall be installed along the double yellow centerlines as shown in the plans at 40- foot intervals.

The Contractor shall provide a reflectorized pavement marker from the MassDOT's Approved Products list.

METHOD OF MEASUREMENT

Item 864.35 will be measured for payment by the Each slotted pavement marker two-way yellow/yellow installed, complete in place.

BASIS OF PAYMENT

Item 864.35 will be paid for at the Contract unit price per Each, which price shall include cutting the tapered pavement slot, materials, labor, equipment, and all incidental costs required to complete the work.

ITEM 953.1	**EARTH ANCHOR**	**FOOT**
ITEM 953.11	**PROOF LOAD TESTS**	**EACH**
ITEM 953.12	**VERIFICATION LOAD TESTS**	**EACH**

GENERAL

The work under these items shall conform to the relevant provisions of Subsections 901 and 960 of the Standard Specifications and the following:

The Work consists of designing and constructing permanent soil nail/rock anchor retaining walls (referred to herein as soil nail retaining wall) to achieve the design criteria in accordance with AASHTO, the MassDOT LRFD Bridge Manual, the Standard Specifications, the Plans, and specified herein. The Contractor shall furnish all labor, materials and equipment required for completing the Work. The Contractor shall select the drilling method and equipment, final drillhole diameter(s), and grouting procedures to meet the performance requirements specified herein.

Soil nailing/rock anchor work shall include drilling soil nail/rock anchor drillholes, providing, placing and grouting the encapsulated or epoxy coated nail bar tendons into the drillholes; placing drainage elements; placing shotcrete reinforcement; applying shotcrete facing over the reinforcement; attaching bearing plates and nuts; performing nail testing; placing permanent facing reinforcement; forming, furnishing, installing, and removing architectural form liners for ashlar stone finish; placing permanent cast-in-place concrete facing with ashlar stone finish; and repairing flaws in the permanent concrete facing.

1. Shotcrete facing and wall drainage construction is covered by the Shotcrete Specification, Item 953.2.
2. Permanent facing is covered by MassDOT Standard Specifications for Highways and Bridges, Section 901 Cement Concrete.
3. The term "Soil Nail" as used in these specifications is intended as a generic term and refers to a reinforcing bar grouted into a drilled hole installed in any type of ground (e.g., soil, weathered bedrock, competent bedrock).
4. Soil nail wall construction shall only be performed when temperatures are above freezing and will not drop below freezing within 48 hours of construction.

The slope requiring soil nails is defined as follows:

The current rock slope ranges from approximately 20 to 35 feet high at a slope ranging from approximately 1H:1V to 1H:1.5V or steeper, with very irregular weathering and some loose rocks at the existing face, including trees and brush growing in the joints. Irregular erosion has also occurred along the face, resulting in overhanging and undermined root systems and trees. The current slope has a history of rocks falling and reaching the roadway surface.

ITEMS 953.1, 953.11 and 953.12 (Continued)

The proposed rock slope will be cut back approximately 14 feet from the current rock face at the toe of slope. This will include a 3-foot level area at the edge of the shoulder, a 4-foot-wide flat ditch at the toe of rock slope, and a catchment area with a gradient of approximately 6H:1V between the level area and the ditch. The typical rock slope will be cut at a maximum 1H:4V slope using line drilling and controlled blasting techniques and supported by soil nails/rock anchors with permanent concrete facing with ashlar stone finish. A 12- to 17-ft wide horizontal bench (depending on the height of the slope) is designed at the top of the rock slope.

QUALITY CONTROL

Contractor is responsible for performing work in accordance with the plans and special provisions specified herein. The Engineer will be on site to observe the Contractor's activities.

Contractor's submittal requirements are specified below.

SUBMITTALS

Soil Nail/Rock Anchor Installer(s) Experience Requirements and Submittal:

1. The soil nail/rock anchor Installer (foremen, nozzlemen, finishers and delivery equipment operators) shall submit a project reference list verifying the successful construction completion of at least 5 permanent soil nail retaining wall projects during the past 5 years totaling at least 10,000 square feet of wall face area and at least 500 permanent soil nails. A brief description of each project with the Engineer's name and current phone number shall be included.
2. A Registered Professional Engineer employed by the soil nailing Installer and having experience in the construction of permanent soil nail retaining walls on at least 3 completed projects over the past 5 years shall supervise the Work. The on-site supervisor and drill rig operators shall have experience installing permanent soil nails on at least 3 projects over the past 5 years. The Contractor shall not use consultants or manufacturer's representatives to satisfy the requirements of this section.
3. At least 30 calendar days before starting the wall, the soil nail Installer shall submit 5 copies of the completed project reference list and a list identifying the drill rig operators, and on- site supervisors assigned to the project. The personnel list shall contain a summary of each individual's experience. The Engineer will approve or reject the Contractor's qualifications within 15 calendar days after receipt of a complete submission. Work shall not be started, nor materials ordered until the Engineer's written approval of the Contractor's qualifications is given.
4. The Engineer may suspend the Work if the Contractor uses non-approved personnel. If work is suspended, the Contractor shall be fully liable for all resulting costs and no adjustment in contract time will result from the suspension.

ITEMS 953.1, 953.11 and 953.12 (Continued)

Pre-Construction Submittals:

The Contractor shall prepare and submit to the Engineer: shop drawings, detailed design calculations, a soil nail/rock anchor installation plan, construction procedures, testing procedures, and equipment calibrations for review and acceptance. The Contractor shall allow the Engineer four (4) weeks to review the submittal after a complete set has been received. Work shall not begin, nor materials ordered until all submittals have been received, reviewed, and accepted in writing by the Engineer.

The Soil Nail submittals shall include:

1. A plan and elevation view of the soil nail layout identifying the locations of soil nails, numbering system for records, and testing locations.
2. Design Calculations: The Installer shall submit detailed design calculations and construction drawings prepared by the Installer for review and approval by the Engineer. All plans shall be sealed by a Professional Engineer registered in the Commonwealth of Massachusetts. The submittal shall include grout/cement mix design. The detailed design calculations shall include the nominal and factored bond strength of the soil nails/rock anchors and an evaluation of the overall stability of the soil nail wall. In accordance with the latest AASHTO requirements, the factor of safety for overall stability of the soil nail wall shall be at least 1.5. The detailed design calculations shall also include an evaluation of the internal and compound stability of the soil nail wall in accordance with AASHTO and MassDOT LRFD criteria.
3. A plan view of the structure identifying:
    a. The reference baseline and elevation datum.
    b. The offsets from the construction centerline or baseline to the face of the wall at its base and at all changes in horizontal alignment.
    c. Beginning and end station of wall.
    d. Soil nail locations.
    e. Right-of-way and permanent or temporary construction easement limits, location of all known active and abandoned existing utilities, adjacent structures or other potential interferences. The centerline of any drainage structure or drainage pipe behind, passing through, or passing under the wall.
    f. Subsurface exploration locations shown on a plan view of the proposed wall alignment with appropriate reference base lines to fix the locations of the explorations relative to the structure.
    g. Limits of longest soil nails.

ITEMS 953.1, 953.11 and 953.12 (Continued)

4. An elevation view of the structure identifying:
    a. The elevation at the top of the wall, at all horizontal and vertical break points, and at least every 50 feet along the wall.
    b. Elevations at the base of the wall and the top of leveling pads for casting cast-in-place facing.
    c. Soil-nail elevations, vertical and horizontal spacing, and the location of wall drainage elements and permanent facing expansion / contraction joints, if applicable, along the wall length.
    d. Existing and finished grade profiles both behind and in front of the wall.
5. The proposed start date and proposed detailed wall construction sequence and schedule, including:
    a. Plan describing how surface water will be diverted, controlled and disposed of.
    b. Proposed methods and equipment for excavating the soil and/or blasting competent bedrock and weathered rock to the staged excavation lifts, including proposed grade elevations for each excavation lifts.
    c. Information on provisions for working in the proximity of underground facilities or
    d. Utilities (if applicable).
    e. Proposed nail drilling methods and equipment including drillhole diameter proposed to achieve the specified pullout resistance values and any variation of these along the wall alignment.
6. Nail grout mix design including:
    a. Type of Portland cement.
    b. Aggregate source and gradation.
    c. Proportions of mix by weight and water-cement ratio.
    d. Manufacturer, brand name and technical literature for proposed admixtures.
    e. Compressive strength test results (per AASHTO T106/ASTM C109) supplied by a qualified independent testing lab verifying the specified minimum 3 and 28-day grout compressive strengths. Previous test results for the proposed grout mix completed within one year of the start of grouting may be submitted for initial verification and acceptance of the required compressive strengths and start of production work
7. Proposed nail grout placement procedures and equipment.
8. Proposed nail testing methods and equipment setup including
    a. Details of the jacking frame and appurtenant bracing.
    b. Details showing methods of isolating test nails during shotcrete application (i.e., methods to prevent bonding of the soil nail bar and the shotcrete facing during testing).
    c. Details showing methods of providing the temporary unbonded length and of grouting the temporary unbonded length of test nails after completion of testing.
    d. Equipment list.
9. Identification number and certified calibration records for each test jack and pressure gauge and load cell to be used. Jack and pressure gauge shall be calibrated as a unit. Calibration records shall include the date tested, device identification number, and the calibration test results and shall be certified for an accuracy of at least 2 percent of the applied certification loads by a qualified independent testing laboratory within 90 days prior to submittal.

ITEMS 953.1, 953.11 and 953.12 (Continued)

10. Manufacturer Certificates of Compliance for the soil nail centralizers, epoxy coating or encapsulation.

Upon delivery of nail bars and soil nail bar couplers (if allowed) to the project site, provide Certified mill test results for nail bars and couplers from each heat specifying the ultimate strength, yield strength, elongation and composition.

JOB CONDITIONS

Visit the site to review all details of the work and working conditions affecting Work under this section and to verify dimensions in the field including potential interference from adjacent utilities, or structures. Notify the Engineer in writing of any discrepancy before performing any work. The Contractor is hereby notified that the job site is located adjacent to an existing house, barn, and stone retaining wall structure to remain.

The Contractor shall be responsible for implementing all necessary traffic control measures, which may include but not be limited to traffic cones, barriers, barrels, signs, flagmen and police details.

Consult official records of existing utilities, both surface and subsurface, and their connections to be fully informed on all existing conditions and limitations as they apply to this work and its relation to other construction work. Proceed with caution in areas of utility facilities. Expose them by hand excavation or by other methods acceptable to the utility owner. Protect existing utilities and structures to remain within and adjacent to the work area in accordance with the requirements of authorities having jurisdiction over same. The Contractor is responsible for any damage to utilities caused by the Contractor's operations and shall restore them to equal or better operation at no additional cost to the Engineer.

Installation shall be monitored in accordance with the Structure Monitoring section as discussed herein.

Pre-Construction Meeting:

A pre-construction meeting scheduled by the Engineer will be held prior to the start of wall construction. Attendance is mandatory. The shotcrete Installer, if different than the soil nail specialty Installer, shall attend.

SUBSURFACE DATA

Logs of subsurface explorations performed at the site and approximate locations of these subsurface explorations are shown on the Contract Drawings.

ITEMS 953.1, 953.11 and 953.12 (Continued)

The aforementioned data is for general information and is accurate only at the particular locations and times the subsurface explorations were made. It is the Contractor's responsibility to make interpretations and draw conclusions based on the character of materials to be encountered and the impact on his work based on his expert knowledge of the area and of earthwork techniques. The Contractor shall review boring logs and locations and other pertinent data for the site.

PRODUCTS

Furnish materials new and without defects. Remove defective materials from the job site at no additional cost. Materials for soil nail structures shall consist of the following:

Soil Nail/Rock Anchor Bar Tendons:

1. AASHTO M31/ASTM A615, Grade 80. Deformed bar, continuous without splices or welds, new, straight, undamaged, epoxy coated as shown on the Plans. Threaded a minimum of 6 inches on the wall anchorage end to allow proper attachment of bearing plate and nut. Threading may be continuous spiral deformed ribbing provided by the bar deformations (e.g. continuous threadbars) or may be cut into a reinforcing bar. If threads are cut into a reinforcing bar, provide the next larger bar number designation from that shown on the Plans, at no additional cost.

2. Store steel reinforcement on supports to keep the steel from contacting the ground. Damage to the nail steel as a result of abrasion, cuts, nicks, welds, and weld splatter shall be cause for rejection. Do not ground welding leads to nail bars. Protect nail steel from dirt, rust, and other deleterious substances prior to installation. Heavy corrosion or pitting of nails shall be cause for rejection. Light rust that has not resulted in pitting is acceptable. Place protective wrap over anchorage end of nail bar to which bearing plate and nut will be attached to protect during handling, installation, grouting and shotcreting.

Nail Bar Encapsulation:

1. Encapsulation can be provided in a sheath of corrugated high-density polyethylene (HDPE) conforming to AASHTO M252, or of corrugated PVC tube conforming to ASTM D1784, Class 13464-B.

Fusion Bonded Epoxy Coating (if applicable):

1. ASTM A775. Minimum 0.3 mm thickness electrostatically applied. Bend test requirements are waived. Coating at the wall anchorage end of epoxy coated bars may be omitted over the length provided for threading the nut against the bearing plate.

2. Handle and store epoxy coated bars in a way that will prevent them from being damaged beyond what is permitted by ASTM 3963. Repair damaged epoxy coating in accordance with ASTM A775 and the coater's recommendations using an epoxy field repair kit approved by the epoxy manufacturer. Repaired areas shall have a minimum 0.3 mm coating thickness.

ITEMS 953.1, 953.11 and 953.12 (Continued)

Centralizers:

1. Manufactured from Schedule 40 PVC pipe or tube, steel or other material not detrimental to the nail steel (wood shall not be used); securely attached to the nail bar; sized to position the nail bar within 1 inch of the center of the drillhole; sized to allow tremie pipe insertion to the bottom of the drillhole; and sized to allow grout to freely flow up the drillhole.

Nail Grout:

1. Neat cement or sand/cement mixture with a minimum 3-day compressive strength of 2000- psi and a minimum 28-day compressive strength of 4000-psi per AASHTO T106/ASTM C109.

Admixtures:

1. AASHTO M194/ASTM C494. Admixtures, which control bleed, improve flowability, reduce water content and retard set, may be used in the grout subject to review and acceptance by the Engineer. Accelerators are not permitted. Expansive admixtures may only be used in grout used for filling sealed encapsulations. Admixtures shall be compatible with the grout and mixed in accordance with the manufacturer's recommendations

Cement:

1. AASHTO M85/ASTM C150, Type I or II.

2. Store cement to prevent moisture degradation and partial hydration. Do not use cement that has become caked or lumpy.

Fine Aggregate:

1. AASHTO M6/ASTM C33.

2. Store aggregates so that segregation and inclusion of foreign materials are prevented. Do not use the bottom 6 inches of aggregate piles in contact with the ground.

Film Protection:

1. Polyethylene film per AASHTO M171.

Bar Couplers:

1. Bar couplers shall develop the full ultimate tensile strength of the bar as certified by the manufacturer.

ITEMS 953.1, 953.11 and 953.12 (Continued)

Connection Components:

1. Bearing plates shall meet the requirements of AASHTO M183/ASTM A36 or ASTM A572 Grade 50.
2. Nuts shall meet the requirements of AASHTO M291/ASTM A563, Grade B, hexagonal, and fitted with beveled washer or spherical seat to provide uniform bearing.
3. Shear connectors of the soil nail head shall consist of headed-studs or anchor bolts with a yield stress of 60 ksi.

Welded-Wire Mesh:

1. Welded wire mesh (WWM) shall meet the requirements of AASHTO M55/ASTM A185 or A497 with a yield stress of 65 ksi.

Reinforcing Steel:

1. Reinforcing steel shall meet the requirements of AASHTO M31/ASTM A615, Grade 65 (Grade 420 in SI Units), deformed.

EXECUTION

SITE DRAINAGE CONTROL

Provide positive control and discharge of all surface water and groundwater that will affect construction of the soil nail retaining wall. Maintain all pipes or conduits used to control surface water during construction. Repair damage caused by surface water at no additional cost.

EXCAVATION

Coordinate the work and the excavation so the soil nail wall is safely constructed.

Excavation and Wall Alignment Survey Control

The Contractor shall be responsible for providing the necessary survey and alignment control during excavation, locating and drilling each drillhole within the allowable tolerances and for performing the wall excavation and nail installation in a manner which will allow for constructing the shotcrete construction facing to the specified minimum thickness and such that the shotcrete finish facing can be constructed to the specified minimum thickness and to the line and grade indicated in the Plans. Where the as-built location of the front face of the shotcrete exceeds the allowable tolerance from the wall control line shown on the Plans, the Contractor will be responsible for determining and bearing the cost of remedial measures necessary to provide proper attachment of nail head bearing plate connections and satisfactory placement of the final facing, as called for on the Plans.

ITEMS 953.1, 953.11 and 953.12 (Continued)

General Earthwork Excavation

Complete clearing, grubbing, grading, drilling and blasting, and excavation above and behind the wall before commencing wall excavation. All required drilling and blasting operations along the wall alignment shall be completed prior to the commencement of any soil nail or rock anchor drilling and installation. Do not over excavate the original ground behind the wall or at the ends of the wall, beyond the limits shown on the Plans. Do not perform general earthwork excavation that will affect the soil nail wall until wall construction starts. Earthwork excavation shall be coordinated with the soil nailing work and the excavation shall proceed from the top down in a horizontal staged excavation lift sequence with the ground level for each lift excavated no more than two feet below the next proposed nail row.

Soil Nail Wall Structure Excavation

Structure excavation in the vicinity of the wall face will require special care and effort compared to general earthwork excavation. Due to the close coordination required between the soil nail Contractor and the excavation Contractor, including drilling and blasting, the excavation Contractor shall perform the structure excavation for the soil nail wall under the direction of the soil nail specialty Contractor.

Excavate to the final wall face using procedures that: (1) prevent over excavation; (2) prevent ground loss, swelling, air slaking, or loosening; (3) prevent loss of support for completed portions of the wall; and (4) prevent loss of soil moisture at the face. Excavation shall not be performed if freezing temperatures are expected within 48 hours of wall excavation. Costs associated with additional thickness of shotcrete or concrete or other remedial measures required due to irregularities in the cut face, or inadvertent over excavation, shall be borne by the Contractor in accordance with Item 953.2.

Complete excavation to the final wall excavation line and application of the shotcrete in the same work shift unless otherwise approved by the Engineer. Application of the shotcrete may be delayed up to 24 hours if the Contractor can show that the delay will not adversely affect the excavation face stability. A polyethylene film over the face of the excavation may reduce degradation of the cut face caused by changes in moisture. Damage to existing structures or structures included in the Work shall be repaired and paid by the Contractor where approval is granted for an extended face exposure period.

ITEMS 953.1, 953.11 and 953.12 (Continued)

At the Contractor's option, during each excavation lift, nails may be drilled and installed through a temporary stabilizing berm. Purpose of the stabilizing berm is to prevent or minimize instability or sloughing of the final excavation face due to ground conditions and/or drilling action. The top of the stabilizing berm extends horizontally out from the bottom front face of the overlying shotcrete a distance of 1 foot and is cut down from that point to the base grade for that excavation lift at a slope not steeper than 1H:1V. The Contractor may use a different berm geometry upon satisfactory demonstration that the different geometry provides satisfactory performance. Following the installation of nails in that lift, excavate the temporary stabilizing berm to the final wall face excavation line and clean the final excavation face of all loose materials, mud, rebound and other foreign matter which could prevent or reduce shotcrete bond. Ensure that installed nails and corrosion protection are not damaged during excavation of the stabilizing berm. Repair or replace nails or corrosion protection damaged or disturbed during excavation of the stabilizing berm, to the Engineer's satisfaction, at no additional cost. Do not excavate the stabilizing berm until the nail grout has aged for at least 24 hours and has attained sufficient set and early strength to prevent damage, debonding, or cracking of grout at the nail head during berm removal operations, as determined by the Engineer. Remove hardened nail grout protruding from the final wall excavation line more than 2 inches in a manner that prevents fracturing of the grout at the nail head. Sledge hammer removal of the grout is not allowed. The use of hand held rock chippers is acceptable provided their use does not damage or disturb the remaining grout at the nail head, the nail bar or corrosion protection. Alternative excavation and soil nail installation methods that meet these objectives may be submitted to the Engineer for review in accordance with the Submittals section.

Excavation to the next lower lift (i.e., excavation below the current lift elevation) shall not proceed until nail installation, reinforced shotcrete placement, attachment of bearing plates and nuts and nail testing has been completed and accepted in the current lift. Nail grout and shotcrete shall have cured for at least 72 hours or attained at least their specified 3-day compressive strength before excavating the next underlying lift. Excavating the next lift in less than 72 hours will only be allowed if the Contractor submits compressive strength test results, for tests performed by a qualified independent testing lab, verifying that the nail grout and shotcrete mixes being used will provide the specified 3-day compressive strengths in the lesser time.

Notify the Engineer immediately if raveling or local instability of the final wall face excavation occurs. Unstable areas shall be temporarily stabilized by means of buttressing the exposed face with an earth berm or other methods. Suspend work in unstable areas until remedial measures are developed.

Wall Discontinuities

Where the Contractor's excavation and installation methods result in a discontinuous wall along any nail row, the ends of the constructed wall section shall extend beyond the ends of the next lower excavation lift by at least 10 feet. Slopes at these discontinuities shall be constructed to prevent sloughing or failure of the temporary slopes. If sections of the wall are to be constructed at different times, prevent sloughing or failure of the temporary slopes at the end of each wall section.

ITEMS 953.1, 953.11 and 953.12 (Continued)

Excavation Face Protrusions, Voids or Obstructions

Remove all or portions of cobbles, boulders, rubble or other subsurface obstructions encountered at the wall final excavation face which will protrude into the design shotcrete facing. Determine method of removal of face protrusions, including method to safely secure remnant pieces left behind the excavation face and for promptly backfilling voids resulting from removal of protrusions extending behind the excavation face. Notify the Engineer of the proposed method(s) for removal of face protrusions at least 24 hours prior to beginning removal.

Voids or over-excavation beyond the plan wall excavation line resulting from the removal of face protrusions or excavation operations shall be backfilled with shotcrete or concrete, as approved by the Engineer. Existing voids behind the wall shall be backfilled with Gravel Borrow conforming to MassDOT Standard Specifications, Division III (Materials Specifications), Section M1.03.0, Type B, where gravel borrow can be properly placed and compacted, or shall be backfilled with shotcrete. Removal of face protrusions and backfilling of voids or over-excavation resulting from the Contractor's operations shall be considered incidental to the work.

NAIL INSTALLATION

Determine the required drillhole diameter(s), drilling method, grout composition and installation method necessary to achieve the nail pullout resistance(s) required in the approved detailed design submittal, and in accordance with the nail testing acceptance criteria in the Soil Nail Testing Section.

No drilling or installation of production nails will be permitted in any soil/rock unit until successful pre-production verification testing of nails is completed in that unit and approved by the Engineer. Install verification test nails using the same equipment, methods, nail inclination and drillhole diameter as planned for the production nails. Perform pre-production verification tests in accordance with the Verification Testing Section prior to starting production nail in the specific lift in which the designated verification test nails are located. The location of the verification tests shall be indicated on the approved detailed design submittal, subject to the Engineer's approval, as long as the test nails will be bonded into ground which is representative of the various ground conditions at the site. Install the production soil nails before the application of the reinforced shotcrete facing. At the Contractor's request and subject to the Engineer's written approval, the shotcrete facing may be placed before drilling and installing the nails. Provide a blockout through the shotcrete facing at drillhole locations using PVC pipe or other suitable material, to prevent damage to the facing during drilling. As part of the required construction submittals, provide the Engineer with acceptable structural design calculations demonstrating that the facing structural capacity will not be reduced and that the bearing plates are adequate to span the nail drillhole blockout through the construction facing. If this requires larger size bearing plates and/or additional reinforcement beyond that detailed on the Plans, the extra cost will be incidental to the work.

ITEMS 953.1, 953.11 and 953.12 (Continued)

The Engineer may add, eliminate, or relocate nails to accommodate actual field conditions. The cost of any redesign, additional material, or installation modifications resulting from actions of the Contractor shall be borne by the Contractor.

Drilling:

The drill holes for the soil nails shall be made at the locations, orientations, and lengths shown on the approved detailed design submittal as approved by the Engineer. Select drilling equipment and methods suitable for the ground conditions shown in the boring logs. Select drillhole diameter(s) required to develop the specified pullout resistance and to also provide a minimum 1-inch grout cover over bare or epoxy coated bars or minimum 1/2-inch grout cover over the encapsulation of encapsulated nails. Drilling method shall be either "rotary drilled" or "driven casing" in accordance with 2020 AASHTO LRFD Bridge Design Specifications, Table C11.12.5.2-1; no "augered" drilling method is allowed. It is the Contractor's responsibility to determine the final drillhole diameter(s) required to provide the specified pullout resistance but the diameter of the drilled hole shall be 4 inches or larger. Use of drilling muds such as bentonite slurry to assist in drill cutting removal is not allowed but air may be used. With the Engineer's approval, the Contractor may be allowed to use water or foam flushing upon successful demonstration, at the Contractor's cost, that the installation method still provides adequate nail pullout resistance. If caving ground is encountered, use cased drilling methods to support the sides of the drillholes. Where hard drilling conditions such as rock, cobbles, boulders, or obstructions are encountered, percussion or other suitable drilling equipment capable of drilling and maintaining stable drillholes through such materials shall be used.

Immediately suspend or modify drilling operations if ground subsidence is observed, if the soil nail is adversely affected, or if adjacent structures are damaged from the drilling operation. Immediately stabilize the adverse conditions at no additional cost.

Nail Bar Installation:

Provide nail bars in accordance with the schedules included in approved detailed design submittal. Provide centralizers sized to position the bar within 1 inch of the center of the drillhole. Position centralizers as shown on the approved detailed design submittal so their maximum center-to-center spacing does not exceed 8 feet. Also locate centralizers within 2 feet from the top and bottom of the drillhole. Securely attach centralizers to the bar so they will not shift during handling or insertion into the drill hole yet will still allow grout tremie pipe insertion to the bottom of drillhole and allow grout to flow freely up the hole.

Inspect each nail bar before installation and repair or replace damaged bars or corrosion protection. Check uncased drillholes for cleanliness prior to insertion of the soil nail bar. Insert nail bars with centralizers into the drill hole to the required length without difficulty and in a way that prevents damage to the drill hole, bar, or corrosion protection. Do not drive or force partially inserted soil nails into the hole. Remove nails which cannot be fully inserted to the design depth and clean the drill hole to allow unobstructed installation.

ITEMS 953.1, 953.11 and 953.12 (Continued)

Nail/Anchor Installation Tolerances:

1. Nails shall not extend beyond the right-of-way or easement limits shown on the Plans. Nail location and orientation tolerances are:

    - Nail head location, deviation from plan design location; 6 inches any direction.
    - Nail inclination, deviation from plan; + or - 3 degrees.
    - Location tolerances are applicable to only one nail and are not cumulative over large wall areas. Center nail bars within 1 inch of the center of the drillhole.

2. Soil nails that do not satisfy the specified tolerances, due to the Contractor's installation methods, will be replaced at no additional cost. Backfill abandoned nail drill holes with tremied grout. Nails/rock anchors which encounter unanticipated obstructions during drilling shall be relocated, as approved by the Engineer.

GROUTING

Grout Mix Design:

Use a neat cement grout or a sand-cement grout. Submit the proposed nail grout mix design to the Engineer for review and approval in accordance with the Submittal Section. The design mix submittal shall include compressive strength test results verifying that the proposed mix will have a minimum 3-day compressive strength of 2000-psi and minimum 28-day compressive strength of 4000-psi.

Grout Testing:

Previous test results for the proposed grout mix completed within one year of the start of work may be submitted for initial verification of the required compressive strengths for installation of pre-production verification test nails and initial production nails. During production, nail grout shall be tested by the Contractor in accordance with AASHTO T106/ASTM C109 at a frequency of no less than one test for every 50 cubic yards of grout placed. Provide grout cube test results to the Engineer within 24 hours of testing.

Grouting Equipment:

Grout equipment shall produce a uniformly mixed grout free of lumps and undispersed cement and be capable of continuously agitating the mix. Use a positive displacement grout pump equipped with a pressure gauge which can measure at least twice but no more than three times the intended grout pressure. Size the grouting equipment to enable the entire nail to be grouted in one continuous operation. Place the grout within 60 minutes after mixing or within the time recommended by the admixture manufacturer, if admixtures are used. Grout not placed in the allowed time limit will be rejected.

ITEMS 953.1, 953.11 and 953.12 (Continued)

Grouting Methods:

1. Grout the drillhole after installation of the nail bar. Each drillhole will be grouted within 2 hours of completion of drilling, unless otherwise approved by the Engineer. Inject the grout at the lowest point of each drill hole through a grout tube, casing, hollow-stem auger, or drill rods. Keep the outlet end of the conduit delivering the grout below the surface of the grout as the conduit is withdrawn to prevent the creation of voids. Completely fill the drillhole in one continuous operation. Cold joints in the grout column are not allowed except at the top of the test bond length of proof tested production nails. At the Contractor's option, the grout tube may remain in the hole provided it is filled with grout. Grouting) before insertion of the nail is allowed provided the nail bar is immediately inserted through the grout to the specified length without difficulty.

2. During casing removal for drillholes advanced by either cased or hollow-stem auger methods, maintain sufficient grout level within the casing to offset the external groundwater/soil pressure and prevent hole caving. Maintain grout head or grout pressures sufficient to ensure that the drillhole will be completely filled with grout and to prevent unstable soil or groundwater from contaminating or diluting the grout. Record the grout pressures for soil nails installed using pressure grouting techniques. Control grout pressures to prevent excessive ground heave or fracturing.

3. Remove the grout and nail if grouting is suspended for more than 30 minutes or does not satisfy the requirements of this specification or the Plans and replace with fresh grout and undamaged nail bar at no additional cost.

NAIL TESTING

Soil nail /rock anchor proof tests and verification tests shall be performed in accordance with the AASHTO LRFD Bridge Construction Specifications, 4th Edition, with updates through 2025 interims, and FHWA Publication No. FHWA-NHI-14-007. Perform pre-production verification tests on sacrificial test nails at locations shown on the approved detailed design submittal or as identified by the Engineer. Perform proof tests on production nails at locations selected by the Engineer. Required nail test data shall be recorded by the Contractor. Do not perform nail testing until the nail grout and shotcrete facing have cured for at least 72 hours and attained at least their specified 3-day compressive strength. Testing in less than 72 hours will only be allowed if the Contractor submits compressive strength test results, for tests performed by a qualified independent testing lab, verifying that the nail grout and shotcrete mixes being used will provide the specified 3-day compressive strengths in the lesser time.

ITEMS 953.1, 953.11 and 953.12 (Continued)

Proof Test Nail Unbonded Length:

Provide temporary unbonded lengths for each test nail. Isolate the test nail bar from the shotcrete facing and/or the reaction frame used during testing. Isolation of a test nail through the shotcrete facing shall not affect the location of the reinforcing steel under the bearing plate. Accepted proof test nails may be incorporated as production nails provided the temporary test unbonded length is fully grouted subsequent to testing. Submit the proposed test nail isolation methods, methods for providing an unbonded test length and methods for grouting the unbonded length subsequent to testing to the Engineer for review and approval in accordance with the Submittals Section. Where temporary casing of the unbonded length of test nails is provided, install the casing in a way that prevents any reaction between the casing and the grouted bond length of the nail and/or the stressing apparatus.

Testing Equipment:

1. Testing equipment shall include dial gauges, dial gauge support, jack and pressure gauge, electronic load cell, and a reaction frame. The load cell is required only for the creep test portion of the verification test. Provide description of test setup and jack, pressure gauge and load cell calibration curves in accordance with Submittals Section.

2. Design the testing reaction frame to be sufficiently rigid and of adequate dimensions such that excessive deformation of the testing equipment does not occur. If the reaction frame will bear directly on the shotcrete facing, design it to prevent cracking of the shotcrete. Independently support and center the jack over the nail bar so that the bar does not carry the weight of the testing equipment. Align the jack, bearing plates, and stressing anchorage with the bar such that unloading and repositioning of the equipment will not be required during the test.

3. Apply and measure the test load with a hydraulic jack and pressure gauge. The pressure gauge shall be graduated in 100-psi increments or less. The jack and pressure gauge shall have a pressure range not exceeding twice the anticipated maximum test pressure. Jack ram travel shall be sufficient to allow the test to be done without resetting the equipment. Monitor the nail load during verification tests with both the pressure gauge and the load cell. Use the load cell to maintain constant load hold during the creep test load hold increment of the verification test.

4. Measure the nail head movement with a dial gauge capable of measuring to 1/1000 inch. The dial gauge shall have a travel sufficient to allow the test to be done without having to reset the gauge. Visually align the gauge to be parallel with the axis of the nail and support the gauge independently from the jack, wall or reaction frame. Use two dial gauges when the test setup requires reaction against a soil cut face.

ITEMS 953.1, 953.11 and 953.12 (Continued)

Pre-production Verification Testing of Sacrificial Test Nails/Anchors:

1. Pre-production verification testing shall be performed prior to installation of production nails to verify the Contractor's installation methods and nail pullout resistance. Perform pre-production verification tests at the locations and elevations shown on the approved detailed design submittal and per Nail Installation, unless otherwise approved by the Engineer. Perform a minimum of 2 verification tests in each stratum (2 in soil/highly weathered rock and 2 in competent rock) prior to soil nail/rock anchor production. Verification test nails will be sacrificial and not incorporated as production nails. Bare bars can be used for the sacrificial verification test nails.

2. Develop and submit the details of the verification testing arrangement including the method of distributing test load pressures to the excavation surface (reaction frame), test nail bar size, grouted drillhole diameter and reaction frame dimensioning to the Engineer for approval in accordance with Submittals Section. Construct verification test nails using the same equipment, installation methods, nail inclination, and drillhole diameter as planned for the production nails. Changes in the drilling or installation method may require additional verification testing as determined by the Engineer and shall be provided at no additional cost.

3. Test nails shall have both bonded and temporary unbonded lengths. Prior to testing, only the bonded length of the test nail shall be grouted. The temporary unbonded length of the test nail shall be at least 3 feet. The bonded length of the test nail shall be determined based on the production nail bar grade and size such that the factored structural bar resistance is not exceeded during testing but shall not be less than 10 feet. The factored structural bar resistance during testing shall not be greater than 90 percent of the yield strength for Grade 80. The Contractor shall provide larger verification test bar sizes, if required to safely accommodate the 10-foot minimum test bond length and testing to nominal pullout resistance.

ITEMS 953.1, 953.11 and 953.12 (Continued)

4. The maximum bonded length for verification testing LBVTmax shall be determined by the following equation to avoid structurally overstressing the verification test nail bar:

   $L_{BVTmax} = C_{RT} \times A_t \times (f_y \text{ or } f_u) / (r_{po})$, where:

   L_{BVTmax} = Maximum Verification Test Nail Bonded Length (ft). If L_{BVTmax} is less than 10.0 ft, then the size of the verification test nail bar shall be increased until L_{BVTmax} is at least 10.0 ft.

   C_{RT} = reduction coefficient, 0.9 for Grade 60 to 100 bars or 0.8 for Grade 150 bars

   A_t = cross-sectional area of the verification test nail bar (in^2)

   f_y = nominal yield resistance of the verification test nail bar (ksi) for Grade 60 to 100 bars

   f_u = minimum ultimate tensile strength of the verification test nail bar (ksi) for Grade 150 bars

   r_{po} = nominal load transfer rate (kips/ft) = $(\pi \times q_U \times D_{dh}) / 12$

   q_U = nominal bond strength per unit area (ksf)

   D_{dh} = drill hole diameter (in)

The Verification Test Load (VTL) during verification testing shall be determined by the following equation:

VTL = $L_{BVT} \times r_{po}$ (kips/ft)

L_{BVT} = Verification Test Nail Bonded Length (ft). L_{BVT} shall be between 10.0 ft and L_{BVTmax}.

Verification test nails shall be incrementally loaded to a maximum test load of the Verification Test Load (VTL) in accordance with the following loading schedule. The soil nail movements shall be recorded at each load increment at 1 minute, 2, 5, and 10 minutes.

VERIFICATION TEST LOADING SCHEDULE	
LOAD	**HOLD TIME**
AL (≤ 0.025 VTL)	1 minute
0.125 VTL	10 minutes
0.250 VTL	10 minutes
0.375 VTL	10 minutes
0.500 VTL	10 minutes
0.625 VTL	10 minutes
0.750 VTL (Creep Test)	60 minutes
0.875 VTL	10 minutes
1.00 VTL (Max. Test Load)	10 minutes
AL (≤ 0.025 VTL)	1 minute

ITEMS 953.1, 953.11 and 953.12 (Continued)

The alignment load (AL) should be the minimum load required to align the testing apparatus and should not exceed 2.5 percent of VTL. Dial gauges should be set to "zero" after the alignment load has been applied.

Each load increment shall be held for at least 10 minutes. The verification test nail shall be monitored for creep at the 0.750 VTL load increment. Nail movements during the creep portion of the test shall be measured and recorded at 1 minute, 2, 3, 5, 6, 10, 20, 30, 50 and 60 minutes. The load during the creep test shall be maintained within 2 percent of the intended load by use of the load cell.

At the end of the test, reduce the load back to AL, and record the permanent set of the soil nail.

Proof Testing of Production Nails:

1. Perform proof testing on at least 5 percent (1 in 20) of the production nails in each nail row or at least one production nail per nail row, whichever is greater. The locations shall be designated by the Engineer. A verification test nail successfully completed during production work shall not be considered equivalent to a proof test nail and shall not be accounted for in determining the number of proof tests required in that particular row. Proof testing shall be conducted where issues were observed during installation of adjacent production nails, such as irregular drilling progress, lower than typical grout take, unstable holes, obstructions, or those that had to be redrilled.

2. Production proof test nails shall have both bonded and temporary unbonded lengths. Prior to testing, only the bonded length of the test nail shall be grouted. The temporary unbonded length of the test nail shall be at least 3 feet. The bonded length of the test nail shall be determined based on the production nail bar grade and size such that the allowable bar structural load is not exceeded during testing but shall not be less than 10 feet. The allowable bar structural load during testing shall not be greater than 90 percent of the yield strength for Grade 80.

3. The proof test bonded length L_{BPT} shall not exceed L_{BPTmax}, or the above minimum lengths, whichever is greater. However, production proof test nails shorter than 13 feet in length may be constructed with less than the minimum 10 feet bond length with the minimum unbonded length still limited to 3 feet. The maximum bonded length for proof testing L_{BPTmax} shall be determined by the following equation to avoid structurally overstressing the proof test nail bar:

   $L_{BPTmax} = C_{RT} \times A_t \times (f_y \text{ or } f_u) / (r_{po} \times 0.75)$, where:

   L_{BPTmax} = Maximum Proof Test Nail Bonded Length (ft).

   C_{RT}, A_t, f_y, f_u, and r_{po} are as defined in Pre-production Verification Testing of Sacrificial Test Nails Section.

ITEMS 953.1, 953.11 and 953.12 (Continued)

The Proof Test Load (PTL) during proof testing shall be determined by the following equation:

PTL = $L_{BPT} \times r_{po}$ (kips/ft) × 0.75

L_{BPT} = Proof Test Nail Bonded Length (ft).

4. Proof tests shall be performed by incrementally loading the proof test nail to a maximum test load of the Proof Test Load (PTL) in accordance with the following loading schedule. The nail movement at each load increment shall be measured and recorded by the Engineer in the same manner as for verification tests. The test load shall be monitored by a jack pressure gauge with a sensitivity and range meeting the requirements of pressure gauges used for verification test nails. At load increments other than the maximum test load, the load shall be held long enough to obtain a stable reading.

PROOF TEST LOADING SCHEDULE	
LOAD	**HOLD TIME**
AL (≤ 0.025 PTL)	Until Stable
0.167 PTL	Until Stable
0.333 PTL	Until Stable
0.500 PTL	Until Stable
0.667 PTL	Until Stable
0.833 PTL	Until Stable
PTL (Max. Test Load)	See Below
AL (≤ 0.025 PTL)	Until Stable

5. The alignment load (AL) should be the minimum load required to align the testing apparatus and should not exceed 2.5 percent of PTL. Dial gauges should be set to "zero" after the alignment load has been applied.

6. All load increments shall be maintained within 5 percent of the intended load. Depending on performance, either 10 minute or 60 minute creep tests shall be performed at the maximum test load (PTL). The creep period shall start as soon as the maximum test load is applied and the nail movement shall be measured and recorded at 1 minute, 2, 3, 5, 6 and 10 minutes. Where the soil nail movement measured for the creep test between 1 minute and 10 minutes exceeds 0.04 inch, the maximum test load shall be maintained an additional 50 minutes and movements shall be recorded at 20 minutes, 30, 50 and 60 minutes.

7. At the end of the test, reduce the load back to AL, and record the permanent set of the soil nail.

ITEMS 953.1, 953.11 and 953.12 (Continued)

Test Nail Acceptance Criteria:

1. A test nail shall be considered acceptable when:

    a. For verification tests, a total creep movement of less than 0.08 inches per log cycle of time between the 6- and 60-minute readings is measured during creep testing and the creep rate is linear or decreasing throughout the creep test load hold period.
    b. For proof tests, a total creep movement of less than 0.04 inches is measured between the 1- and 10-minute readings or a total creep movement of less than 0.08 in is measured between the 6- and 60-minute readings and the creep rate is linear or decreasing throughout the creep test load hold period.
    c. The total measured movement at the maximum test load exceeds 80 percent of the theoretical elastic elongation of the test nail unbonded length.
    d. A pullout failure does not occur at the maximum test load. Pullout failure is defined as the load at which attempts to further increase the test load simply result in continued pullout movement of the test nail. The pullout failure load shall be recorded as part of the test data.

2. Successful proof tested nails meeting the above test acceptance criteria may be incorporated as production nails, provided that (1) the unbonded length of the test nail drillhole has not collapsed during testing, (2) the minimum required drillhole diameter has been maintained, (3) the specified corrosion protection is provided, and (4) the test nail length is equal to or greater than the scheduled production nail length. Test nails meeting these requirements shall be completed by satisfactorily grouting up the unbonded test length. Maintaining the temporary unbonded test length for subsequent grouting is the Contractor's responsibility.

If the unbonded test length of production proof test nails cannot be satisfactorily grouted subsequent to testing, the proof test nail shall become sacrificial and shall be replaced with an additional production nail installed at no additional cost.

TEST NAIL REJECTION

If a test nail does not satisfy the acceptance criterion, the Contractor shall determine the cause.

Verification Test Nails:

The Engineer will evaluate the results of each verification test. Installation methods which do not satisfy the nail testing requirements shall be rejected. The Contractor shall propose alternative methods and install replacement verification test nails. Replacement test nails shall be installed and tested at no additional cost.

ITEMS 953.1, 953.11 and 953.12 (Continued)

Proof Test Nails:

The Engineer may require the Contractor to replace some or all of the installed production nails between a failed proof test nail and the adjacent passing proof test nail. Alternatively, the Engineer may require the installation and testing of additional proof test nails to verify that adjacent previously installed production nails have sufficient load carrying capacity. Contractor modifications may include, but are not limited to; the installation of additional proof test nails; increasing the drillhole diameter to provide increased capacity; modifying the installation or grouting methods; reducing the production nail spacing from that shown on the Plans and installing more production nails at a reduced capacity; or installing longer production nails if sufficient right-of way is available and the pullout capacity behind the failure surface controls the factored nail design capacity. The nails may not be lengthened beyond the temporary construction easements, or the permanent right-of-way shown on the Plans. Installation and testing of additional proof test nails or installation of additional or modified nails as a result of proof test nail failure(s) will be at no additional cost.

NAIL INSTALLATION RECORDS

Records documenting the soil nail wall construction will be maintained by the Engineer, unless specified otherwise. The Contractor shall provide the Engineer with as-built drawings showing as-built nail locations and as-built shotcrete facing line and grade within 5 days after completion of the shotcrete construction and final facing.

PERMANENT CAST-IN-PLACE CONCRETE FACING

Permanent cast-in-place concrete facing shall be constructed in accordance with Section 901 of the MassDOT Standard Specifications, the Contract Plans, and these Special Provisions. The exposed face of the permanent concrete facing shall receive an ashlar stone architectural finish formed using architectural form liners.

Architectural form liners shall be furnished, installed, aligned, maintained, and removed in accordance with the manufacturer's recommendations and the Contract Plans to produce a uniform appearance. Proposed ashlar stone architectural finish samples, including form liner pattern, texture, and wall color, shall be provided to MassDOT for review and approval prior to construction of the permanent cast-in-place concrete facing. Reinforcing steel and welded wire mesh for the permanent facing shall be provided as shown on the Plans.

MONITORING OF EXCAVATION

The Contractor shall monitor the performance of components of the excavation support system, both for vertical and horizontal movement, as specified in Section 953.2 – Shotcrete Facing.

ITEMS 953.1, 953.11 and 953.12 (Continued)

METHOD OF MEASUREMENT

Item 953.1 will be measured for payment by the Foot. Earth Anchors will be measured from the top of earth anchor to tip of earth anchor installed.

Item 953.11 and 953.12 will be measured for payment by the Each proof load test and verification load test, respectively.

BASIS OF PAYMENT

Items 953.1, 953.11 and 953.12 will be paid at the respective Contract unit prices. The Contract unit price for Item 953.1 shall include all design and mobilization/demobilization costs, including costs to install earth anchors and all incidental costs required to complete the work.

ITEM 953.2 SHOTCRETE FACING SQUARE FOOT

The work under this item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications and the following:

The work consists of designing and constructing shotcrete retaining wall facings to achieve the design criteria in accordance with AASHTO, the MassDOT LRFD Bridge Manual, the Standard Specifications, and Plans. The Contractor shall furnish all labor, materials and equipment required for completing the Work. The Contractor shall select the geocomposite drainage material, connection pipes, weepholes, and reinforcing steel and shotcrete for the permanent shotcrete finish facing, and nail head bearing plates and nuts for the soil nail walls as well as installation procedures to meet the performance requirements shown on the Plans. The Work shall include any preparatory trimming and cleaning of the soil/rock surfaces and shotcrete cold joints to receive new shotcrete.

Shotcrete shall comply with the requirements of ACI 506.2, "Specifications for Materials, Proportioning and Application of Shotcrete", except as otherwise specified. Shotcrete shall consist of an application of one or more layers of concrete conveyed through a hose and pneumatically projected at a high velocity against a prepared surface.

Shotcrete may be produced by either a wet-mix or dry-mix process. The wet-mix process consists of thoroughly mixing all the ingredients except accelerating admixtures, but including the mixing water, introducing the mixture into the delivery equipment, and delivering it, by positive displacement, to the nozzle. The wet-mix shotcrete shall then be air jetted from the nozzle at high velocity onto the surface. The dry-mix process consists of shotcrete without mixing water which is conveyed through the hose pneumatically with the mixing water introduced at the nozzle. For additional descriptive information, the Contractor's attention is directed to the American Concrete Institute ACI 506R "Guide to Shotcrete."

Soil nail wall construction shall only be performed when temperatures are above freezing and will not drop below freezing within 48 hours of wall excavation and construction.

QUALITY CONTROL

Installer’s Experience Requirements:

1. Workers, including foremen, nozzlemen, finishers and delivery equipment operators, shall be fully experienced to perform the work. All shotcrete nozzlemen on this project shall have experience on at least 3 projects in the past 5 years in similar permanent shotcrete application work totaling at least 10,000 square feet of wall-face area and shall demonstrate ability to satisfactorily place the shotcrete. Finishers shall have experience on at least 3 projects in the past 5 years in similar permanent shotcrete application work totaling at least 10,000 square feet of wall face area.

ITEM 953.2 (Continued)

2. Initial qualification of nozzlemen will be based either on previous ACI certification or satisfactory completion of preconstruction test panels. The requirement for nozzlemen to shoot preconstruction qualification test panels will be waived for nozzlemen who can submit documented proof they have been certified in accordance with the ACI 506.3R Guide to Certification of Shotcrete Nozzlemen. The Certification shall have been done by an ACI recognized shotcrete testing lab and/or recognized shotcreting consultant and have covered the type of shotcrete to be used (plain wet-mix or plain dry-mix). All nozzlemen will be required to periodically shoot production test panels during the course of the Work at the frequency specified by the approved detailed design submittal.
3. Notify the Engineer not less than two days prior to the shooting of preconstruction test panels to be used to qualify nozzlemen without previous ACI certification. Use the same shotcrete mix and equipment to make qualification test panels as those to be used for the soil nail wall shotcrete facing. Initial qualification of the nozzlemen will be based on a visual inspection of the shotcrete density and void structure and on achieving the specified three-day and 28-day compressive strength requirements determined from test specimens extracted from the preconstruction test panels. Preconstruction and production test panels, core extraction and compressive strength testing shall be conducted in accordance with ACI 506.2 and AASHTO T24/ASTM C42, unless otherwise specified in the approved detailed design submittal. Nozzlemen without ACI Certification will be allowed to begin production shooting based on satisfactory completion of the preconstruction test panels and passing three-day strength test requirements. Continued qualification will be subject to passing the 28-day strength tests and shooting satisfactory during production test panels.

SUBMITTALS

Pre-Construction Submittals:

The Contractor shall prepare and submit to the Engineer: shop drawings, detailed design calculations, a shotcrete installation plan, construction procedures, testing procedures, and equipment calibrations for review and acceptance. The Contractor shall allow the Engineer four (4) weeks to review the submittal after a complete set has been received. Work shall not begin, nor materials ordered until all submittals have been received, reviewed, and accepted in writing by the Engineer.

The Shotcrete Facing submittals shall include:

1. At least 30 calendar days before the planned start of shotcrete placement, submit 5 copies of the following information, in writing, to the Engineer for review:
   a. Written documentation listing at least 5 permanent structural shotcrete walls successfully completed within the past 3 years, including photographs of the project as well as names, addresses, and phone numbers of the Authority's representative.
   b. Written documentation of the finisher’s and nozzlemen's qualifications including proof of ACI certification.

ITEM 953.2 (Continued)

c. Proposed methods of shotcrete placement and of controlling and maintaining facing alignment and location and shotcrete thickness.
d. Shotcrete mix design including:
    i. Type of Portland cement
    ii. Aggregate source and gradation.
    iii. Proportions of mix by weight and water-cement ratio.
    iv. Proposed admixtures, manufacturer, dosage, technical literature.
    v. Previous strength test results for the proposed shotcrete mix completed within one year of the start of shotcreting may be submitted for initial verification of the required compressive strengths at start of production work.
e. Certificates of Compliance, manufacturers' engineering data and installation instructions for the drainage geotextile, geocomposite drain strip, drain grate and accessories.
f. Certificates of Compliance for bearing plates, nuts, drainage aggregate and PVC drain piping.

2. The Engineer will approve or reject the Contractor's submittals within 15 calendar days after receipt of a complete submission. The Contractor will not be allowed to begin wall construction or incorporate materials into the work until the submittal requirements are satisfied and found acceptable to the Engineer. Changes or deviations from the approved submittals must be re-submitted for approval. No adjustments in contract time will be allowed due to incomplete submittals.
3. Upon delivery to the project site, provide Certified mill test results for all reinforcing steel specifying the minimum ultimate strength, yield strength, elongation, and chemical composition.

JOB CONDITIONS

Visit the site to review all details of the work and working conditions affecting Work under this section and to verify dimensions in the field including potential interference from adjacent structures. Notify the Engineer in writing of any discrepancy before performing any work. The Contractor is hereby notified that the job site is located adjacent to the existing house, barn, and stone retaining wall structure.

The Contractor shall be responsible for implementing all necessary traffic control measures, which may include but not be limited to traffic cones, barriers, barrels, signs, flagmen, and police details.

Consult official records of existing utilities, both surface and subsurface, and their connections to be fully informed on all existing conditions and limitations as they apply to this work and its relation to other construction work. Proceed with caution in areas of utility facilities. Expose them by hand excavation or by other methods acceptable to the utility owner. Protect existing utilities to remain within and adjacent to the work area in accordance with the requirements of authorities having jurisdiction over same. The Contractor is responsible for any damage to utilities caused by the Contractor's operations and shall restore them to equal or better operation at no additional cost to the Authority.

ITEM 953.2 (Continued)

Pre-Construction Meeting:

A pre-construction meeting scheduled by the Contractor will be held prior to the start of wall construction. Attendance is mandatory. The shotcrete Installer, if different than the soil nail specialty Installer, shall attend.

PRODUCTS

MATERIALS

All materials for shotcrete shall conform to the Massachusetts Department of Transportation 2026 Standard Specifications for Highways and Bridges, Division III (Materials Specifications), Subsection M4.06.12 (Shotcrete), as specified below:

1. Cement	Cementitious materials conforming to Subsection M4.01.1 (Cementitious Materials), including hydraulic cement types listed in Table M4.01.1-1
2. Fine Aggregate	AASHTO M6/ASTM C33 clean, natural and meeting the gradation requirements of Subsection M4.06.12.
3. Coarse Aggregate	AASHTO M80, Class B, meeting the combined aggregate gradation requirements of Subsection M4.06.12.
4. Water Clean and Potable	AASHTO M157/ASTM C94
5. Chemical Admixtures:	Chemical admixtures conforming to Subsection M4.01.4 (Chemical Admixtures) and AASHTO M194 / ASTM C494, as applicable. Calcium chloride admixtures are prohibited.
6. Mineral Admixtures:	Supplementary cementitious materials, including fly ash and silica fume, shall conform to Subsection M4.01.1 and Table M4.01.1-2.
7. Welded Wire Fabric	AASHTO M55/ ASTM A185 or A497, Grade 65.
8. Reinforcing Bars for Shotcrete Facing	AASHTO M31/ ASTM A615. Grade 65, deformed.
9. Bearing Plates	AASHTO M183/ ASTM A36.

ITEM 953.2 (Continued)

10. Nuts	AASHTO M291, Grade B, hexagonal, fitted with beveled washer or spherical seat to provide uniform bearing.
11. Prepackaged Shotcrete	ASTM C928, meeting the performance requirements of Subsection M4.06.12.
12. Geocomposite Drain Strip equal	Miradrain 6000, Amerdrain 500, AWD SITEDRAIN 6400.
13. Film Protection	Polyethylene films per AASHTO M-171.
14. PVC Connector and Drain Pipes:	
a. Pipe	ASTM 1785 Schedule 40 PVC, solid and perforated wall, cell classification 12454-B or 12354-C, wall thickness SDR 35, with solvent weld or elastomeric gasket joints.
b. Fittings	ASTM D3034, cell classification 12454-B or 12454-C, wall thickness SDR35, with solvent weld or elastomeric gasket joints.
c. Solvent Cement	ASTM D2564
d. Primer	ASTM F656
15. Curing Compounds	AASHTO M148, Type 1D or Type 2

Materials shall be delivered, stored, and handled to prevent contamination, segregation, corrosion, or damage. Store liquid admixtures to prevent evaporation and freezing.

Drainage geotextile and geocomposite drain strips shall be provided in rolls wrapped with a protective covering and stored in a manner which protects the fabric from mud, dirt, dust, debris, and shotcrete rebound. Protective wrapping shall not be removed until immediately before the geotextile or drain strip is installed. Extended exposure to ultra-violet light shall be avoided. Each roll of geotextile or drain strip in the shipment shall be labeled to identify the production run.

ITEM 953.2 (Continued)

SHOTCRETE MIX DESIGN

The Contractor must receive notification from the Engineer that the proposed mix design and method of placement are acceptable before shotcrete placement can begin.

Aggregate

1. Aggregate for shotcrete shall meet the strength and durability requirements of AASHTO M6/M80 and the following gradation requirements:

Sieve Size/ Number	Percent Passing by Weight
1/2”	100
3/8”	90-100
#4	70-85
#8	50-70
#16	35-55
#30	20-35
#50	8-20
#100	2-10

Proportioning and Use of Admixtures:

1. Proportion the shotcrete to be pumpable with the concrete pump furnished for the work, with a cementing materials content of at least 25 pounds per cubic foot and water/cement ratio not greater than 0.45 for permanent shotcrete. Do not use admixtures unless approved by the Engineer. Thoroughly mix admixtures into the shotcrete at the rate specified by the manufacturer. Accelerators (if used) shall be compatible with the cement used, be non-corrosive to steel and not promote other detrimental effects such as cracking or excessive shrinkage. The maximum allowable chloride ion content of all ingredients shall not exceed 0.10 percent when tested to AASHTO T260.

Air Entrainment:

1. Air entrainment is not required for the temporary shotcrete construction facing.

2. Air entrainment is required for permanent final facing wet-mix shotcrete. The air content measured at the truck shall meet the requirements of Section M4.06.12 for the applicable exposure class. Air entrainment is not required for dry-mix shotcrete.

ITEM 953.2 (Continued)

Strength and Durability Requirements:

1. Provide a shotcrete mix capable of attaining 2000-psi compressive strength in three days and 4000-psi in 28 days. The average compressive strength of each set of three test cores extracted from test panels or wall face must equal or exceed 85 percent of the specified compressive strength, with no individual core less than 75 percent of the specified compressive strength, in accordance with ACI 506.2 and Section M4.06.12. The boiled absorption of shotcrete, when tested in accordance with ASTM C642 at 7 days, shall not exceed 8.0 percent.

Mixing and Batching:

1. Aggregate and cement may be batched by weight or by volume in accordance with the requirements of ASTM C94 or AASHTO M241/ASTM C685. Mixing equipment shall thoroughly blend the materials in sufficient quantity to maintain placing continuity. Ready mix shotcrete shall comply with AASHTO M157. Shotcrete shall be batched, delivered, and placed within 90 minutes of mixing. The use of retarding admixtures may extend application time beyond 90 minutes if approved by the Engineer.

2. Premixed and packaged shotcrete mix may be provided for on-site mixing. The packages shall contain materials conforming to the Materials Section of this specification. Placing time limit after mixing shall be per the manufacturers' recommendations.

FIELD QUALITY CONTROL

Both preconstruction test panels (for nozzlemen without previous ACI certification) and production test panels or test cores from the wall facing are required. Shotcreting and coring of test panels shall be performed by qualified personnel in the presence of the Engineer. The Contractor shall provide equipment, materials, and personnel as necessary to obtain shotcrete cores for testing including construction of test panel boxes, field curing requirements and coring. Compressive strength testing will be performed by the Engineer. Shotcrete final acceptance will be based on the 28-day strength.

Shotcrete production work may commence upon initial approval of the design mix and nozzlemen and continue if the specified strengths are obtained. The shotcrete work by a crew will be suspended if the test results for their work do not satisfy the strength requirements. The Contractor shall change all or some of the following: the mix, the crew, the equipment, or the procedures. Before resuming work, the crew must shoot additional test panels and demonstrate that the shotcrete in the panels satisfies the specified strength requirements. The cost of all work required to obtain satisfactory strength tests will be borne by the Contractor.

ITEM 953.2 (Continued)

Preconstruction Test Panels:

1. Each nozzleman without previous ACI certification shall furnish at least one preconstruction test panel for each proposed mixture being considered and for each shooting position to be encountered on the job. Preconstruction test panels shall be made prior to the commencement of production work using the same equipment, materials, mixture proportions and procedures proposed for the job.

2. Make preconstruction test panels for permanent walls with minimum dimensions of 30 x 30 in square and at least 4 in thick. Slope the sides of preconstruction and production test panels at 45 degrees over the full panel thickness to release rebound. For the permanent shotcrete wall, one preconstruction test panel shall include the maximum anticipated reinforcing congestion shown on the approved detailed design submittal. Cores extracted from the test panel shall demonstrate encapsulation of the reinforcement in accordance with ACI 506.2 equal to core grade 2 or better. The other preconstruction test panel shall be constructed without reinforcement and have cores extracted for absorption and compressive strength testing.

Production Test Panels:

1. For permanent walls, furnish at least one production test panel each. Construct the production test panels simultaneously with the shotcrete facing installation at times designated by the Engineer. Make production test panels with minimum full thickness dimensions of 18 x 18 in square and at least 4 in thick.

Test Panel Curing, Test Specimen Extraction and Testing:

1. Immediately after shooting, field moist cure the test panels by covering and tightly wrapping with a sheet of material meeting the requirements of ASTM C171 until they are delivered to the testing lab or test specimens are extracted. Do not immerse the test panels in water. Do not further disturb test panels for the first 24 hours after shooting. For construction facing, provide at least six 3-in diameter core samples cut from each preconstruction test panel and production test panel. For final facing, provide at least three 3-in diameter core samples cut from each preconstruction test panel with reinforcement, for core grading. Contractor has the option of extracting test specimens from test panels in the field or transporting to another location for extraction. Keep panels in their forms when transported. Do not take cores from the outer 6-in of test panels measured in from the top outside edges of the panel form.

   Trim the ends of the cores to provide test cylinders at least 3-in long. Do not trim the ends of the cores to be tested for boiled absorption.

ITEM 953.2 (Continued)

If the Contractor chooses to take cores from the wall face in lieu of making production test panels, locations will be designated by the Engineer. Clearly mark the cores and container to identify the core locations and whether they are for preconstruction or production testing. If for production testing, mark the section of the wall represented by the cores on the cores and container. Immediately wrap cores in wet burlap or material meeting requirements of ASTM C171 and seal in a plastic bag. Deliver cores to the Engineer or testing lab, as directed by the Engineer, within 48 hours of shooting the panels. The remainder of the panels will become the property of the Contractor. Compressive strength and boiled absorption testing will be performed by the Engineer. Upon delivery to the testing lab, samples will be placed in the moist room until the time of test. When the test length of a core is less than twice the diameter, the correction factors given in AASHTO T24/ASTM C42 will be applied to obtain the compressive strength of individual cores. For permanent walls, three cores will be tested at 3 days and three cores will be tested at 28 days in accordance with AASHTO T24/ASTM C42. For permanent wall specimens only, three cores will be tested at seven days for boiled absorption per ASTM C642.

2. Fill core holes in the wall by dry-packing with non-shrink patching mortar after the holes are cleaned and dampened. Do not fill core holes with shotcrete.

EXECUTION

WALL DRAINAGE NETWORK

Install and secure all elements of the wall drainage network as shown on the Plans, or as required by the Engineer to suit the site conditions. The drainage network shall consist of installing geocomposite drain strips, PVC connection pipes and subdrains as required in the Plans or as directed by the Engineer. Exclusive of the track subdrains, all elements of the drainage network shall be installed prior to shotcreting.

Unanticipated subsurface drainage features exposed in the excavation cut face shall be captured independently of the wall drainage network and shall be mitigated prior to shotcrete application in accordance with the Earth Anchor Specification.

Geocomposite Drain Strips:

1. Install geocomposite drain strips centered between the columns of nails as shown on the Plans. The drain strips shall be at least 12-in wide and placed with the geotextile side against the ground. Secure the strips to the excavation face and prevent shotcrete from contaminating the ground side of the geotextile. Drain strips will be continuous. Splices shall be made with a 12-inch minimum overlap such that the flow of water is not impeded. Repair damage to the geocomposite drain strip, which may interrupt the flow of water.

ITEM 953.2 (Continued)

Subdrains:

1. Install subdrains at the bottom of each wall in accordance with the Commonwealth of Massachusetts Department of Transportation Standard Specifications, Subsection 260.

Connection Pipes and Weepholes:

1. Install connection pipes as shown on the Plans. Connection pipes are lengths of solid PVC pipe installed to direct water from the geocomposite drain strips to the exposed face of the wall. Connect the connection pipes to the drain strips using either prefabricated drain grates as shown on the Plans or using the alternate connection method described below. Install the drain grate per the manufacturer's recommendations. The joint between the drain grate and the drain strip and the discharge end of the connector pipe shall be sealed to prevent shotcrete intrusion. Connection pipes that end at the footing drain shall be extended to the edge of the drain. Do not puncture the drainage fabric around the footing drain.

2. The alternative acceptable method for connection of the connector pipe to the drain strip involves cutting a hole slightly larger than the diameter of the pipe into the strip plastic core but not through the geotextile. Wrap both ends of the connection pipe in geotextile in a manner that prevents migration of fines through the pipe. Tape or seal the inlet end of the pipe where it penetrates the drain strip and the discharge end of the connector pipe in a manner that prevents penetration of shotcrete into the drain strip or pipe. To assure passage of groundwater from the drain strip into the connector pipe, slot the inlet end of the connector pipe at every 45 degrees around the perimeter of the pipe to a depth of 0.25-in.

PERMANENT FACING

Shotcrete Alignment and Thickness Control:

1. Ensure that the thickness of shotcrete satisfies the minimum requirements shown on the Plans using shooting wires, thickness control pins, or other devices acceptable to the Engineer. Install thickness control devices normal to the surface such that they protrude the required shotcrete thickness outside the surface and maintain a plane surface for permanent walls. In addition, for permanent walls, the maximum distance between the wires on any surface shall be equal to the vertical nail spacing. Ensure that the alignment wires are tight, true to line, and placed to allow further tightening. Remove shooting wires after completion of shotcreting and/or screeding. Ensure that the front face of the shotcrete does not extend beyond the limits shown on the Plans.

ITEM 953.2 (Continued)

Surface Preparation:

1. Clean the face of the excavation and other surfaces to be shotcreted of loose materials, mud, rebound, overspray, or other foreign matter that could prevent or reduce shotcrete bond.
2. Protect adjacent surfaces from overspray during shooting.
3. Avoid loosening, cracking, or shattering the ground during excavation and cleaning.
4. Remove any surface material which is so loosened or damaged, to a sufficient depth to provide a base that is suitable to receive the shotcrete. Voids, cut-face irregularities, or inadvertent over-excavation beyond the plan wall excavation line resulting from the Contractor's excavation, blasting, scaling, trimming, or other operations shall be corrected by placement of additional shotcrete thickness or other remedial measures acceptable to the Engineer. The cost of such additional shotcrete or remedial work shall be considered incidental to the work.
5. Voids or cut-face irregularities beyond the plan wall excavation line not resulting from the Contractor's excavation, blasting, scaling, trimming, or other operations shall be corrected by placement of additional shotcrete thickness or other remedial measures acceptable to the Engineer. The cost of such additional shotcrete or remedial work shall be considered extra work as approved by the Engineer.
6. Remove material that loosens as the shotcrete is applied. Cost of additional shotcrete is incidental to the work.
7. Divert water flow and remove standing water so that shotcrete placement will not be detrimentally affected by standing water. Do not place shotcrete on frozen surfaces.

Delivery and Application:

1. Maintain at all times a clean, dry, oil-free supply of compressed air sufficient for maintaining adequate nozzle velocity and for simultaneous operation of a blow pipe for cleaning away rebound. The equipment shall be capable of delivering the premixed material accurately, uniformly, and continuously through the delivery hose. Control shotcrete application thickness, nozzle technique, air pressure, and rate of shotcrete placement to prevent sagging or sloughing of freshly applied shotcrete.

ITEM 953.2 (Continued)

2. Apply the shotcrete from the lower part of the area upwards to prevent accumulation of rebound. Orient nozzle at a distance and approximately perpendicular to the working face so that rebound will be minimal, and compaction will be maximized. Pay special attention to encapsulating reinforcement. Care shall be taken while encasing reinforcing steel and mesh to keep the front face of the reinforcement clean during shooting operations, so that shotcrete builds up from behind, to encase the reinforcement and prevent voids and sand pockets from forming. Use a blowpipe to remove rebound and overspray immediately ahead of the nozzle. Do not work rebound back into the construction. Remove rebound that does not fall clear of the working area. Hardened rebound and hardened overspray shall be removed prior to application of additional shotcrete, using abrasive blast cleaning, chipping hammers, high pressure water blasting or other suitable techniques. When the thickness of an individual shotcrete layer is 6-in or greater, or when shotcreting is conducted through two curtains of reinforcement, place shotcrete by the bench gunning method. The bench gunning method shall consist of building up a thick layer of shotcrete from the bottom of the lift and maintaining the top surface at an approximately 45-degree slope. Where shotcrete is used to complete the top ungrouted zone of the nail drill hole near the face, position the nozzle into the mouth of the drillhole to completely fill the void.

3. A clearly defined pattern of continuous horizontal or vertical ridges or depressions at the reinforcing elements after they are covered with shotcrete will be considered an indication of insufficient reinforcement cover or poor nozzle techniques. In this case the application of shotcrete shall be immediately suspended, and the Contractor shall implement corrective measures before resuming the shotcrete operations. The shotcreting procedure may be corrected by adjusting the nozzle distance and orientation, by ensuring adequate cover over the reinforcement, by adjusting the water content of the shotcrete mix or other means. Adjustment in water content of wet-mix will require requalifying the shotcrete mix.

4. When using multiple layer shotcrete construction, the surface of the receiving layer shall be prepared before application of a subsequent layer, by either: (a) Brooming the stiffening layer with a stiff bristle broom to remove all loose material, rebound, overspray or glaze, prior to the shotcrete attaining initial set: or (b) If the shotcrete has set, surface preparation shall be delayed at least 24 hours, at which time the surface shall be prepared by sandblasting or high pressure water blasting, to remove all loose material, rebound, hardened overspray, glaze, or other material that may prevent adequate bond.

Defective Shotcrete:

The Engineer shall have authority to accept or reject the shotcrete work. Shotcrete which does not conform to the project specifications may be rejected either during the shotcrete application process, or on the basis of tests on the test panels or completed work. Repair shotcrete surface defects as soon as possible after placement. Remove and replace shotcrete which exhibits segregation, honeycombing, lamination, voids, or sand pockets. In-place shotcrete determined not to meet the specified strength requirement will be subject to remediation as determined by the Engineer. Possible remediation options include placement of additional shotcrete thickness or removal and replacement, at the Contractor's cost.

ITEM 953.2 (Continued)

Construction Joints:

Taper construction joints uniformly toward the excavation face over a minimum distance equal to the thickness of the shotcrete layer. Square joints are not permitted. The surface of the joints shall be rough, clean, and sound. Provide a minimum reinforcement overlap at reinforcement splice joints as shown on the Plans. Clean and wet the surface of a joint before adjacent shotcrete is applied. Where shotcrete is used to complete the top ungrouted zone of the nail drill hole near the face, to the maximum extent practical, clean and dampen the upper grout surface to receive shotcrete, similar to a construction joint.

Final Face Finish:

Concrete final face finish shall be a formed Ashlar Stone Finish as shown on the Plans and specified herein.

Coordination with Permanent Concrete Facing:

Permanent cast-in-place concrete facing with ashlar stone finish shall be constructed in accordance with item 953.1 and Section 901 of the MassDOT Standard Specifications. Architectural form liners shall be used to produce the ashlar stone finish.

Requirements in this item related to shotcrete materials, nozzlemen qualifications, test panels, and shotcrete acceptance testing apply only to shotcrete work and do not govern the permanent cast-in-place concrete facing. Shotcrete surfaces shall be prepared as required to receive the permanent concrete facing in accordance with the Contract Plans.

Attachment of Nail Head Bearing Plate and Nut:

Attach a bearing plate and nut to each nail head as shown on the Plans. While the shotcrete is still plastic and before its initial set, uniformly seat the plate on the shotcrete by hand wrench tightening the nut. Where uniform contact between the plate and the shotcrete cannot be provided, set the plate in a bed of grout. After grout has set for 24 hours, hand wrench tighten the nut. Embed the bearing plate and nut in the wall as shown on the Plans. Ensure full shotcrete encapsulation of the bearing plate and nut free of any voids or pockets behind the plate. Ensure bearing plates with headed studs are in intimate contact with the construction facing and the studs are located within the tolerances shown on the Plans or specified herein.

ITEM 953.2 (Continued)

Weather Limitations:

1. Shotcrete shall only be placed when the ambient temperature is above 32°F and will not be subjected to freezing temperatures before gaining sufficient strength. Maintain cold weather protection until the in-place compressive strength of the shotcrete is greater than 750-psi. Cold weather protection includes blankets, heating under tents, or other means acceptable to the Engineer. The temperature of the shotcrete mix, when deposited, shall be not less than 50°F or more than 95°F. Maintain the air in contact with shotcrete surfaces at temperatures above 32°F for a minimum of seven days.

2. If the prevailing ambient conditions (relative humidity, wind speed, air temperature and direct exposure to sunlight) are such that the shotcrete develops plastic shrinkage and/or early drying shrinkage cracking, shotcrete application shall be suspended. The Contractor shall: (a) Reschedule the work to a time when more favorable ambient conditions prevail; and/or (b) Adopt corrective measures, such as installation of sun- screens, polyethylene film, wind breaks or fogging devices, to protect the work. Remove and replace newly placed shotcrete exposed to rain that washes out cement or otherwise makes the shotcrete unacceptable.

Curing:

Protect and cure the concrete final face in accordance with ACI 506.2 guidance. Unless otherwise approved, water cure shotcrete for at least 96 hours and protect it from freezing during the curing period in accordance with the AASHTO LRFD Bridge Construction Specifications (4th edition) with updates through 2025 interims.

Temporary Shotcrete Facing Tolerances:

1. Construction tolerances for the temporary shotcrete construction facing are as follows:

    a. Horizontal Location of Wire Mesh; Rebar; Headed Studs on Bearing Plates, from Plan location; + or - 0.6 in
    b. Headed studs location on bearing plate, from plan location: 0.25 in
    c. Spacing between reinforcing bars, from plan dimension; 1 in
    d. Reinforcing lap, from specified dimension: - 1 in
    e. Thickness of shotcrete; - 0.4 in
    f. Nail head bearing plate, deviation from parallel to wall face: 10 degrees

Permanent Concrete Facing Tolerances:

Construction tolerances for the permanent concrete facing shall be in accordance with the Earth Anchor Specification, and the Contract Plans.

ITEM 953.2 (Continued)

SAFETY REQUIREMENTS

Nozzlemen and helpers shall be equipped with gloves, eye protection, and adequate protective clothing during the application of shotcrete. The Contractor is responsible for meeting all federal, state, and local safety code requirements.

STRUCTURE MONITORING

The existing house, barn, stone retaining wall structure, and other structures to remain shall be protected from adverse impacts during construction.

Specific instrumentation and monitoring requirements shall be based on the proposed construction sequence, duration of construction, and performance criteria. Initial measurements shall be established well in advance of construction so that baseline data can be developed.

METHOD OF MEASUREMENT

Item 953.2 will be measured for payment by the Square Foot of shotcrete facing installed, complete in place.

BASIS OF PAYMENT

Item 953.2 will be paid at the Contract unit price per Square Foot, complete in place, which price shall include all material, labor, equipment, submittals, inspections, required or incidental for the completion of the work.

DOCUMENT A00802

DETAIL SHEETS

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THE COMMONWEALTH OF MASSACHUSETTS
MassDOT HIGHWAY DIVISION
TEN PARK PLAZA - BOSTON, MA

ESTIMATE OF QUANTITIES – DETAIL SHEET

CITY/TOWN: Becket, MA	YEAR: FY 2026
CLASS: Rural Minor Arterial	ROAD: Route 8 (Main Street)
TYPE: Roadway Reconstruction	DATE: July 10, 2026

Earth Excavation: 1,343 CY	Crushed Stone: 160 TON
Rock Cut: 2,920 CY	Pavement Fine Milling: 1,015 SY

PROPOSED RESURFACING

Surface Course: 1.75” Superpave Surface Course 9.5 Polymer (SSC-9.5-P)
Base Course: 1.75” Pavement Fine Milling

ROCK CATHCMENT AREA

Surface Course: 8” Crushed Stone

ITEM 100.99 STRUCTURE AND GEOTECHNICAL MONITORING
To be used on Stone Wall between STA 10+58 and STA 11+10.

ITEM 102.521 TREE AND PLANT PROTECTION FENCE
For furnishing and installing temporary tree trunk protection and for minor limb pruning or removal of lower tree limbs to prevent injury to the tree from construction equipment and activites.

From		To
STA. 10+58 LT	to	STA. 11+10 LT
STA. 12+40 LT	to	STA. 15+80 LT

ITEM 122. PRESPLITTING ROCK
For exposed ledge faces at the following locations:

From		To
STA. 12+50 LT	to	STA. 15+70 LT

ITEM 146. DRAINAGE STRUCTURE REMOVED
For removed drainage structure at the following location:

STA	OFFSET
STA. 12+77.25	15' LT

ITEM 151. GRAVEL BORROW
For fill areas behind Soil Nail Wall, as required, between STA 15+60 and STA 15+70

ITEM 201.4 CATCH BASIN – DOUBLE GRATE
STA. 12+78.25 15' LT

ITEM 222.11 FRAME AND GRATE - DOUBLE CATCH BASIN
For installation on the following structures located within the State Highway Layout:
Catch basins – See Item 201.

ITEM 472. TEMPORARY ASPHALT PATCHING
For pavement transitions, around elevated castings, and temporary transitions.

ITEM 628.304 TEMPORARY IMPACT ATTENUATOR, NON-REDIRECTIVE, TL-2
For ends of temporary barrier TL-2 – See Item 853.2.

ITEM 628.4 TEMPORARY IMPACT ATTENUATOR, REMOVED AND RESET
For ends of temporary barrier TL-2 – See Item 853.2. Used for movement of barrier as needed for work zones.

ITEM 630.1 HIGHWAY GUARD REMOVED AND STACKED
At the following locations:
STA. 14+00 to STA. 15+05 LT

ITEM 657. TEMPORARY FENCE
For use around existing historical stone wall.

ITEM 665. CHAIN LINK FENCE REMOVED AND STACKED
At the following locations:
STA. 14+00 to STA. 15+05 LT

ITEM 697.1 SILT SACK

At the following locations:

STA.	10+36.66	LT
STA.	12+78.14	LT
STA.	16+62.61	LT
STA.	17+55.07	LT
STA.	17+57.52	LT

ITEM 751. LOAM FOR ROADSIDES

Contingency item for any additional loam required for the project.

ITEM 816.81 TEMPORARY TRAFFIC CONTROL SIGNAL

For use during long term one lane alternating traffic set up.

ITEM 852. SAFETY SIGNING FOR TRAFFIC MANAGEMENT

Temporary advance warning work zone signs to include:

ID NUMBER	DESCRIPTION
W20-1	Road Work XXX
MA-R2-10a	Speeding Fines Doubled
MA-R2-10e	End Road Work/Double Fines End
W20-4	One Lane Road
W20-7	Flagger
MA-W20-7b	Police Officer Ahead
G20-1	Road Work Next XX Miles
W3-3	Traffic Signal Symbol
W22-1	Blasting Zone Ahead
W22-2	Turn Off 2-Way Radio
W22-3	End Blasting Zone
R10-6	Stop Here on Red

ITEM 854.036 TEMPORARY PAVING MARKINGS – 6 INCH (TAPE)

Use removable tape for centerlines, stop lines, and edge lines on binder and milled pavements until permanent markings are applied.

ITEM 856.12 PORTABLE CHANGEABLE MESSAGE SIGN

For use at the beginning of the project and during major milling and paving operations.

ITEM 862.506 FAST DRY MULTI-COMPONENT PAVEMENT MARKINGS, RECESSED, WET REFLECTIVE (6 INCH WHITE LINE)

For Solid White Lines.

SWL

STA. 12+45 to STA. 15+70 LT
STA. 12+45 to STA. 15+70 RT

ITEM 863.506 FAST DRY MULTI-COMPONENT PAVEMENT MARKINGS, RECESSED, WET REFLECTIVE (6 INCH YELLOW LINE)

For Solid Yellow Lines.

DBYL

STA. 12+45 to STA. 15+70
STA. 12+45 to STA. 15+70

ITEM 864.35 SLOTTED PAVEMENT MARKER TWO-WAY YELLOW/YELLOW

Use with double yellow lines.

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DOCUMENT A00808

PROJECT UTILITY COORDINATION FORM

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Project Utilities Coordination (PUC) Form

CONTACTS AND GENERAL UTILITY INFORMATION

6/11/2026

Revision Date:

City/Town:	Project File #:	PUC Completed by:	Utility Pole Set:	
Becket	609506	Justin Daigle, EIT	Eversource	
Route/Street:	**Resident Engineer:**	**Mass DOT PM:**	**Scheduled Ad Date:**	**Total Poles Relocated:**
Route 8	*TBD*	Jonathan Freeman	9/5/2026	0

Consultant:	Contact:	Cell #	Office #	Email
Jacobs Engineering Group, Inc	Brian Montejunas			Brian.Montejunas@jacobs.com

Utility Company	Contact	Office #	Cell #	Email	Scope, Budget, Duration Submitted		Reimbursement			Potential for District Initiated Early Relocation *		Utilities On Bridge/Structure		Utilities Underground (UG) /Aerial (OH)	
					Yes	No	Agreement	Non-Reimb'le	Notes	YES	NO	YES	NO	UG	OH
Eversource	Isaiah Provencher	(413) 499-9097	(413) 212-9640	isaiah.provencher@eversource.com		X		X	Eversource to hold recloser in case of operations fouling lines		X		X		X
Verizon	Bill Cyrulik		(413) 553-7737	william.cyrulik@verizon.com		X		X	No work for Verizon unless lines are fouled by blasting operations		X		X		X
Eversource	Nicholas Langone	(413) 787-9022	(413) 478-5808	nicholas.langone@eversource.com											
Verizon	Paul Styspeck	(413) 787-1845	(413) 575-7058	paul.m.styspeck@verizon.com											

Utility Relocation Notes for MassDOT Contractor

Unless otherwise noted by Contract, the MassDOT Contractor is to provide the District Construction Office with 7 Calendar Days advance notification in order to validate the current progress and provide the required 30 Days advance notice-to-proceed for the first Utility - and each subsequent Utility. These advance notifications are to be identified in the Contractor's Schedules (Pre-Con preparation, Baseline, Subnets, and Updated/Monthly Schedules) as specified in Subsection 8.02 (for DBB Contracts) and/or Section 9 (of DB Contracts). Note: The durations included below do not include these lead-times. See Additional 'Important Basis notes for Contractor' - on last PUC Form page.

Additional notes:

Suggested Sequence of Relocation (Based on Consultant proposed construction staging)

The sequence as detailed on the following pages is based on the consultants proposed staging plan. This information was compiled through meetings that included all of the utilities listed below along with the designer and the Town of Becket. The information provided is the best available information prior to project advertisement.

Proposal No. 609506-136647

PUC FORM - CONTINUED

Is 'enabling' (prep) work, by the Contractor, necessary prior to the start of the first series of utility relocations:	Yes	No

Has any of the Utility work been identified to work concurrently	Yes	No

6/11/2026
PRINTED

massDOT Massachusetts Department of Transportation Highway Division

	RESPONSIBLE PARTY		DESCRIPTION - Utility Relocation Phases, Tasks and Activities	Estimated Duration (Work Days) by Utilities (Lead time not included)	Concurrent / Exclusive Utility Work Contractor note: In planning and executing the work, the Access Restraints listed in the Special Provisions, takes precedence over the checklist in these 4 columns.				Access Restraint & Limitations of Operations Notes Should an AR be considered for the Contractor ?	
	C = Contractor	U = Utility Co.			Exclusive Utility on site: Utility working with no other Utilities in vicinity	Concurrent Utilities: Utility working with other Utilities on site	Contractor Off-Site: No Contractor physical construction operations on-site (while Utility is	Contractor Concurrent: Contractor and Utility are working on-site - but NOT in the same vicinity	Potential Access Restraint (Yes/No)	Reason/Note (optional)
Phase 1			Enabling' work by the Contractor - Contractor to inform Eversource contact, on first page of PUC form, of blasting activities at least 24 hours prior to blasting.							
			UTILITY OPERATIONS - Pole Set / Temporary Overhead Relocation							
Task: 1			***Utility Co. - Eversource***							
		U	Eversource to hold recloser during blasting activities	0				**X**	**No**	
			Sub-Total	**0**						

IMPORTANT BASIS NOTES - FOR CONTRACTOR

1	Unless otherwise specified in the MassDOT Construction Contract, or unless specifically noted within this PUC Form, these durations (herein) are based upon the Contractor providing *unimpeded access* to the Utility company to perform Utility relocations (see Note 5 - Access).
2	"Concurrent Utilities" operations noted herein, are to signify those Utility Company operations that can be worked concurrently (e.g. Utility A and Utility B work on-site together) - MassDOT and the Contractor are to prepare NTPs to Utilities accordingly.
3	"Potential Access Restraints" noted within this PUC Form are for planning purposes. See MassDOT Contract for Contractual Access Restraints (refer to Subsections 8.02, 8.03, and/or 8.06 for Design Bid Build Contracts and Volume II Section 9 for Design Build Contracts).
4	Utility non-work periods - For planning purposes, the durations above contain some non work days (contingency) for New England conditions (precipitation, high temperatures, low temperatures, snow, ice). Gas line work and underground conduit installations however, typically have a seasonal restriction and can NOT be installed from 15-November to 15-March. Municipally Owned Electric and Gas Utilities are also restricted from proceeding from 15-November to 15-March. The Contractor shall (and the CTD plan) reflect this calendar restriction within the schedule (unless otherwise note).
5	Access - Unless otherwise noted in the Contract, and in addition to the 'enabling' notes above, the Contractor must provide safe and unimpeded access (for trucks, lifts, cranes, etc.) to the Utilities, to allow for the proposed relocation(s) - including but not limited to snow removal, clearing and grubbing, guard rail removal, barrier removal, tree removal, and grading. Any costs associated with these tasks are deemed to be incidental to the project.
6	For all MassDOT construction contracts issued after January 2014, the new Utility Coordination/documentation specification is required. This is Section 8.14 in Design-Bid-Build Contracts (see Design-Build index reference for applicable section #).
7	Prior to starting any and all enabling work for Utilities, the Contractor is to plan in advance with submittals and approved durations.
8	* Potential District Initiated Early Utility Relocation - if noted herein, the District reserves the right to initiate early utility relocation in advance of the Contract NTP. In submitting a bid price and in the development/basis of the Baseline Schedule, the Contractor shall not plan the Work with the potential benefit of any form of 'early utility relocation.' As a requirement of the Baseline submission, unless otherwise noted in this Specification, the earliest that the first Utility company is to receive the 30 days advance notification to mobilize to the site, will be 7 calendar days after the pre-construction meeting and never sooner than 7 days after the Contract NTP.

Proposal No. 609506-136647

DOCUMENT A00820

Massachusetts Department of Transportation
Conditions of Custody

REQUEST FOR RELEASE OF MASSDOT AUTOCAD FILES FORM
(Only to be used following award of contract)

City/Town: BECKET Project File Number: 609506

Contract Number: 136647

Project Description: Ledge Removal along Route 8, between MM 28.002 and MM 27.998

All AutoCAD files are provided solely as a courtesy to facilitate public access to information. MassDOT attempts to provide current and accurate information but cannot guarantee so. MassDOT provides such documents, files or other data "as is" without any warranty of any kind, either expressed or implied, including but not limited to, accuracy, reliability, omissions, completeness and currentness. The Commonwealth of Massachusetts and its Consultants shall not be liable for any claim for damages, including lost profits or other consequential, exemplary, incidental, indirect or special damages, relating in any way to the documents, files or other data accessible from this file, including, but not limited to, claims arising out of or related to electronic access or transmission of data or viruses. Because data stored on electronic media can deteriorate undetected or be modified without our knowledge, MassDOT cannot be held liable for its completeness or correctness. MassDOT makes no representation as to the compatibility of these files beyond the version of the stated CAD software.

By signing this form, I agree that it shall be my responsibility to reconcile this electronic data with the conformed contract documents, and that only the conformed contract documents shall be regarded as legal documents for this Project. I understand that this authorization does not give me the right to distribute the files. I agree to the terms above and wish to receive the AutoCAD files.

This signed form shall be emailed to the Highway Design Engineer at the MassDOT -Highway Division at the following email address:

DOTHighwayDesign@dot.state.ma.us
Attn: AutoCAD Files

Name of person requesting AutoCAD files: _____

Affiliation/Company: _____

Address: _____

_____

Telephone number: _____

Email address: _____

Signature/Date: _____

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DOCUMENT A00844

U.S. FISH AND WILDLIFE SERVICE

NLAA CONCURRENCE VERIFICATION LETTER

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 3301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: 12/09/2025 21:29:52 UTC
Project code: 2025-0148132
Project Name: 609506 BECKET- LEDGE REMOVAL ALONG ROUTE 8, BETWEEN MM 28.002 AND MM 27.998

Federal Nexus: yes
Federal Action Agency (if applicable): Federal Highway Administration

Subject: Federal agency coordination under the Endangered Species Act, Section 7 for '609506 BECKET- LEDGE REMOVAL ALONG ROUTE 8, BETWEEN MM 28.002 AND MM 27.998'

Dear Trevor Burns:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on December 09, 2025, for '609506 BECKET- LEDGE REMOVAL ALONG ROUTE 8, BETWEEN MM 28.002 AND MM 27.998' (here forward, Project). This project has been assigned Project Code 2025-0148132 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (DKey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid. Note that conservation measures for northern long-eared bat and tricolored bat may differ. If both bat species are present in the action area and the key suggests more conservative measures for one of the species for your Project, the Project may need to apply***

the most conservative measures in order to avoid adverse effects. If unsure which conservation measures should be applied, please contact the appropriate Ecological Services Field Office.

Determination for the Northern Long-Eared Bat and Tricolored Bat

Based on your IPaC submission and a standing analysis completed by the Service, you determined the proposed Project will have the following effect determinations:

Species	Listing Status	Determination
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	NLAA

Unless the Service advises you within 15 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that consultation on the Action is complete for northern long-eared bat and/or tricolored bat and no further action is necessary unless either of the following occurs:

- new information reveals effects of the action that may affect the northern long-eared bat or tricolored bat in a manner or to an extent not previously considered; or,
- the identified action is subsequently modified in a manner that causes an effect to the northern long-eared bat or tricolored bat that was not considered when completing the determination key.

15-Day Review Period

As indicated above, the Service will notify you within 15 calendar days if we determine that this proposed Action does not meet the criteria for a “may affect, not likely to adversely affect” (NLAA) determination for the northern long-eared bat and/or tricolored bat. If we do not notify you within that timeframe, you may proceed with the Action under the terms of the NLAA concurrence provided here. This verification period allows the identified Ecological Services Field Office to apply local knowledge to evaluation of the Action, as we may identify a small subset of actions having impacts that we did not anticipate when developing the key. In such cases, the identified Ecological Services Field Office may request additional information to verify the effects determination reached through the Northern Long-eared Bat and Tricolored Bat DKey.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Proposed Threatened

You may coordinate with our Office to determine whether the Action may affect the species and/or critical habitat listed above. Note that reinitiation of consultation would be necessary if a new species is listed or critical habitat designated that may be affected by the identified action before it is complete.

If you have any questions regarding this letter or need further assistance, please contact the New England Ecological Services Field Office and reference Project Code 2025-0148132 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

609506 BECKET- LEDGE REMOVAL ALONG ROUTE 8, BETWEEN MM 28.002 AND MM 27.998

2. Description

The following description was provided for the project '609506 BECKET- LEDGE REMOVAL ALONG ROUTE 8, BETWEEN MM 28.002 AND MM 27.998':

> 609506 BECKET- LEDGE REMOVAL ALONG ROUTE 8, BETWEEN MM 28.002 AND MM 27.998
> Throughout the District, ledge out-croppings and exposed rock faces are adjacent to State Highway at various locations. Some of these areas were created when the highways were originally built, reconstructed or widened; or when natural events, such as Tropical Storm Irene, exposed natural rock slopes to additional weathering and erosion. Many of these locations pose a potential safety hazard from falling rock or slope failure, which could injure highway users or shut down some sections of State Highway for an extended time. Highway closures at many of these locations would result in lengthy detours, affecting regional commuting and commerce. This proposed contract would design site-specific improvements to address safety issues related to exposed or falling rock at these locations.
> Monarch Butterfly: Proposed Species only. The project action will not jeopardize the continued existence of a proposed species.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.3159815,-73.09312884955898,14z

DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for a least one species covered by this determination key.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

   No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Note for projects in Pennsylvania: Projects requiring authorization under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act would be considered as having a federal nexus. Since the U.S. Army Corps of Engineers (Corps) has issued the Pennsylvania State Programmatic General Permit (PASPGP), which may be verified by the PA Department of Environmental Protection or certain Conservation Districts, the need to receive a Corps authorization to perform the work under the PASPGP serves as a federal nexus. As such, if proposing to use the PASPGP, you would answer ‘yes’ to this question.

   Yes

6. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

   Yes

7. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

   Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

   Yes

8. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

   No

9. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

   No

10. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum or winter roost? Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your state wildlife agency.

    Automatically answered

    No

11. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

    No

12. Does the action area contain (1) talus or (2) anthropogenic or naturally formed rock shelters or crevices in rocky outcrops, rock faces or cliffs?

    No

13. Will the action cause effects to a bridge?

    Note: Covered bridges should be considered as bridges in this question.

    No

14. Will the action result in effects to a culvert or tunnel at any time of year?

    No

15. Are trees present within 1000 feet of the action area?

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

16. Does the action include the intentional exclusion of bats from a building or building-like structure? **Note:** Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

    No

17. Does the action involve removal, modification, or maintenance of a human-made building-like structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

18. Will the action cause construction of one or more new roads open to the public?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

19. Will the action include or cause any construction or other activity that is reasonably certain to increase average night-time traffic permanently or temporarily on one or more existing roads? **Note:** For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

20. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer 'yes' when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

21. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

    Note: For information regarding NSF/ANSI 60 please visit https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects

    No

22. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

23. Will the action include drilling or blasting?

    Yes

24. Will the drilling or blasting produce noise or vibrations above existing background levels that will affect suitable summer habitat for northern long-eared bats and/or tricolored bats?

    Note: Additional information defining suitable suitable summer habitat for the northern long-eared bat and/or tricolored bat, can be found in Appendix A in the USFWS' Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines

    No

25. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use at night)?

    No

26. Will the proposed action involve the use of herbicides or pesticides (e.g., fungicides, insecticides, or rodenticides)?

    No

27. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

    Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

28. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

29. Will the action cause an increase in the extent of suitable forested habitat exposed to artificial lighting?

    No

30. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    Yes

31. Is the project related to the production of coal, including projects that support the mining of coal, as well as the production and/or distribution of energy produced from coal?

    No

32. Will the proposed action occur exclusively in an already established and currently maintained utility right-of-way?

    No

33. Does the action include emergency cutting or trimming of hazard trees in order to remove an imminent threat to human safety or property? See hazard tree note at the bottom of the key for text that will be added to response letters

    Note: A "hazard tree" is a tree that is an immediate threat to lives, public health and safety, or improved property.

    No

34. Does the project intersect with the 0- 9.9% forest density category?

    Automatically answered
    No

35. Does the project intersect with the 10.0- 19.9% forest density category map?

    Automatically answered
    No

36. Does the project intersect with the 20.0- 29.9% forest density category map?

    Automatically answered
    No

37. Does the project intersect with the 30.0- 100% forest density category map?

    Automatically answered
    Yes

38. Will the action cause trees to be cut, knocked down, or otherwise brought down across an area greater than 100 acres in total extent?

    No

39. Will the proposed action result in the use of prescribed fire?

    Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

    No

40. Does the action area intersect the northern long-eared bat species list area?

    Automatically answered
    Yes

41. [Semantic] Is the action area located within 0.5 miles of radius of an entrance/opening to any known NLEB hibernacula or winter roost? Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

42. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats? **Note:** The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

43. [Semantic] Is the action area located within 150 feet of a documented northern long-eared bat roost site?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.Have you contacted the appropriate agency to determine if your action is within 150 feet of any documented northern long-eared bat roosts?

    Note: A document with links to Natural Heritage Inventory databases and other state-specific sources of information on the locations of northern long-eared bat roosts is available here. Location information for northern long-eared bat roosts is generally kept in state natural heritage inventory databases – the availability of this data varies by state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited.

    Automatically answered
    No

44. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?
If unsure, answer "Yes."

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

45. Has a presence/probable absence summer bat survey targeting the northern long-eared bat following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines been conducted within the project area?

    Yes

46. Was the survey conducted within the last 5 years?

    Yes

47. Did you coordinate with your Ecological Services Field Office (ESFO) and receive approval of the results? If NO, please contact the appropriate local ESFO before completing this determination key - you may change your answer to 'yes' only after coordinating with the ESFO and uploading survey results.

    Yes

    SUBMITTED DOCUMENTS

    - *MassDOT_609506_Bat Survey.pdf https://ipac.ecosphere.fws.gov/project/KA3FMATZTJGNPPGWJNJ25JT2FA/projectDocuments/173641406*

48. Did survey results demonstrate the probable absence of northern long-eared bats?

    No

49. Are any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming suitable for northern long-eared bat roosting (i.e., live trees and/or snags ≥3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities)?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

50. Will any tree cutting/trimming or other knocking or bringing down of trees occur during the **Summer Occupancy season** for northern long-eared bats in the action area? **Note:** Bat activity periods for your state can be found in Appendix 2 of the Service's Northern long-eared Bat and Tricolored Bat Voluntary Environmental Review Process for Development Projects.

    No

51. Do you have any documents that you want to include with this submission?
No

PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

IPAC USER CONTACT INFORMATION

Agency: Massachusetts Department of Transportation
Name: Trevor Burns
Address: 10 Park Plaza
City: Boston
State: MA
Zip: 02116
Email trevor.b.burns@dot.state.ma.us
Phone: 8573010759

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

DOCUMENT A00860

MASSACHUSETTS

DEPARTMENT OF ENVIRONMENTAL PROTECTION

NOTICE OF INTENT

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Jacobs

Challenging today.
Reinventing tomorrow.

120 St. James Avenue
5th Floor
Boston, MA 02116
United States

www.jacobs.com

February 20, 2026

Becket Conservation Commission
Becket Town Hall
557 Main Street
Becket, MA 01223

RE: Notice of Intent – District 1- Ledge Removal for Highway Safety at Various Locations
MassDOT Highway Division Project Number 609506
Becket, Massachusetts

To Whom it May Concern:

On behalf of the Massachusetts Department of Transportation, Highway Division (MassDOT Highway Division), Jacobs Engineering (Jacobs) is submitting a Notice of Intent (NOI) for the Ledge Removal Project which proposes to remove portions of the existing rock slope along Main Street (Route 8), north of McNearney Road, in the Town of Becket, Massachusetts (the Project). The Project proposes to move the face of the rock away from the western travel edge along Main Street and, re-grade the overburden at the top of the rock slope. The purpose of the Project is to prevent rocks from falling on the roadway, improve roadway sight distance, and minimize hazards for motorists. As an agency of the Commonwealth providing essential government functions, MassDOT is exempt from certain municipal requirements including but not limited to wetland bylaws, ordinances and policies, and for paying peer review fees. Additionally, MassDOT is not required to notify abutters per the WPA Regulations at 310 CMR 10.05(4).

Work associated with the Project will take place within Resource Areas Subject to Protection and Jurisdiction under the Massachusetts Wetlands Protection Act and its Regulations at 310 CMR 10.00 (the Act) and has been designed to meet the applicable Performance Standards to the extent practicable. The Project is being filed under the Limited Project provisions at 310 CMR 10.53(3)(f) as a maintenance and improvement to existing roadway public roadway and is classified as a redevelopment project under the Massachusetts Stormwater Management Standards.

This NOI has been concurrently submitted to the Massachusetts Department of Environmental Protection (MassDEP) Western Regional Office. Checks for the state portion of the Act fee ($362.50) and the local portion of the Act fee ($387.50) are included with this filing.

We trust that the following application provides adequate information to facilitate the issuance of an Order of Conditions. Should you have any additional questions, please do not hesitate to contact us.

Sincerely,

Clay Hutchinson
Jacobs Engineering

Craig Wood, PWS
Jacobs Engineering

CC: Melissa Lenker, MassDOT Highway Division
Erica Larner, MassDOT Highway Division
Brian Montejunas, Jacobs Engineering
MassDEP Western Regional Office

Jacobs

District 1 – Ledge Removal for Highway Safety at Various Locations: Main Street on Route 8

Becket, Massachusetts

MassDOT Project No. 609506

NOTICE OF INTENT

Prepared by: Jacobs Engineering
Prepared for: Massachusetts Department of Transportation – Highway Division

January 2026

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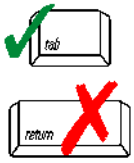
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:
MassDEP File Number
Document Transaction Number
Becket
City/Town

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

Main Street on Route 8 (a. Street Address) | Becket (b. City/Town) | 01223 (c. Zip Code)

Latitude and Longitude: 42.31625 (d. Latitude) | -73.09348 (e. Longitude)

208 (f. Assessors Map/Plat Number) | 022/208.0-0008-0000.0 (g. Parcel /Lot Number)

2. Applicant:

Erica (a. First Name) | Larner (b. Last Name)

Massachusetts Department of Transportation - Highway Division (c. Organization)

10 Park Plaza, Room 7360 (d. Street Address)

Boston (e. City/Town) | MA (f. State) | 02116 (g. Zip Code)

(857) 268-1729 (h. Phone Number) | N/A (i. Fax Number) | erica.n.larner@dot.state.ma.us (j. Email Address)

3. Property owner (required if different from applicant): ☐ Check if more than one owner

(a. First Name) | (b. Last Name)

Massachusetts Department of Transportation – Highway Division (c. Organization)

10 Park Plaza (d. Street Address)

Boston (e. City/Town) | MA (f. State) | 02116 (g. Zip Code)

(h. Phone Number) | (i. Fax Number) | (j. Email address)

4. Representative (if any):

Craig (a. First Name) | Wood (b. Last Name)

Jacobs Engineering (c. Company)

120 Saint James Avenue, 5th Floor (d. Street Address)

Boston (e. City/Town) | MA (f. State) | 02116 (g. Zip Code)

(401) 447-3358 (h. Phone Number) | N/A (i. Fax Number) | craig.wood@jacobs.com (j. Email address)

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

(a. Total Fee Paid) | (b. State Fee Paid) | (c. City/Town Fee Paid)

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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A. General Information (continued)

6. General Project Description:

The proposed project consists of removing portions of the existing rock slope along Main Street (Route 8), north of McNearney Road, in the Town of Becket, MA.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

1. ☐ Single Family Home
2. ☐ Residential Subdivision
3. ☐ Commercial/Industrial
4. ☐ Dock/Pier
5. ☐ Utilities
6. ☐ Coastal engineering Structure
7. ☐ Agriculture (e.g., cranberries, forestry)
8. ■ Transportation
9. ☐ Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

1. ■ Yes ☐ No

If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

310 CMR 10.53(3)(f)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

N/A - State Highway Layout

a. County

b. Certificate # (if registered land)

c. Book

d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

1. ☐ Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
2. ■ Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Bank	1. linear feet	2. linear feet
b. ☐ Bordering Vegetated Wetland	1. square feet	2. square feet
c. ☐ Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. ☐ Bordering Land Subject to Flooding	1. square feet 3. cubic feet of flood storage lost	2. square feet 4. cubic feet replaced
e. ☐ Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. ☒ Riverfront Area	Yokum Brook - inland 1. Name of Waterway (if available) - **specify coastal or inland**	

2. Width of Riverfront Area (check one):

☐ 25 ft. - Designated Densely Developed Areas only

☐ 100 ft. - New agricultural projects only

☒ 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: 58,346 square feet

4. Proposed alteration of the Riverfront Area:

a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.
16,192	9,429	6,763

5. Has an alternatives analysis been done and is it attached to this NOI? ☒ Yes ☐ No

6. Was the lot where the activity is proposed created prior to August 1, 1996? ☒ Yes ☐ No

3. ☐ Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f**. above.

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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. ☐ Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. ☐ Land Under the Ocean	1. square feet 2. cubic yards dredged	
c. ☐ Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. ☐ Coastal Beaches	1. square feet	2. cubic yards beach nourishment
e. ☐ Coastal Dunes	1. square feet	2. cubic yards dune nourishment

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
f. ☐ Coastal Banks	1. linear feet	
g. ☐ Rocky Intertidal Shores	1. square feet	
h. ☐ Salt Marshes	1. square feet	2. sq ft restoration, rehab., creation
i. ☐ Land Under Salt Ponds	1. square feet 2. cubic yards dredged	
j. ☐ Land Containing Shellfish	1. square feet	
k. ☐ Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above 1. cubic yards dredged	
l. ☐ Land Subject to Coastal Storm Flowage	1. square feet	

4. ☐ Restoration/Enhancement

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.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

5. ☐ Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings

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C. Other Applicable Standards and Requirements

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

a. ☐ Yes ■ No

If yes, include proof of mailing or hand delivery of NOI to:

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581

August 2021
b. Date of map

If *yes*, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

c. Submit Supplemental Information for Endangered Species Review*

1. ☐ Percentage/acreage of property to be altered:

(a) within wetland Resource Area _____ percentage/acreage

(b) outside Resource Area _____ percentage/acreage

2. ☐ Assessor's Map or right-of-way plan of site

2. ☐ Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **

(a) ☐ Project description (including description of impacts outside of wetland resource area & buffer zone)

(b) ☐ Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see https://www.mass.gov/ma-endangered-species-act-mesa-regulatory-review).
Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.
** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.

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C. Other Applicable Standards and Requirements (cont'd)

(c) ☐ MESA filing fee (fee information available at https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review).
Make check payable to "Commonwealth of Massachusetts - NHESP" and ***mail to NHESP*** at above address

*Projects altering **10 or more acres** of land, also submit:*

(d) ☐ Vegetation cover type map of site

(e) ☐ Project plans showing Priority & Estimated Habitat boundaries

(f) OR Check One of the Following

1. ☐ Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. ☐ Separate MESA review ongoing. a. NHESP Tracking # b. Date submitted to NHESP

3. ☐ Separate MESA review completed.
Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

a. ■ Not applicable – project is in inland resource area only b. ☐ Yes ☐ No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Bourne to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: dmf.envreview-south@mass.gov

North Shore - Plymouth to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: dmf.envreview-north@mass.gov

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP's Boston Office. For coastal towns in the Southeast Region, please contact MassDEP's Southeast Regional Office.

c. ☐ Is this an aquaculture project? d. ☐ Yes ☐ No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).

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C. Other Applicable Standards and Requirements (cont'd)

Online Users: Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?

   a. ☐ Yes ■ No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.

   b. ACEC

5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?

   a. ☐ Yes ■ No

6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?

   a. ☐ Yes ■ No

7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?

   a. ■ Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:

      1. ☐ Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)

      2. ■ A portion of the site constitutes redevelopment

      3. ☐ Proprietary BMPs are included in the Stormwater Management System.

   b. ☐ No. Check why the project is exempt:

      1. ☐ Single-family house

      2. ☐ Emergency road repair

      3. ☐ Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

☐ This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. ☐ USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)

2. ■ Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

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D. Additional Information (cont'd)

3. ☐ Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. ■ List the titles and dates for all plans and other materials submitted with this NOI.

Massachusetts Department of Transportation Highway Division Plan and Profile of Main Street/Route 8
a. Plan Title

Jacobs Engineering
b. Prepared By

Brian Montejunas, P.E.
c. Signed and Stamped by

January 28, 2026
d. Final Revision Date

1" = 20'
e. Scale

See attached NOI Application
f. Additional Plan or Document Title

g. Date

5. ☐ If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. ☐ Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. ☐ Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. ■ Attach NOI Wetland Fee Transmittal Form

9. ■ Attach Stormwater Report, if needed.

E. Fees

1. ☐ Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

#287
2. Municipal Check Number

02/24/2026
3. Check date

eDEP by Card
4. State Check Number

5. Check date

Clayton
6. Payor name on check: First Name

Hutchinson
7. Payor name on check: Last Name

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

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Provided by MassDEP:

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F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant	2. Date: 02/11/2026
3. Signature of Property Owner (if different)	4. Date
5. Signature of Representative (if any)	6. Date: 02/20/2026

For Conservation Commission:
Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:
One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:
If the applicant has checked the “yes” box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

A. Applicant Information

1. Location of Project:

Main Street on Route 8	Becket
a. Street Address	b. City/Town
c. Check number	d. Fee amount

2. Applicant Mailing Address:

Erica	Larner
a. First Name	b. Last Name

Massachusetts Department of Transportation - Highway Division
c. Organization

10 Park Plaza, Room 7360
d. Mailing Address

Boston	MA	02116
e. City/Town	f. State	g. Zip Code

(857) 268-1729	N/A	erica.n.larner@dot.state.ma.us
h. Phone Number	i. Fax Number	j. Email Address

3. Property Owner (if different):

a. First Name	b. Last Name

Massachusetts Department of Transportation - Highway Division
c. Organization

10 Park Plaza
d. Mailing Address

Boston	MA	02116
e. City/Town	f. State	g. Zip Code

h. Phone Number	i. Fax Number	j. Email Address

B. Fees

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

Fee should be calculated using the following process & worksheet. ***Please see Instructions before filling out worksheet.***

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract $12.50. To calculate the city/town share of the fee, divide the total fee in half and add $12.50.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

NOI Wetland Fee Transmittal Form

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 2.e. - 310 CMR 10.53(3)(f)	1	500x1.5	750

Step 5/Total Project Fee: 750

Step 6/Fee Payments:

Total Project Fee: 750

State share of filing Fee: 362.50
a. Total Fee from Step 5
b. 1/2 Total Fee **less $**12.50

City/Town share of filling Fee: 387.50
c. 1/2 Total Fee **plus** $12.50

C. Submittal Requirements

a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
Box 4062
Boston, MA 02211

b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

Receipt

Summary/Receipt

print receipt Exit

Your submission is complete. Thank you for using DEP's online reporting system. You can select "My eDEP" to see a list of your transactions.

DEP Transaction ID: 1993743
Date and Time Submitted: 2/24/2026 1:59:12 PM
Other Email :

Form Name: WPA Form 3 - NOI

Project Location
City/Town Name: BECKET
location: MAIN ST ON ROUTE 8
General Description: THE PROPOSED PROJECT CONSISTS OF REMOVING PORTIONS OF THE EXISTING ROCK SLOPE ALONG MAIN STREET (ROUTE 8), NORTH OF MCNEARNEY ROAD, IN THE TOWN OF BECKET, MA.

Applicant Information
Name
Company: MA DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION
Address: 10 PARK PLZ, BOSTON, MA, 02116

Payment Information
Your fee for the state share is $: 362.50
If you have paid by credit card or ACH, thank you for your payment. If you are paying by check or money order, please send your check (payable to the Commonwealth of Massachusetts) to MassDEP, Box 4062, Boston, MA 02211

Additional Forms Submitted
WPA Form 3 - NOI (Fee Transmittal)(ONLINE ONLY)

Ancillary Document Uploaded/Mailed
Notice of Intent_Ledge Removal for Highway Safety_Becket_signed

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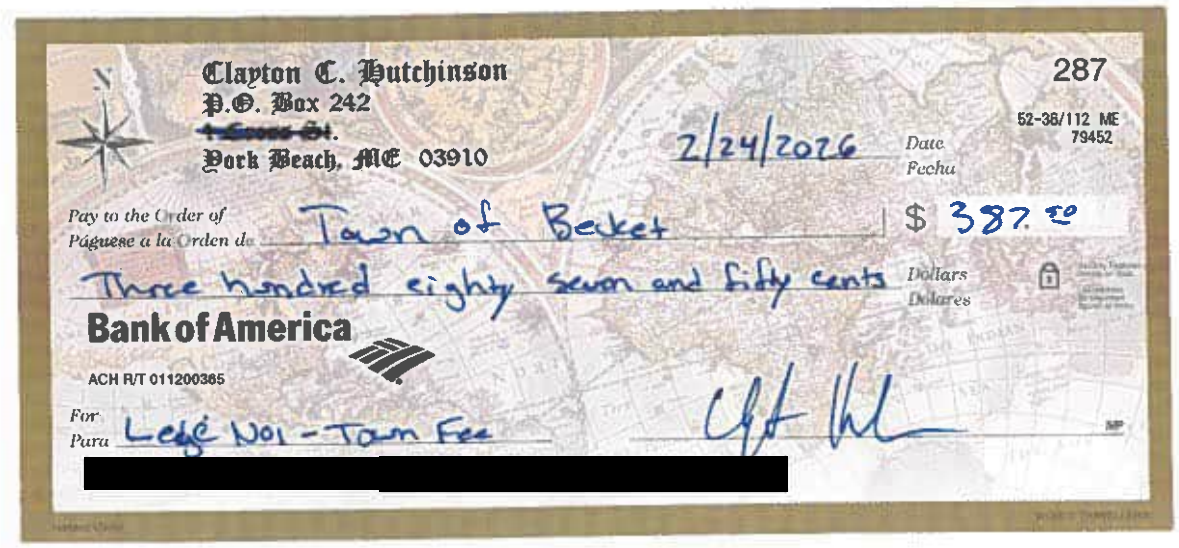


Clayton C. Hutchinson
P.O. Box 242
~~1 Goose Cir.~~
York Beach, ME 03910

287
52-36/112 ME
79452

2/24/2026 Date / Fecha

Pay to the Order of / Páguese a la Orden de: Town of Becket $ 387.50

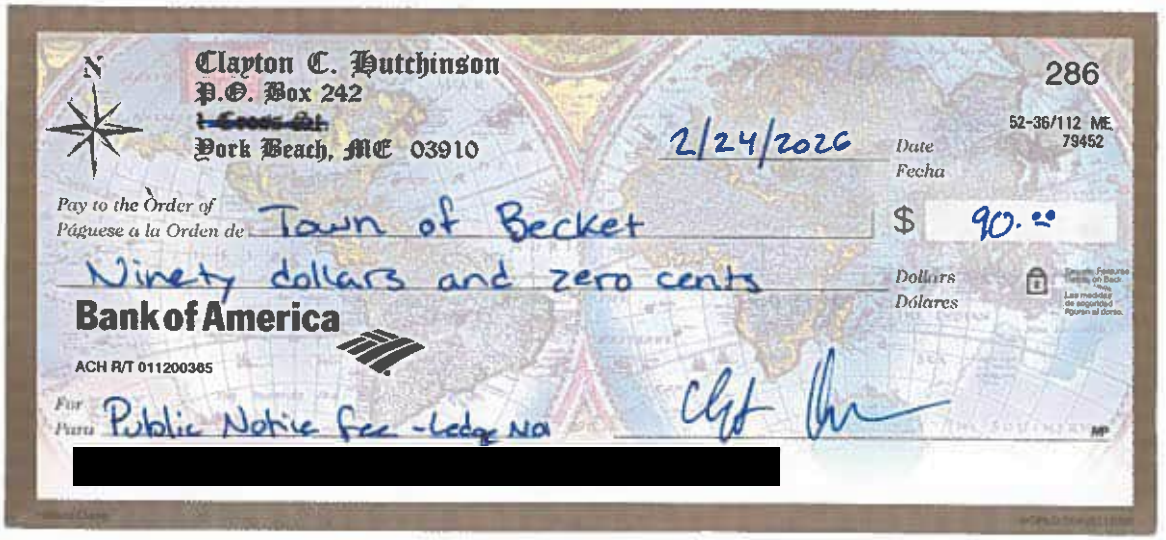
Three hundred eighty seven and fifty cents Dollars / Dólares

Bank of America

ACH R/T 011200365

For / Para: Ledge No1 - Town Fee

[redacted]



Clayton C. Hutchinson
P.O. Box 242
~~1 Goose Cir.~~
York Beach, ME 03910

286
52-36/112 ME
79452

2/24/2026 Date / Fecha

Pay to the Order of / Páguese a la Orden de: Town of Becket $ 90.00

Ninety dollars and zero cents Dollars / Dólares

Bank of America

ACH R/T 011200365

For / Para: Public Notice Fee - Ledge No1

[redacted]

Transaction Overview Trans# 1993743 ID# WPA Form 3 - NOI

Forms | Signature | Payment | Submit

Payment

print Exit

Payment Confirmation

Thank you. Your payment has been received and payment reciept has been emailed.

DEP TRANS # 1993743

Payment Amount: $362.5

Payment Date: 2/24/2026 1:56:51 PM

DEP Payment Confirmation ID: fe1ea24b-d4d2-450e-9f9e-335e04296dd5

Note: Payment received after 3:30pm will not be posted until the next business day.

Next

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Narrative

1. Introduction

On behalf of the Massachusetts Department of Transportation – Highway Division (MassDOT), Jacobs Engineering (Jacobs) is submitting a Notice of Intent (NOI) for the District 1 – Ledge Removal for Highway Safety at Various Locations: Main Street on Route 8 Project. The Project scope will consist of removing portions of the existing rock slope along Main Street (Route 8), north of McNearney Road, in the Town of Becket (**Attachment A - Figure 1**). The rock slope to be set back from the roadway edge is approximately 250-feet-long, along the west side of a curved section of Main Street. The current rock slope is approximately 30-35 feet high, has a 1:1 slope with unfavorable joint orientations, and irregular weathering.

Work associated with the Project will take place within Areas Subject to Jurisdiction under the Massachusetts Wetlands Protection Act and its Regulations at 310 CMR 10.00 (the Act), including Riverfront Area (RA) and the 100-foot Buffer Zone to Bank, and has been designed to meet the applicable Performance Standards to the extent practicable. The Project is being filed under the Limited Project provisions at 310 CMR 10.53(3)(f) and is classified as a redevelopment project under the Massachusetts Stormwater Management Standards.

Proposed work associated with the Project will generally include the following activities which are described in further detail in Section 3:

- Removal of ledge rockface;
- Regrading top of rock slope; and
- Roadway sight distance improvements.

2. Existing Conditions

2.1 Project Site

The roadway of Main Street (Route 8) consists of two 11-foot travel lanes, two 1-foot shoulders, and one 5-foot paved waterway along the west shoulder. Route 8 is also the main north-south travel route for the town. The existing roadway within the Site does not include sidewalks or bicycle facilities. Yokum Brook is located east of Main Street and within 100 feet of the rock slope and the proposed Project limits (**Attachment A - Figure 2**).

There are overhead power and communication lines located along the east side of Main Street and underground utilities consisting of catch basins that are located along the west side of Main Street. The catch basins connect cross culvert pipes spanning under Main Street that discharge along the embankment on the eastern side of the roadway, adjacent to Yokum Brook.

Historically on Main Street between mile markers 27.998 and 28.002, there have been repeated instances of rocks falling and reaching the roadway surface. Additionally, the existing ditch at the toe of the rock slope and the edge of the roadway is ineffective as a catchment area. The purpose of the Project is to improve safety for motorists. The Project purpose will be accomplished via ledge removal adjacent to the roadway, creation of a rock catchment area to reduce the risk of rocks and natural debris from falling on the roadway surface, and associated improvement in roadway sightlines.

2.2 Wetland Resource Areas

A site inspection was conducted by Jacob's Wetland Scientists on April 7th, 2023 and April 19, 2024 to identify and delineate the boundary of Resource Areas on and in the immediate vicinity of the Project limits. Resource Area boundaries were identified and delineated in accordance with methods developed by the Massachusetts Department of Environmental Protection's *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act*, dated 1995, as well as definitions set forth in the state Wetland Regulations, 310 CMR 10.00.

Existing Wetland Resource Areas within, or immediately adjacent to, the Site include a perennial stream (Yokum Brook), located to the east of Main Street, and its associated Bank and 200-foot Riverfront Area. In addition, one

Isolated Vegetated Wetland (IVW) was identified adjacent to the Project Limits, however, it is not Subject to Jurisdiction under the Act. A description of Areas Subject to Protection and Jurisdiction under the Act is included in **Attachment B**.

2.2.1 Riverfront Area

The 200-foot Riverfront Area extends from the Bank of Yokum Brook westward across the Project Site. Route 8 transects the RA within the Inner Riparian Zone parallel to Yokum Brook, with a steep vegetated slope immediately to the east to Yokum Brook and a sparsely vegetated, steep ledge outcrop immediately to the west. Above the ledge outcrop is a forested area extending west through the remainder of the Outer Riparian Zone.

2.2.2 Buffer Zones

The Project is located within the 100-foot Buffer Zone to the Bank of Yokum Brook; however, the portions of the Project limits within the Buffer Zone consist primarily of existing paved roadway and roadway shoulders.

2.3 NHESP-Mapped Habitat and Other Sensitive Areas

According to the latest MassGIS data, the Project limits are not located within or adjacent to NHESP mapped Priority Habitat of Rare Species or Estimated Habitat of Rare Wildlife. Additionally, the Project is near Yokum Brook, which is a Coldwater Fishery; however, there are no anticipated direct impacts to Land Under Water. The Project is not located within or near an Area of Critical Environmental Concern (ACEC) or within 200 feet of mapped Certified or Potential Vernal Pools.

According to the FEMA Flood Insurance Rate Maps for Becket (Map Number 2500180006A effective 08/05/1991), the project limits are not located in any regulated flood zones.

The Project is not located within or adjacent to a Zone I, Zone II, or IWPA, any Surface Water Protection Zones associated with a public water supply, or Outstanding Resource Waters (ORW) (**Attachment A – Figure 5**).

3. Proposed Conditions

The activities described in the following paragraphs will be conducted to support the Project in addressing the existing operational and safety deficiencies.

The Project is proposing to move the face of the rock away from the western travel edge to reduce the potential for dislodged material from entering the travel way, regrade the overburden at the top of the rock slope, improve roadway sight distance, and minimize hazards for motorists.

The width of the roadway will be maintained in the proposed conditions where only the existing 5-foot paved drainage swale along the west side of the roadway will be replaced with a 5-foot paved shoulder and a sloped granite curb. It is anticipated that the rock slope will be cut back from the edge of roadway approximately 14 feet to provide a rock catchment area with a noncompacted gravel surface. The establishment of the rock catchment area will serve the purpose of both mitigating the risk of falling debris from entering the roadway as well as improving the sightline of motorists travelling around the bend in the roadway. Sidewalks and bicycle lanes are not proposed for this Project.

To minimize the risk of rocks falling from above the ledge outcrop, a 12 to 17 ft bench will be carved into the top of the rock ledge above the catchment area. A new cast-in-place retaining wall will be constructed and secured by grouting anchor holes and drilling soil nails 20-feet deep into the ledge to prevent the rock face from dislodging into the roadway. Spoils from the outcrop grading activities will be taken off-site and disposed of in accordance with local, state, and federal laws. Access to the ledge outcrop will be determined by the Contractor as necessary to complete the work.

The proposed roadway surface within the limits of work will be milled and overlaid with Hot Mix Asphalt. Existing drainage patterns and infrastructure will remain unchanged in the proposed conditions. No new pavement or

impervious surfaces are to be added to the proposed conditions. The existing paved waterway will be removed and replaced as a standard roadway shoulder. Additionally, one catch basin, located in the southwestern portion of the Project limits, will be replaced with a deep sump catch basin. The existing outfalls on the east side of Main Street will be maintained, and no new outfalls are planned for this Project.

Existing drainage patterns and infrastructure will remain unchanged in the proposed condition and there will be no new pavement or impervious surfaces added to the proposed condition. The existing outfalls on the east side of Main Street will be maintained, and no new outfalls are planned for this project.

The anticipated construction equipment that will be used to complete the proposed work activities include excavators, loaders, drill-rigs, and dump trucks. The Project work locations will be accessed via Main Street (Route 8) and existing easements extending from Route 8. The final construction equipment, access routes, and staging and laydown areas will ultimately be determined by the Contractor and shall include perimeter sediment barriers and stabilization Best Management Practices consistent with Policy Directive P-22-001 *Off-Site Stockpiling of Soil* from MassDOT Construction Projects.

4. Work Within Jurisdictional Resource Areas

The proposed work will result in unavoidable impacts to Areas Subject to Protection and Jurisdiction under the Act. The Project has been designed to minimize impacts to Resource Areas to the Maximum Extent Practicable.

Work within Resource Areas generally consists of installation of erosion controls and modifications to existing structures, along with regrading and removal of stone ledge. The Project will avoid direct impacts to Land Under Water, Bank, and Vegetated Wetlands.

4.1 Riverfront Area (310 CMR 10.58)

The Site encompasses approximately 58,346 sf of RA, 25,897 sf of which will be impacted by the proposed work. All impacts are associated with improvements and/or replacement of existing roadway, sidewalks, and drainage improvements which qualify under the Limited Project provision at 310 CMR 10.53(3)(f).

The existing roadway and waterway drainage encompasses 9,705 sf of existing degraded area within the 100-foot Inner Riparian Zone of the RA. The project proposes to replace these degraded areas in-kind within the same footprint, resulting in no net change in degraded surface area. However, creation of the gravel rock catchment area to the west of the roadway will result in 5,993 sf of new permanently disturbed impacts within the 100-foot Inner Riparian Zone. Additionally, the removal of rock ledge and the associated clearing and grubbing of vegetation will result in a total of 10,199 sf of temporary alterations to undisturbed RA, of which 3,436 sf is located within the Inner Riparian Zone. Temporarily impacted areas will be restored to preconstruction conditions to the maximum extent practicable. Areas of temporary disturbance will be restored with loam and the approved seed mixture where applicable, and the rock ledge face allowed to renaturalize. **Table 1** below summarizes the proposed impacts to the Riverfront Area.

Table 1. Riverfront Area Impacts

Permanent Impacts	Existing (sf)	Proposed (sf)	Net Change (sf)
Inner Riparian Degraded	9,705	9,705	0 (in-kind with existing)
Inner Riparian Disturbed	0	5,993	+5,993
Outer Riparian Degraded	0	0	0
Outer Riparian Degraded	0	0	0
TOTAL RA PERMANENT IMPACTS			**5,993**
Temporary Impacts	**Proposed (sf)**	**To Be Restored**	**Net Change (sf)**
Inner Riparian Temporary	3,436	3,436	+ 3,436
Outer Riparian Temporary	6,763	6,763	+ 6,763
TOTAL RA TEMPORARY IMPACTS			**10,199**
Total Riverfront Impacts			
New Permanent Impacts			+5,993
New Temporary Impacts			+10,199
Total New Impacts (Temporary and Permanent)			**+16,192**

4.2 Work Within Buffer Zones

Work proposed in Buffer Zone will primarily occur within the existing roadway footprint and impervious surfaces; however, some impacts will occur within previously undisturbed areas. Activities within the Buffer Zone to the Bank of Yokum Brook include the milling and repaving of the existing roadway, conversion of the paved waterway drainage feature to paved road shoulder, and installation of the gravel rock catchment area.

Temporarily impacted Buffer Zone will be restored to preconstruction conditions and exposed soil will be restored with the application of loam and the approved seed mixture where applicable.

5. Mitigation Measures

Measures will be provided to mitigate impacts to RA and the Buffer Zone to the Bank of Yokum Brook. Impacts to Resource Areas will be mitigated through the use of erosion and sediment control best management practices (BMPs) and restoring temporarily impacted areas.

5.1 Erosion and Sedimentation Controls

Soil erosion and sedimentation control have been considered in the design and construction planning process of the proposed Project. The soil erosion and sedimentation control measures will be installed prior to the initiation of construction activities and maintained throughout construction. Silt Sack type filters will be installed in all catch basins within and adjacent to the limit of work. Compost filter tubes or a suitable equivalent are proposed at the limits of disturbance downgradient of the limit of work. Once established, these measures will be monitored daily until construction activities are complete. The erosion control barrier line will serve as the strict limits of disturbance adjacent to the slope above Yokum Brook. No alterations, including vegetative clearing or surface disturbance, will occur beyond this line. The limits of clearing, grading, and disturbance will be kept to a minimum within the proposed area of construction. All areas outside of these limits, as depicted on the Project plans, will be undisturbed. On the event that a significant rainstorm occurs, all sedimentation control measures will be inspected and replaced as needed. Soil stockpiles that remain unused for 14 or more days will be covered or temporarily stabilized.

5.2 Resource Area Restoration

Permanent impacts to Resource Areas will be minimized to the maximum extent practicable by restoring temporarily impacted areas in-kind. All temporary Buffer Zone and RA impacts resulting from rock ledge access

and removal will be restored by loaming and seeding exposed soils and allowing the new exposed rock faces to naturalize. Replanting trees upon the rock face is infeasible due to the lack of natural topsoil upon the ledge.

6. Stormwater Management

A Stormwater Management Report has been completed and submitted with this NOI (**Attachment C**). No new impervious surfaces and no new stormwater discharges have been proposed with this project. The Stormwater Management Standards have been met to the maximum extent practicable.

The existing drainage features of the roadway will be improved through the installation of a deep sump catch basin in place of the existing catch basin in the road. Since no additional impervious surfaces are proposed, peak runoff is anticipated to be similar to existing conditions. Additionally, the rock catchment area will be sloped away from the roadway to direct stormwater from the proposed ledge improvements away from the roadway drainage features. The rock catchment area may also serve as an area of infiltration to the extent that water can infiltrate through the ledge subsurface.

The deep sump catch basin proposed to replace the existing storm drain in the roadway will provide pretreatment improvements to the existing roadway surface runoff over existing conditions. The long-term Operation and Maintenance of the catch basin will be incorporated with the rest of the roadway drainage features under MassDOT's care and custody. As no new discharges and no new impervious surfaces are proposed under this scope, the applicable Standards have been met to the maximum extent practicable.

7. Alternatives Analysis

As a Redevelopment Project within the riverfront area under 310 CMR 10.58(5), a Limited Project under 310 CMR 10.53(f), and due to the urgency of the Project, which aims to protect motorists from the potential hazards created by the unstable rock ledge adjacent to the roadway, only two alternatives were explored.

> *Alternative 1*: No-Build. This alternative is not desired to due to the ongoing safety hazards of rocks and natural debris currently falling into the active roadway. With the existing ledge face so close to the roadway, there is no catchment area for rocks and debris to land to avoid the travel lanes. Furthermore, due to the bend in the road at the location of the ledge, there is extremely limited sightline for motorists to identify fallen rocks and debris prior to striking distance.
>
> *Alternative 2*: Ledge removal. This alternative is preferred as it mitigates the risk of falling rocks landing within the roadway and increases sightlines of motorists traversing the bend in the road. The project, as proposed, establishes a rock catchment area to redirect and contain falling rocks and debris before entering the travel lanes, as well as increases sightlines around the bend to allow motorists greater time to identify unexpected obstructions and oncoming traffic.

Alternative 2, as the preferred alternative, alleviates the existing safety hazards as well as provides marginal improvements to stormwater runoff from the existing roadway over the existing conditions.

8. Regulatory Compliance

8.1 Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00)

The Project is subject to both the Limited Project provisions and the performance standards for redevelopment within previously developed RA under the Act.

8.1.1 Limited Project

Portions of the Project meet the definition of a Limited Project under the Act. The Regulations at 310 CMR 10.53(3)(f) include:

(f) Maintenance and improvement of existing public roadways, but limited to widening less than a single lane, adding shoulders, correcting substandard intersections, and improving inadequate drainage systems.

The portions of the Project that qualify as a Limited Project include the permanent alterations associated with roadway resurfacing and safety improvements. The construction of the rock catchment shoulder area will result in 5,993 sf of new permanent impacts for the purpose of alleviating roadway hazards and improving the sightline for motorists.

8.1.2 Work In Previously Developed Riverfront Area (310 CMR 10.58(5))

The Project has been designed to comply with the General Performance Standards for Riverfront Area Redevelopment to the maximum extent practicable. The Project Scope primarily improves upon existing degraded areas within the RA, particularly for roadway surface repaving and establishment of the rock catchment area; therefore, the permanent RA impacts are subject to the provisions of 310 CMR 10.58(5). Compliance with these standards has been met to the maximum extent practicable as follows:

10.58(5)(a) through (d): The proposed degraded areas within the RA match the existing degraded areas in-kind. There will be no expansion or relocation of impervious surfaces over the existing conditions. A Stormwater Management Report has been provided, and the Stormwater Management Standards have been met to the maximum extent practicable, as the Standards apply. Improvements over existing conditions include the addition of a deep sump catch basin to improve the stormwater quality shedding from the roadway from the existing catch basin. Additionally, all work proposed by this project is located further from the Bank of Yokum Brook than existing conditions.

10.58(5)(e): Existing and proposed degraded and disturbed portions of the site exceed 10% of the total RA. While the proposed degraded surface areas match the location and extent of the exiting degraded surface areas, the project proposes an additional 5,993 sf of permanent disturbed area for the rock catchment area along with proposed temporary impacts. The rock catchment area has been designed to remain pervious as a crushed stone area underlain by special borrow. The catchment area has also been designed to the minimum width required to alleviate hazards and improve sightlines. This performance has been met to the maximum extent practicable, under the provisions of 310 CMR 10.53(3)(f) as a Limited Project.

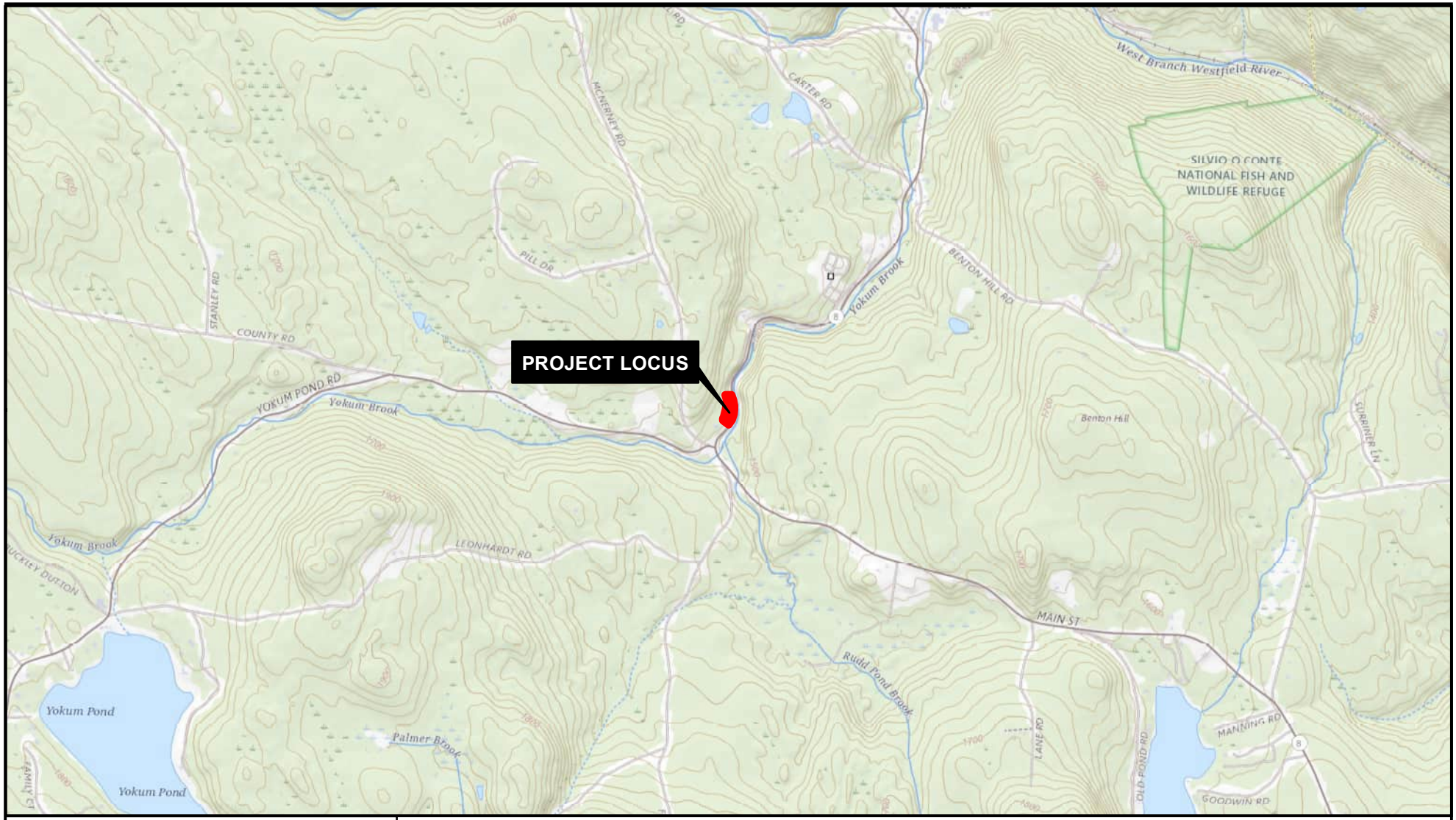
8.1.3 Buffer Zone to Bank of Yokum Brook

The 100-foot Buffer Zone to Bank is subject to jurisdiction as described in 310 CMR 10.02(2)(b) but does not have specified performance standards. The work proposed within the roadway for the purposes of pavement resurfacing qualify as a Minor Activity under 310 CMR 10.02(2)(b)2.f. The additional rock catchment area adjacent to the roadway will not result in additional impervious surfaces, will not substantially alter the existing drainage patterns of the roadway, and will not introduce any new stormwater conveyances to the Resource Areas. The rock catchment area and temporary grading activities, with the incorporation of construction-phase erosion control measures, will not result in any reduction in function of the Buffer Zone over existing conditions.

9. Summary

The proposed Main Street (Route 8) Ledge Removal Project will improve traffic safety along the roadway corridor within Becket while avoiding Resource Area impacts where feasible, minimizing unavoidable impacts, and mitigation for any impacts required to meet the Project purpose. The Project necessitates unavoidable impacts to the RA due to its location adjacent to a perennial steam. A portion of the work activities qualify as a Limited Project under the Act. The remaining areas of RA impact are redevelopment which meet the performance standards to the maximum extent practicable. MassDOT respectfully requests that the Becket Conservation Commission find these measures adequately protective of the interests of the Act in the Order of Conditions approving the work as described in the NOI and accompanying plans.

Attachment A – Figures



Source: USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS Road Data; Natural Earth Data; U.S. Department of State Humanitarian Information Unit; and NOAA National Centers for Environmental Information, U.S. Coastal Relief Model. Data refreshed August, 2021.

Prepared for: massDOT Highway Division

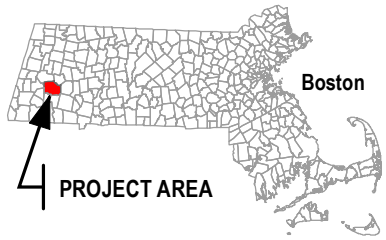
Prepared by: Jacobs

FIGURE 1 - USGS MAP

District 1 - Ledge Removal for Highway Safety at Various Locations
Main Street on Route 8
Becket, Berkshire County, Massachusetts

APRIL 2025
609506

FIGURE
1



1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

Source: MassGIS Topographic Quadrangle Images (2001); MassGIS, Commonwealth of Massachusetts, Information Technology Division

Prepared for: massDOT Highway Division

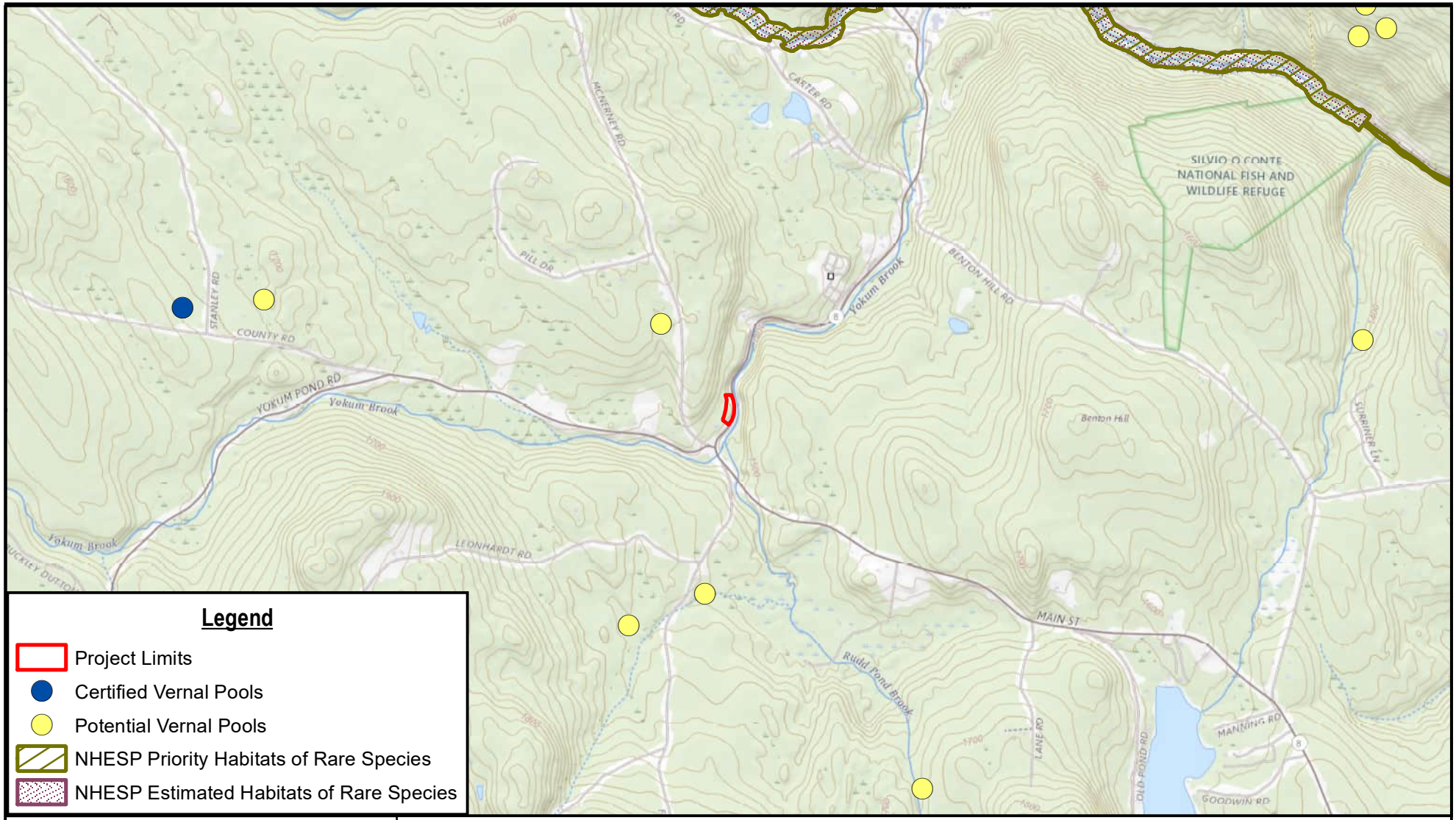
Prepared by: Jacobs

FIGURE 2 - AERIAL MAP

District 1 - Ledge Removal for Highway Safety at Various Locations
Main Street on Route 8
Becket, Berkshire County, Massachusetts

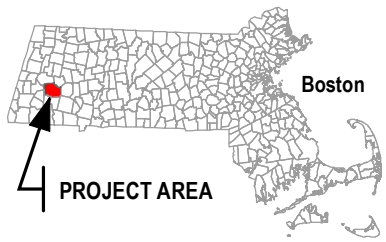
APRIL 2025
609506

FIGURE
2



Legend

- Project Limits
- Certified Vernal Pools
- Potential Vernal Pools
- NHESP Priority Habitats of Rare Species
- NHESP Estimated Habitats of Rare Species



1 inch = 2,000 feet

0 1,000 2,000 4,000 Feet

Source: MassGIS Topographic Quadrangle Images (2001); MassGIS, Commonwealth of Massachusetts, Information Technology Division

Environmental Resources Reviewed:
NHESP Potential Vernal Pool, NHESP Certified Vernal Pool, NHESP Priority Habitats of Rare Species, NHESP Estimated Habitats of Rare Species

Prepared for: massDOT Highway Division

Prepared by: Jacobs

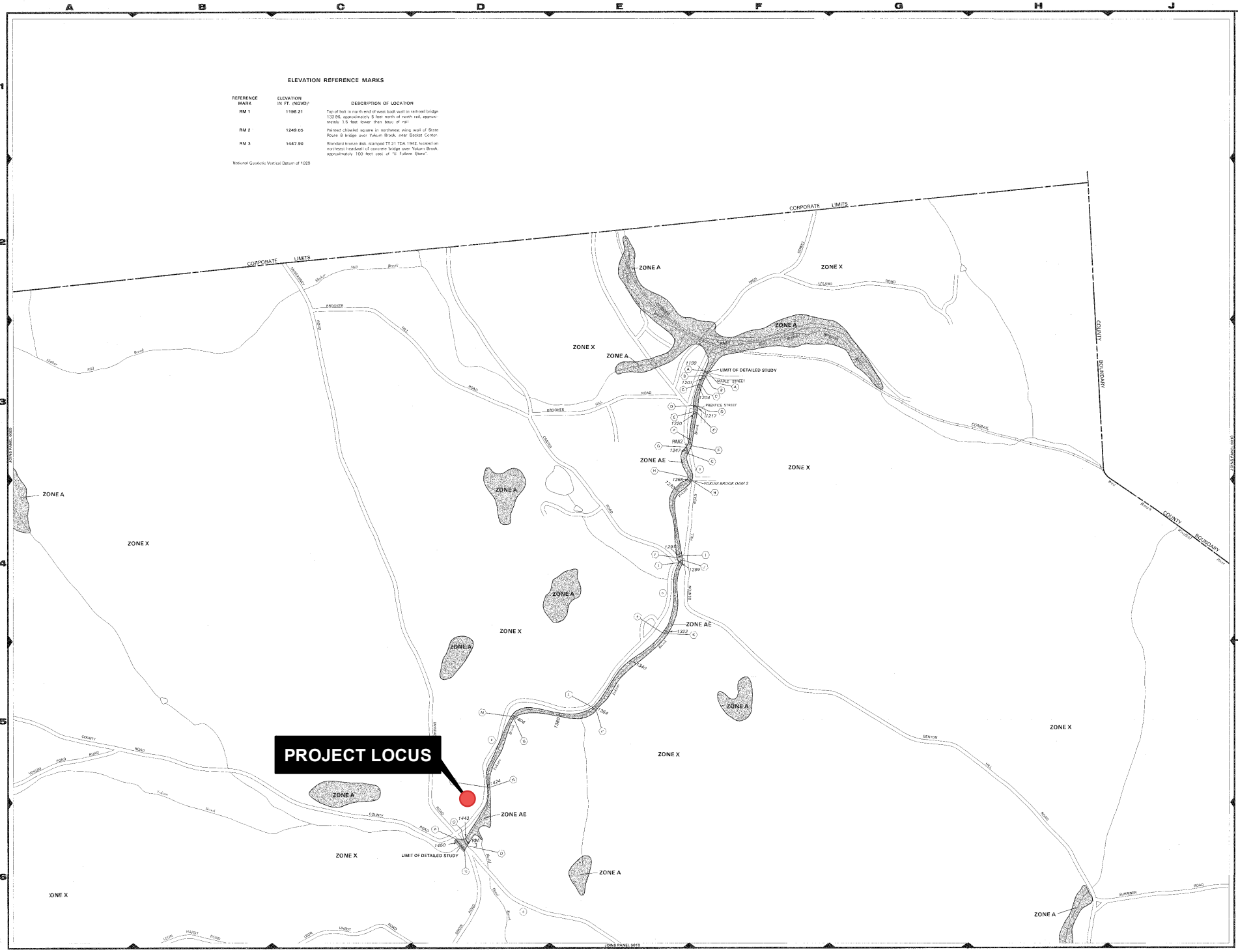
FIGURE 3 - NHESP MAP

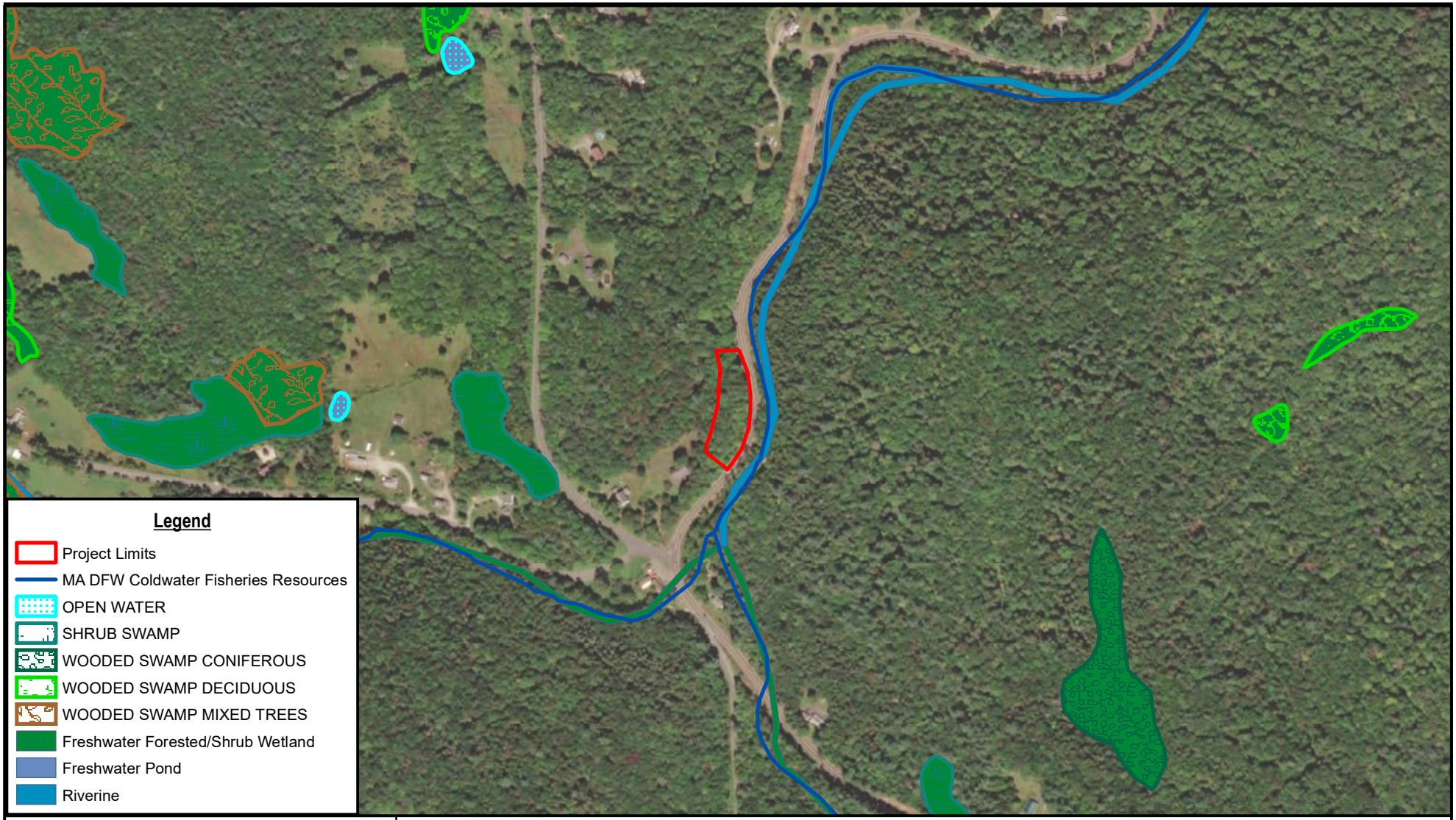
District 1 - Ledge Removal for Highway Safety at Various Locations
Main Street on Route 8
Becket, Berkshire County, Massachusetts

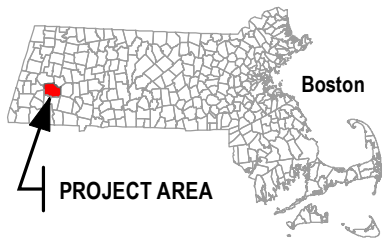
APRIL 2025
609506

FIGURE
3

FIGURE 4 - FIRM MAP







1 inch = 500 feet

0 250 500 1,000 Feet

Source: MassGIS Topographic Quadrangle Images (2001); MassGIS, Commonwealth of Massachusetts, Information Technology Division

Resource Areas Reviewed:
National Wetlands Inventory, MassDEP Wetlands, AUL Points, Outstanding Resource Waters, Areas of Critical Environmental Concern, DFW Coldwater Fisheries, Zone I, II, & IWPA Protection Areas, Chapter 91 Jurisdiction, Surface Water Supply Protection Areas

Prepared for: massDOT Highway Division

Prepared by: Jacobs

FIGURE 5 - CRITICAL RESOURCES MAP

District 1 - Ledge Removal for Highway Safety at Various Locations
Main Street on Route 8
Becket, Berkshire County, Massachusetts

APRIL 2025
609506

FIGURE
5

Attachment B – Wetland Delineation Report

Jacobs

Delineation Report

Subject:	**Wetland Delineation Report**	**Project Name:**	District 1 – Ledge Removal for Highway Safety at Various Locations
Attention:	Melissa Lenker Massachusetts Department of Transportation – Highway Division Wetlands & Water Resources Supervisor	**Project Number:**	609506
Prepared By:	Craig Wood, Jacobs		
Date:	December 6, 2024		
Attachments:	Figures (under a separate header) Photographic Log USACE Data Forms Custom Soil Report for Berkshire County, MA		

On April 7th, 2023 and April 19th, 2024, Jacobs conducted resource area boundary delineations along Main Street (Route 8), north of McNearney Road, in the Town of Becket, Massachusetts (Project Site). This report describes wetland resource areas subject to protection under the Massachusetts Wetlands Protection Act (M.G.L. Chapter 131 Section 40 - the Act), the federal Clean Water Act CFR (33 U.S.C. §1251 et seq (1972)), and the Massachusetts Clean Waters Act (MGL Chapter 21 Section 26-53), that exist on or are nearby the Site and the methodology used to delineate their boundaries. The Town of Becket does not have a Wetlands Protection Bylaw at this time.

Site Description

The proposed Project consists of removing portions of the existing rock slope along Main Street (Route 8), north of McNearney Road, in the Town of Becket (Project) (**Figure 1**). The rock slope has been evaluated as part of a geotechnical investigation and is proposed to be set back from the west side of a curved section of Main Street for a linear distance of approximately 325 feet (Project length). The current rock slope is approximately 30-35 feet high, has a 1:1 slope with unfavorable joint orientations, and irregular weathering.

The roadway consists of two 11-foot travel lanes, one 1-foot shoulder on the eastern edge, and one 5-foot depressed shoulder along the western edge. The existing roadway does not include sidewalks or bicycle facilities. Yokum Brook is located east of Main Street and is within 100-feet of the rock slope and the proposed Project limits (**Figure 2**).

There are overhead power and communication lines located along the east side of Main Street and underground utilities consisting of catch basins that are located along the west side of Main Street. The catch basins include cross culvert pipes spanning under Main Street that discharge along the embankment on the eastern side of the roadway, adjacent to Yokum Brook.

According to the USDA Natural Resources Conservation Service – Soil Survey, mapped soils on the Site and in the vicinity of the Site are classified as Lyman-Tunbridge association (15 to 60 percent slopes, extremely stony) and Tunbridge-Lyman association (3 to 15 percent slopes, extremely stony). Our field work generally confirmed the soil types adjacent to the Yokum Brook Riverbank. The Custom Soil Resource Report for Berkshire County, Massachusetts is attached.

State jurisdictional resource areas identified on and nearby the Site include bank (to perennial stream) and Riverfront Area (RA). The MassGIS database was used as the initial step in identifying critical areas on or

within proximity of the Site that would be examined more closely if construction activities are proposed (**Figures 3 to 5**). The table below describes selected environmentally critical categories as determined through MassGIS.

Table 1. Selected MassGIS Environmental Data Layers

Mapped Resources On or Within Proximity to the Site	Yes	No
Area of Critical Environmental Concern		X
NHESP Certified Vernal Pool		X
NHESP Potential Vernal Pool		X
NHESP Estimated Habitat of Rare Wildlife		X
NHESP Priority Habitat of Rare Species		X
Outstanding Resource Waters		X
FEMA Flood Zone		X – within 200' of Flood Zone AE
Surface Water Protection Area		X
Interim Wellhead Protection Area		X
Zone I and/or II Wellhead Protection Areas		X
Chapter 91 Jurisdiction		X
DFW Coldwater Fisheries		X – within 200'

Source: MassGIS

Jurisdictional Wetland Resource Areas – Massachusetts Wetlands Protection Act

Site inspections were conducted by Jacobs Wetland Scientists on April 7th, 2023 and April 19th, 2024 to identify and delineate the boundary of existing wetland resource areas on and in the immediate vicinity of the Site. Resource area boundaries were identified and delineated in accordance with methods developed by the Massachusetts Department of Environmental Protection's Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act, dated 1995 (the Act), as well as definitions set forth in the Wetland Regulations, 310 CMR 10.00. Several areas subject to protection under the Act exist on the Site and are described below. While FEMA has established a 100-year floodplain (Bordering Land Subject to Flooding) for Yokum Brook, the limits do not extend above the roadway embankment and is therefore outside the limit of any proposed work activities.

Bank (to perennial stream) – 310 CMR 10.54

Jacobs identified a resource bank to a perennial stream nearby the Site in association with the Yokum Brook, which is a Coldwater Fishery resource and within the IWP Priority #4: Hudson watershed.

According to 310 CMR 10.54(2), the definition of a bank is the portion of the land surface which normally abuts and confines a water body, occurring between a water body and a vegetated bordering wetland and adjacent floodplain, or, in the absence of these, it occurs between a water body and an upland. The upper boundary of a bank is the first observable break in the slope or the mean annual flood level, whichever is lower.

Table 2. Bank Boundary Description

Flag Series	Stream Name	Description / Notes
OHW Flags OHW-1 to OHW-18	Yokum Brook	Narrow primarily mixed forested bank transitioning to steep rip-rapped roadway embankment. Overstory includes red maple (*Acer rubrum*), sugar maple (*Acer saccharum*), green ash (*Fraxinus pennsylvanica*), Eastern hemlock (*Tsuga canadensis*), American elm (*Ulmus americana*), yellow birch (*Betula alleghaniensis*) and white pine (*Pinus strobus*). The stream is a steeply sloped step pool/cascade reach with exposed bedrock and cobble comprising the majority of the streambed. According to Streamstats, Yokum Brook, just downstream of the confluence with Rudd Pond Brook has a contributing watershed of approximately seven square miles.

Riverfront Area – 310 CMR 10.58

According to its definition at 310 CMR 10.58(3), the boundary of RA is the area of land between a River's mean annual high-water line measured horizontally outward from the River and a parallel line located 200 feet away.

Yokum Brook is a perennial stream (River) with an associated 200-foot RA from the Ordinary High Water Mark (OHW) boundary. A River is any natural flowing body of water that empties to any ocean, lake, pond, or other River flowing throughout the year and is shown as perennial on the current United States Geological Survey or more recent map provided by the Department. The OHW boundary on the Site is coincident with the bank boundary and therefore, RA should be measured 200 feet horizontally from the bank flags, where adjacent to the waterways.

Jurisdictional Wetland Resource Areas – Town of Becket

The Town of Becket does not have a Wetlands Protection Bylaw. As such, there are no additional jurisdictional areas protected.

Jurisdictional Wetland Resource Areas – Federal Clean Water Act (Section 404)

The stream located nearby the Site is defined as "waters of the United States," and is therefore subject to the federal Clean Water Act, 33 U.S.C. §1251 et seq (1972). The boundary to "waters of the United States" is the vegetated wetlands boundary, or, in the absence of vegetated wetlands, the OHW for non-tidal rivers and streams, as specified at 33 CFR §328.4.

In addition to the perennial stream adjacent to the Project Site, an isolated wetland was delineated which may be Subject to Jurisdiction under Section 404 of the Clean Water Act. The isolated depressional wetland feature, which is set back from the top of the ledge, is not large enough to be protected under the Wetlands Protection Act as Isolated Land Subject to Flooding where it does not confine standing water to a volume of at least ¼ acre-feet nor to an average depth of at least six inches per 310 CMR 10.57(2)(b). There were no obligate vernal pool species observed in the isolated depression during a Spring 2024 survey and there is no work proposed within or near the isolated wetland. Additionally, there is no buffer zone afforded to an isolated vegetated wetland under federal jurisdiction.

This wetland was delineated, and field characterized as an isolated vegetated wetland with pink survey flagging IW-1 to IW-15. The small wetland lies below a forested canopy consisting of sugar maple (Acer saccharum), green ash (Fraxinus pennsylvanica), yellow birch (Betula alleghaniensis) and white pine (Pinus strobus), and apple (*Malus* sp.). Other vegetation included tussock sedge (*Carex stricta*), sensitive fern (*Onoclea sensibilis*), bracken fern (*Pteridium aquilinum*), and intermediate woodfern (*Dryopteris intermedia*). Standing water or saturation to the ground surface was found throughout the isolated wetland. The maximum water depth was approximately 8 inches. Soils were observed to be a shallow loamy sand

with a 10YR 2/2 matrix color in the A-horizon (to a depth of 8") and a cobbly loamy sand with a 2.5Y 4/2 matrix (90%) and 10YR 4/4 redox (10%) color in the B-horizon (to a depth of 21"). Soils meet sandy mucky mineral (S1) and Redox Dark Surface (F6) hydric soil criteria.

Jurisdictional Wetland Resource Areas – Massachusetts Clean Waters Act (Section 401)

The limit of jurisdiction under Massachusetts Clean Waters Act (Section 401), as specified in 314 CMR 9.00, is the limit of Section 404 jurisdiction under the federal Clean Water Act which includes Yokum Brook below the OHW mark, as well as the isolated wetland. Exceedances of the jurisdictional threshold under 314 CMR 9.00 require filing for a Water Quality Certification under Section 401.

Findings and Recommendations

Jacobs has identified areas Subject to Protection and/or Jurisdiction under the Massachusetts Wetlands Protection Act, the federal Clean Water Act, and the Massachusetts Clean Waters Act, on or within 100 feet of the Site and have delineated the boundaries of Bank and Isolated Vegetated Wetlands that exist nearby the Site.

Jacobs

PHOTOGRAPHIC LOG

Site Location: Main Street on Route 8, Becket, MA | **Project No.** 609506

Photo No.	Date:
1	04/07/23

Direction Photo Taken: North

Description: View of unstable rock ledge alongside Main Street (Route 8).

Photo No.	Date:
2	04/07/23

Direction Photo Taken: North

Description: View of unstable rock ledge alongside Main Street (Route 8).

Jacobs

PHOTOGRAPHIC LOG

Site Location: Main Street on Route 8, Becket, MA | **Project No.** 609506

Photo No.	Date:
3	04/07/23

Direction Photo Taken:
Northeast

Description:
View of Yokum Brook from Main Street (Route 8).

Photo No.	Date:
4	04/07/23

Direction Photo Taken:
Northwest

Description:
View of Main Street (Route 8) from the banks of Yokum Brook.

Jacobs

PHOTOGRAPHIC LOG

Site Location: Main Street on Route 8, Becket, MA | **Project No.** 609506

Photo No.	Date:
5	04/07/23

Direction Photo Taken:
Southeast

Description:
View of Yokum Brook from Main Street (Route 8).

Photo No.	Date:
6	04/07/23

Direction Photo Taken:
West

Description:
View of a MassHistoric Commission inventoried property (BEC.24) known as the Mulholland's Stagecoach Hill House which is approximately 365 feet southwest from the project limits.

Jacobs

PHOTOGRAPHIC LOG

Site Location: Main Street on Route 8, Becket, MA | **Project No.** 609506

Photo No.	Date:
7	04/19/24

Direction Photo Taken:
North

Description:
View of hydric soil within an isolated wetland set back from the top of the ledge.

Photo No.	Date:
8	04/19/24

Direction Photo Taken:
West

Description:
View of an isolated wetland set back from the top of the ledge.

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Route 8 Ledge Removal City/County: Becket/Berkshire Sampling Date: 4/19/2024

Applicant/Owner: MassDOT State: MA Sampling Point: WET

Investigator(s): C. Wood Section, Township, Range:

Landform (hillside, terrace, etc.): isolated depression Local relief (concave, convex, none): concave Slope (%): 1-3

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42 18'57.07"N Long: 73 5'35.40"W Datum: NA

Soil Map Unit Name: Lyman NWI classification: PFO1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area**	
Hydric Soil Present?	Yes X	No ____	**within a Wetland?**	**Yes** X **No** ____
Wetland Hydrology Present?	Yes X	No ____	If yes, optional Wetland Site ID:	

Remarks: (Explain alternative procedures here or in a separate report.)
Isolated vegetated wetland, no vernal pool dependent species observed on this date. Depression too small to be jurisdictional as Isolated Land Subject to Flooding per Mass WPA

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches):	____
Water Table Present?	Yes X	No ____	Depth (inches):	4"
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches):	surface

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: WET

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	15	Yes	FACU
2. *Betula alleghaniensis*	10	Yes	FAC
3. *Fraxinus pennsylvanica*	5	No	FACW
4.			
5.			
6.			
7.			
	30	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Carpinus caroliniana*	5	Yes	FAC
2. *Fagus grandifolia*	10	Yes	FACU
3. *Fraxinus pennsylvanica*	5	Yes	FACW
4.			
5.			
6.			
7.			
	20	=Total Cover	
Herb Stratum (Plot size: 1m)			
1. *Carex stricta*	25	Yes	OBL
2. *Pteridium aquilinum*	15	Yes	FACU
3. *Onoclea sensibilis*	5	No	FACW
4. *Dryopteris intermedia*	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	50	=Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 57.1% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	15	x 2 =	30
FAC species	20	x 3 =	60
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	100	(A)	275 (B)

Prevalence Index = B/A = 2.75

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: WET

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					Mucky Sand	
4-8	10YR 2/2	100					Loamy/Clayey	many fine roots
8-18	10YR 3/2	95	10YR 4/4	5	C	M	Loamy/Clayey	loamy sand w/ cobbles
18-21	2.5YR 4/2	90	10YR 4/4	10	C	M	Loamy/Clayey	to refusal/bedrock

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- X Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Route 8 Ledge Removal City/County: Becket/Berkshire Sampling Date: 4/19/2024

Applicant/Owner: MassDOT State: MA Sampling Point: UP

Investigator(s): C. Wood Section, Township, Range:

Landform (hillside, terrace, etc.): isolated depression Local relief (concave, convex, none): concave Slope (%): 1-3

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42 18'57.07"N Long: 73 5'35.40"W Datum: NA

Soil Map Unit Name: Lyman NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area**
Hydric Soil Present?	Yes ____	No X	**within a Wetland?** **Yes** ____ **No** X
Wetland Hydrology Present?	Yes ____	No X	If yes, optional Wetland Site ID:

Remarks: (Explain alternative procedures here or in a separate report.)
Isolated vegetated wetland, no vernal pool dependent species observed on this date. Depression too small to be jurisdictional as Isolated Land Subject to Flooding per Mass WPA

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15)
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C6)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ Microtopographic Relief (D4)
- ____ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes X	No ____	Depth (inches): 18 "

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants. Sampling Point: UP

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharum*	60	Yes	FACU
2. *Betula alleghaniensis*	10	No	FAC
3. *Fraxinus pennsylvanica*	5	No	FACW
4. *Prunus serotina*	5	No	FACU
5.			
6.			
7.			
	80	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. *Corylus cornuta*	10	No	FACU
2. *Fagus grandifolia*	20	Yes	FACU
3. *Tsuga canadensis*	25	Yes	FACU
4.			
5.			
6.			
7.			
	55	=Total Cover	
Herb Stratum (Plot size: 1m)			
1. *Pteridium aquilinum*	15	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	15	=Total Cover	
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	10	x 3 =	30
FACU species	135	x 4 =	540
UPL species	0	x 5 =	0
Column Totals:	150 (A)		580 (B)

Prevalence Index = B/A = 3.87

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: UP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/1	100					Loamy/Clayey	many fine roots
5-12	5YR 4/2	100					Loamy/Clayey	many fine roots
12-24	7.5YR 4/3	95	10YR 6/4	5	C	M	Loamy/Clayey	to refusal/bedrock

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ High Chroma Sands (S11) (**LRR K, L)**
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) (**LRR K, L**)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. (http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)

United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Berkshire County, Massachusetts

District 1 - Ledge Removal for Highway Safety at Various Locations: Main Street on Route 8

June 24, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

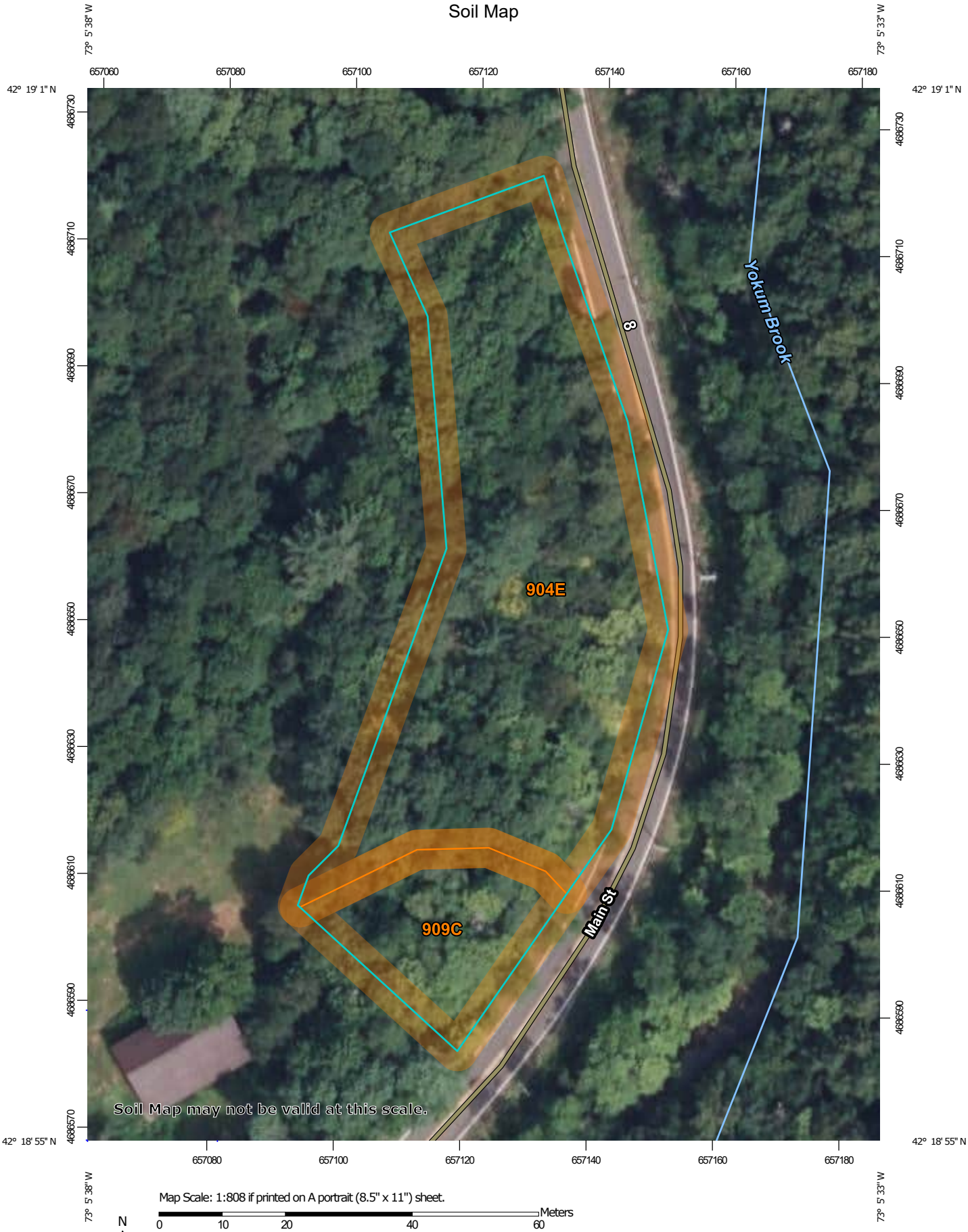
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map



Map Scale: 1:808 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 35 70 140 210

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Berkshire County, Massachusetts
Survey Area Data: Version 18, Sep 12, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 15, 2021—Nov 8, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
904E	Lyman-Tunbridge association, 15 to 60 percent slopes, extremely stony	0.9	83.0%
909C	Tunbridge-Lyman association, 3 to 15 percent slopes, extremely stony	0.2	17.0%
Totals for Area of Interest		**1.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Berkshire County, Massachusetts

904E—Lyman-Tunbridge association, 15 to 60 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2ty75
Elevation: 850 to 2,360 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyman, extremely stony, and similar soils: 45 percent
Tunbridge, extremely stony, and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman, Extremely Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 15 to 60 percent
Surface area covered with cobbles, stones or boulders: 6.0 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Description of Tunbridge, Extremely Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material
E - 5 to 8 inches: fine sandy loam
Bhs - 8 to 11 inches: fine sandy loam
Bs - 11 to 26 inches: fine sandy loam
BC - 26 to 28 inches: fine sandy loam
R - 28 to 38 inches: bedrock

Properties and qualities

Slope: 15 to 60 percent
Surface area covered with cobbles, stones or boulders: 6.0 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F144BY702ME - Shallow and Moderately-deep Till
Hydric soil rating: No

Minor Components

Berkshire, extremely stony

Percent of map unit: 9 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Wonsqueak

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountaintop, mountainbase, side slope, crest
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Pillsbury, extremely stony

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Peacham, extremely stony

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

909C—Tunbridge-Lyman association, 3 to 15 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 2trrm
Elevation: 1,080 to 2,390 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 27 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Tunbridge, extremely stony, and similar soils: 50 percent
Lyman, extremely stony, and similar soils: 35 percent
Minor components: 15 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tunbridge, Extremely Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
Oa - 3 to 5 inches: highly decomposed plant material
E - 5 to 8 inches: fine sandy loam
Bhs - 8 to 11 inches: fine sandy loam
Bs - 11 to 26 inches: fine sandy loam
BC - 26 to 28 inches: fine sandy loam
R - 28 to 38 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 7.1 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F143XY703ME - Shallow And Moderately Deep Humic Till, F143XY702ME - Shallow And Moderately Deep Till
Hydric soil rating: No

Description of Lyman, Extremely Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 6.0 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F143XY702ME - Shallow And Moderately Deep Till
Hydric soil rating: No

Minor Components

Berkshire, extremely stony

Percent of map unit: 8 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Peacham, extremely stony

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainbase, interfluve, base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Pillsbury, extremely stony

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Mountainflank, mountainbase, interfluve, nose slope, side slope
Down-slope shape: Concave

Across-slope shape: Concave
Hydric soil rating: Yes

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Attachment C – Stormwater Management Report

Stormwater Management Report

Ledge Removal Along Route 8 Between MM 28.002 and MM 27.998

Becket, Massachusetts

PREPARED FOR

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January 2026

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1

Introduction

This Stormwater Management Report has been prepared to demonstrate compliance with the Massachusetts Stormwater Management Standards (the Standards) in accordance with the Massachusetts Wetlands Protection Act Regulations (310 CMR 10.00) and Water Quality Certification Regulations (314 CMR 9.00). Appendix A includes a completed Massachusetts Department of Environmental Protection (MassDEP) Checklist for Stormwater Report, stamped by a Massachusetts registered professional engineer.

The Project follows the guidance presented in the MassDOT Stormwater Design Guide (SDG), and stormwater management systems are designed in accordance with the Standards.

The following MassDOT standard methodologies are being employed in this project:

- Use of the Macro Approach to meet requirements on a project-wide scale.

2

Project Summary

The Applicant, MassDOT, is proposing Project 609506 to construct improvements along Route 8 (Main Street) in Becket MA. The Project shall improve the safety of Route 20 (Boston Road) by removing unstable ledge, rock outcrops, and soil along the edge of the roadway and replacing it with a soil nail wall approximately 320 feet in length. An adjacent 325 foot long section of the Route 8 pavement will be milled and overlaid with hot mix asphalt.

The Project is needed because of the unstable condition of the roadside slope above the west side of Route 8. Landslides and tumbling boulders have previously closed this section of Route 8. In addition to the safety concern to passing vehicles, the closure of Route 8 impacts emergency response times. A temporary fence has been installed as a stop-gap measure to minimize potential roadblocks from boulders and soils.

The proposed improvements will not result in an increase of impervious area. The overall contributing area and impervious surface cover are summarized in Table 1 below.

Table 1 Change in Impervious Surface Cover

Exist. Project Catchment Area (SF)	Exist. Impervious Surface Cover (SF)	Prop. Project Catchment Area (SF)	Prop. Impervious Surface Cover (SF)	Net Change (SF)	Percent Change
123,911	14,576	123,911	14,576	0	0%

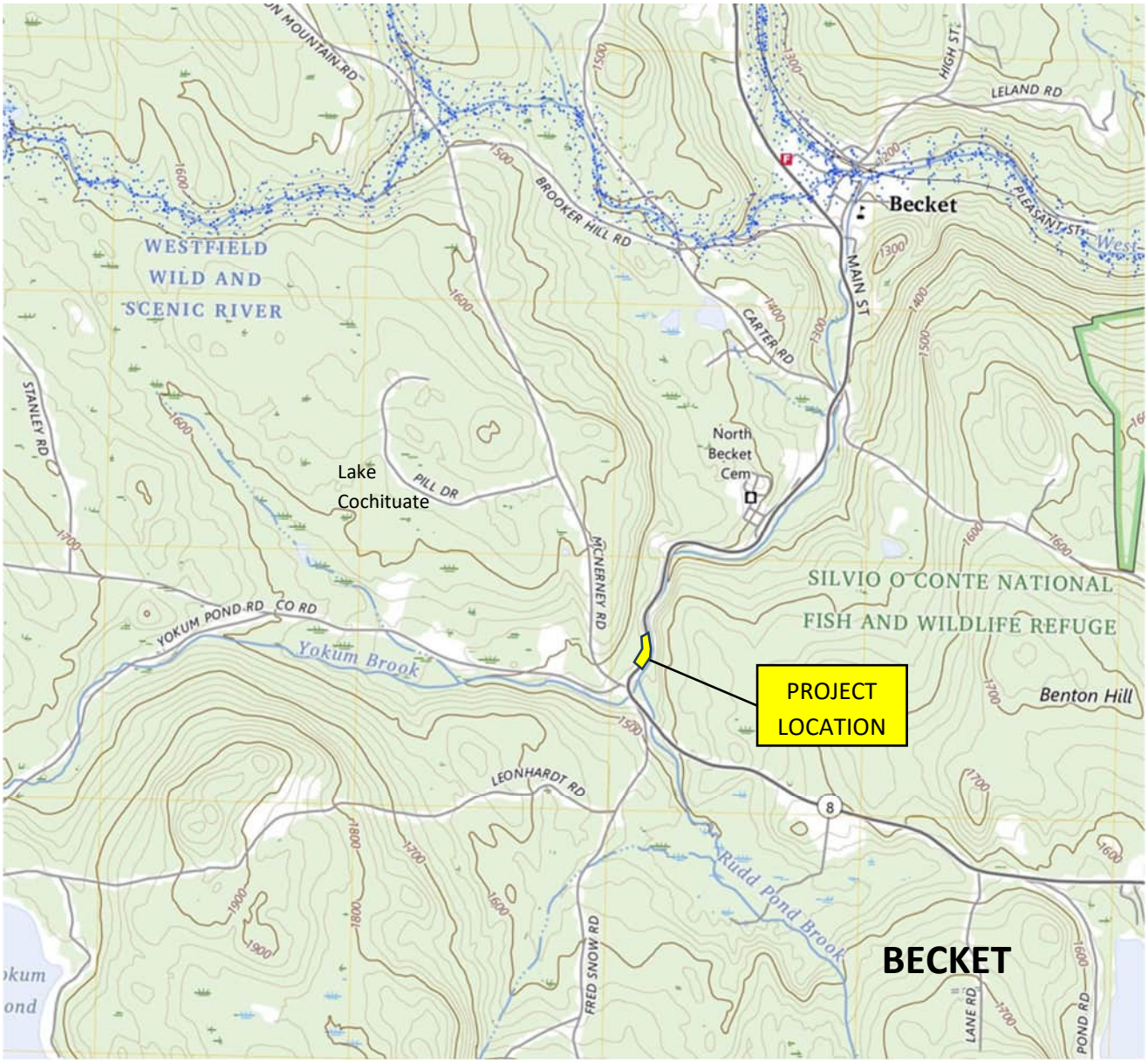
Existing flow patterns and drainage networks within the Project limits have been maintained. The project proposes minor improvements to the existing stormwater infrastructure within the project limits including the installation of a new deep sump (4-ft) double grate catch basin.

The following is a summary of key areas and how they are affected by the project:

- The project is not located within a Zone II or Interim Wellhead Protection Area.
- No part of the project is located within a FEMA flood zone.
- No wetland resource areas are impacted by the project.
- There are no Land Uses with Higher Potential Pollutant Loads (LUHPPLs) within the project area.

`The purpose of this report is to provide a summary of the Project's stormwater management approach and compliance with the Massachusetts Stormwater Standards. This project is considered to be a redevelopment project. The proposed stormwater system will improve water quality from roadway runoff and not increase post development peak flows. With these improvements, it was determined that the Project will meet Standards 1, 2, 5, 7, 8, 9, and 10 of the MA Stormwater Standards. Standards 3, 4 and 6 will be met to the maximum extent practicable (MEP).

Figure 1 Locus Figure



3

Existing Conditions

The existing total pavement width of Route 8 is approximately 28 feet. Shoulder widths vary between 1 and 2 feet in width. There are no curbs or sidewalks. There is a paved waterway along the west side of Route 8 at the edge of pavement. The east side of Route 8 is uncurbed.

Within the project limits, the existing Route 8 corridor is wooded. The topography is very hilly, with an uphill slope on the west side of Route 8 and a slope down to Yokum Brook on the east side.

There are no existing Stormwater Control Measures (SCMs) located in the project area. Stormwater runoff is collected via catch basins on the west shoulder of Route 8 and conveyed to discharge points on the bank of Yokum Brook through culverts under the roadway.

2 Design Points (DPs) have been identified for this project and are described below:

- DP-1: A 12 inch pipe outlet with headwall on the east side of Route 8, which originates from an existing CB at Sta. 12+77 LT.
- DP-2: An 18" pipe outlet on the east side of Route 8, which originates from an existing CB outside of the project limits at Sta. 16+60 LT.

Table 2 presents the existing drainage areas and their characteristics. Appendix F shows existing drainage patterns and drainage area delineations by design point.

Table 2 Existing Drainage Areas

Analysis Point	Drainage Area	Area (acres)	Curve Number
DP-1	1S	0.114	98
	4S	1.267	81
DP-2	7S	1.243	83
	8S	0.220	98
	TOTAL=	**2.844**	

Key features in and around the project area include:

- The project is not located within a Zone II or Interim Wellhead Protection Area.
- No part of the project is located within a FEMA flood zone.
- No wetland resource areas are impacted by the project.
- There are no Land Uses with Higher Potential Pollutant Loads (LUHPPLs) within the project area.

According to the most recently issued Flood Insurance Rate Maps, Map Nos. 25013C0245E and 25013C0240E, produced by the Federal Emergency Management Agency (FEMA), no portion of the project area is within the floodplain.

The Natural Resources Conservation Service soil survey for Berkshire County has mapped a majority of the Site as Lyman-Tunbridge association, extremely stony (904E). The other soil type found within the watershed area is Tunbridge-Lyman association, extremely stony (909C). The Lyman-Tunbridge association soils (904E) have a hydrologic soil group rating of D, while the Tunbridge-Lyman association soils (909C) have a hydrologic soil group rating of C. Appendix B provides detailed soils information, including the NRCS soil survey data for the project area.

One perennial stream was delineated within the project area. There are no bordering vegetated wetland (BVW) complexes nor intermittent streams. Resource areas are listed in Table 3.

Table 3 Wetland Resource Areas

Wetland Resource Area	Wetland Type	Description
Perennial Stream 1	Perennial Stream	Perennial Stream 1 (Yokum Brook) was delineated on the parallel to the eastern shoulder of Route 8,

Figure 2 Existing Drainage Patterns

See Appendix F.

Figure 3 FEMA Flood Insurance Rate Map

See Appendix B.

Figure 4 NRCS Soils Information

See Appendix B.

4

Proposed Conditions

The project has been designed to comply with the requirements for a "Redevelopment Project".

The proposed work includes:

- Excavation of the existing slope in the vicinity of the roadway.
- Construction of a soil nail wall.
- Pavement milling and hot mix asphalt overlay.

The proposed drainage work for this project includes the replacement of one existing catch basin with a new, deep sump double grate catch basins.

There will be no increase in the amount of impervious area due to the proposed project. Table 4 provides existing and proposed impervious areas for the project.

Table 4 Impervious Area

Condition	Impervious Area (ac)
Existing	0.334
Proposed	0.334
Net	**0.000**

The Project proposes to retain all existing stormwater outlet locations. No new outlets are proposed. The design points for the proposed conditions are the same as those identified for the existing conditions and are described in Section 3 of this report.

The opportunities to construct additional SCMs or incorporate Low Impact Development (LID) techniques are extremely limited, primarily due to the existing topography. Along the west side of Route 8, from the edge of pavement, is the steep, unstable slope with exposed ledge and boulders. Along the east side of Route 8, the topography slopes down to Yokum Brook. It is not desirable to install an SCM between the edge of roadway and base of the proposed soil nail wall. Stormwater Alternatives Analysis Plans, which show the site constraints and opportunities for SCMs and LID techniques, are included in Appendix F.

A HydroCAD model for the existing and proposed conditions has been provided in Appendix D. Plans depicting catchment areas within the Project limits are included in Appendix F.

Efforts have been made during the design development process to limit the footprint of disturbance. The intent is to preserve as many of the existing trees and natural vegetation as possible. For much of the project, the proposed limit of work has been maintained in close proximity to the back of proposed wall and excavation area.

The proposed project is not located within a Zone II or Interim Wellhead Protection Area, and there are no LUHPPLs located within the project limits. The required Water Quality Volume (WQV) is 1/2-inch over the impervious area.

The project does not impact any wetland resource areas, but does require work within BVW 100 ft buffer zone and 200 ft Riverfront areas.

Table 5 presents the proposed drainage areas and their characteristics. Figures in Appendix F show proposed drainage patterns and drainage area delineations by design point.

Figure 5 Proposed Drainage Patterns

See Appendix F.

Table 5 Proposed Drainage Areas

Analysis Point	Drainage Area	Area (acres)	Curve Number
DP-1	1S	0.114	98
	4S	1.267	81
DP-2	7S	1.243	83
	8S	0.220	98
	SUBTOTAL	**2.844**	

5

Impaired Waters and TMDLs

The Project does not discharge to impaired waters. From the MassDEP Year 2022 Integrated List of Waters, Yokum Brook is classified as a Category 2 river, which is noted as "Unimpaired for some uses and not assessed for others". There are no TMDLs associated with Yokum Brook.

6

Stormwater Management Standards

This Project is a Redevelopment Project. There is no increase in impervious area. Proposed drainage work includes a new double grate catch basin with a 4-foot-deep sump for improved water quality. The following Stormwater Management Standards are met: Standards1, 2, 3, 5, 7, 8, 9, and 10. Standards 4 and 6 are met only to the maximum extent practicable.

Standard 1: No New Untreated Discharges

No new stormwater conveyances may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

No new stormwater outfalls are proposed for the Project. The Project does not propose to construct any new untreated stormwater conveyances or discharges that may cause erosion in wetlands or waters of the Commonwealth. The Project is a Redevelopment project and consists of milling and overlay of a new pavement surface on within the project limits and removal of portions of the existing rock slope and constructing a soil nail wall to eliminate rocks falling into the roadway.

Stormwater runoff within the project limits is currently collected via catch basins and closed drainage systems. A number of the existing stormwater outlets are located beyond the project limits and will not be modified as part of this project.

Standard 2: Peak Rate Attenuation

Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

As a Redevelopment Project, the project is required to meet Standard 2 only to the maximum extent practicable. For this project, the post-development peak discharge rates are the same as the pre-development peak discharge rates.

HydroCAD was used to model the existing and proposed conditions for the 2-year, 10-year, and 100-year storm events. The output from the HydroCAD analyses are included in Appendix D.

Rainfall depths for the 2-year, 10-year, and 100-year 24-hour storm events are based on rainfall distributions from NOAA Atlas 14 and are shown in Table 6, below.

Table 6 Rainfall Depths (in)

Design Storm Event	Rainfall Depth (in)
2-year	*2.94*
10-year	*4.38*
100-year	*7.78*

Tables 7.1, 7.2, and 7.3 provide a summary of peak flow rates for each design point under existing and proposed conditions. Appendix D provides computations and supporting information regarding the hydrologic modeling.

Table 7.1 2-Year Peak Discharge Rates (cfs)

Analysis Point	Existing Peak Discharge (cfs)	Proposed Peak Discharge (cfs)	Net Change Peak Discharge (cfs)
DP-1	1.87	1.87	0.00
DP-2	1.14	1.14	0.00
		Project Total	0.00

Table 7.2 10-Year Peak Discharge Rates (cfs)

Analysis Point	Existing Peak Discharge (cfs)	Proposed Peak Discharge (cfs)	Net Change Peak Discharge (cfs)
DP-1	3.53	3.53	0.00
DP-2	2.11	2.11	0.00
		Project Total	0.00

Table 7.3 100-Year Peak Discharge Rates (cfs)

Analysis Point	Existing Peak Discharge (cfs)	Proposed Peak Discharge (cfs)	Net Change Peak Discharge (cfs)
DP-1	7.67	7.67	0.00
DP-2	4.49	4.49	0.00
		Project Total	0.00

Standard 3: Recharge

Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures, including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

The project complies with Standard 3. There is no increase in impervious area, so the required recharge volume is 0 cf.

Table 8 provides the required recharge volume for the Project.

Table 8 Required Recharge Volume for Project

	HSG A	HSG B	HSG C	HSG D	Total
Existing Impervious (sq. ft.)	0	0	4,984	9,592	14,576
Proposed Impervious (sq. ft.)	0	0	4,984	9,952	14,576
New Impervious Area (sq. ft.)	0	0	0	0	0
Target depth, F (in)	0.60	0.35	0.25	0.10	-
Required Recharge Volume, ReV (cf)	**0**	**0**	**0**	**0**	**0**

ReV = F (ft) x Impervious Area (sf)

The Macro Approach is being used for compliance with this standard due to constraints at the project site. The required recharge volume for this project is 0 cubic feet, since there is no new impervious area.

Table 9 shows the recharge volumes required and provided for each Analysis Point.

Table 9 Provided Recharge Volumes at Each Analysis Point

Design Point	SCM	New Impervious Area (SF)	Required Recharge ReV Volume (CF)	*Provided Recharge Volume (CF)
DP-1	-	0	0	0
DP-2	-	0	0	0
Project Total		**0**	**0**	**0**

Standard 4: Water Quality Treatment

Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when:

- *Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained.*
- *Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook.*
- *Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.*

As a Redevelopment Project, the project is required to meet the pretreatment and structural stormwater best management practice requirements of Standard 4 to the maximum extent practicable.

Appendix F includes Stormwater Alternatives Analysis Plans that show the constraints on the site. A catch basin with a deep (4') sump is proposed, and street sweeping will be conducted throughout and following construction.

No part of the project area is located within a Zone II or Interim Wellhead Protection Area. There are no Land Uses with Higher Potential Pollutant Loads (LUHPPLs) in or near the project area. The water quality volume shall defined as 0.5 inches of runoff from impervious areas.

Table 10 provides the water quality volume for each design point.

Table 10 WQV at Each Analysis Point

Analysis Point	SCM	New Impervious Area (sf)	Pre-treatment	WQV Required (cf)	WQV Provided (cf)	Meets Total WQV	Meets Required WQV for New IA
DP-1	-	0	-	0	0	No	Yes
DP-2	-	0	-	0	0	No	Yes
Project Total		**0**		**0**	**0**	**No**	**Yes**

Appendix C provides the MassDEP TSS Removal Calculation Worksheets. Table 11 lists the anticipated TSS removal rates for each of the Analysis Points.

Table 11 WQ TSS Rate at Each Analysis Point

Analysis Point	Catchment Area (ac)	SCM	Deep Sump CBs (25%)	Total TSS Removal
DP-1	1.381	N/A	Yes	25%
DP-2	1.463	N/A	No	0%

80% TSS removal is not met. For the catchment area to DP-1, the addition of a deep sump catch basin (4-ft) improves TSS removal when compared to the existing conditions. DP-2 is located beyond the project limit and the existing catch basin will be retained.

For MassDOT facilities, Long-Term Pollution Prevention Plans (LTPPPs) are implemented at a programmatic level through MassDOT's highway operation and maintenance program by district. Appendix E includes the LTPPP for this project.

Standard 5: Land Uses with Higher Potential Pollutant Loads

For Land Uses with Higher Potential Pollutant Loads (LUHPPLs), source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all LHPPLs cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from LUHPPLs shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

There are no LUHPPLs in or near the project limits.

Standard 6: Critical Areas

Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "stormwater discharge" as defined in 314 CMR 3.04(2)(a)1 or (b), to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.

The proposed project is not located within a Zone II or Interim Wellhead Protection Area.

Standard 7: Redevelopment

A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

The Project is a redevelopment project. The Project is a previously developed area that will widen existing roadways and ramps, improve existing drainage systems, and will include repaving. A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

Standard 8: Erosion and Sediment Control

A plan to control construction related impacts, including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

The Project complies with Standard 8. The implementation of erosion and sediment (E&S) controls during construction is considered a standard practice for all MassDOT projects. E&S controls will be installed before any land disturbance begins for the Project and will remain in place for the duration of the Project. The E&S controls for the Project are shown on the project plans and include compost filter tubes, and filters at drain inlets. Erosion and sedimentation controls are proposed throughout the Project limits to prevent sediment and other suspended solids from migrating into the existing drainage infrastructure and downgradient wetland resource areas. The Contractor will be alerted that control of erosion and sedimentation is critically important in and around the areas indicated on the plans and adjacent to jurisdictional resource areas. The Contractor will implement the erosion and sedimentation controls as indicated on the plans. The Contractor will also be alerted to the fact that field conditions may warrant additional protection measures to comply with the regulations. It is the intention that the contractor will replace erosion controls as needed or at the direction of permit issuing authorities, MassDOT or the Environmental Monitor, but not less than twice a year.

Erosion controls shall consist of compost filter tubes and catch basin sedimentation collection sack. No hay bales shall be used at any time on this project. The erosion and sedimentation control measures will be constructed in accordance with the Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas, March 1997, and the U.S.D.A. SCS's Erosion and Sediment control in the Site Development, Massachusetts Conservation Guide, September 1983.

Temporary erosion and sedimentation control measures shall be installed prior to the commencement of any site work, maintained during construction, and shall remain in place until the site work is completed, and ground cover is established (at least 75% uniform coverage by new seedlings). All erosion and sedimentation control measures shall be maintained in effective condition throughout the construction period. The contractor shall inspect the erosion controls daily and clean accumulated materials from behind them as necessary. All erosion and sedimentation control measures found to need repair or replacement shall be immediately corrected. Any sediment removed from control structures shall be disposed of in an appropriate manner. No equipment or material of any kind shall be stockpiled or deposited in any regulated area.

Stockpiled soil within jurisdictional areas shall be surrounded with siltation fences to prevent and control siltation and erosion. Stockpiles that will remain exposed for more than 30 days shall be stabilized with mulch or seeded for temporary vegetative cover. All disturbed areas that remain exposed or undisturbed for a period of fourteen days or longer shall be stabilized with mulch or seeded for temporary vegetative cover.

The Contractor shall inspect all portions of the site in anticipation of rainfall events to determine if site grading is sufficient to prevent erosion of slopes and/or the transportation of sediments to wetlands or watercourses within the project limits. All disturbed earth slopes shall be stabilized with permanent vegetative cover as soon as possible. There shall be no direct discharge from dewatering operations into any wetland, watercourse or drainage system unless allowed by regulatory permits.

The proposed project disturbance area is less than one acre of land.

Standard 9: Operation and Maintenance Plan

A long-term operation and maintenance plan shall be developed and implemented to ensure that stormwater management systems function as designed.

MassDOT O&M plans are implemented on a programmatic level by each MassDOT district. Each MassDOT district office is responsible for providing operation and maintenance for the MassDOT stormwater management systems within their respective jurisdictions. Appendix E includes the O&M Plan for this project.

Standard 10: Prohibition of Illicit Discharges

All illicit discharges to the stormwater management system are prohibited.

Illicit Discharge Statement

The project's stormwater management system, as shown on the plans submitted with this report, have been designed in full compliance with Standard 10. The project area does not have any known illicit connections. Any illicit connections to the stormwater management system found in the project limit of work during construction will be removed and/or resolved through MassDOT's Illicit Discharge Detention and Elimination (IDDE) Program. The Long-Term Pollution Prevention Plan, provided in Appendix E, includes measures to prevent illicit discharges.

An illicit discharge statement has been provided in Appendix G.

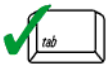
Appendix A: MassDEP Checklist for Stormwater Report

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.[1] This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8[2]
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

[1] The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

[2] For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature

1/30/2026

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

☐ New development

☒ Redevelopment

☐ Mix of New Development and Redevelopment

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- [X] No disturbance to any Wetland Resource Areas
- [ ] Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- [ ] Reduced Impervious Area (Redevelopment Only)
- [X] Minimizing disturbance to existing trees and shrubs
- [ ] LID Site Design Credit Requested:
  - [ ] Credit 1
  - [ ] Credit 2
  - [ ] Credit 3
- [ ] Use of "country drainage" versus curb and gutter conveyance and pipe
- [ ] Bioretention Cells (includes Rain Gardens)
- [ ] Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- [ ] Treebox Filter
- [ ] Water Quality Swale
- [ ] Grass Channel
- [ ] Green Roof
- [ ] Other (describe): _____

Standard 1: No New Untreated Discharges

- [X] No new untreated discharges
- [ ] Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- [ ] Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.

☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.

☒ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

☒ Soil Analysis provided.

☒ Required Recharge Volume calculation provided.

☐ Required Recharge volume reduced through use of the LID site Design Credits.

☐ Sizing the infiltration, BMPs is based on the following method: Check the method used.

☐ Static ☐ Simple Dynamic ☐ Dynamic Field[1]

☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.

☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.

☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:

☐ Site is comprised solely of C and D soils and/or bedrock at the land surface

☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000

☐ Solid Waste Landfill pursuant to 310 CMR 19.000

☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.

☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.

☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

[1] 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.

☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
- Provisions for storing materials and waste products inside or under cover;
- Vehicle washing controls;
- Requirements for routine inspections and maintenance of stormwater BMPs;
- Spill prevention and response plans;
- Provisions for maintenance of lawns, gardens, and other landscaped areas;
- Requirements for storage and use of fertilizers, herbicides, and pesticides;
- Pet waste management provisions;
- Provisions for operation and management of septic systems;
- Provisions for solid waste management;
- Snow disposal and plowing plans relative to Wetland Resource Areas;
- Winter Road Salt and/or Sand Use and Storage restrictions;
- Street sweeping schedules;
- Provisions for prevention of illicit discharges to the stormwater management system;
- Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
- Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
- List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.

☒ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.

☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:

- ☐ is within the Zone II or Interim Wellhead Protection Area
- ☐ is near or to other critical areas
- ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
- ☐ involves runoff from land uses with higher potential pollutant loads.

☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.

☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

☒ The BMP is sized (and calculations provided) based on:

- ☒ The ½" or 1" Water Quality Volume or
- ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.

☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.

☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.

☒ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted ***prior to*** the discharge of stormwater to the post-construction stormwater BMPs.

☐ The NPDES Multi-Sector General Permit does ***not*** cover the land use.

☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.

☐ All exposure has been eliminated.

☐ All exposure has ***not*** been eliminated and all BMPs selected are on MassDEP LUHPPL list.

☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.

☐ Critical areas and BMPs are identified in the Stormwater Report.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:

- ☐ Limited Project
- ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
- ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
- ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
- ☐ Bike Path and/or Foot Path
- ☒ Redevelopment Project
- ☐ Redevelopment portion of mix of new and redevelopment.

☒ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.

☒ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

☐ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands Program

Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has ***not*** been included in the Stormwater Report but will be submitted ***before*** land disturbance begins.

☐ The project is ***not*** covered by a NPDES Construction General Permit.

☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.

☐ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

☒ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:

- ☐ Name of the stormwater management system owners;
- ☐ Party responsible for operation and maintenance;
- ☐ Schedule for implementation of routine and non-routine maintenance tasks;
- ☐ Plan showing the location of all stormwater BMPs maintenance access areas;
- ☐ Description and delineation of public safety features;
- ☐ Estimated operation and maintenance budget; and
- ☐ Operation and Maintenance Log Form.

☐ The responsible party is ***not*** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:

- ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
- ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

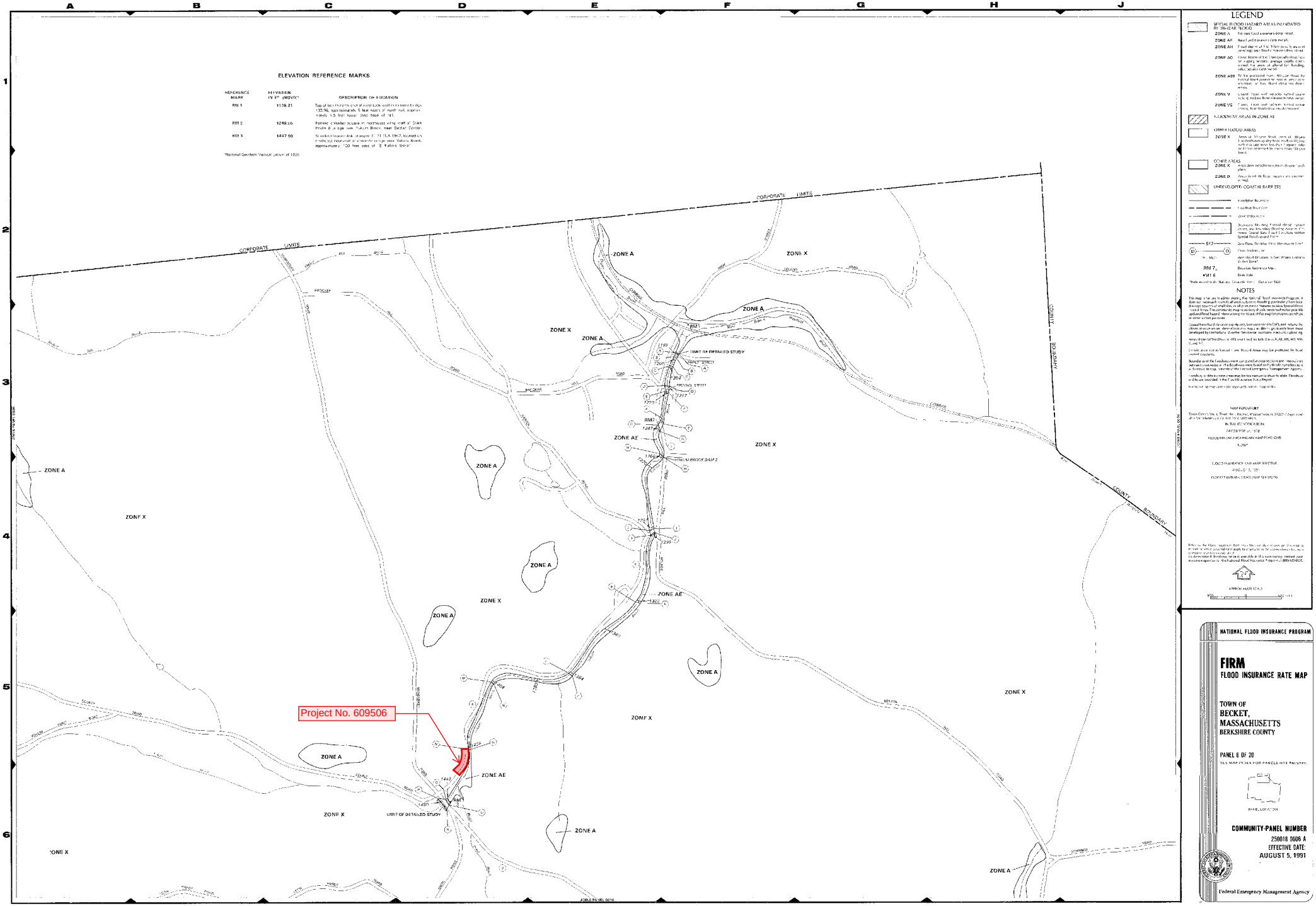
☒ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;

☐ An Illicit Discharge Compliance Statement is attached;

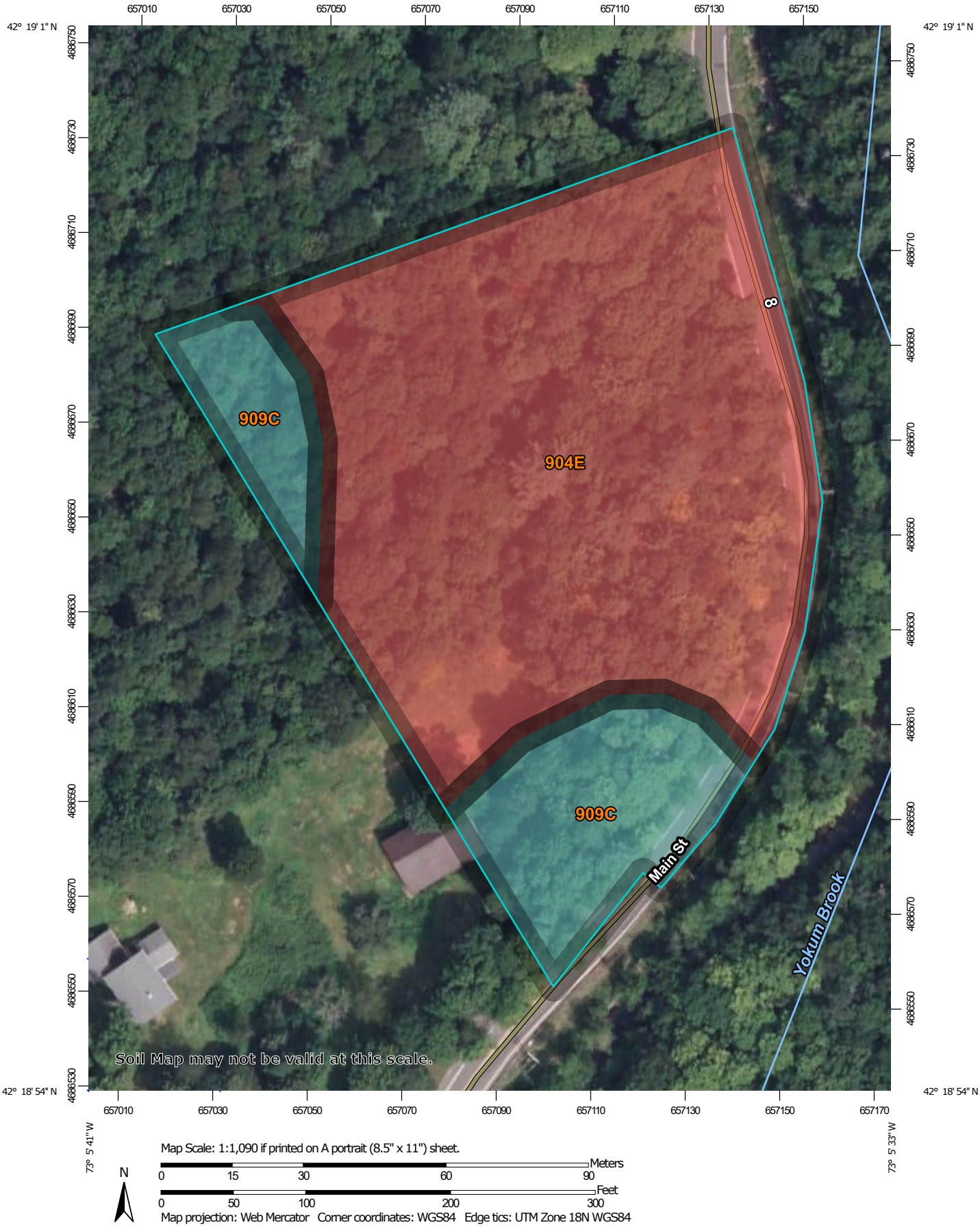
☐ NO Illicit Discharge Compliance Statement is attached but will be submitted ***prior to*** the discharge of any stormwater to post-construction BMPs.

Appendix B: Soils and FEMA Information

- FEMA Flood Insurance Rate Map (FIRM)
- NRCS Soil Survey Information


ELEVATION REFERENCE MARKS
REFERENCE MARK
ELEVATION IN FT. (NGVD)*
DESCRIPTION OF LOCATION
RM 1
1106.21
RM 2
1248.06
RM 3
1447.66
*National Geodetic Vertical Datum of 1929
CORPORATE LIMITS
COUNTY BOUNDARY
ZONE A
ZONE X
ZONE AE
LIMIT OF DETAILED STUDY
Project No. 609506
LEGEND
NOTES
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
TOWN OF
BECKET,
MASSACHUSETTS
BERKSHIRE COUNTY
PANEL 6 OF 20
COMMUNITY-PANEL NUMBER
250018 0006 A
EFFECTIVE DATE:
AUGUST 5, 1991
Federal Emergency Management Agency

Hydrologic Soil Group—Berkshire County, Massachusetts
(609506 Becket)



Map Scale: 1:1,090 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

Hydrologic Soil Group—Berkshire County, Massachusetts
(609506 Becket)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Berkshire County, Massachusetts
Survey Area Data: Version 20, Sep 5, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 15, 2021—Nov 8, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
904E	Lyman-Tunbridge association, 15 to 60 percent slopes, extremely stony	D	2.8	77.9%
909C	Tunbridge-Lyman association, 3 to 15 percent slopes, extremely stony	C	0.8	22.1%
Totals for Area of Interest			**3.6**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Appendix C: Supporting Calculations

› MassDEP TSS Removal Calculation Worksheets for treatment trains

INSTRUCTIONS:

Version 1, Automated: Mar. 4, 2008

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Location: Deep Sump CBs Project Wide

TSS Removal Calculation Worksheet

B BMP[1]	C TSS Removal Rate[1]	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
Deep Sump and Hooded Catch Basin	**0.25**	**1.00**	**0.25**	**0.75**
	0.00	**0.75**	**0.00**	**0.75**
	0.00	**0.75**	**0.00**	**0.75**
	0.00	**0.75**	**0.00**	**0.75**
	0.00	**0.75**	**0.00**	**0.75**

Total TSS Removal = **25%**

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project: **609506 Becket Route 8**

Prepared By: **Jacobs**

Date: **1/14/2026**

*Equals remaining load from previous BMP (E) which enters the BMP

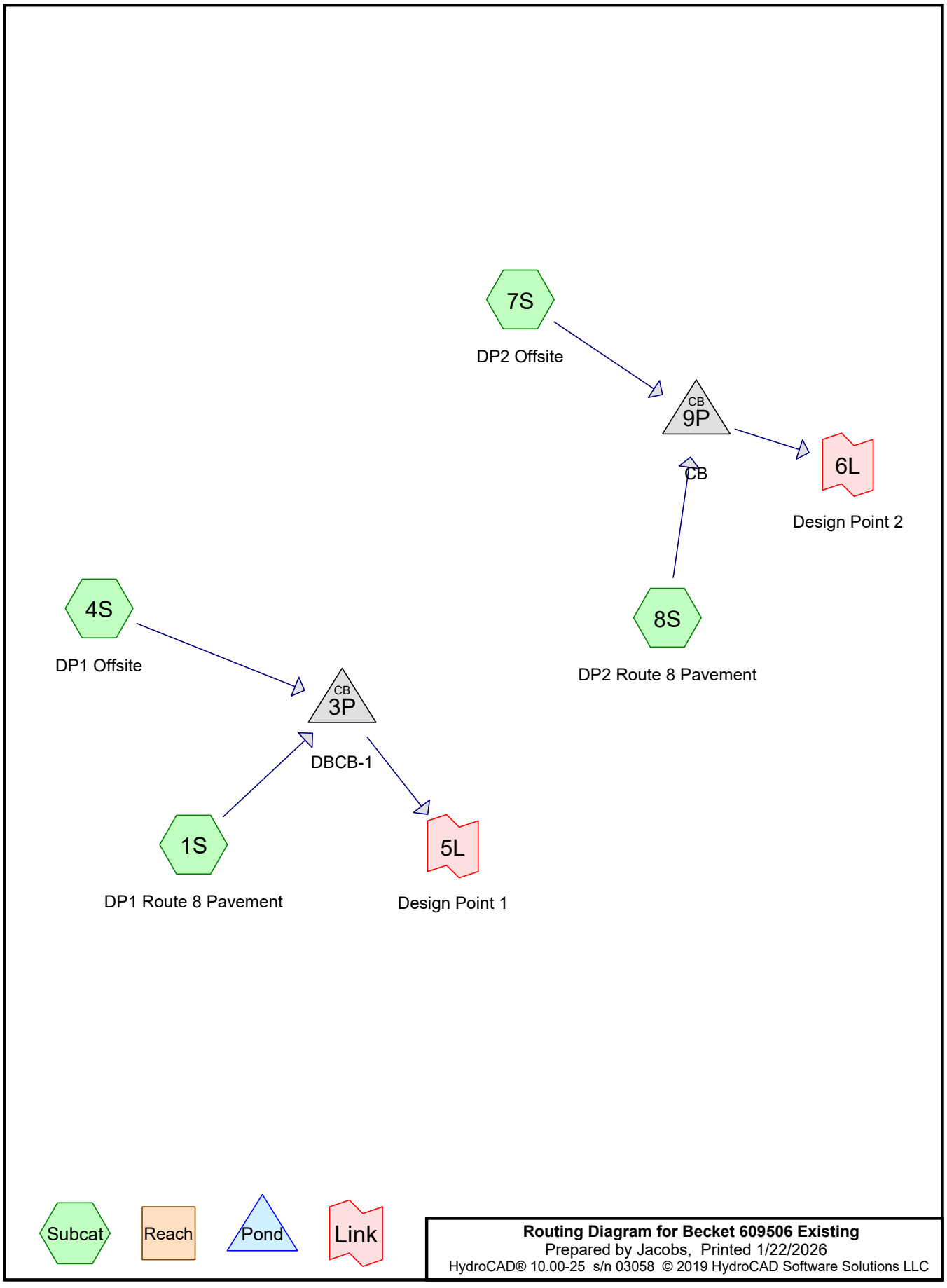
Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed

1. From MassDEP Stormwater Handbook Vol. 1

Mass. Dept. of Environmental Protection

Appendix D: Hydraulic and Hydrologic Data

- HydroCAD Pre-Construction Analyses (Existing Conditions), 2-Year, 10-Year, 100-Year
- HydroCAD Post-Construction Analyses (Proposed Conditions), 2-Year, 10-Year, 100-Year


7S
DP2 Offsite
CB
9P
6L
Design Point 2
CB
8S
DP2 Route 8 Pavement
4S
DP1 Offsite
CB
3P
DBCB-1
1S
DP1 Route 8 Pavement
5L
Design Point 1
Subcat
Reach
Pond
Link
Routing Diagram for Becket 609506 Existing
Prepared by Jacobs, Printed 1/22/2026
HydroCAD® 10.00-25 s/n 03058 © 2019 HydroCAD Software Solutions LLC

Becket 609506 Existing
Prepared by Jacobs
Printed 1/22/2026
HydroCAD® 10.00-25 s/n 03058 © 2019 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.144	80	>75% Grass cover, Good, HSG D (4S)
0.335	98	Paved roads w/curbs & sewers, HSG D (1S, 8S)
0.345	77	Woods, Poor, HSG C (4S)
2.021	83	Woods, Poor, HSG D (4S, 7S)
2.845	**84**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: DP1 Route 8 Pavement Runoff Area=4,984 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.36 cfs 0.026 af

Subcatchment4S: DP1 Offsite Runoff Area=55,191 sf 0.00% Impervious Runoff Depth>1.26"
Flow Length=387' Tc=11.1 min CN=81 Runoff=1.65 cfs 0.133 af

Subcatchment7S: DP2 Offsite Runoff Area=54,144 sf 0.00% Impervious Runoff Depth>1.38"
Flow Length=409' Tc=35.1 min CN=83 Runoff=1.03 cfs 0.143 af

Subcatchment8S: DP2 Route 8 Pavement Runoff Area=9,592 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.68 cfs 0.050 af

Pond 3P: DBCB-1 Peak Elev=1,435.49' Inflow=1.87 cfs 0.159 af
12.0" Round Culvert n=0.025 L=59.0' S=0.1483 '/' Outflow=1.87 cfs 0.159 af

Pond 9P: CB Peak Elev=1,421.13' Inflow=1.14 cfs 0.193 af
18.0" Round Culvert n=0.011 L=55.0' S=0.0560 '/' Outflow=1.14 cfs 0.193 af

Link 5L: Design Point 1 Inflow=1.87 cfs 0.159 af
Primary=1.87 cfs 0.159 af

Link 6L: Design Point 2 Inflow=1.14 cfs 0.193 af
Primary=1.14 cfs 0.193 af

Total Runoff Area = 2.845 ac Runoff Volume = 0.352 af Average Runoff Depth = 1.49"
88.24% Pervious = 2.510 ac 11.76% Impervious = 0.335 ac

Summary for Subcatchment 1S: DP1 Route 8 Pavement

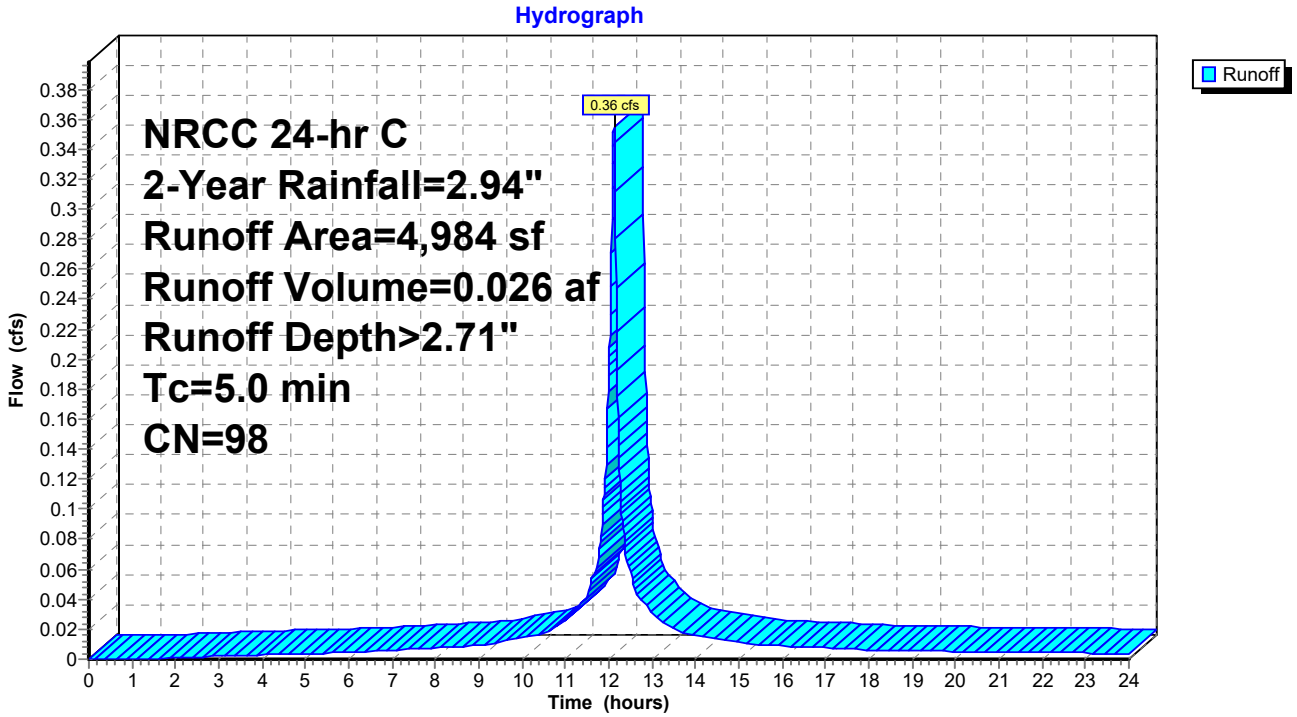
Runoff = 0.36 cfs @ 12.12 hrs, Volume= 0.026 af, Depth> 2.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 2-Year Rainfall=2.94"

Area (sf)	CN	Description
4,984	98	Paved roads w/curbs & sewers, HSG D
4,984		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: DP1 Route 8 Pavement



Summary for Subcatchment 4S: DP1 Offsite

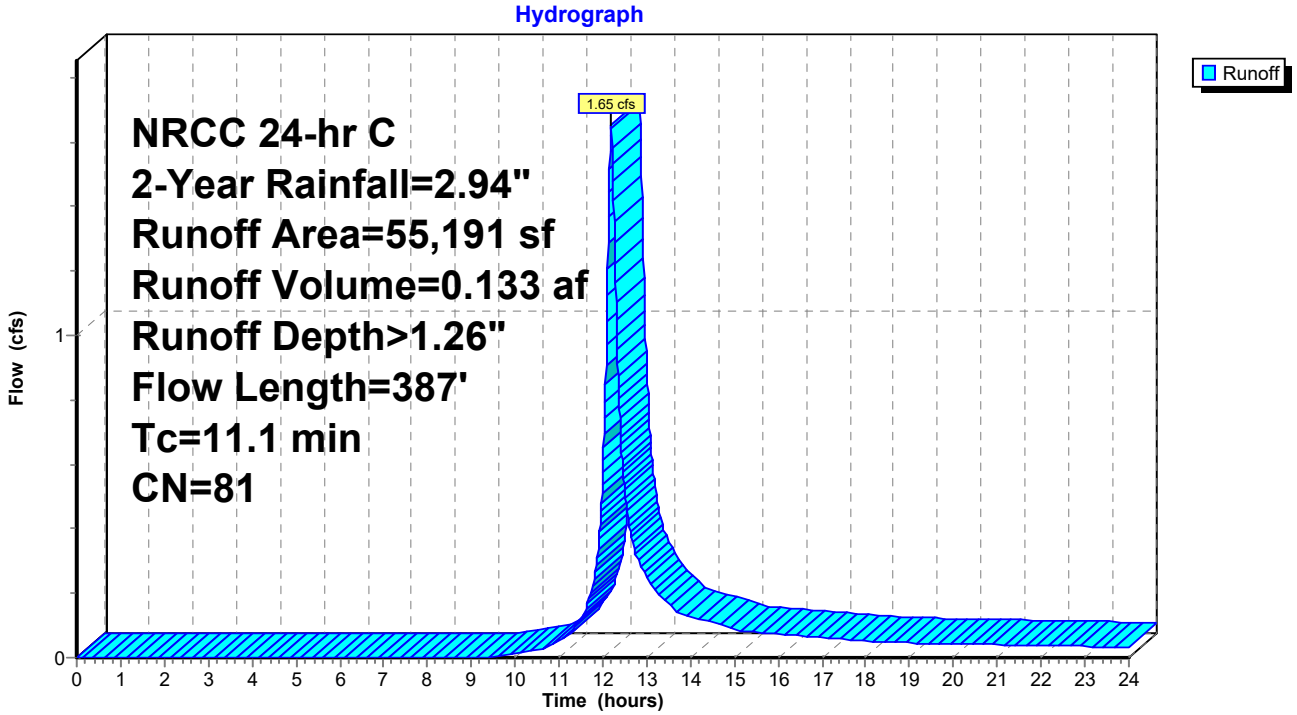
Runoff = 1.65 cfs @ 12.19 hrs, Volume= 0.133 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 2-Year Rainfall=2.94"

Area (sf)	CN	Description
33,891	83	Woods, Poor, HSG D
15,024	77	Woods, Poor, HSG C
6,276	80	>75% Grass cover, Good, HSG D
55,191	81	Weighted Average
55,191		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1800	0.18		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
1.8	230	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	57	0.0480	4.45		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.1	387	Total			

Subcatchment 4S: DP1 Offsite



Summary for Subcatchment 7S: DP2 Offsite

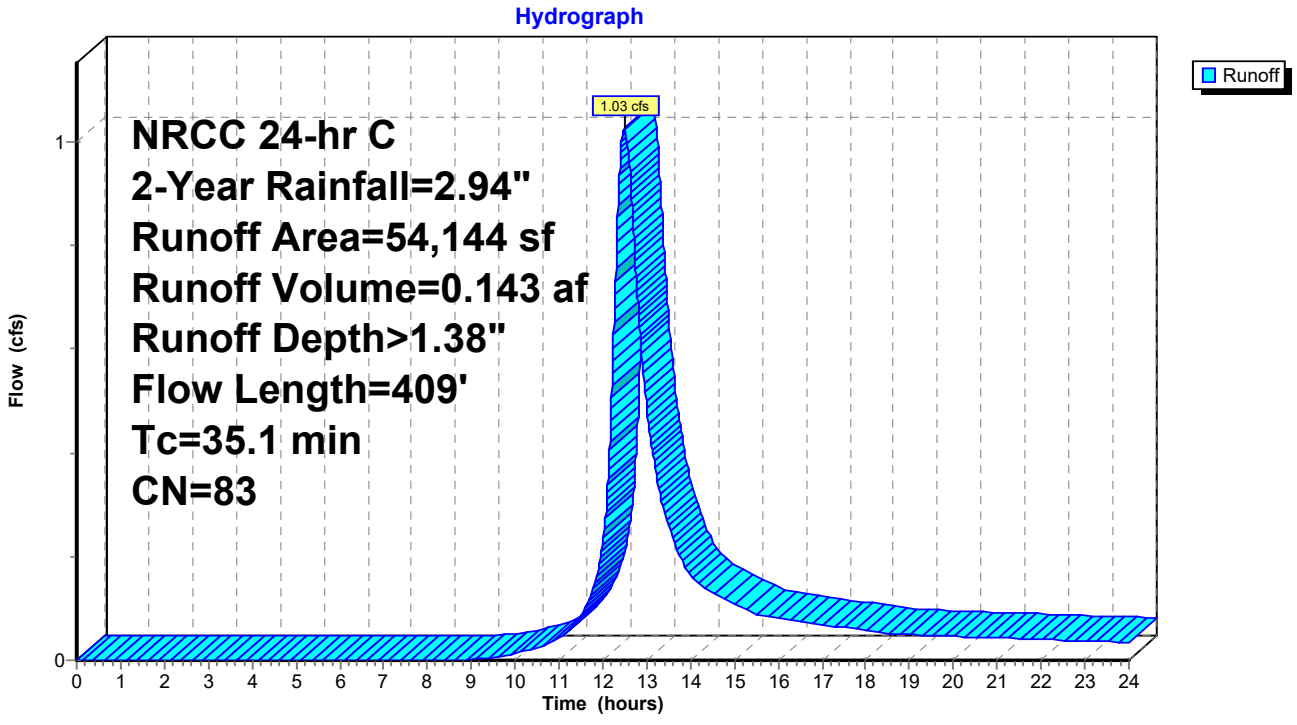
Runoff = 1.03 cfs @ 12.51 hrs, Volume= 0.143 af, Depth> 1.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 2-Year Rainfall=2.94"

Area (sf)	CN	Description
54,144	83	Woods, Poor, HSG D
54,144		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
5.6	168	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	74	0.4000	3.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	67	0.0450	4.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
35.1	409	Total			

Subcatchment 7S: DP2 Offsite



Summary for Subcatchment 8S: DP2 Route 8 Pavement

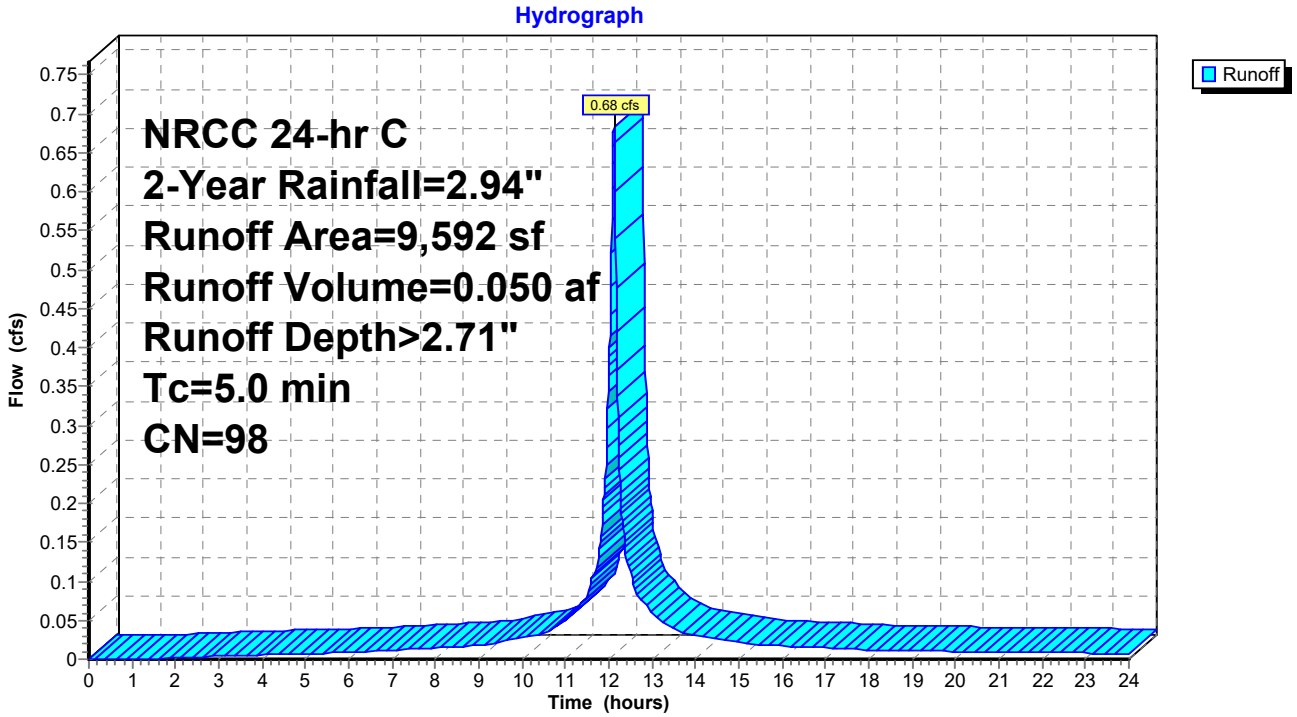
Runoff = 0.68 cfs @ 12.12 hrs, Volume= 0.050 af, Depth> 2.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 2-Year Rainfall=2.94"

Area (sf)	CN	Description
9,592	98	Paved roads w/curbs & sewers, HSG D
9,592		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S: DP2 Route 8 Pavement



Summary for Pond 3P: DBCB-1

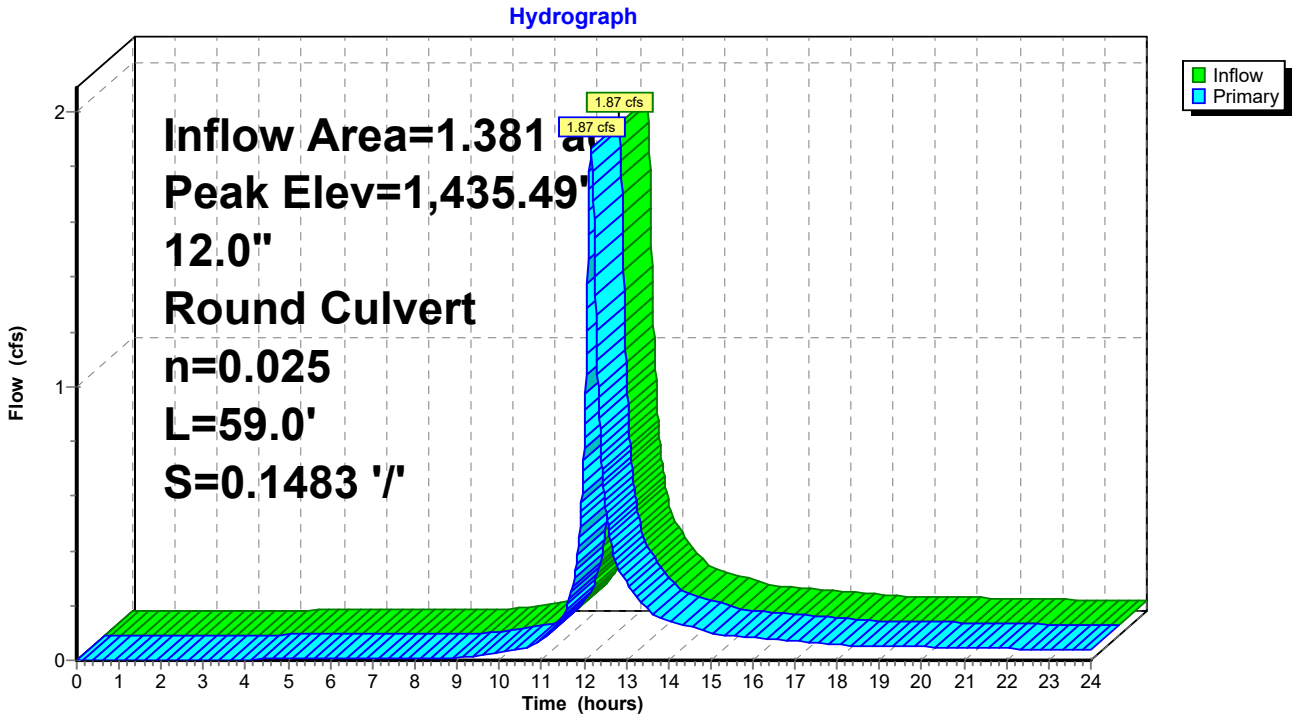
Inflow Area = 1.381 ac, 8.28% Impervious, Inflow Depth > 1.38" for 2-Year event
Inflow = 1.87 cfs @ 12.17 hrs, Volume= 0.159 af
Outflow = 1.87 cfs @ 12.17 hrs, Volume= 0.159 af, Atten= 0%, Lag= 0.0 min
Primary = 1.87 cfs @ 12.17 hrs, Volume= 0.159 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 1,435.49' @ 12.17 hrs
Flood Elev= 1,439.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,434.60'	**12.0" Round Culvert** L= 59.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,434.60' / 1,425.85' S= 0.1483 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=1.86 cfs @ 12.17 hrs HW=1,435.49' (Free Discharge)
1=Culvert (Inlet Controls 1.86 cfs @ 2.53 fps)

Pond 3P: DBCB-1



Summary for Pond 9P: CB

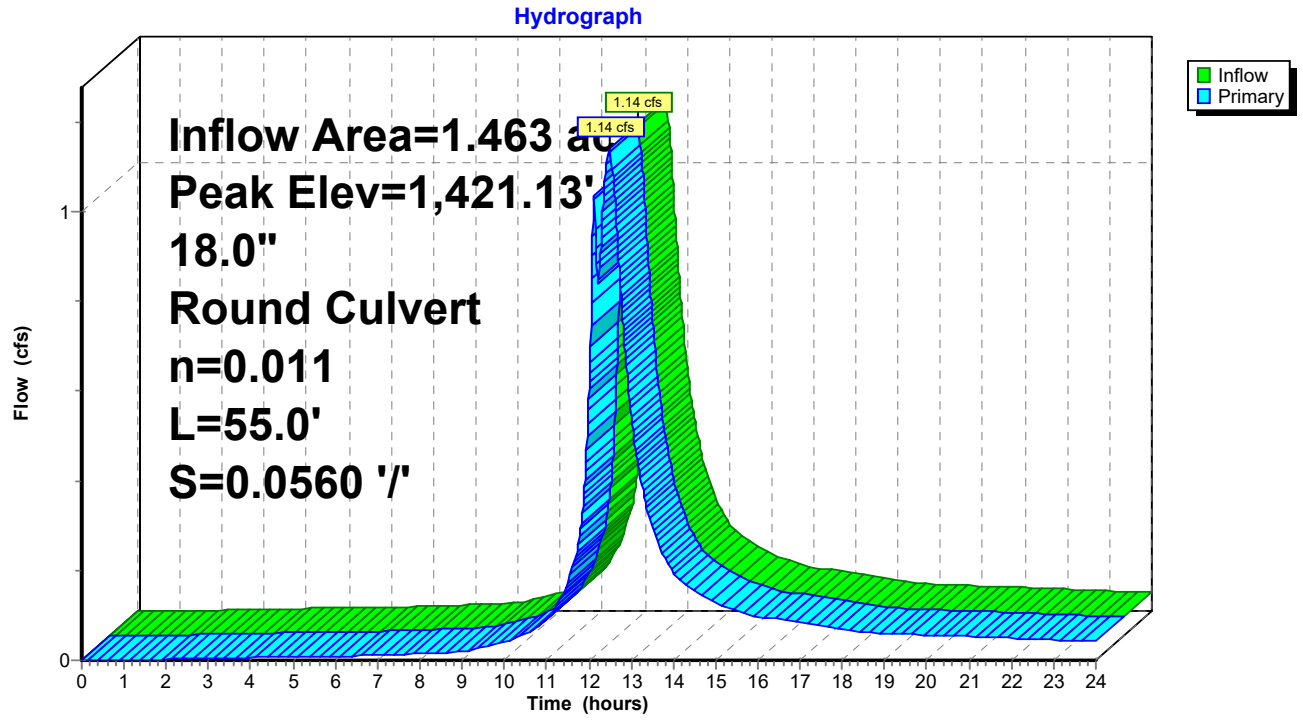
Inflow Area = 1.463 ac, 15.05% Impervious, Inflow Depth > 1.58" for 2-Year event
Inflow = 1.14 cfs @ 12.48 hrs, Volume= 0.193 af
Outflow = 1.14 cfs @ 12.48 hrs, Volume= 0.193 af, Atten= 0%, Lag= 0.0 min
Primary = 1.14 cfs @ 12.48 hrs, Volume= 0.193 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 1,421.13' @ 12.48 hrs
Flood Elev= 1,427.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,420.65'	**18.0" Round RCP_Round 18"** L= 55.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 1,420.65' / 1,417.57' S= 0.0560 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.77 sf

Primary OutFlow Max=1.14 cfs @ 12.48 hrs HW=1,421.13' (Free Discharge)
1=RCP_Round 18" (Inlet Controls 1.14 cfs @ 2.35 fps)

Pond 9P: CB

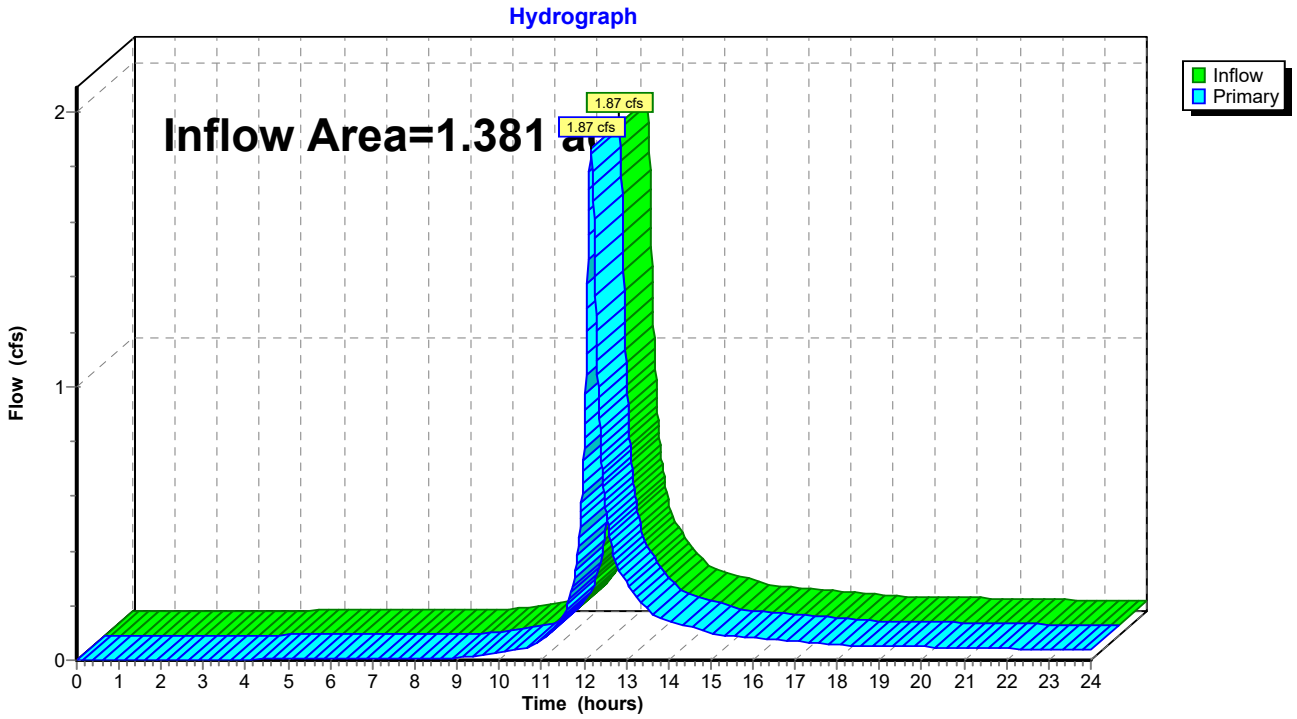


Summary for Link 5L: Design Point 1

Inflow Area = 1.381 ac, 8.28% Impervious, Inflow Depth > 1.38" for 2-Year event
Inflow = 1.87 cfs @ 12.17 hrs, Volume= 0.159 af
Primary = 1.87 cfs @ 12.17 hrs, Volume= 0.159 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 5L: Design Point 1

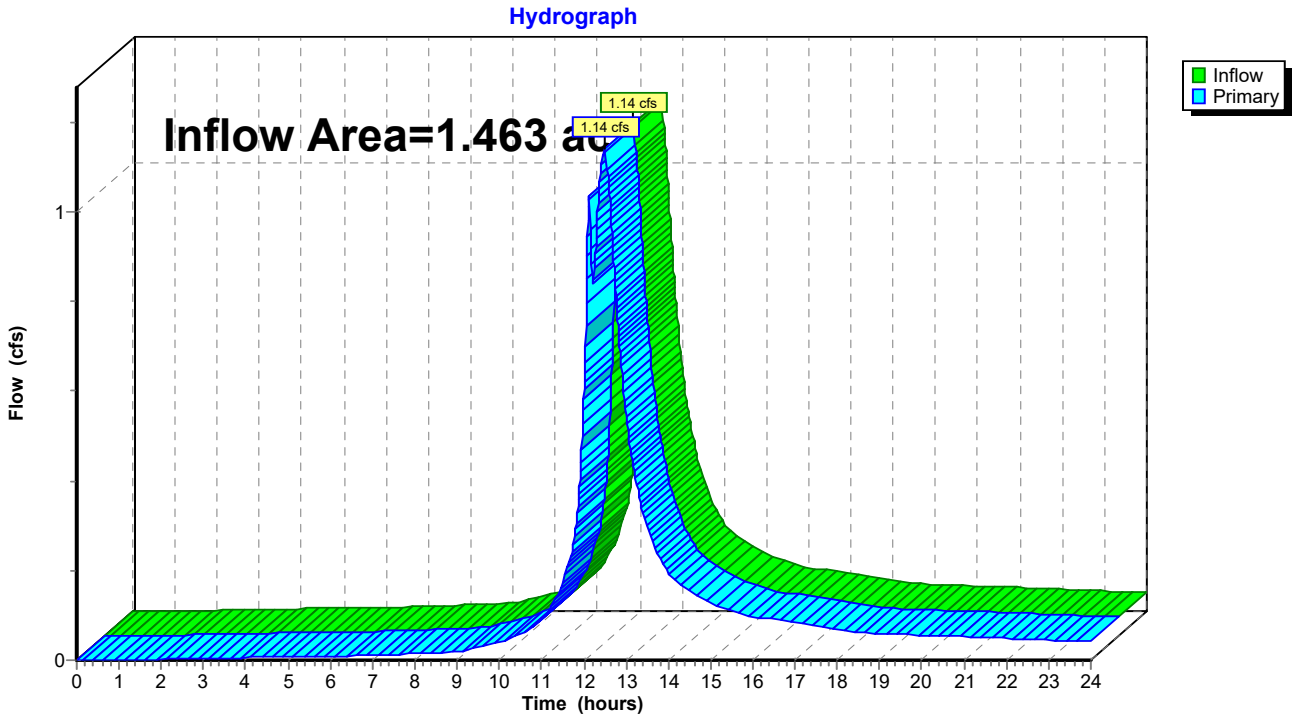


Summary for Link 6L: Design Point 2

Inflow Area = 1.463 ac, 15.05% Impervious, Inflow Depth > 1.58" for 2-Year event
Inflow = 1.14 cfs @ 12.48 hrs, Volume= 0.193 af
Primary = 1.14 cfs @ 12.48 hrs, Volume= 0.193 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 6L: Design Point 2



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: DP1 Route 8 Pavement Runoff Area=4,984 sf 100.00% Impervious Runoff Depth>4.14"
Tc=5.0 min CN=98 Runoff=0.53 cfs 0.039 af

Subcatchment4S: DP1 Offsite Runoff Area=55,191 sf 0.00% Impervious Runoff Depth>2.44"
Flow Length=387' Tc=11.1 min CN=81 Runoff=3.20 cfs 0.257 af

Subcatchment7S: DP2 Offsite Runoff Area=54,144 sf 0.00% Impervious Runoff Depth>2.60"
Flow Length=409' Tc=35.1 min CN=83 Runoff=1.94 cfs 0.269 af

Subcatchment8S: DP2 Route 8 Pavement Runoff Area=9,592 sf 100.00% Impervious Runoff Depth>4.14"
Tc=5.0 min CN=98 Runoff=1.03 cfs 0.076 af

Pond 3P: DBCB-1 Peak Elev=1,436.50' Inflow=3.53 cfs 0.297 af
12.0" Round Culvert n=0.025 L=59.0' S=0.1483 '/' Outflow=3.53 cfs 0.297 af

Pond 9P: CB Peak Elev=1,421.32' Inflow=2.11 cfs 0.345 af
18.0" Round Culvert n=0.011 L=55.0' S=0.0560 '/' Outflow=2.11 cfs 0.345 af

Link 5L: Design Point 1 Inflow=3.53 cfs 0.297 af
Primary=3.53 cfs 0.297 af

Link 6L: Design Point 2 Inflow=2.11 cfs 0.345 af
Primary=2.11 cfs 0.345 af

Total Runoff Area = 2.845 ac Runoff Volume = 0.642 af Average Runoff Depth = 2.71"
88.24% Pervious = 2.510 ac 11.76% Impervious = 0.335 ac

Summary for Subcatchment 1S: DP1 Route 8 Pavement

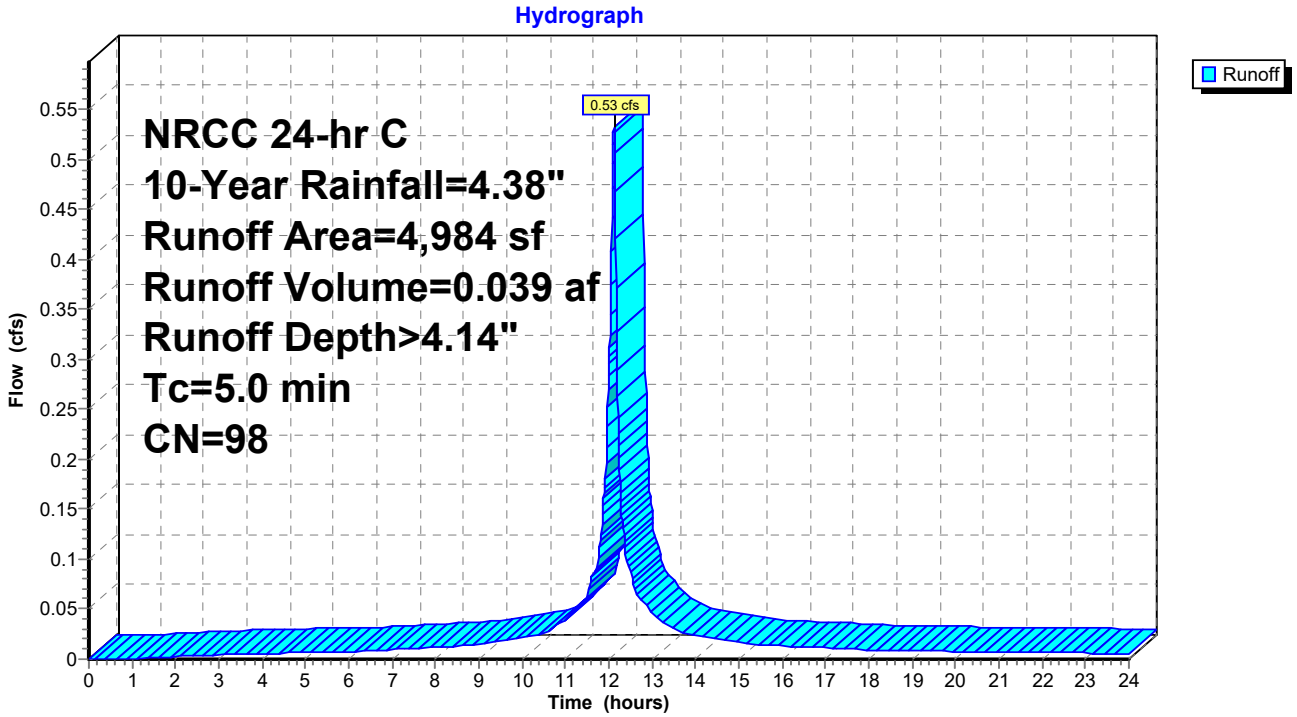
Runoff = 0.53 cfs @ 12.12 hrs, Volume= 0.039 af, Depth> 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 10-Year Rainfall=4.38"

Area (sf)	CN	Description
4,984	98	Paved roads w/curbs & sewers, HSG D
4,984		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: DP1 Route 8 Pavement



Summary for Subcatchment 4S: DP1 Offsite

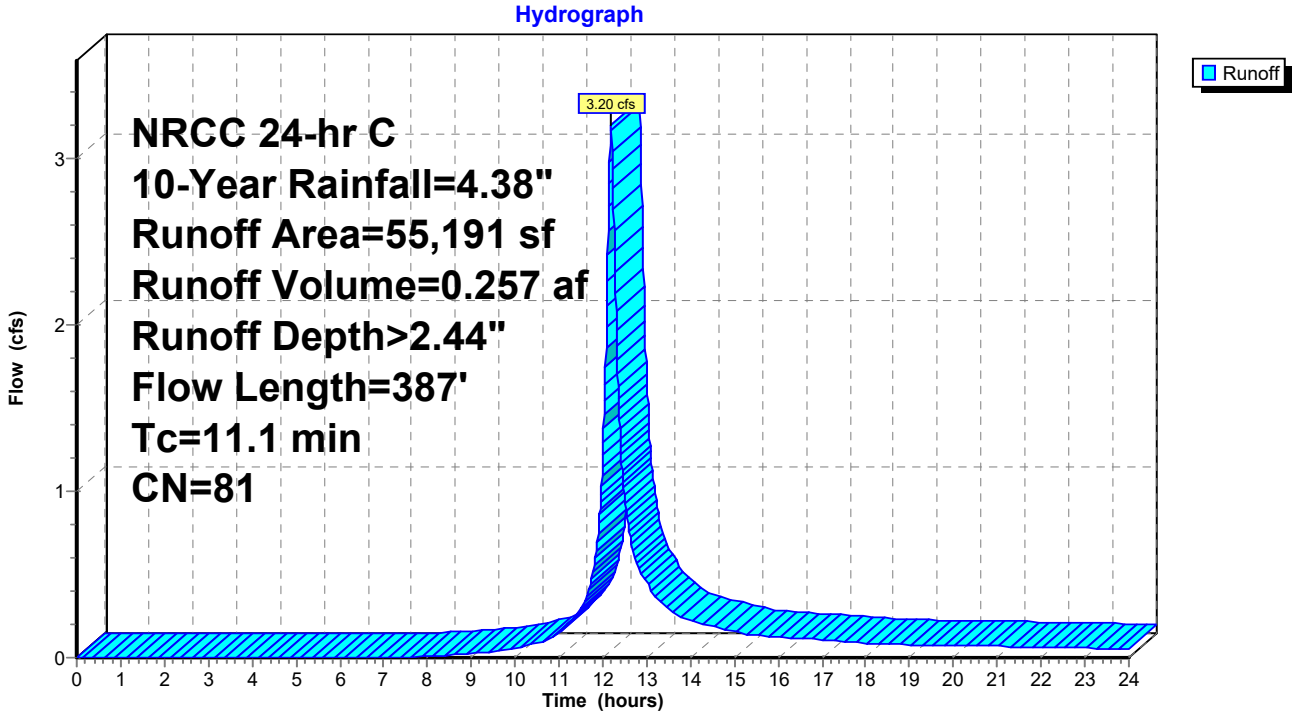
Runoff = 3.20 cfs @ 12.19 hrs, Volume= 0.257 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 10-Year Rainfall=4.38"

Area (sf)	CN	Description
33,891	83	Woods, Poor, HSG D
15,024	77	Woods, Poor, HSG C
6,276	80	>75% Grass cover, Good, HSG D
55,191	81	Weighted Average
55,191		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1800	0.18		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
1.8	230	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	57	0.0480	4.45		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.1	387	Total			

Subcatchment 4S: DP1 Offsite



Summary for Subcatchment 7S: DP2 Offsite

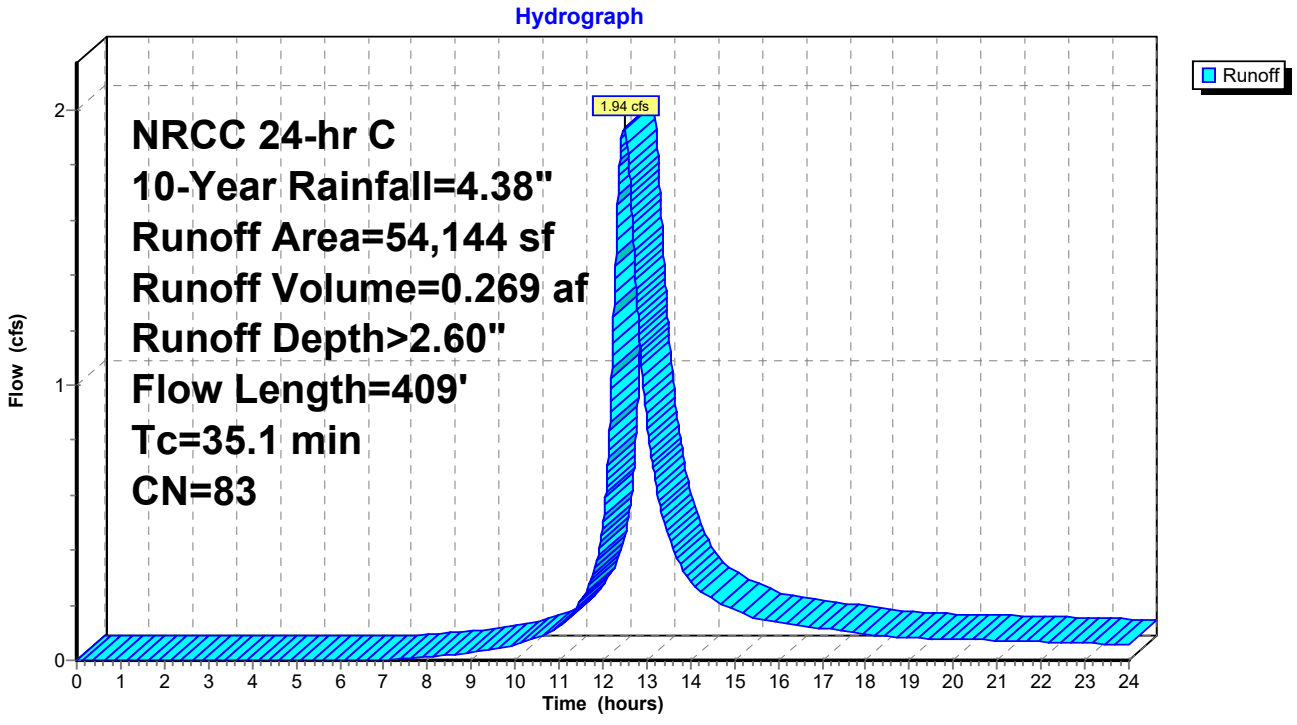
Runoff = 1.94 cfs @ 12.48 hrs, Volume= 0.269 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 10-Year Rainfall=4.38"

Area (sf)	CN	Description
54,144	83	Woods, Poor, HSG D
54,144		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
5.6	168	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	74	0.4000	3.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	67	0.0450	4.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
35.1	409	Total			

Subcatchment 7S: DP2 Offsite



Summary for Subcatchment 8S: DP2 Route 8 Pavement

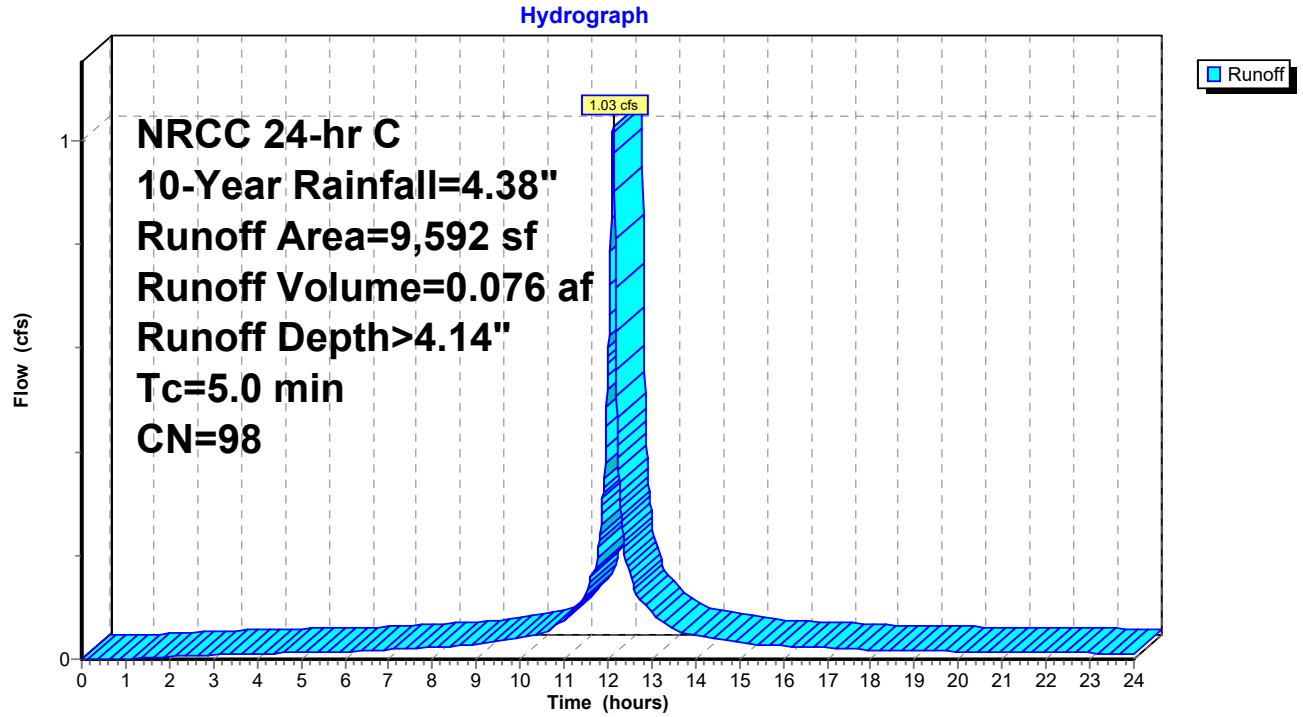
Runoff = 1.03 cfs @ 12.12 hrs, Volume= 0.076 af, Depth> 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 10-Year Rainfall=4.38"

Area (sf)	CN	Description
9,592	98	Paved roads w/curbs & sewers, HSG D
9,592		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S: DP2 Route 8 Pavement



Summary for Pond 3P: DBCB-1

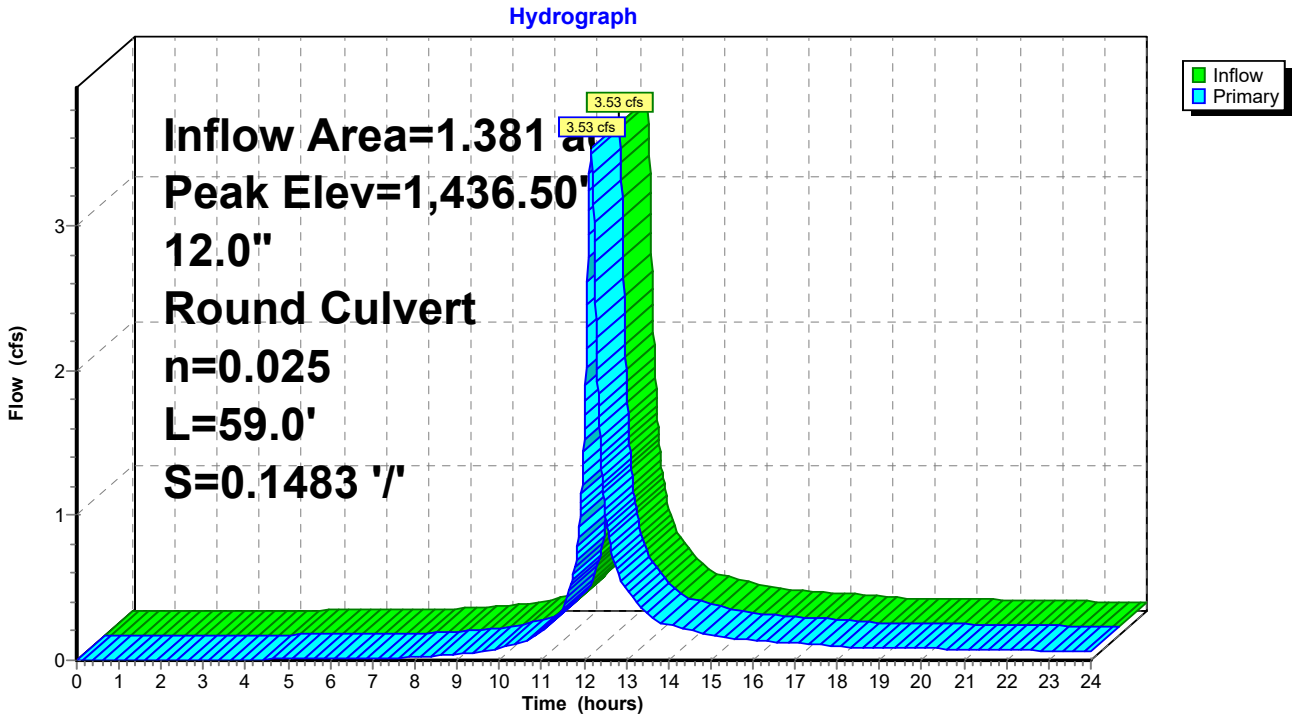
Inflow Area = 1.381 ac, 8.28% Impervious, Inflow Depth > 2.58" for 10-Year event
Inflow = 3.53 cfs @ 12.17 hrs, Volume= 0.297 af
Outflow = 3.53 cfs @ 12.17 hrs, Volume= 0.297 af, Atten= 0%, Lag= 0.0 min
Primary = 3.53 cfs @ 12.17 hrs, Volume= 0.297 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 1,436.50' @ 12.17 hrs
Flood Elev= 1,439.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,434.60'	**12.0" Round Culvert** L= 59.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,434.60' / 1,425.85' S= 0.1483 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=3.53 cfs @ 12.17 hrs HW=1,436.49' (Free Discharge)
1=Culvert (Inlet Controls 3.53 cfs @ 4.49 fps)

Pond 3P: DBCB-1



Summary for Pond 9P: CB

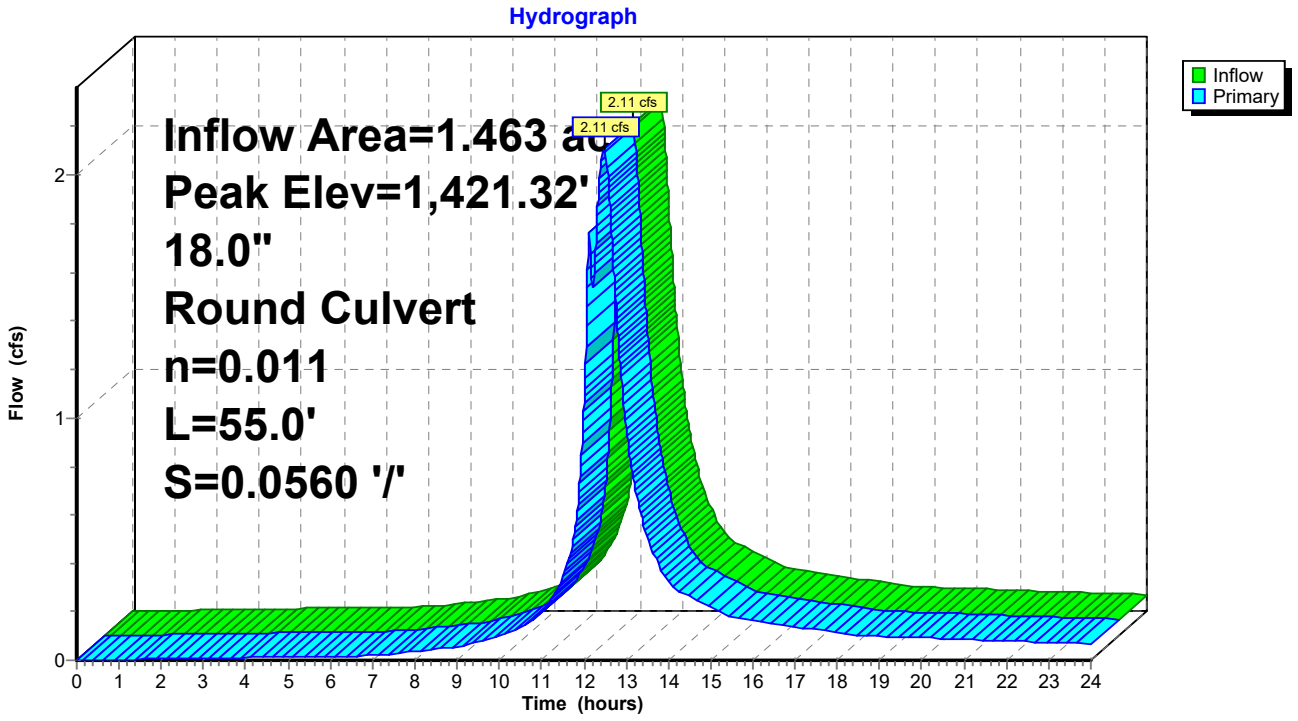
Inflow Area = 1.463 ac, 15.05% Impervious, Inflow Depth > 2.83" for 10-Year event
Inflow = 2.11 cfs @ 12.48 hrs, Volume= 0.345 af
Outflow = 2.11 cfs @ 12.48 hrs, Volume= 0.345 af, Atten= 0%, Lag= 0.0 min
Primary = 2.11 cfs @ 12.48 hrs, Volume= 0.345 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 1,421.32' @ 12.48 hrs
Flood Elev= 1,427.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,420.65'	**18.0" Round RCP_Round 18"** L= 55.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 1,420.65' / 1,417.57' S= 0.0560 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.77 sf

Primary OutFlow Max=2.11 cfs @ 12.48 hrs HW=1,421.32' (Free Discharge)
1=RCP_Round 18" (Inlet Controls 2.11 cfs @ 2.78 fps)

Pond 9P: CB

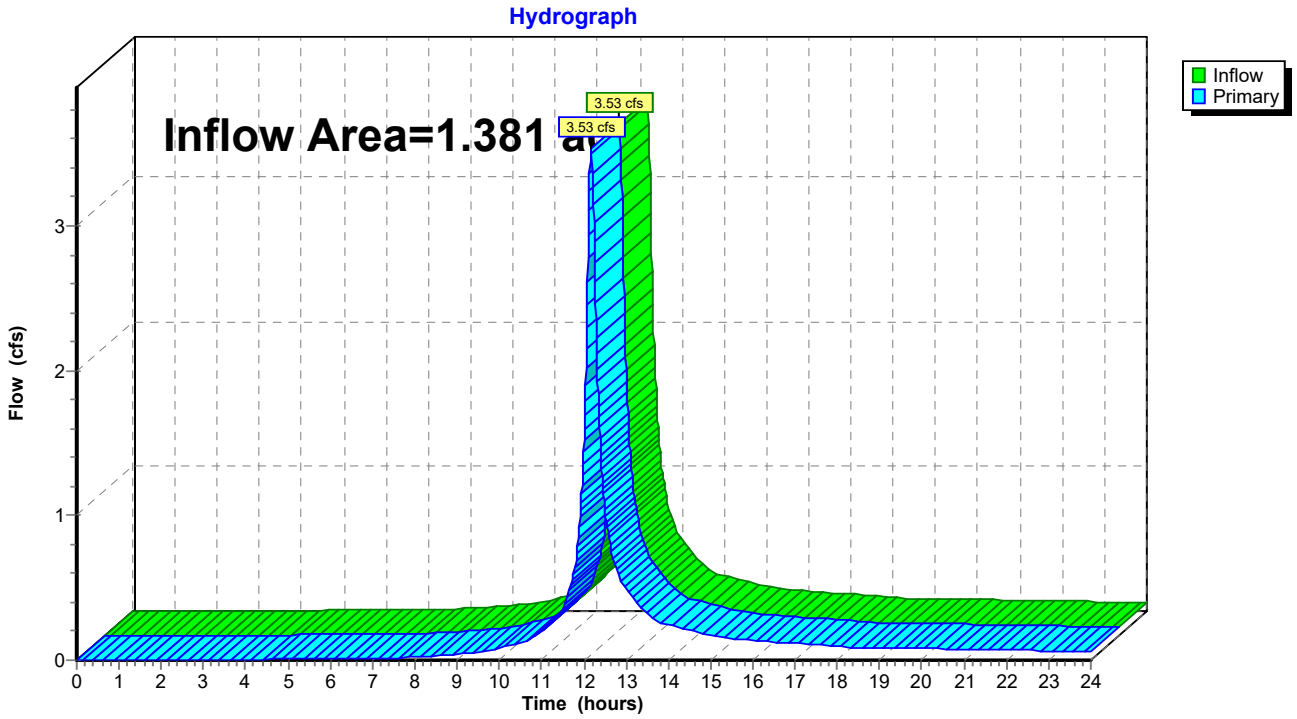


Summary for Link 5L: Design Point 1

Inflow Area = 1.381 ac, 8.28% Impervious, Inflow Depth > 2.58" for 10-Year event
Inflow = 3.53 cfs @ 12.17 hrs, Volume= 0.297 af
Primary = 3.53 cfs @ 12.17 hrs, Volume= 0.297 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 5L: Design Point 1

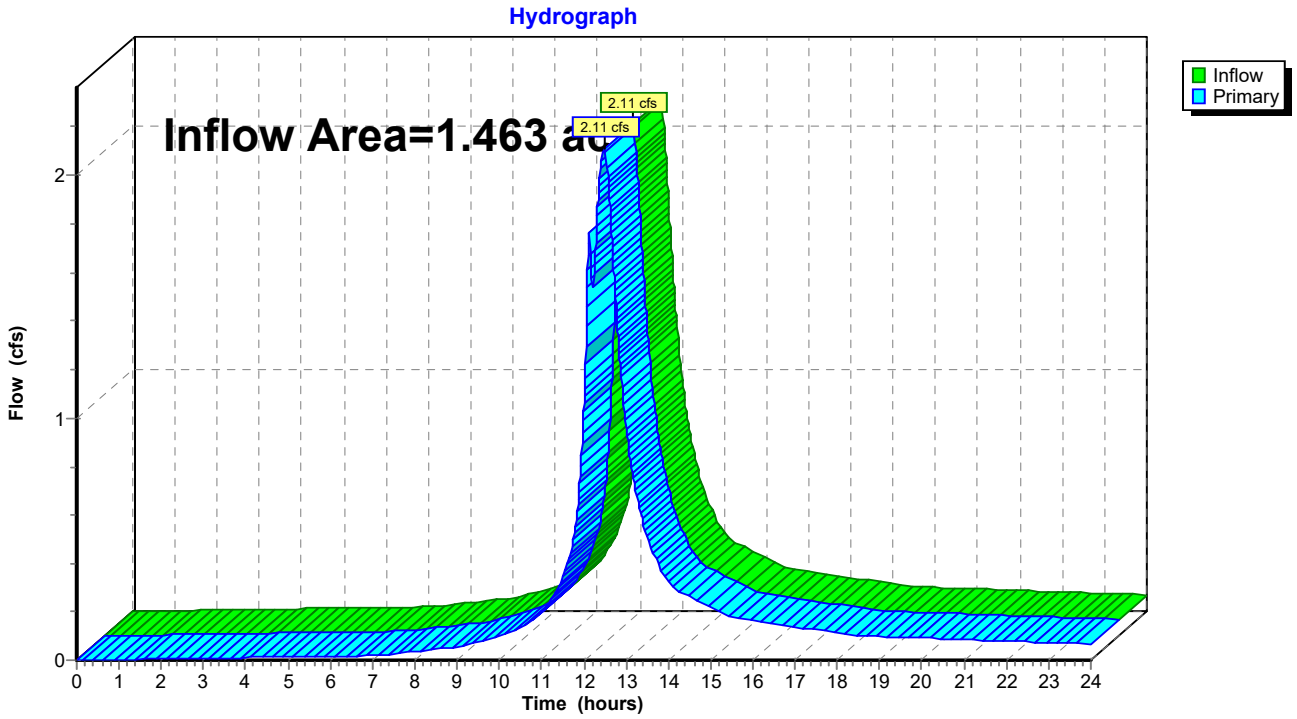


Summary for Link 6L: Design Point 2

Inflow Area = 1.463 ac, 15.05% Impervious, Inflow Depth > 2.83" for 10-Year event
Inflow = 2.11 cfs @ 12.48 hrs, Volume= 0.345 af
Primary = 2.11 cfs @ 12.48 hrs, Volume= 0.345 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 6L: Design Point 2



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: DP1 Route 8 Pavement Runoff Area=4,984 sf 100.00% Impervious Runoff Depth>7.53"
Tc=5.0 min CN=98 Runoff=0.95 cfs 0.072 af

Subcatchment4S: DP1 Offsite Runoff Area=55,191 sf 0.00% Impervious Runoff Depth>5.52"
Flow Length=387' Tc=11.1 min CN=81 Runoff=7.08 cfs 0.583 af

Subcatchment7S: DP2 Offsite Runoff Area=54,144 sf 0.00% Impervious Runoff Depth>5.72"
Flow Length=409' Tc=35.1 min CN=83 Runoff=4.18 cfs 0.593 af

Subcatchment8S: DP2 Route 8 Pavement Runoff Area=9,592 sf 100.00% Impervious Runoff Depth>7.53"
Tc=5.0 min CN=98 Runoff=1.83 cfs 0.138 af

Pond 3P: DBCB-1 Peak Elev=1,441.70' Inflow=7.67 cfs 0.655 af
12.0" Round Culvert n=0.025 L=59.0' S=0.1483 '/' Outflow=7.67 cfs 0.655 af

Pond 9P: CB Peak Elev=1,421.68' Inflow=4.49 cfs 0.731 af
18.0" Round Culvert n=0.011 L=55.0' S=0.0560 '/' Outflow=4.49 cfs 0.731 af

Link 5L: Design Point 1 Inflow=7.67 cfs 0.655 af
Primary=7.67 cfs 0.655 af

Link 6L: Design Point 2 Inflow=4.49 cfs 0.731 af
Primary=4.49 cfs 0.731 af

Total Runoff Area = 2.845 ac Runoff Volume = 1.386 af Average Runoff Depth = 5.85"
88.24% Pervious = 2.510 ac 11.76% Impervious = 0.335 ac

Summary for Subcatchment 1S: DP1 Route 8 Pavement

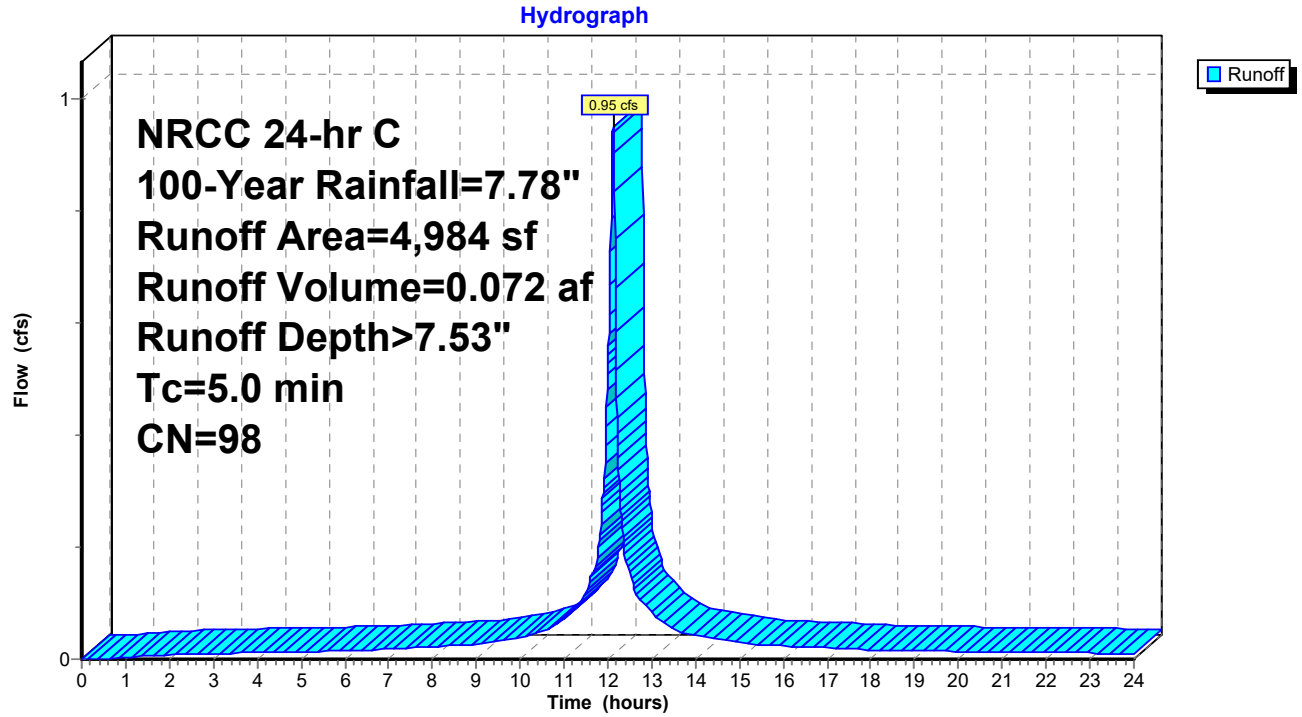
Runoff = 0.95 cfs @ 12.12 hrs, Volume= 0.072 af, Depth> 7.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=7.78"

Area (sf)	CN	Description
4,984	98	Paved roads w/curbs & sewers, HSG D
4,984		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: DP1 Route 8 Pavement



Summary for Subcatchment 4S: DP1 Offsite

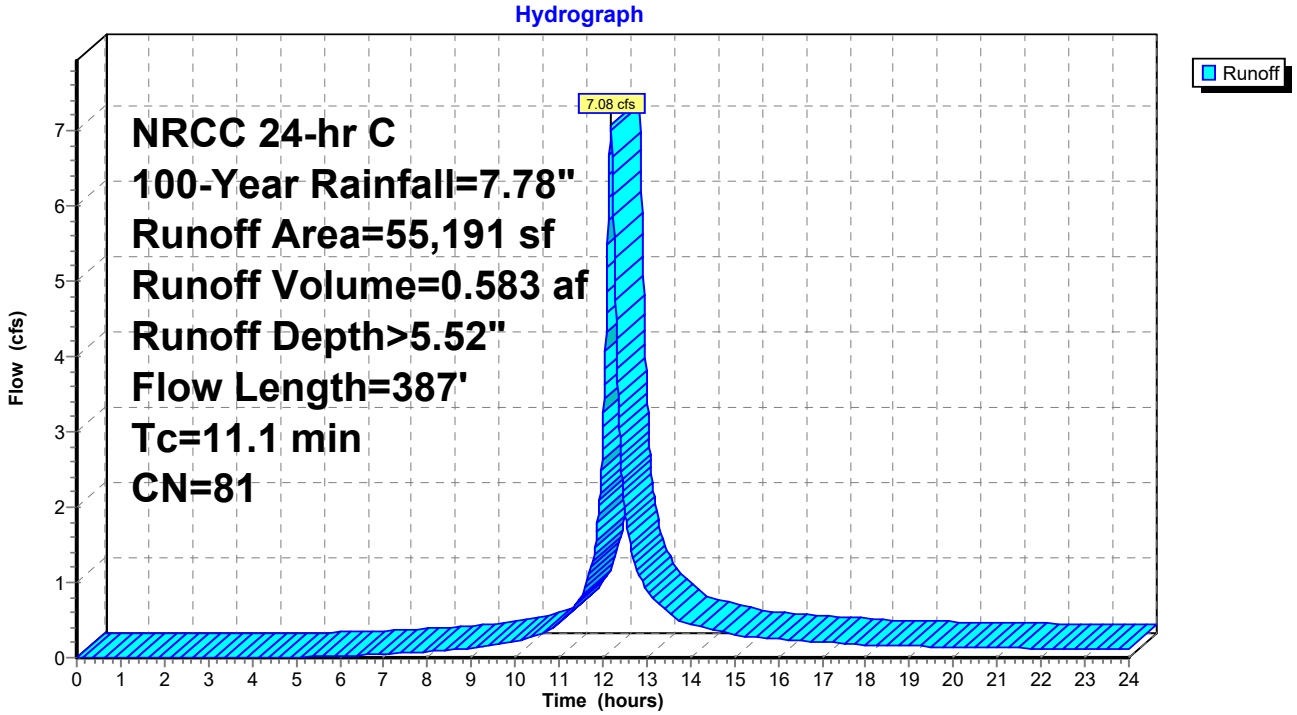
Runoff = 7.08 cfs @ 12.18 hrs, Volume= 0.583 af, Depth> 5.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=7.78"

Area (sf)	CN	Description
33,891	83	Woods, Poor, HSG D
15,024	77	Woods, Poor, HSG C
6,276	80	>75% Grass cover, Good, HSG D
55,191	81	Weighted Average
55,191		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1800	0.18		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
1.8	230	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	57	0.0480	4.45		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.1	387	Total			

Subcatchment 4S: DP1 Offsite



Summary for Subcatchment 7S: DP2 Offsite

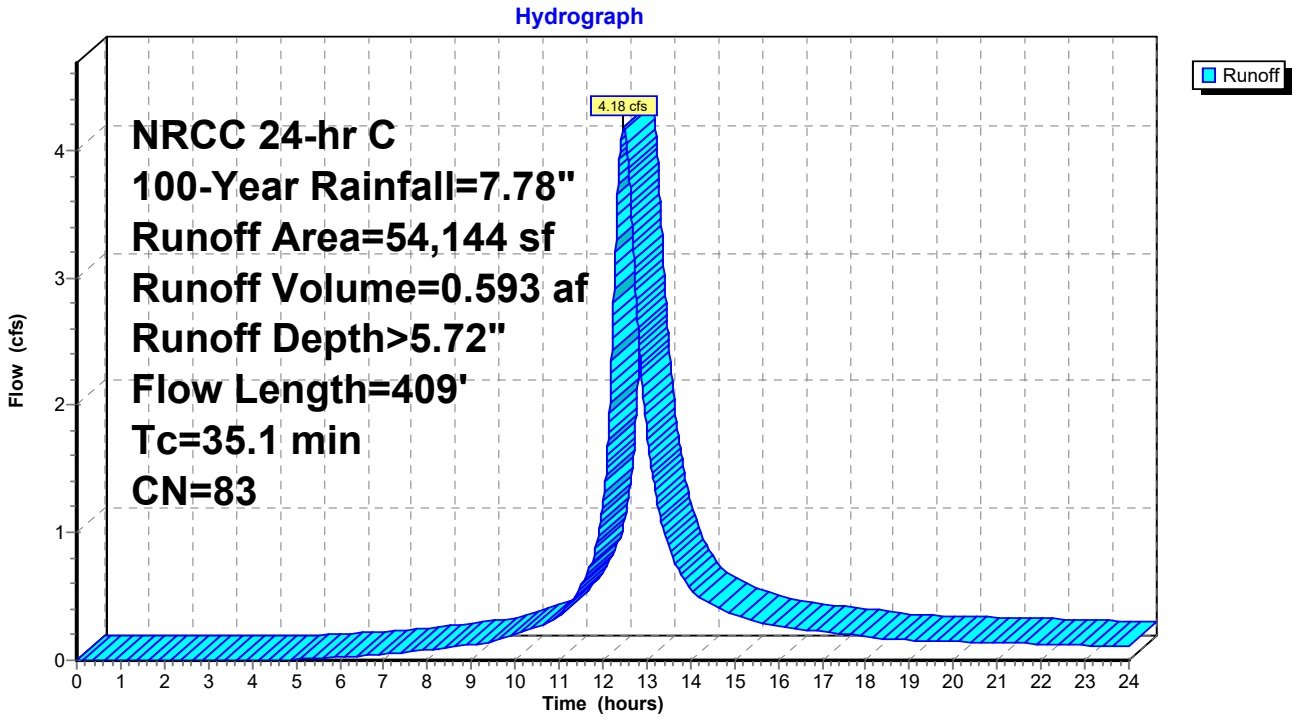
Runoff = 4.18 cfs @ 12.48 hrs, Volume= 0.593 af, Depth> 5.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=7.78"

Area (sf)	CN	Description
54,144	83	Woods, Poor, HSG D
54,144		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
5.6	168	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	74	0.4000	3.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	67	0.0450	4.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
35.1	409	Total			

Subcatchment 7S: DP2 Offsite



Summary for Subcatchment 8S: DP2 Route 8 Pavement

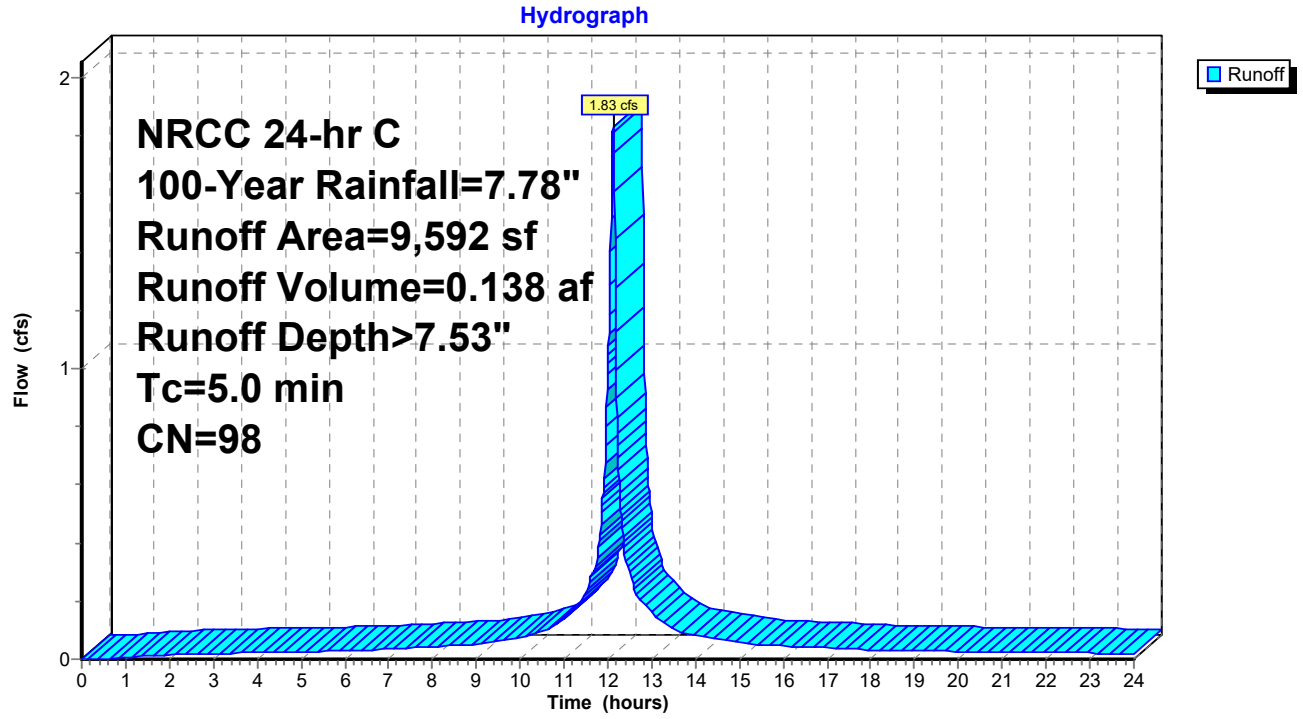
Runoff = 1.83 cfs @ 12.12 hrs, Volume= 0.138 af, Depth> 7.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=7.78"

Area (sf)	CN	Description
9,592	98	Paved roads w/curbs & sewers, HSG D
9,592		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S: DP2 Route 8 Pavement



Summary for Pond 3P: DBCB-1

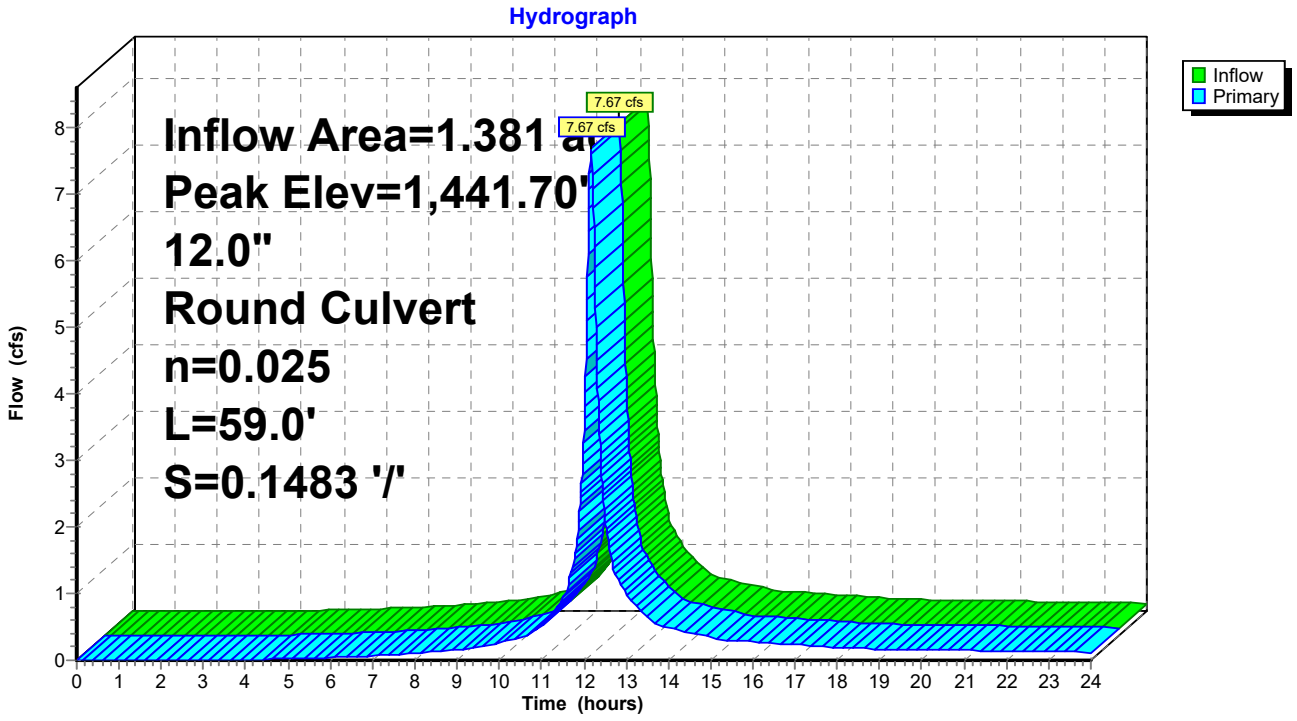
Inflow Area = 1.381 ac, 8.28% Impervious, Inflow Depth > 5.69" for 100-Year event
Inflow = 7.67 cfs @ 12.17 hrs, Volume= 0.655 af
Outflow = 7.67 cfs @ 12.17 hrs, Volume= 0.655 af, Atten= 0%, Lag= 0.0 min
Primary = 7.67 cfs @ 12.17 hrs, Volume= 0.655 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 1,441.70' @ 12.17 hrs
Flood Elev= 1,439.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,434.60'	**12.0" Round Culvert** L= 59.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,434.60' / 1,425.85' S= 0.1483 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=7.66 cfs @ 12.17 hrs HW=1,441.69' (Free Discharge)
1=Culvert (Inlet Controls 7.66 cfs @ 9.76 fps)

Pond 3P: DBCB-1



Summary for Pond 9P: CB

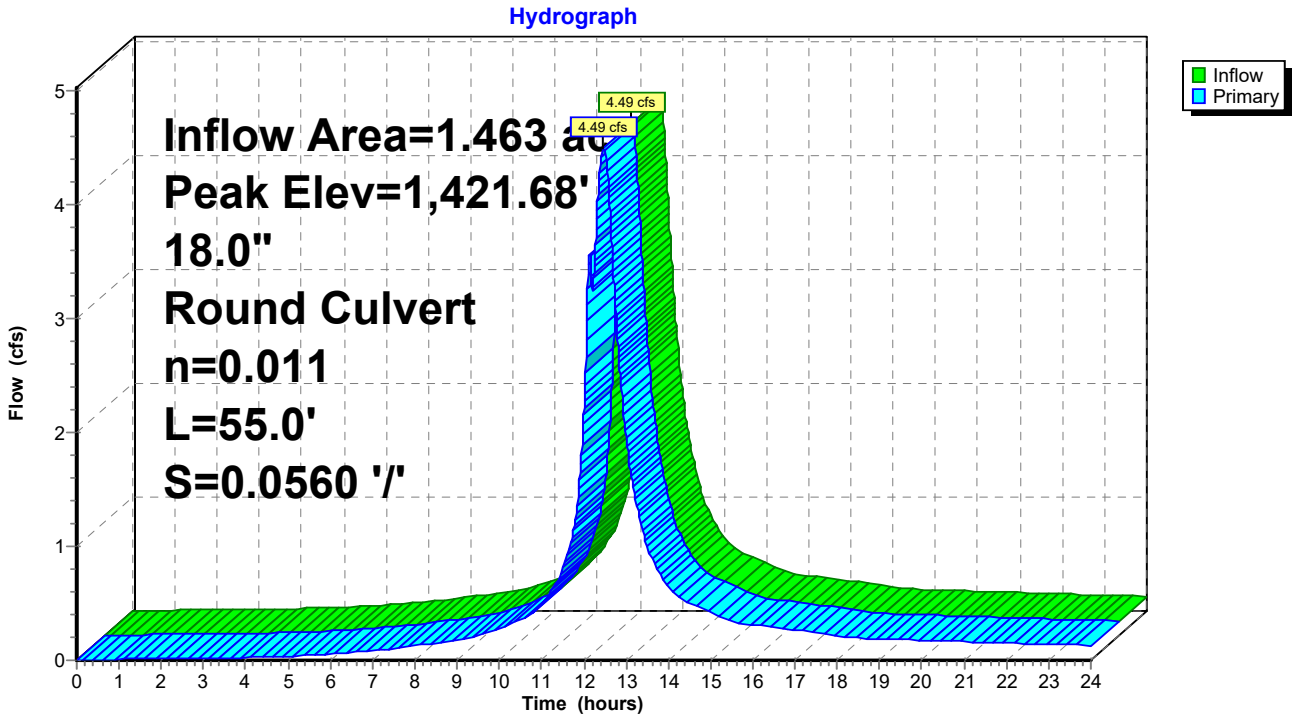
Inflow Area = 1.463 ac, 15.05% Impervious, Inflow Depth > 5.99" for 100-Year event
Inflow = 4.49 cfs @ 12.45 hrs, Volume= 0.731 af
Outflow = 4.49 cfs @ 12.45 hrs, Volume= 0.731 af, Atten= 0%, Lag= 0.0 min
Primary = 4.49 cfs @ 12.45 hrs, Volume= 0.731 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 1,421.68' @ 12.45 hrs
Flood Elev= 1,427.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,420.65'	**18.0" Round RCP_Round 18"** L= 55.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 1,420.65' / 1,417.57' S= 0.0560 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.77 sf

Primary OutFlow Max=4.49 cfs @ 12.45 hrs HW=1,421.68' (Free Discharge)
1=RCP_Round 18" (Inlet Controls 4.49 cfs @ 3.46 fps)

Pond 9P: CB

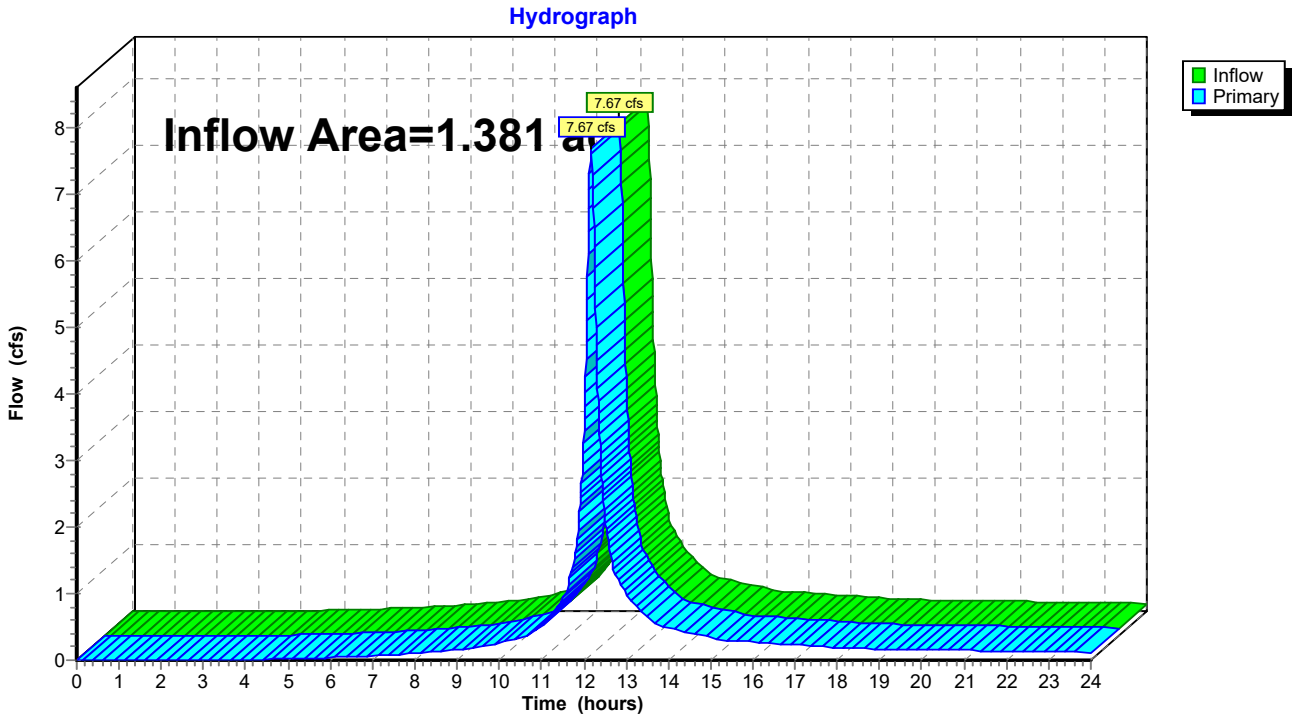


Summary for Link 5L: Design Point 1

Inflow Area = 1.381 ac, 8.28% Impervious, Inflow Depth > 5.69" for 100-Year event
Inflow = 7.67 cfs @ 12.17 hrs, Volume= 0.655 af
Primary = 7.67 cfs @ 12.17 hrs, Volume= 0.655 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 5L: Design Point 1

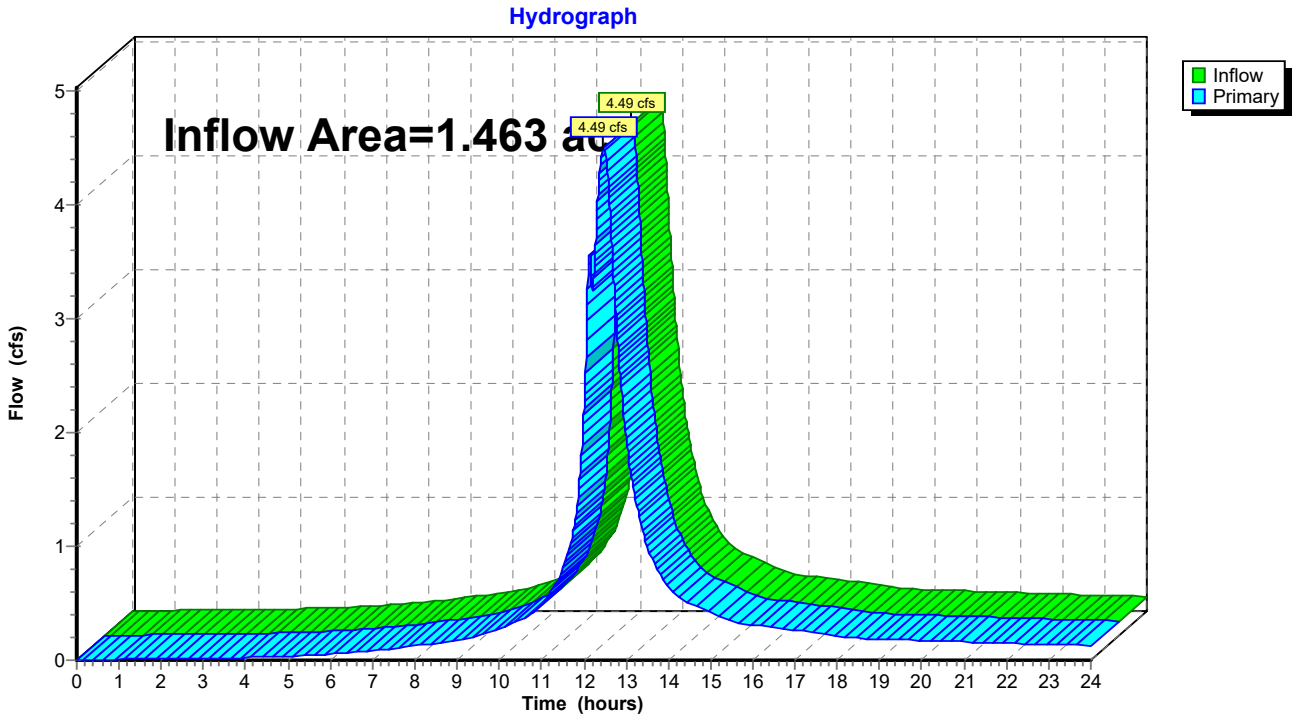


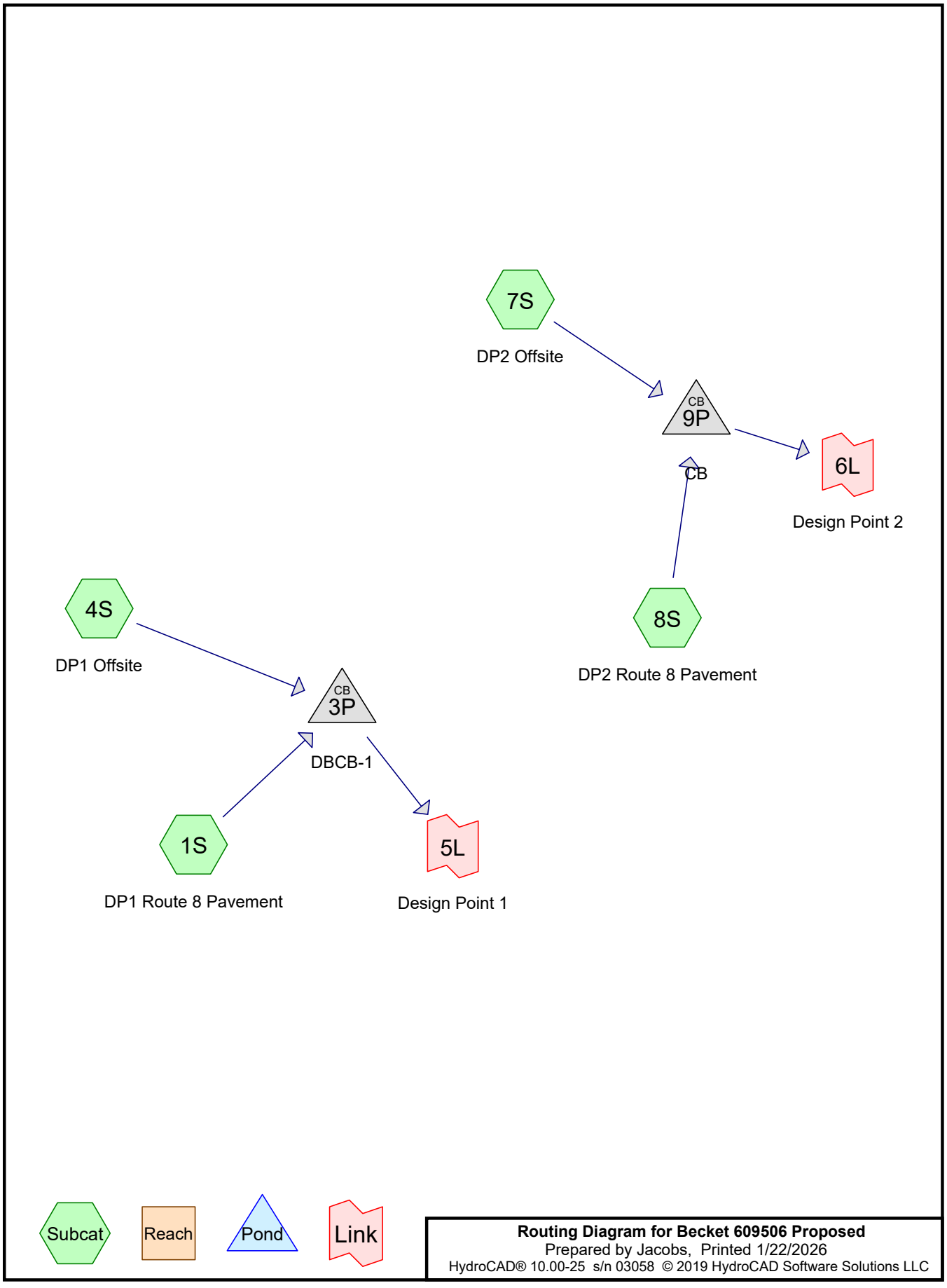
Summary for Link 6L: Design Point 2

Inflow Area = 1.463 ac, 15.05% Impervious, Inflow Depth > 5.99" for 100-Year event
Inflow = 4.49 cfs @ 12.45 hrs, Volume= 0.731 af
Primary = 4.49 cfs @ 12.45 hrs, Volume= 0.731 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 6L: Design Point 2




7S
DP2 Offsite
CB
9P
6L
Design Point 2
CB
8S
DP2 Route 8 Pavement
4S
DP1 Offsite
CB
3P
DBCB-1
1S
DP1 Route 8 Pavement
5L
Design Point 1
Subcat
Reach
Pond
Link
Routing Diagram for Becket 609506 Proposed
Prepared by Jacobs, Printed 1/22/2026
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Becket 609506 Proposed
Prepared by Jacobs
Printed 1/22/2026
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.144	80	>75% Grass cover, Good, HSG D (4S)
0.335	98	Paved roads w/curbs & sewers, HSG D (1S, 8S)
0.345	77	Woods, Poor, HSG C (4S)
2.021	83	Woods, Poor, HSG D (4S, 7S)
2.845	**84**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: DP1 Route 8 Pavement Runoff Area=4,984 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.36 cfs 0.026 af

Subcatchment4S: DP1 Offsite Runoff Area=55,191 sf 0.00% Impervious Runoff Depth>1.26"
Flow Length=387' Tc=11.1 min CN=81 Runoff=1.65 cfs 0.133 af

Subcatchment7S: DP2 Offsite Runoff Area=54,144 sf 0.00% Impervious Runoff Depth>1.38"
Flow Length=409' Tc=35.1 min CN=83 Runoff=1.03 cfs 0.143 af

Subcatchment8S: DP2 Route 8 Pavement Runoff Area=9,592 sf 100.00% Impervious Runoff Depth>2.71"
Tc=5.0 min CN=98 Runoff=0.68 cfs 0.050 af

Pond 3P: DBCB-1 Peak Elev=1,435.49' Inflow=1.87 cfs 0.159 af
12.0" Round Culvert n=0.025 L=59.0' S=0.1483 '/' Outflow=1.87 cfs 0.159 af

Pond 9P: CB Peak Elev=1,421.13' Inflow=1.14 cfs 0.193 af
18.0" Round Culvert n=0.011 L=55.0' S=0.0560 '/' Outflow=1.14 cfs 0.193 af

Link 5L: Design Point 1 Inflow=1.87 cfs 0.159 af
Primary=1.87 cfs 0.159 af

Link 6L: Design Point 2 Inflow=1.14 cfs 0.193 af
Primary=1.14 cfs 0.193 af

Total Runoff Area = 2.845 ac Runoff Volume = 0.352 af Average Runoff Depth = 1.49"
88.24% Pervious = 2.510 ac 11.76% Impervious = 0.335 ac

Summary for Subcatchment 1S: DP1 Route 8 Pavement

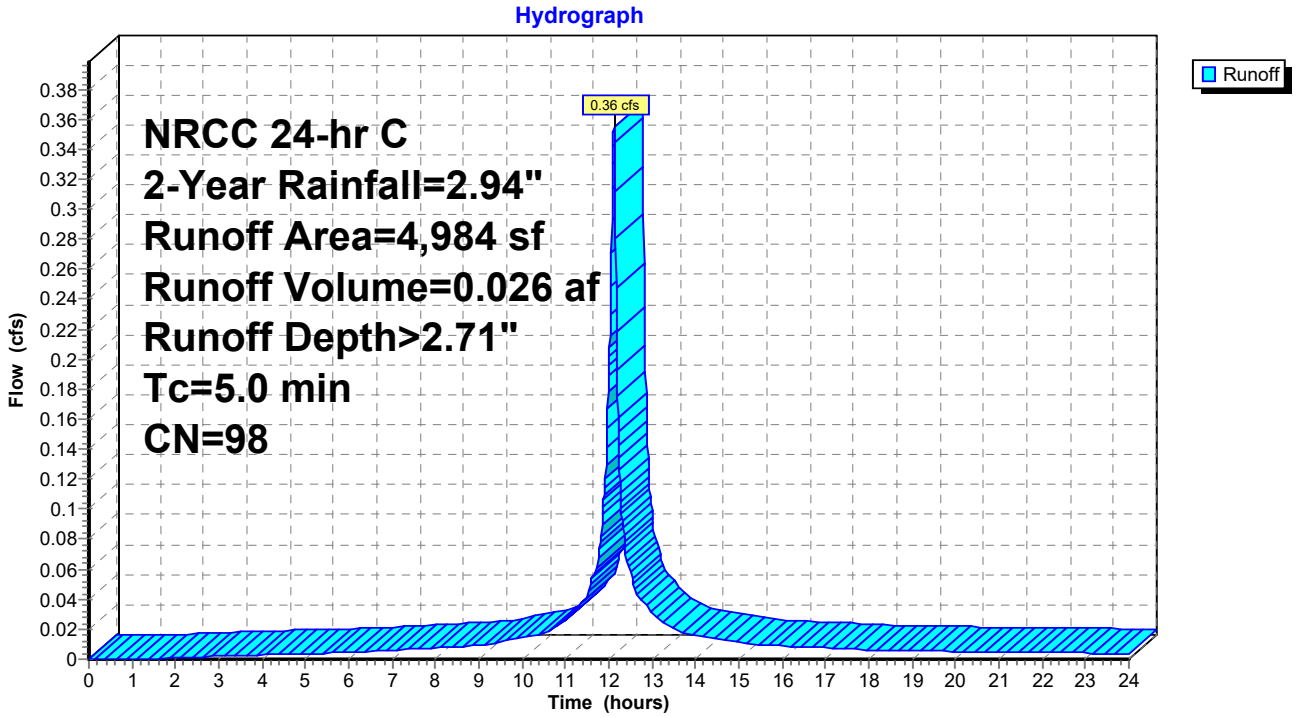
Runoff = 0.36 cfs @ 12.12 hrs, Volume= 0.026 af, Depth> 2.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 2-Year Rainfall=2.94"

Area (sf)	CN	Description
4,984	98	Paved roads w/curbs & sewers, HSG D
4,984		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: DP1 Route 8 Pavement



Summary for Subcatchment 4S: DP1 Offsite

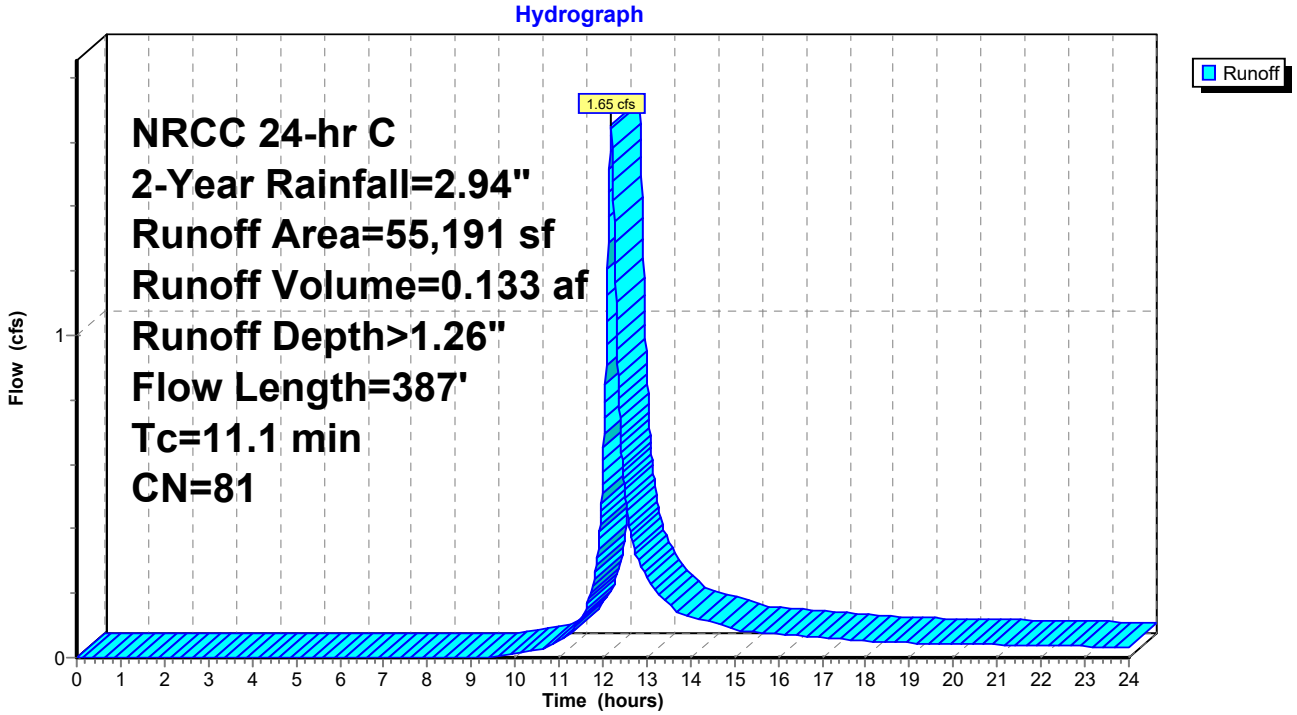
Runoff = 1.65 cfs @ 12.19 hrs, Volume= 0.133 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 2-Year Rainfall=2.94"

Area (sf)	CN	Description
33,891	83	Woods, Poor, HSG D
15,024	77	Woods, Poor, HSG C
6,276	80	>75% Grass cover, Good, HSG D
55,191	81	Weighted Average
55,191		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1800	0.18		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
1.8	230	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	57	0.0480	4.45		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.1	387	Total			

Subcatchment 4S: DP1 Offsite



Summary for Subcatchment 7S: DP2 Offsite

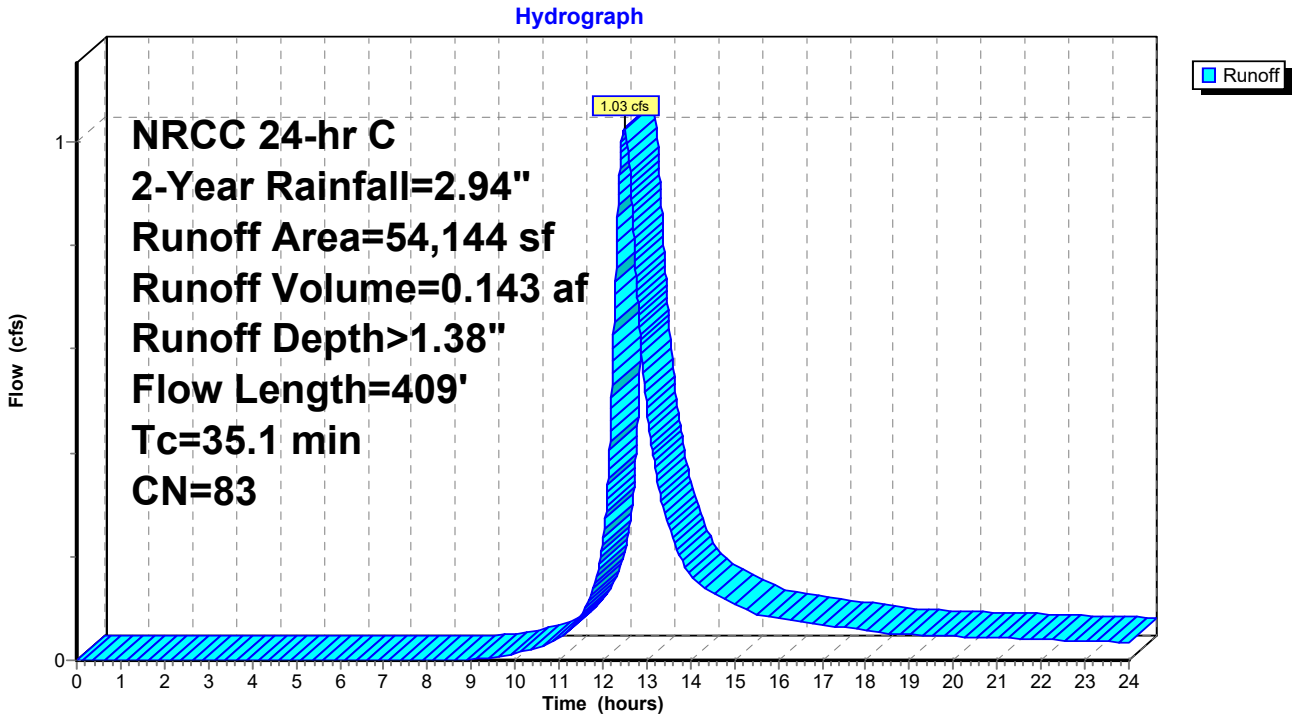
Runoff = 1.03 cfs @ 12.51 hrs, Volume= 0.143 af, Depth> 1.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 2-Year Rainfall=2.94"

Area (sf)	CN	Description
54,144	83	Woods, Poor, HSG D
54,144		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
5.6	168	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	74	0.4000	3.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	67	0.0450	4.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
35.1	409	Total			

Subcatchment 7S: DP2 Offsite



Summary for Subcatchment 8S: DP2 Route 8 Pavement

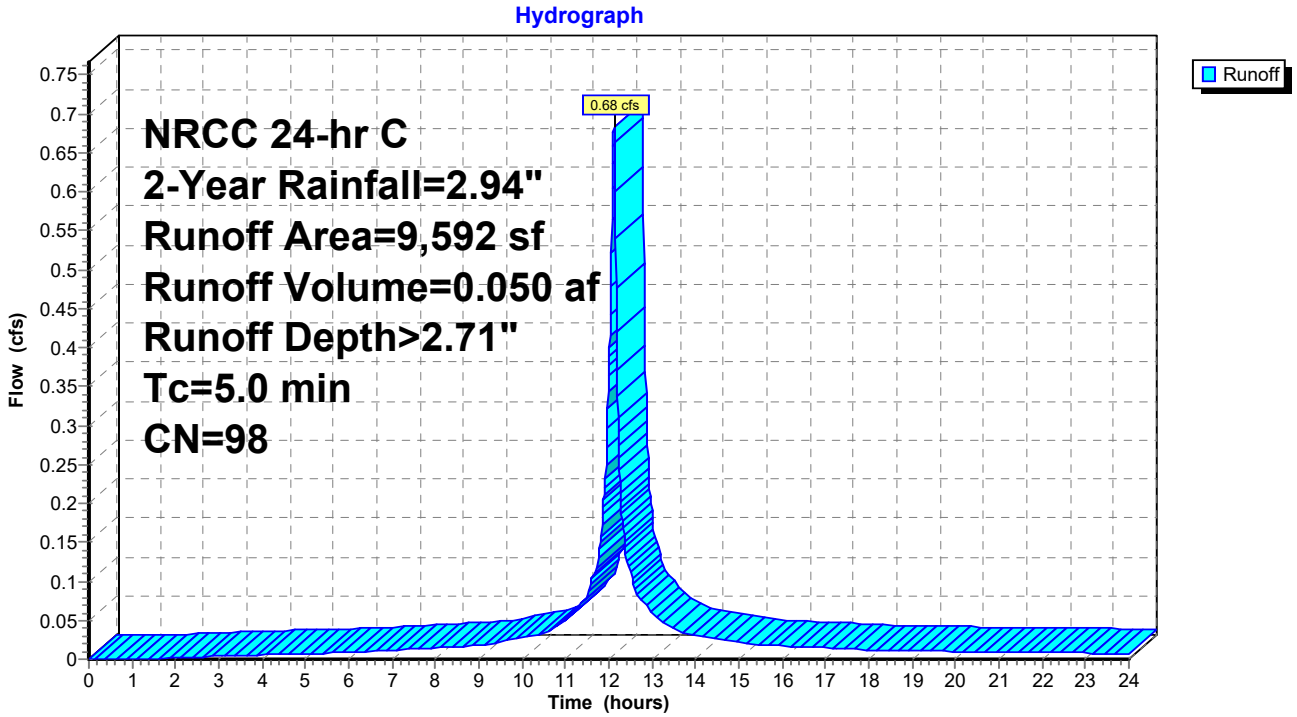
Runoff = 0.68 cfs @ 12.12 hrs, Volume= 0.050 af, Depth> 2.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 2-Year Rainfall=2.94"

Area (sf)	CN	Description
9,592	98	Paved roads w/curbs & sewers, HSG D
9,592		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S: DP2 Route 8 Pavement



Summary for Pond 3P: DBCB-1

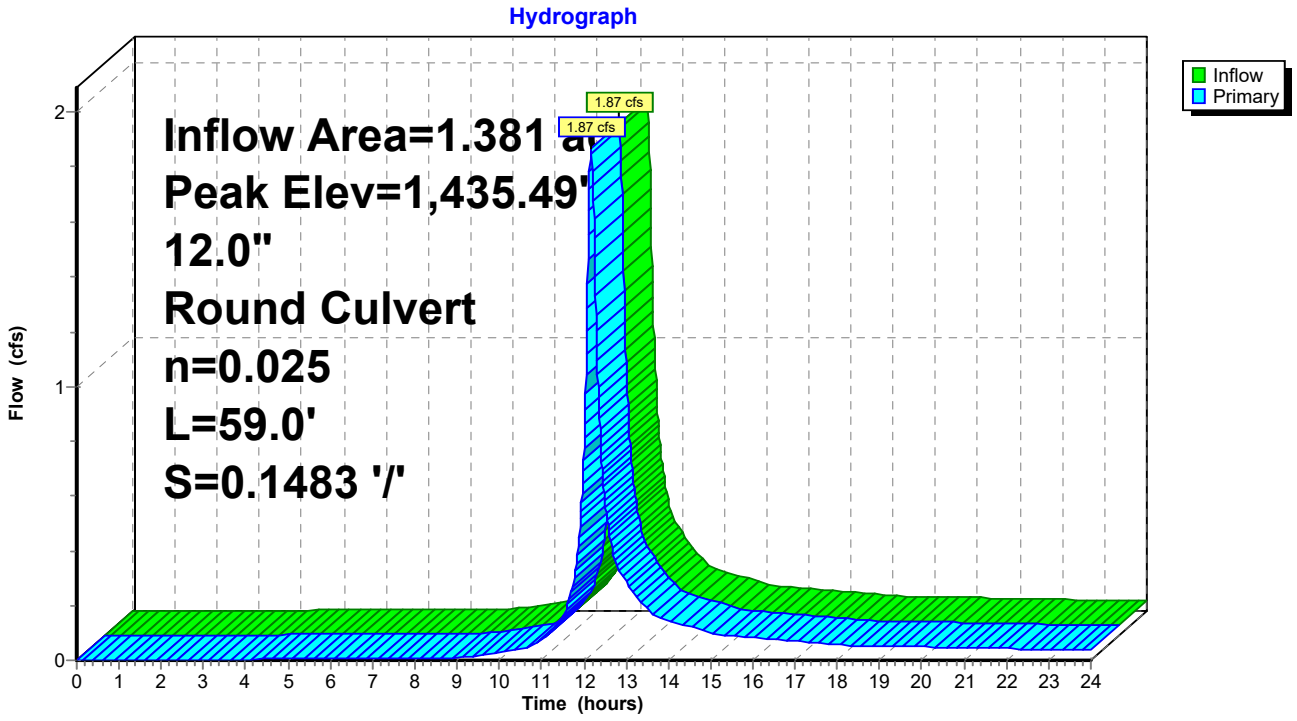
Inflow Area = 1.381 ac, 8.28% Impervious, Inflow Depth > 1.38" for 2-Year event
Inflow = 1.87 cfs @ 12.17 hrs, Volume= 0.159 af
Outflow = 1.87 cfs @ 12.17 hrs, Volume= 0.159 af, Atten= 0%, Lag= 0.0 min
Primary = 1.87 cfs @ 12.17 hrs, Volume= 0.159 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 1,435.49' @ 12.17 hrs
Flood Elev= 1,439.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,434.60'	**12.0" Round Culvert** L= 59.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,434.60' / 1,425.85' S= 0.1483 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=1.86 cfs @ 12.17 hrs HW=1,435.49' (Free Discharge)
1=Culvert (Inlet Controls 1.86 cfs @ 2.53 fps)

Pond 3P: DBCB-1



Summary for Pond 9P: CB

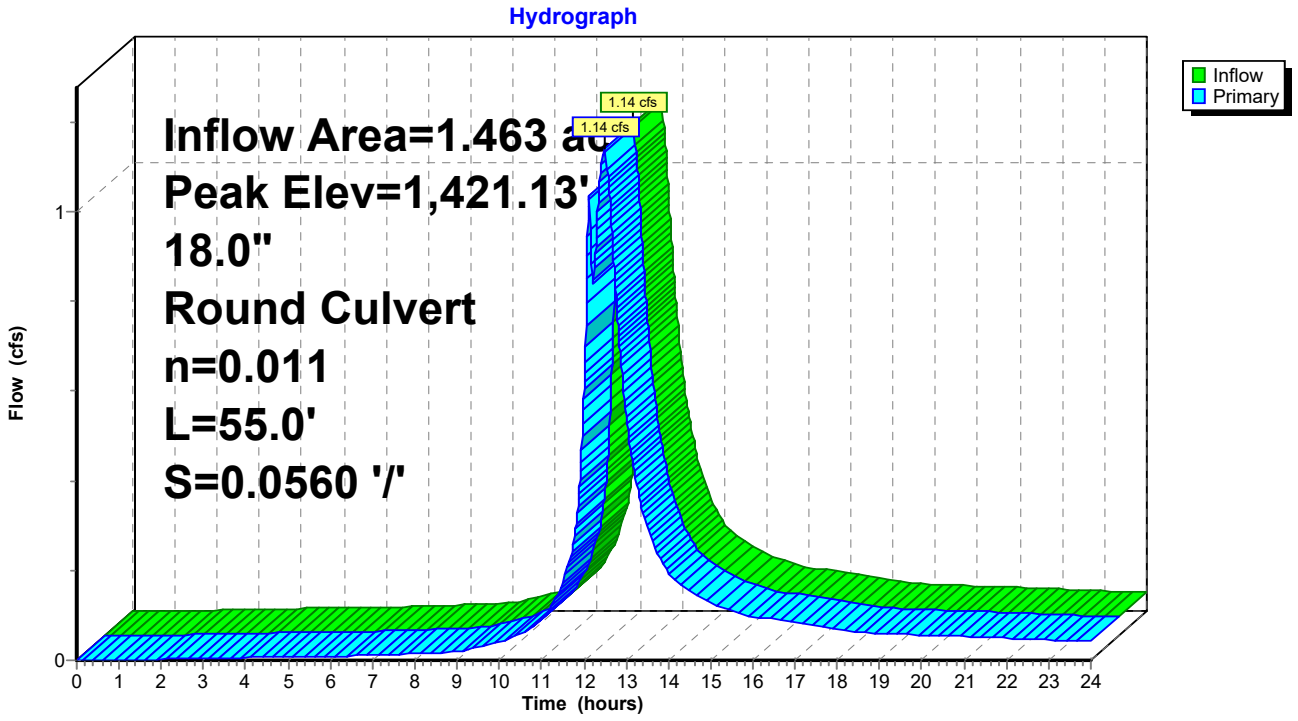
Inflow Area = 1.463 ac, 15.05% Impervious, Inflow Depth > 1.58" for 2-Year event
Inflow = 1.14 cfs @ 12.48 hrs, Volume= 0.193 af
Outflow = 1.14 cfs @ 12.48 hrs, Volume= 0.193 af, Atten= 0%, Lag= 0.0 min
Primary = 1.14 cfs @ 12.48 hrs, Volume= 0.193 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 1,421.13' @ 12.48 hrs
Flood Elev= 1,427.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,420.65'	**18.0" Round RCP_Round 18"** L= 55.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 1,420.65' / 1,417.57' S= 0.0560 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.77 sf

Primary OutFlow Max=1.14 cfs @ 12.48 hrs HW=1,421.13' (Free Discharge)
1=RCP_Round 18" (Inlet Controls 1.14 cfs @ 2.35 fps)

Pond 9P: CB

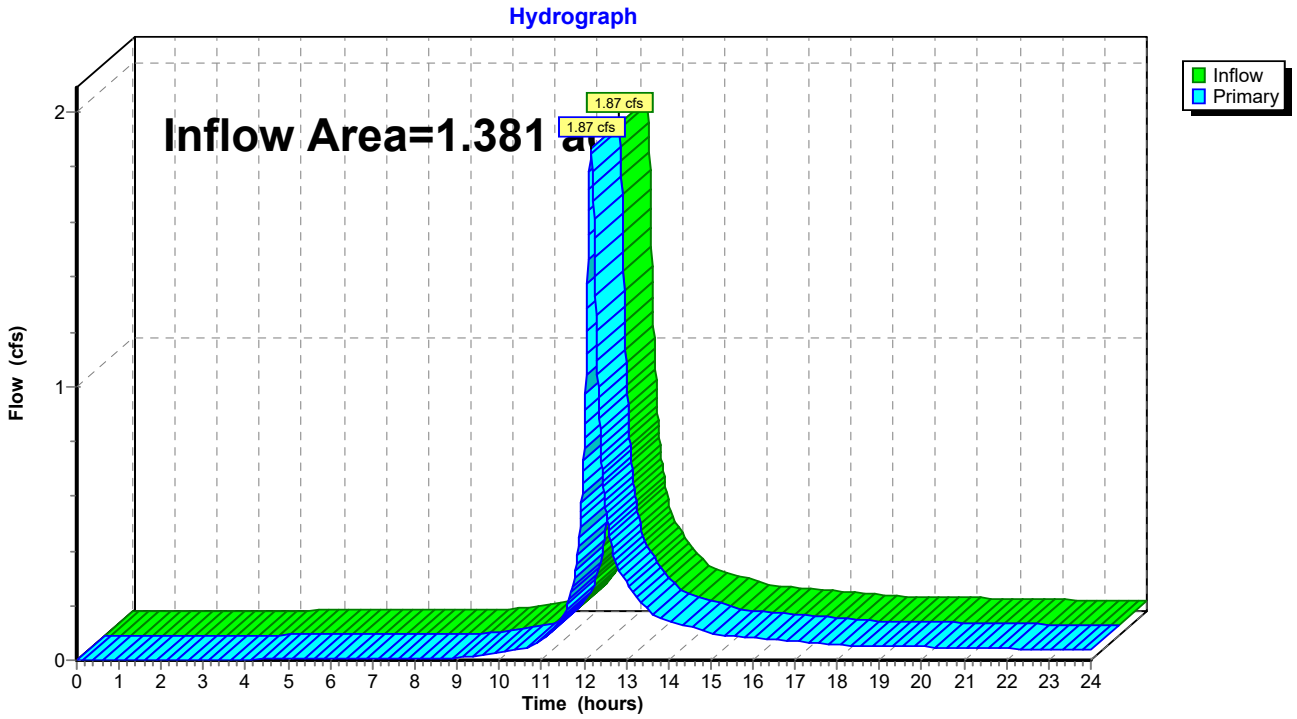


Summary for Link 5L: Design Point 1

Inflow Area = 1.381 ac, 8.28% Impervious, Inflow Depth > 1.38" for 2-Year event
Inflow = 1.87 cfs @ 12.17 hrs, Volume= 0.159 af
Primary = 1.87 cfs @ 12.17 hrs, Volume= 0.159 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 5L: Design Point 1

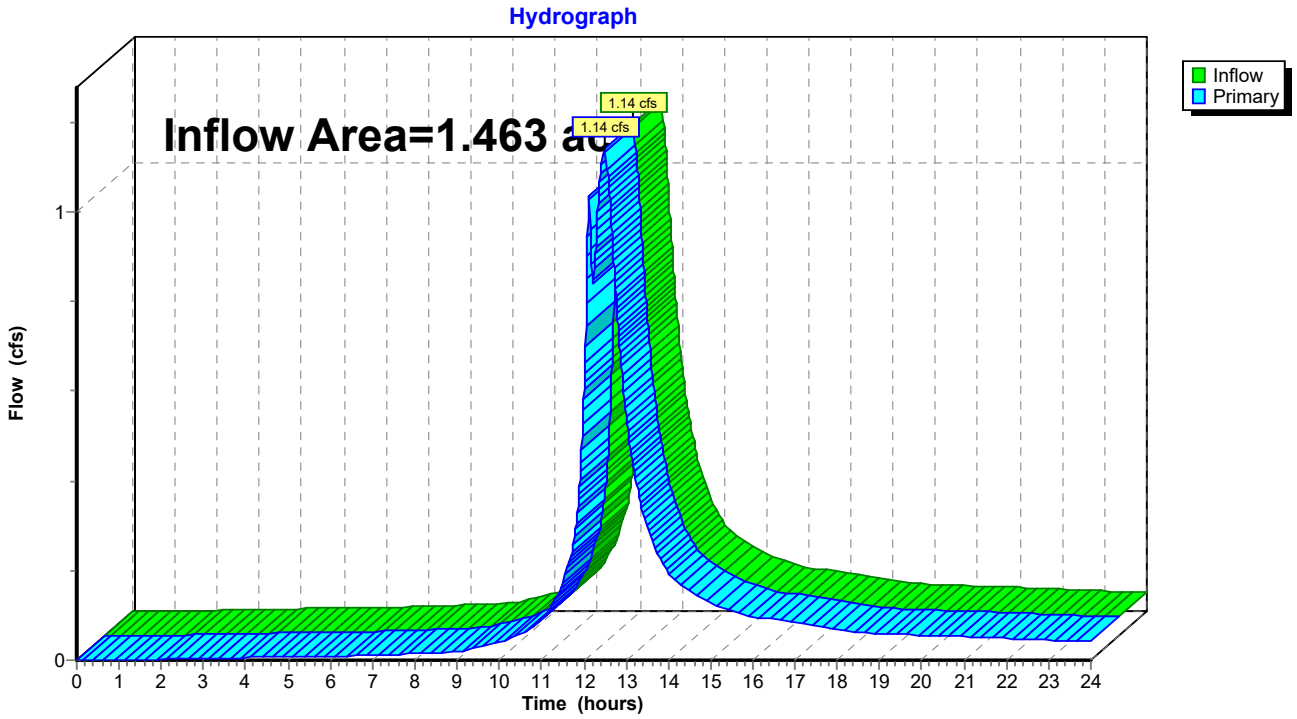


Summary for Link 6L: Design Point 2

Inflow Area = 1.463 ac, 15.05% Impervious, Inflow Depth > 1.58" for 2-Year event
Inflow = 1.14 cfs @ 12.48 hrs, Volume= 0.193 af
Primary = 1.14 cfs @ 12.48 hrs, Volume= 0.193 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 6L: Design Point 2



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: DP1 Route 8 Pavement Runoff Area=4,984 sf 100.00% Impervious Runoff Depth>4.14"
Tc=5.0 min CN=98 Runoff=0.53 cfs 0.039 af

Subcatchment4S: DP1 Offsite Runoff Area=55,191 sf 0.00% Impervious Runoff Depth>2.44"
Flow Length=387' Tc=11.1 min CN=81 Runoff=3.20 cfs 0.257 af

Subcatchment7S: DP2 Offsite Runoff Area=54,144 sf 0.00% Impervious Runoff Depth>2.60"
Flow Length=409' Tc=35.1 min CN=83 Runoff=1.94 cfs 0.269 af

Subcatchment8S: DP2 Route 8 Pavement Runoff Area=9,592 sf 100.00% Impervious Runoff Depth>4.14"
Tc=5.0 min CN=98 Runoff=1.03 cfs 0.076 af

Pond 3P: DBCB-1 Peak Elev=1,436.50' Inflow=3.53 cfs 0.297 af
12.0" Round Culvert n=0.025 L=59.0' S=0.1483 '/' Outflow=3.53 cfs 0.297 af

Pond 9P: CB Peak Elev=1,421.32' Inflow=2.11 cfs 0.345 af
18.0" Round Culvert n=0.011 L=55.0' S=0.0560 '/' Outflow=2.11 cfs 0.345 af

Link 5L: Design Point 1 Inflow=3.53 cfs 0.297 af
Primary=3.53 cfs 0.297 af

Link 6L: Design Point 2 Inflow=2.11 cfs 0.345 af
Primary=2.11 cfs 0.345 af

Total Runoff Area = 2.845 ac Runoff Volume = 0.642 af Average Runoff Depth = 2.71"
88.24% Pervious = 2.510 ac 11.76% Impervious = 0.335 ac

Summary for Subcatchment 1S: DP1 Route 8 Pavement

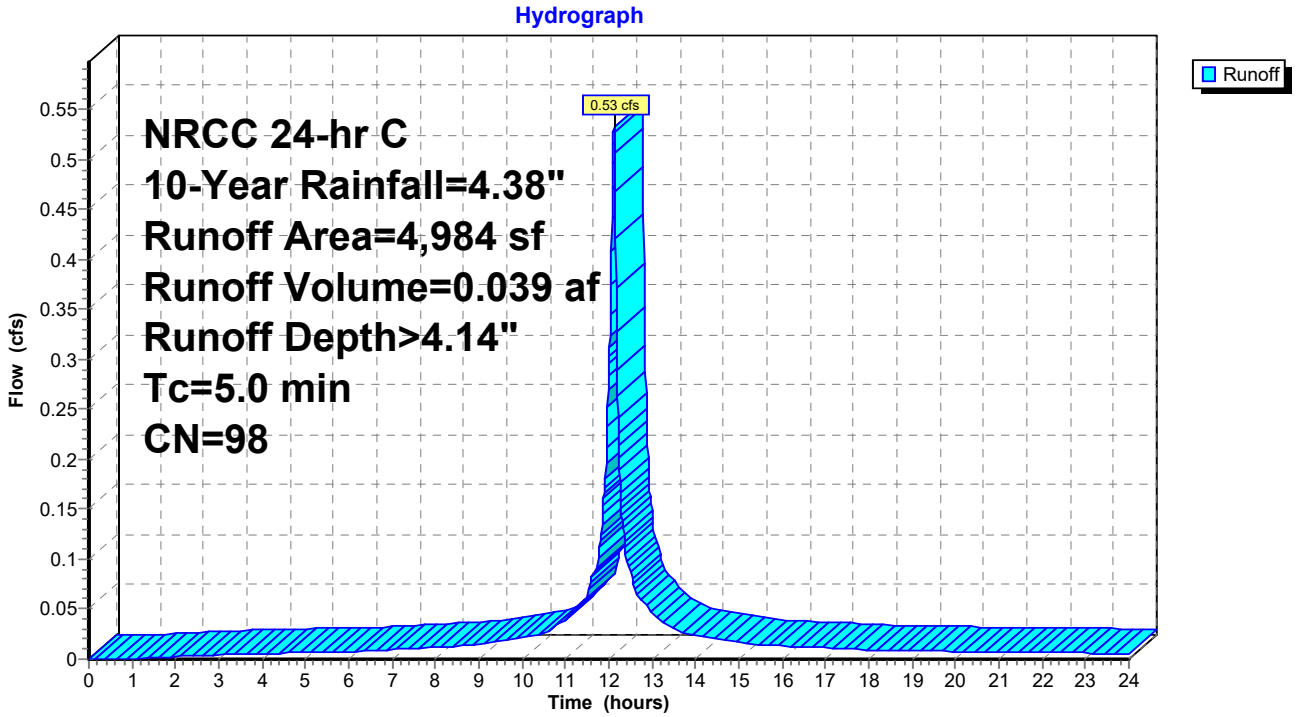
Runoff = 0.53 cfs @ 12.12 hrs, Volume= 0.039 af, Depth> 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 10-Year Rainfall=4.38"

Area (sf)	CN	Description
4,984	98	Paved roads w/curbs & sewers, HSG D
4,984		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: DP1 Route 8 Pavement



Summary for Subcatchment 4S: DP1 Offsite

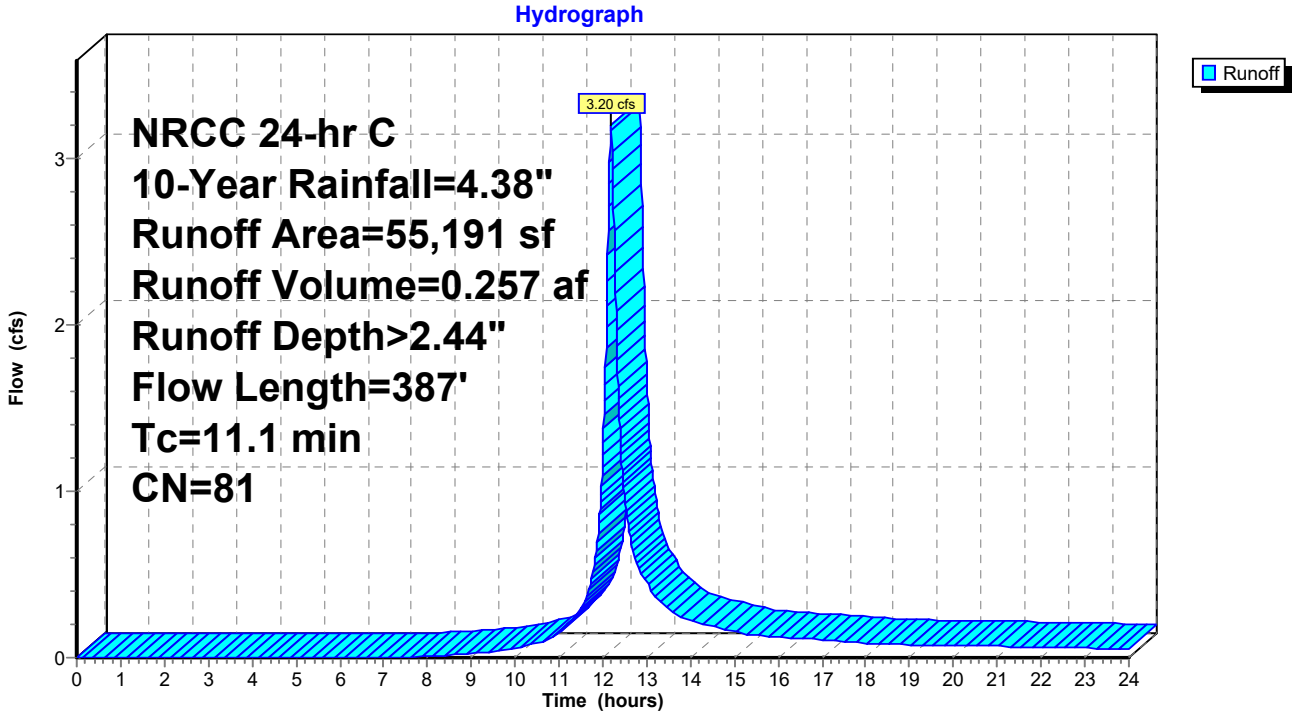
Runoff = 3.20 cfs @ 12.19 hrs, Volume= 0.257 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 10-Year Rainfall=4.38"

Area (sf)	CN	Description
33,891	83	Woods, Poor, HSG D
15,024	77	Woods, Poor, HSG C
6,276	80	>75% Grass cover, Good, HSG D
55,191	81	Weighted Average
55,191		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1800	0.18		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
1.8	230	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	57	0.0480	4.45		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.1	387	Total			

Subcatchment 4S: DP1 Offsite



Summary for Subcatchment 7S: DP2 Offsite

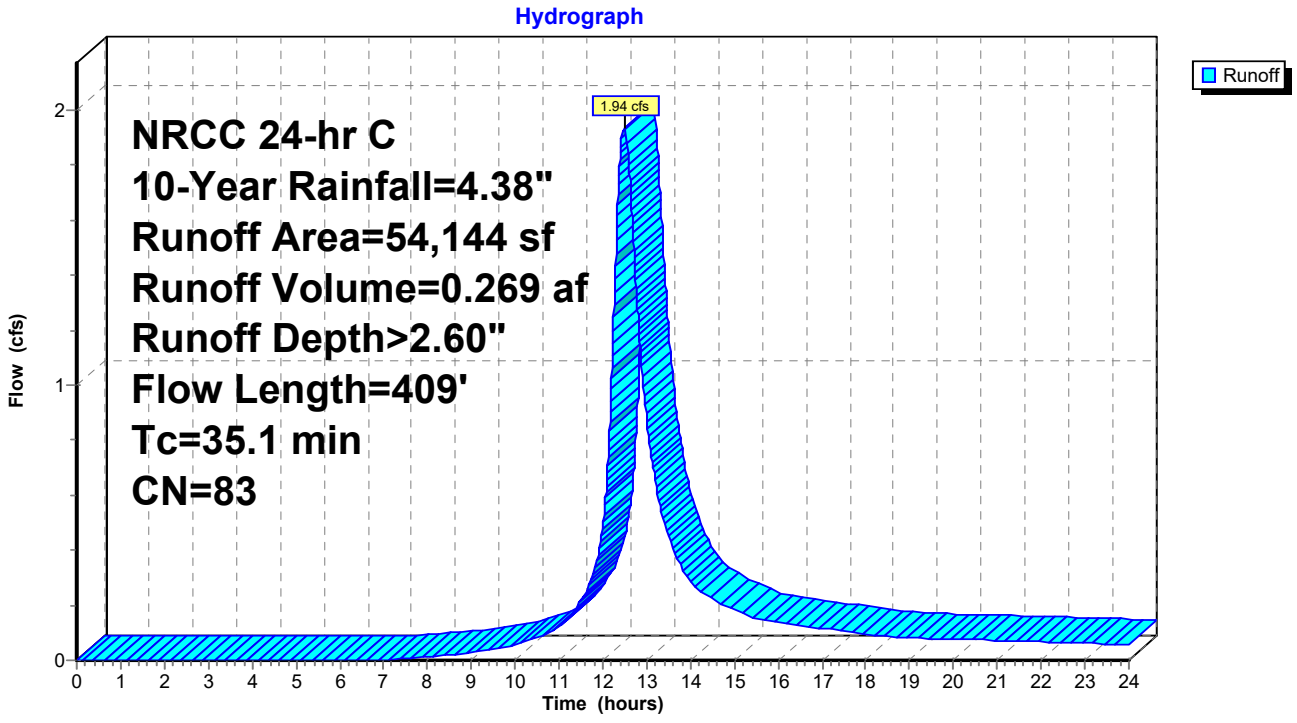
Runoff = 1.94 cfs @ 12.48 hrs, Volume= 0.269 af, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 10-Year Rainfall=4.38"

Area (sf)	CN	Description
54,144	83	Woods, Poor, HSG D
54,144		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
5.6	168	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	74	0.4000	3.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	67	0.0450	4.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
35.1	409	Total			

Subcatchment 7S: DP2 Offsite



Summary for Subcatchment 8S: DP2 Route 8 Pavement

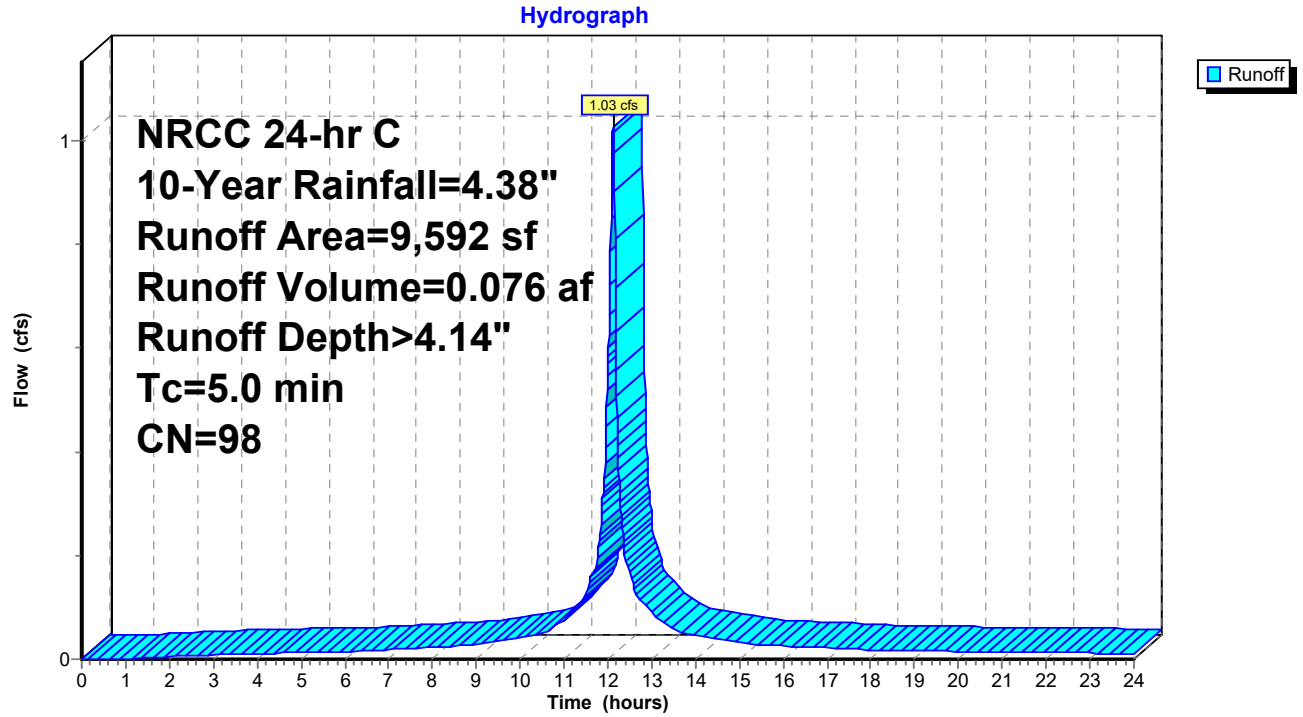
Runoff = 1.03 cfs @ 12.12 hrs, Volume= 0.076 af, Depth> 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 10-Year Rainfall=4.38"

Area (sf)	CN	Description
9,592	98	Paved roads w/curbs & sewers, HSG D
9,592		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S: DP2 Route 8 Pavement



Summary for Pond 3P: DBCB-1

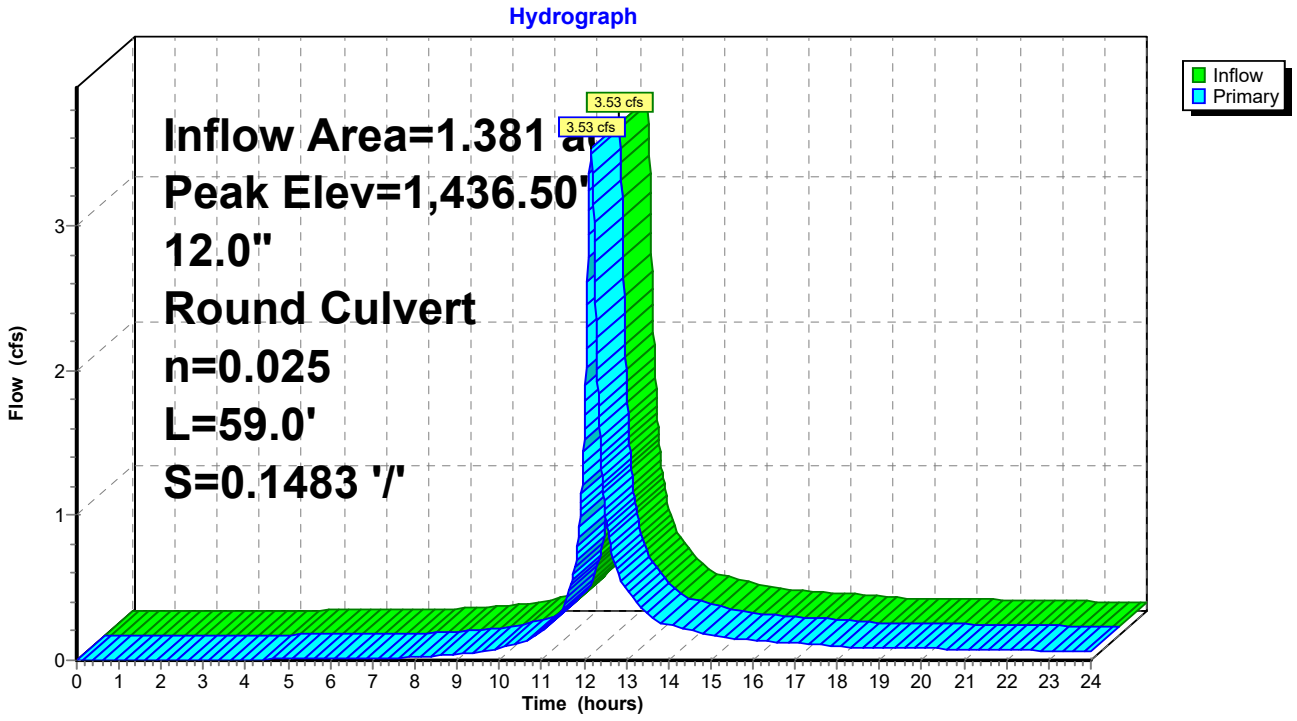
Inflow Area = 1.381 ac, 8.28% Impervious, Inflow Depth > 2.58" for 10-Year event
Inflow = 3.53 cfs @ 12.17 hrs, Volume= 0.297 af
Outflow = 3.53 cfs @ 12.17 hrs, Volume= 0.297 af, Atten= 0%, Lag= 0.0 min
Primary = 3.53 cfs @ 12.17 hrs, Volume= 0.297 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 1,436.50' @ 12.17 hrs
Flood Elev= 1,439.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,434.60'	**12.0" Round Culvert** L= 59.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,434.60' / 1,425.85' S= 0.1483 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=3.53 cfs @ 12.17 hrs HW=1,436.49' (Free Discharge)
1=Culvert (Inlet Controls 3.53 cfs @ 4.49 fps)

Pond 3P: DBCB-1



Summary for Pond 9P: CB

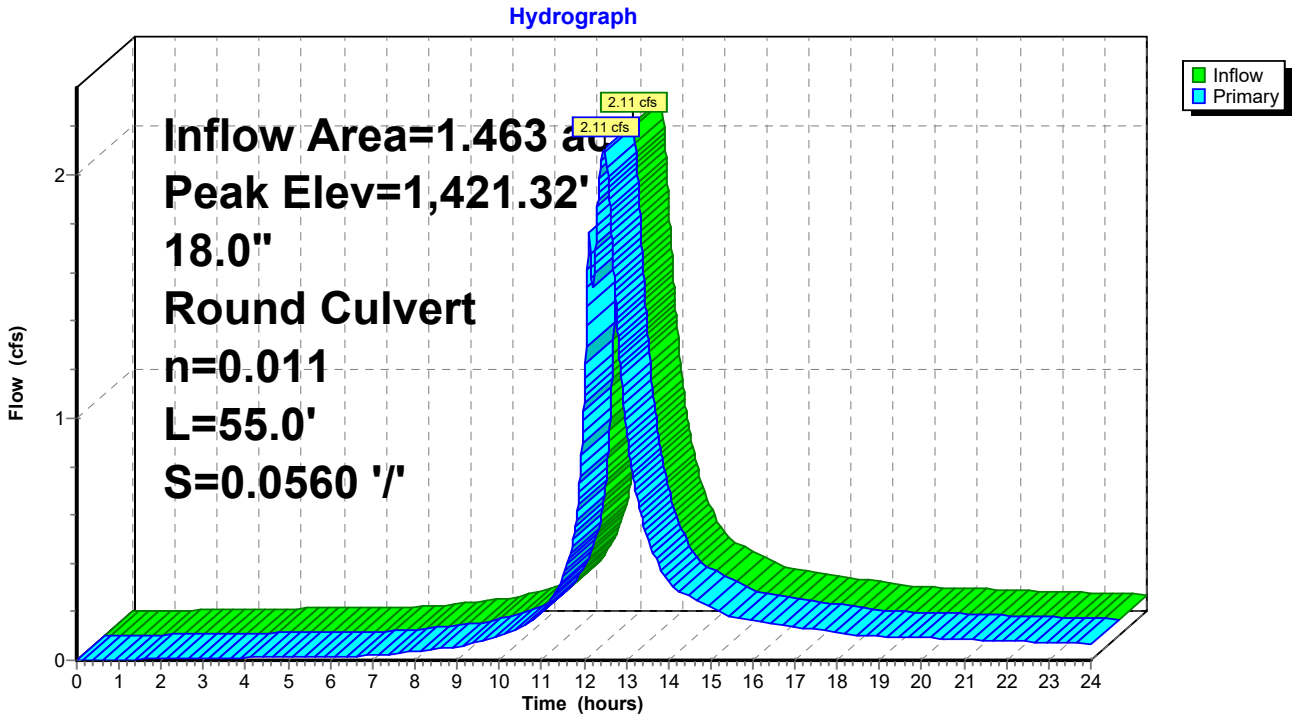
Inflow Area = 1.463 ac, 15.05% Impervious, Inflow Depth > 2.83" for 10-Year event
Inflow = 2.11 cfs @ 12.48 hrs, Volume= 0.345 af
Outflow = 2.11 cfs @ 12.48 hrs, Volume= 0.345 af, Atten= 0%, Lag= 0.0 min
Primary = 2.11 cfs @ 12.48 hrs, Volume= 0.345 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 1,421.32' @ 12.48 hrs
Flood Elev= 1,427.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,420.65'	**18.0" Round RCP_Round 18"** L= 55.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 1,420.65' / 1,417.57' S= 0.0560 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.77 sf

Primary OutFlow Max=2.11 cfs @ 12.48 hrs HW=1,421.32' (Free Discharge)
1=RCP_Round 18" (Inlet Controls 2.11 cfs @ 2.78 fps)

Pond 9P: CB

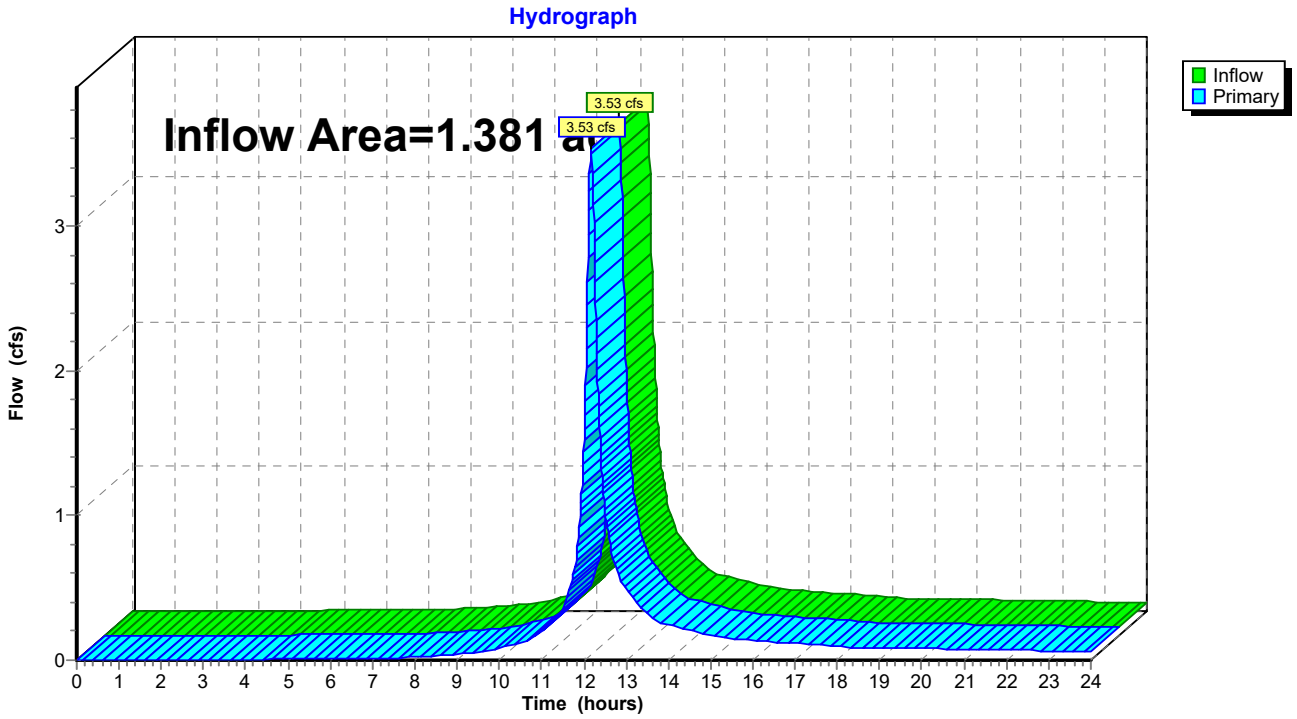


Summary for Link 5L: Design Point 1

Inflow Area = 1.381 ac, 8.28% Impervious, Inflow Depth > 2.58" for 10-Year event
Inflow = 3.53 cfs @ 12.17 hrs, Volume= 0.297 af
Primary = 3.53 cfs @ 12.17 hrs, Volume= 0.297 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 5L: Design Point 1

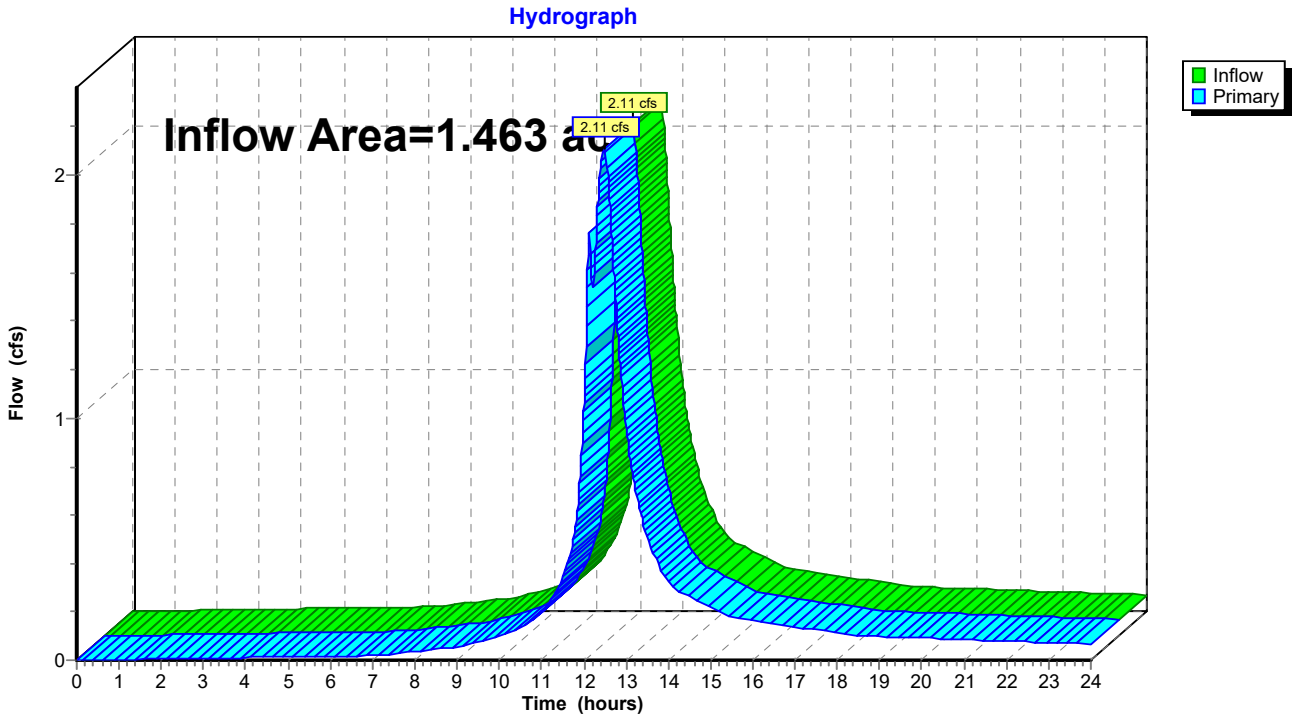


Summary for Link 6L: Design Point 2

Inflow Area = 1.463 ac, 15.05% Impervious, Inflow Depth > 2.83" for 10-Year event
Inflow = 2.11 cfs @ 12.48 hrs, Volume= 0.345 af
Primary = 2.11 cfs @ 12.48 hrs, Volume= 0.345 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 6L: Design Point 2



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: DP1 Route 8 Pavement Runoff Area=4,984 sf 100.00% Impervious Runoff Depth>7.53"
Tc=5.0 min CN=98 Runoff=0.95 cfs 0.072 af

Subcatchment4S: DP1 Offsite Runoff Area=55,191 sf 0.00% Impervious Runoff Depth>5.52"
Flow Length=387' Tc=11.1 min CN=81 Runoff=7.08 cfs 0.583 af

Subcatchment7S: DP2 Offsite Runoff Area=54,144 sf 0.00% Impervious Runoff Depth>5.72"
Flow Length=409' Tc=35.1 min CN=83 Runoff=4.18 cfs 0.593 af

Subcatchment8S: DP2 Route 8 Pavement Runoff Area=9,592 sf 100.00% Impervious Runoff Depth>7.53"
Tc=5.0 min CN=98 Runoff=1.83 cfs 0.138 af

Pond 3P: DBCB-1 Peak Elev=1,441.70' Inflow=7.67 cfs 0.655 af
12.0" Round Culvert n=0.025 L=59.0' S=0.1483 '/' Outflow=7.67 cfs 0.655 af

Pond 9P: CB Peak Elev=1,421.68' Inflow=4.49 cfs 0.731 af
18.0" Round Culvert n=0.011 L=55.0' S=0.0560 '/' Outflow=4.49 cfs 0.731 af

Link 5L: Design Point 1 Inflow=7.67 cfs 0.655 af
Primary=7.67 cfs 0.655 af

Link 6L: Design Point 2 Inflow=4.49 cfs 0.731 af
Primary=4.49 cfs 0.731 af

Total Runoff Area = 2.845 ac Runoff Volume = 1.386 af Average Runoff Depth = 5.85"
88.24% Pervious = 2.510 ac 11.76% Impervious = 0.335 ac

Summary for Subcatchment 1S: DP1 Route 8 Pavement

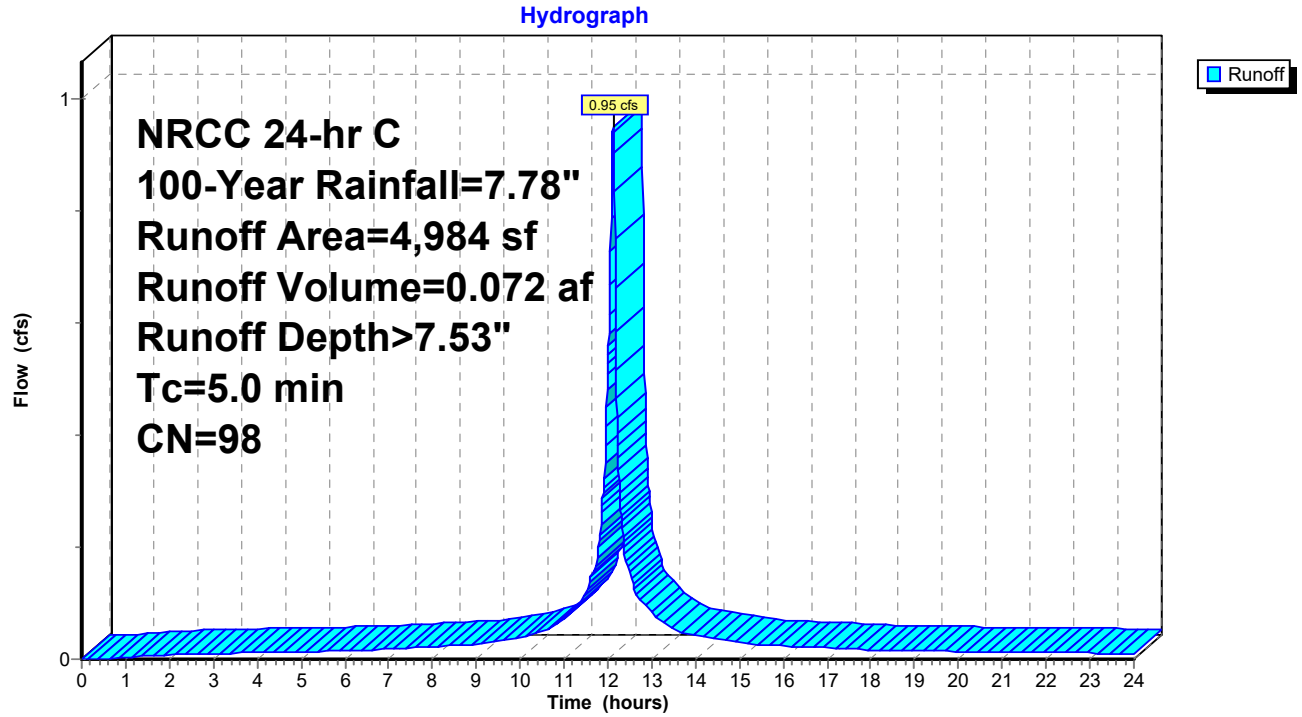
Runoff = 0.95 cfs @ 12.12 hrs, Volume= 0.072 af, Depth> 7.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=7.78"

Area (sf)	CN	Description
4,984	98	Paved roads w/curbs & sewers, HSG D
4,984		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: DP1 Route 8 Pavement



Summary for Subcatchment 4S: DP1 Offsite

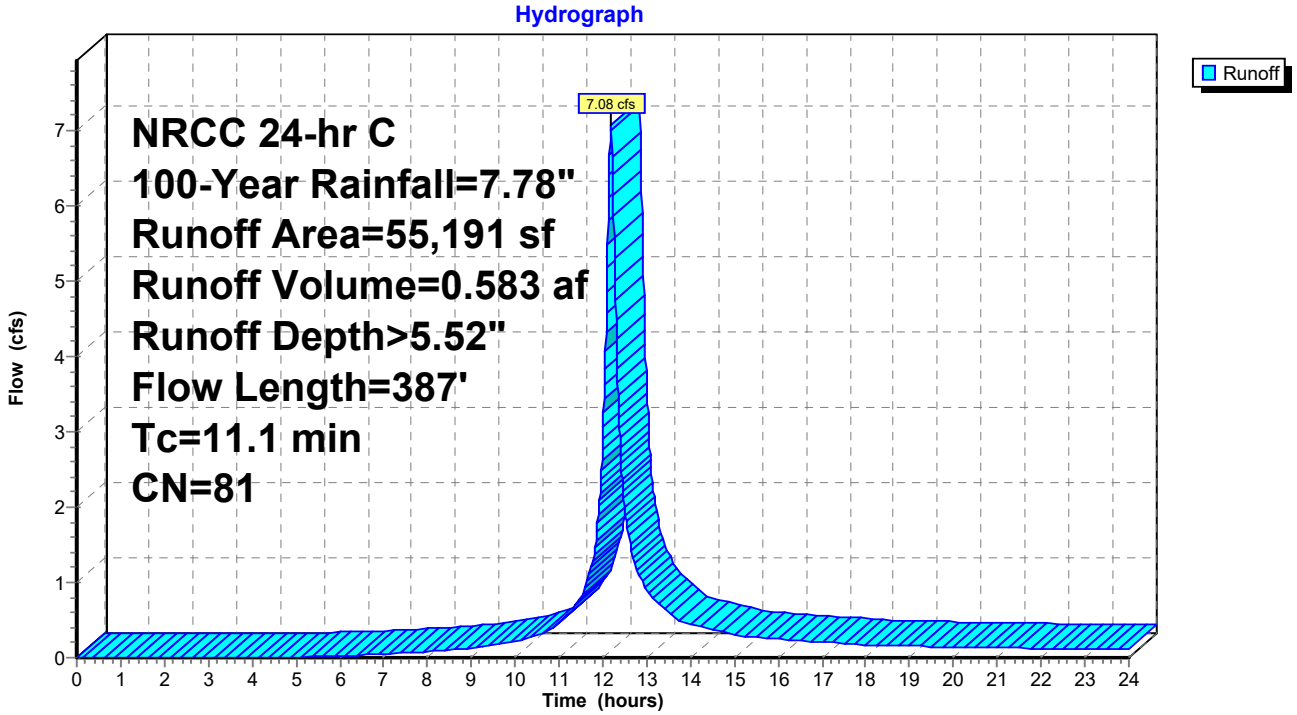
Runoff = 7.08 cfs @ 12.18 hrs, Volume= 0.583 af, Depth> 5.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=7.78"

Area (sf)	CN	Description
33,891	83	Woods, Poor, HSG D
15,024	77	Woods, Poor, HSG C
6,276	80	>75% Grass cover, Good, HSG D
55,191	81	Weighted Average
55,191		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.1800	0.18		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
1.8	230	0.1800	2.12		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.2	57	0.0480	4.45		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
11.1	387	Total			

Subcatchment 4S: DP1 Offsite



Summary for Subcatchment 7S: DP2 Offsite

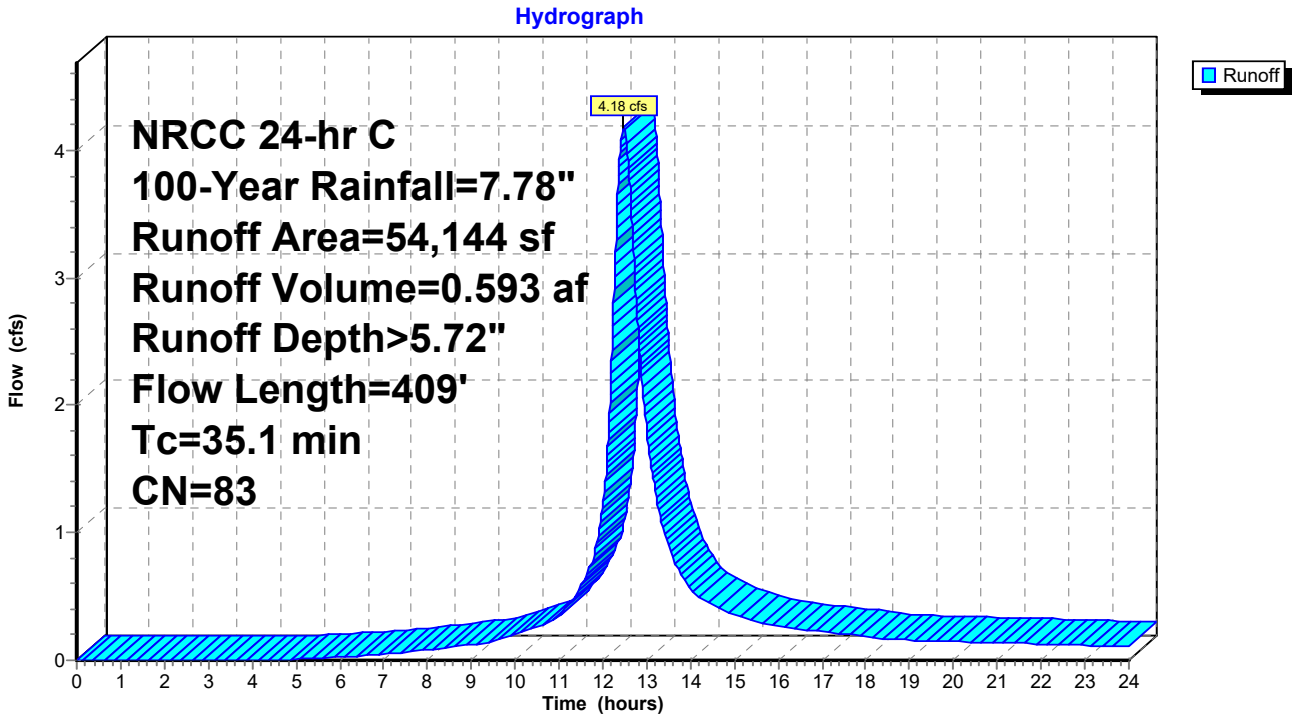
Runoff = 4.18 cfs @ 12.48 hrs, Volume= 0.593 af, Depth> 5.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=7.78"

Area (sf)	CN	Description
54,144	83	Woods, Poor, HSG D
54,144		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
5.6	168	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	74	0.4000	3.16		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	67	0.0450	4.31		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
35.1	409	Total			

Subcatchment 7S: DP2 Offsite



Summary for Subcatchment 8S: DP2 Route 8 Pavement

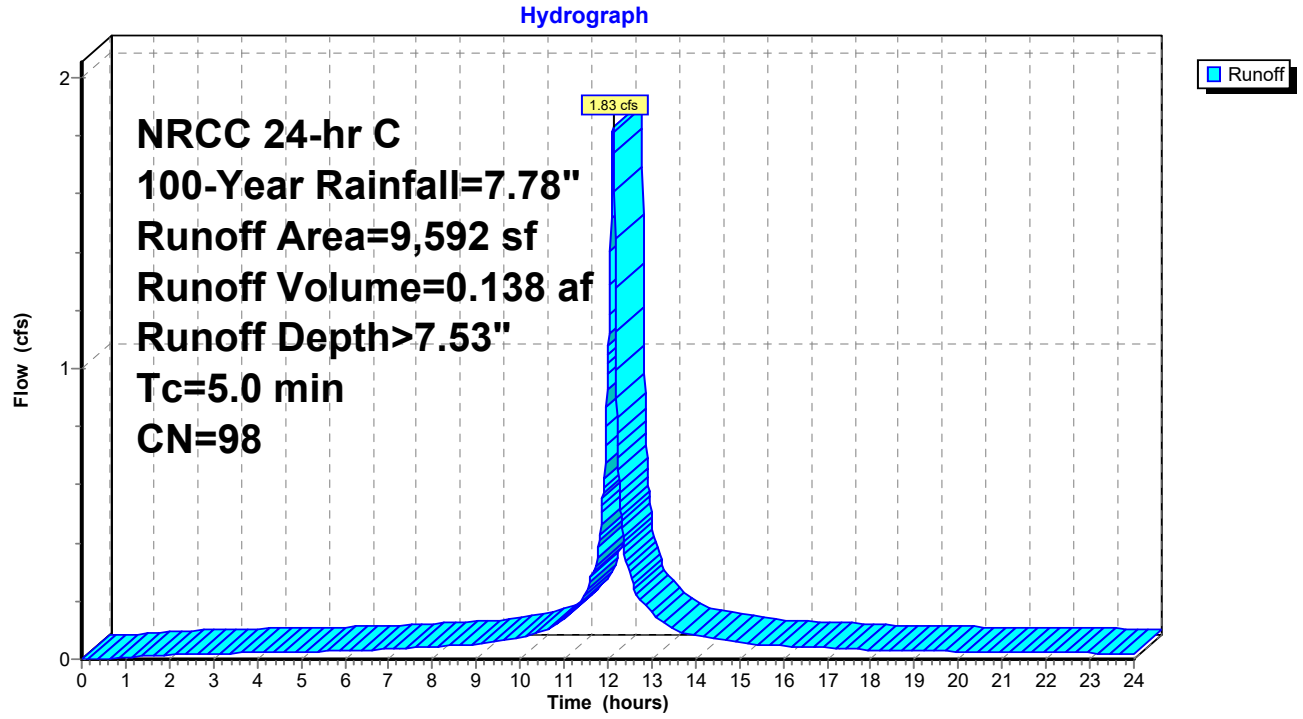
Runoff = 1.83 cfs @ 12.12 hrs, Volume= 0.138 af, Depth> 7.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
NRCC 24-hr C 100-Year Rainfall=7.78"

Area (sf)	CN	Description
9,592	98	Paved roads w/curbs & sewers, HSG D
9,592		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 8S: DP2 Route 8 Pavement



Summary for Pond 3P: DBCB-1

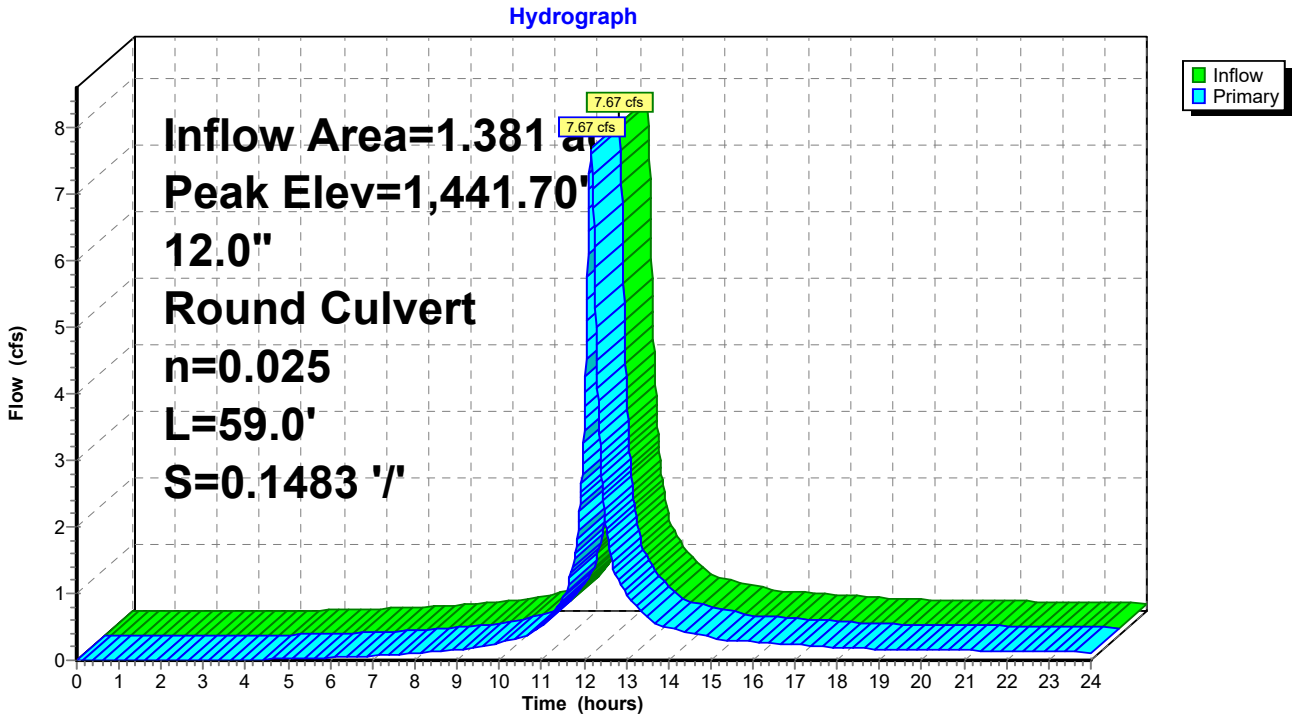
Inflow Area = 1.381 ac, 8.28% Impervious, Inflow Depth > 5.69" for 100-Year event
Inflow = 7.67 cfs @ 12.17 hrs, Volume= 0.655 af
Outflow = 7.67 cfs @ 12.17 hrs, Volume= 0.655 af, Atten= 0%, Lag= 0.0 min
Primary = 7.67 cfs @ 12.17 hrs, Volume= 0.655 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 1,441.70' @ 12.17 hrs
Flood Elev= 1,439.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,434.60'	**12.0" Round Culvert** L= 59.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,434.60' / 1,425.85' S= 0.1483 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf

Primary OutFlow Max=7.66 cfs @ 12.17 hrs HW=1,441.69' (Free Discharge)
1=Culvert (Inlet Controls 7.66 cfs @ 9.76 fps)

Pond 3P: DBCB-1



Summary for Pond 9P: CB

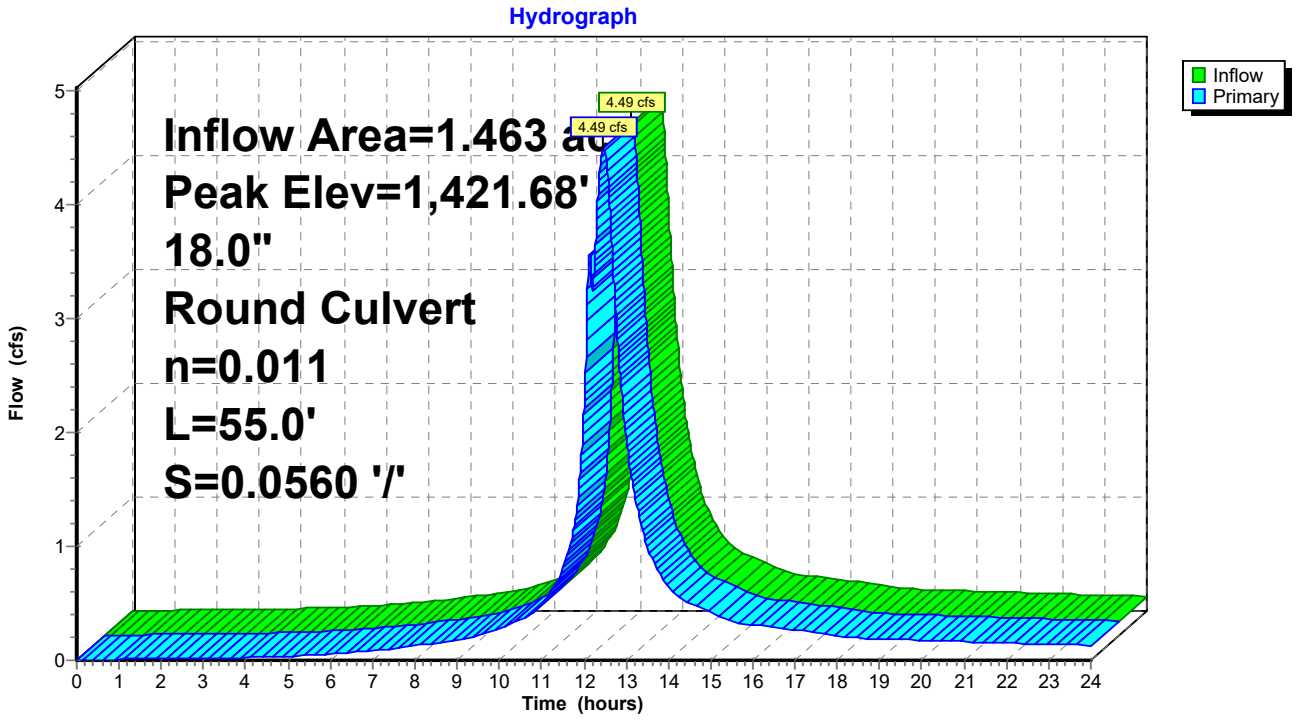
Inflow Area = 1.463 ac, 15.05% Impervious, Inflow Depth > 5.99" for 100-Year event
Inflow = 4.49 cfs @ 12.45 hrs, Volume= 0.731 af
Outflow = 4.49 cfs @ 12.45 hrs, Volume= 0.731 af, Atten= 0%, Lag= 0.0 min
Primary = 4.49 cfs @ 12.45 hrs, Volume= 0.731 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 1,421.68' @ 12.45 hrs
Flood Elev= 1,427.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	1,420.65'	**18.0" Round RCP_Round 18"** L= 55.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 1,420.65' / 1,417.57' S= 0.0560 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.77 sf

Primary OutFlow Max=4.49 cfs @ 12.45 hrs HW=1,421.68' (Free Discharge)
1=RCP_Round 18" (Inlet Controls 4.49 cfs @ 3.46 fps)

Pond 9P: CB

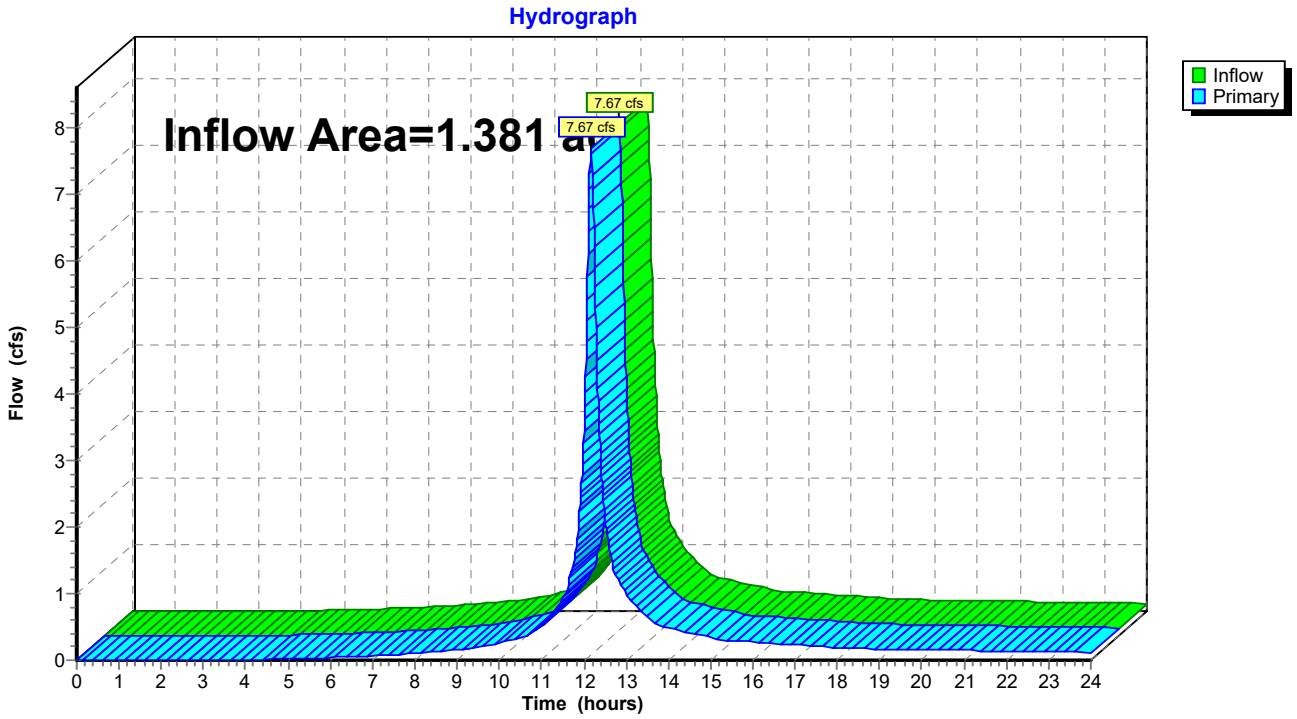


Summary for Link 5L: Design Point 1

Inflow Area = 1.381 ac, 8.28% Impervious, Inflow Depth > 5.69" for 100-Year event
Inflow = 7.67 cfs @ 12.17 hrs, Volume= 0.655 af
Primary = 7.67 cfs @ 12.17 hrs, Volume= 0.655 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 5L: Design Point 1

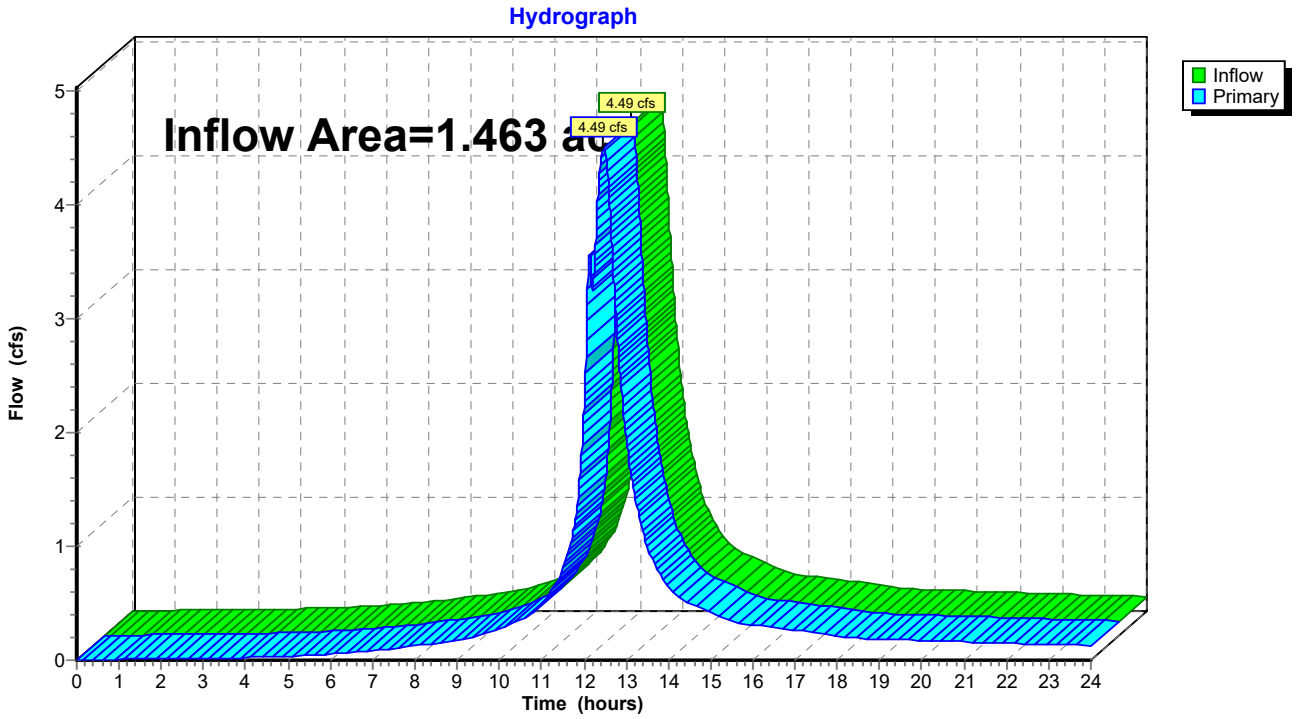


Summary for Link 6L: Design Point 2

Inflow Area = 1.463 ac, 15.05% Impervious, Inflow Depth > 5.99" for 100-Year event
Inflow = 4.49 cfs @ 12.45 hrs, Volume= 0.731 af
Primary = 4.49 cfs @ 12.45 hrs, Volume= 0.731 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 6L: Design Point 2



Appendix E: O&M Plan and LTPPP

Ledge Removal Along Route 8, Between MM 28.002 and MM 27.998

Stormwater Management System Operation and Maintenance Plan and Long-Term Pollution Prevention Plan

Becket

PREPARED FOR

massDOT

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Boston, MA 02116

PREPARED BY

Jacobs

Jacobs
120 St. James Avenue
Boston, MA 02116

January 2026

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1

Stormwater Management System Operation and Maintenance (O&M) Plan

This Stormwater Management System Operation and Maintenance (O&M) Plan describes the approach for inspection and maintenance of drainage infrastructure and structural stormwater control measures (SCMs) to minimize contaminant loading for Ledge Removal Along Route 8 in the Town of Becket. In general, inspection and maintenance activities will be conducted consistent with the National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer System (MS4) and MassDOT's anticipated NPDES Transportation Separate Storm Sewer System (TS4) Permit.

This document has been prepared per the requirements of Massachusetts Department of Environmental Protection (MassDEP) Regulations 310 CMR 10.05 (6)(k)(9) and satisfies the requirements of Massachusetts Stormwater Standard 9.

1.1 Responsible Party

In accordance with MassDOT procedures, the MassDOT District 1 office located in Lenox, MA, is responsible for the maintenance of all stormwater management systems on MassDOT roads within the project area.

Questions or concerns regarding activities associated with this O&M Plan should be addressed to MassDOT's District 1 office located at *270 Main Street,* phone *(857) 368-1000*, during regular weekday hours, or to MassDOT's Highway Operations Center located in South Boston, MA at (800) 227-0608 during all other times and days, including weekends and holidays.

1.2 Inspection and Maintenance Measures and Record-Keeping

The stormwater management system covered by this O&M Plan consists of the following measures:

- *Deep sump catch basins*

MassDOT uses a performance-based inspection and maintenance program for catch basins. For catch basins, MassDOT's overall approach is to perform maintenance at an interval that

maintains the functionality of the catch basin (e.g., sump is less than 50% full of sediment). Catch basin inspections, including documentation of sediment accumulation, and maintenance will generally occur simultaneously.

MassDOT's O&M program is data driven. Inspections and maintenance are recorded by personnel using hand-held tablets in the field to document sediment accumulation, maintenance action performed, and follow-up actions needed. Data is recorded in MassDOT's asset management system which is accessible in the field (mobile) or the office (desktop).

The table below summarizes data that is generally collected for each asset type. For all assets, the inspector and inspection date are recorded. Photo documentation of structure condition is taken and attached to the inspection record.

Inspection Form	Applicable Stormwater Assets	Information Collected
Inlets	› Catch basins › Outlet control structures	› Sediment accumulation › Trash/Debris accumulation › Signs of contamination › Frame and grate condition › Overall structure condition
Storm Discharge Points	› Outlets to SCMs	› Presence of flow › Signs of contaminated flow › Sediment accumulation › Level of erosion › Pipe condition › Scour protection condition › Overall structure condition

Inspection and maintenance records can be made available using the asset management system through request with the MassDOT District 2 Environmental Engineer. Records will be kept for at least three years. Representatives of the *Becket* Conservation Commission(s), MassDEP, and US EPA may obtain access to these records, upon request. Additionally, MassDOT will allow members and agents of MassDEP and the Conservation Commission(s) to enter and inspect the premises, upon request, to evaluate and ensure that the Operation and Maintenance Plan requirements are being followed.

Maintenance actions will not occur at any set frequency, but rather will be based on condition and impact to functionality. Maintenance to be performed on the stormwater system includes:

Ledge Removal Along Route 8, Between MM 28.002 and MM 27.998

Stormwater Feature	*Potential Maintenance Actions*	
Surface SCMs	• *Remove and properly dispose of accumulated material (e.g., sediment, trash, leaf litter, debris)* • *Mow vegetated areas and remove and dispose of grass clippings* • *Regrade areas that show signs of unwanted ponding and channelization* • *Stabilize or reconstruct eroded areas and reseed* • *Replace stones/soil and/or replant vegetation*	• *Remove woody growth* • *Treat invasive plants according to MassDOT Landscape Design Section* • *Infiltration and bioretention SCMs only:* o *Address issues of standing water* o *Drain and reconstruct SCM* o *If rehabilitation is not possible, then retrofit to be a wet SCM while considering safety implications*

Based on the results of the inspection, repairs will be made in accordance with MassDOT standard practices. Maintenance will be prioritized given the urgency of the required maintenance and availability of staff, contracts, etc. Maintenance may require contracting if existing contracts are unavailable to perform the work. More intensive remedial activities may require permitting and/or an engineering solution.

1.3 Erosion and Sediment Control Measures during Maintenance Activities

For maintenance activities that could result in discharges of sediments or other contaminants into wetlands, waterways, or other resource areas regulated under 310 CMR 10.00, the responsible maintenance personnel will employ measures to prevent migration of these sediments/contaminants. Such temporary measures may include, but are not necessarily limited to, the use of siltation barriers, catch basin silt sacks/filter bags, pipe plugs, cofferdams deployed within the stormwater structure, turbidity curtains, or other practices designed to prevent such discharges.

- *The MassDOT Erosion and Sediment Control Field Guide includes detailed descriptions, photographs, and illustrations of E&S controls that the designer may incorporate into the plans.*
- *Chapter 8 of the MassDOT Project Development & Design Guide,[1] Section 8.5 - Erosion During Construction, includes a description of common construction period E&S control practices.*
- *The Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas[2] is an authoritative reference on erosion prevention measures.*

1 See MassDOT PDDG at: https://www.mass.gov/lists/design-guides-and-manuals.

2 See Complete Erosion and Sedimentation Control Guidelines: A Guide for Planners, Designers, and Municipal Officials (May 2003) at: https://www.mass.gov/service-details/stormwater.

Ledge Removal Along Route 8, Between MM 28.002 and MM 27.998

- *The Massachusetts Nonpoint Source Pollution Management Manual*[3] *provides an innovative user interface to present comprehensive detailed guidance on E&S controls for construction projects.*

Where maintenance occurs in areas that are confined, with no risk of discharge to adjacent water bodies, no special measures may be needed. Examples include, but are not limited to: (1) cleaning of a forebay under dry conditions when the work can be completed and exposed surfaces stabilized prior to placing it back into service; and (2) catch basin cleaning where the activity is limited to removing material from a sump below the elevation of the outlet pipe.

1.4 O&M Budget

MassDOT performs maintenance for stormwater management systems as part of their routine operation and maintenance budget for roadways and bridges. Budgets are managed at the district level and vary by fiscal year, depending on funding sources.

3 See Massachusetts Nonpoint Source Pollution Management Manual at: https://megamanual.geosyntec.com/npsmanual/default.aspx.

2

Long-Term Pollution Prevention Plan

This Long-Term Pollution Prevention Plan (LTPPP) describes the approach for pollution prevention and related maintenance activities for the Ledge Removal Along Route 8, Between MM 28.002 and MM 27.998. In general, long-term pollution prevention and related maintenance activities will be conducted consistent with:

- The National Pollutant Discharge Elimination System (NPDES) General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer System (MS4),
- MassDOT's anticipated NPDES Transportation Separate Storm Sewer System (TS4) Permit, and
- Measures outlined in MassDOT's Stormwater Management Plan (SWMP).

This LTPPP satisfies the requirements related to pollution prevention under Massachusetts Stormwater Standards 4, 5, 6, and 10.

2.1 Practices for Long-Term Pollution Prevention

For the facilities covered, long-term pollution prevention includes the following measures.

- *good housekeeping;*
- *storing materials and waste products inside or under cover;*
- *vehicle washing;*
- *routine inspections and maintenance of SCMs;*
- *spill prevention and response;*
- *maintenance of lawns, gardens, and other landscaped areas;*
- *storage and use of fertilizers, herbicides, and pesticides;*
- *pet waste management;*
- *operation and management of septic systems; and*
- *proper management of deicing chemicals and snow.*

2.1.1 Litter Pick-up

MassDOT will conduct litter pick-up from the stormwater management facilities in conjunction with routine road maintenance activities.

Ledge Removal Along Route 8, Between MM 28.002 and MM 27.998

2.1.2 Inspection and Maintenance of Stormwater Assets

MassDOT will conduct inspection and maintenance of drainage infrastructure and the stormwater control measures (SCMs) in accordance with the O&M Plan, as described in Section 1.

2.1.3 Maintenance of Landscaped Areas

Routine mowing will be conducted according to standard MassDOT practices.

Except in rare circumstances, MassDOT does not use fertilizers, herbicides, and pesticides for the maintenance of facilities. Exceptions include using fertilizer to ensure the survival of new plantings and herbicides to control invasive plants. Use of fertilizers and herbicides is reviewed and approved by the MassDOT Landscape Design Section and District 3 Environmental Engineer prior to application. Local Conservation Commission review may also be required.

2.1.4 Snow and Ice Management

Snow and Ice Management will be conducted consistent with the practices outlined in the MassDOT Snow and Ice Control Program Environmental Status and Planning Report (ESPR), formerly known as the Snow and Ice Control Generic Environmental Impact Report (GEIR).

In accordance with the Snow and Ice Control ESPR, no sand is used on MassDOT properties for snow and ice control. The exception to this rule is within reduced salt areas where high sodium levels have been found in drinking water sources.

2.1.5 Street Sweeping

Routine highway cleaning, with a brush-type street sweeper, will be conducted in accordance with standard MassDOT practices. Sweeping will occur annually in the Spring.

2.1.6 Prohibition of Illicit Discharges

The MassDEP Stormwater Management Standard 10 prohibits illicit discharges to the stormwater management system. Illicit discharges are discharges that do not consist entirely of stormwater, except for certain specified non-stormwater discharges.

In accordance with the existing MS4 permit and anticipated TS4 permit requirements, examples of discharges from the following sources are not considered illicit discharges:

- Firefighting activities*
- Foundation drains
- Water line flushing
- Footing drains
- Landscape irrigation
- Individual residential car washing
- Uncontaminated groundwater
- Flows from riparian habitats/wetlands
- Potable water sources
- Dechlorinated swimming pool water
- Street wash waters
- Wash water from residential buildings (no detergents)
- Condensation from air conditioning units
- Run-on from private driveways caused by precipitation

Ledge Removal Along Route 8, Between MM 28.002 and MM 27.998

- Rising groundwater
- Diverted stream flows
- Lawn watering
- Water from crawl space pumps

*Water from firefighting activities is allowed and need only be addressed where they are identified as significant sources of pollutants to waters of the United States.

Based on plan review and confirmation in the field, there are no known or proposed illicit connections associated with the Ledge Removal Along Route 8, Between MM 28.002 and MM 27.998. Should an interconnection to the stormwater management system be identified, the MassDOT PM will coordinate with the District Permits Engineer to confirm if the connections are authorized. For unauthorized connections, the MassDOT PM and/or MassDOT Environmental Services Section will investigate the connections and if they are determined to be illicit, the connections will be managed through MassDOT's Illicit Discharge Detection and Elimination (IDDE) program and/or through other agencies.

2.1.7 Spill Prevention and Response

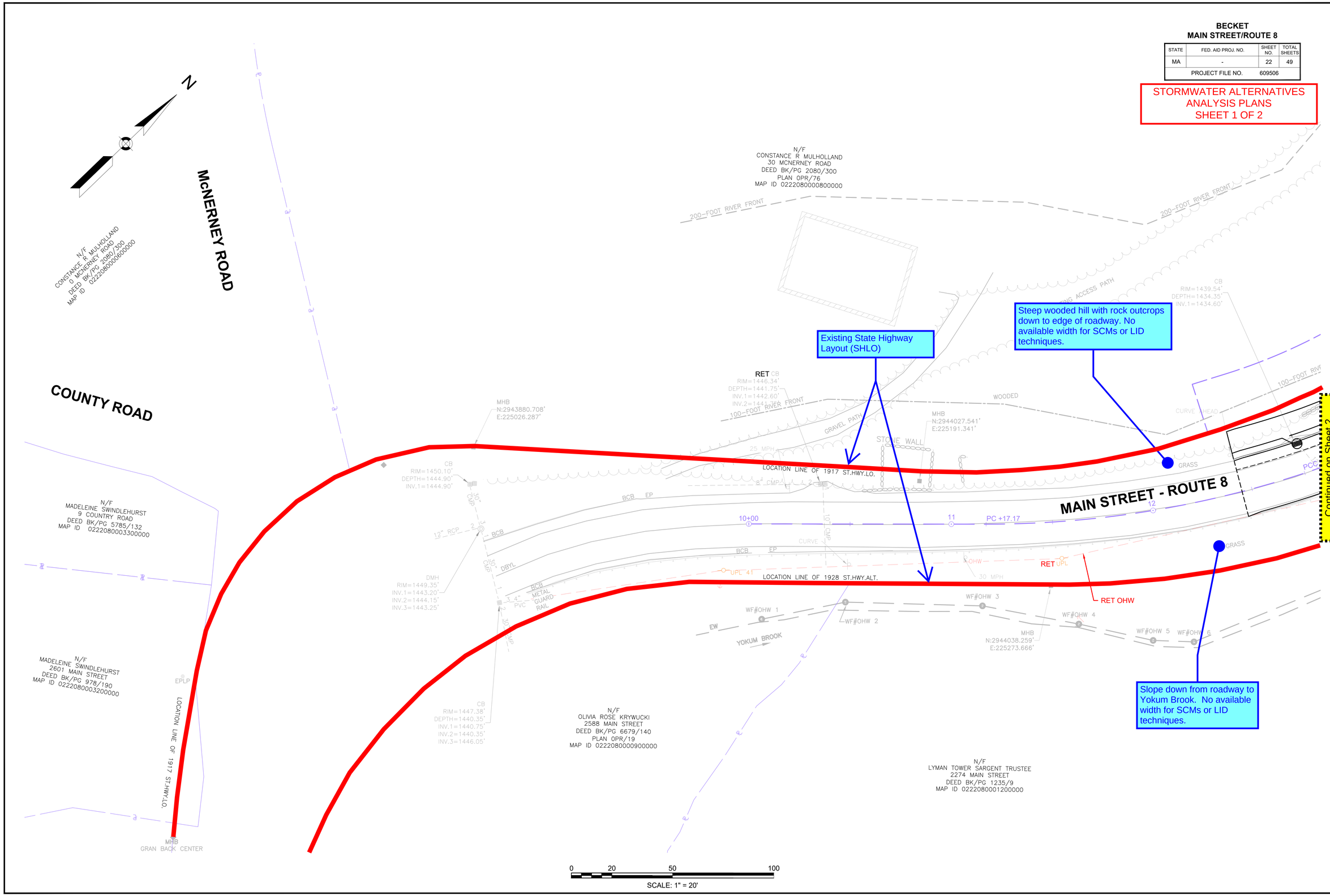
Response procedures will be implemented at *all outfalls that discharge to the adjacent resourve areas* for any significant release of hazardous materials such as fuels, oils, or chemical materials that have the potential of discharging to Yokum Brook.

Reportable quantities will immediately be reported to the applicable Federal, State, and local agencies as required by law. Reportable quantities of chemical, fuels, or oils are established under the Clean Water Act and enforced through MassDEP. The MassDEP Emergency Response Program shall be immediately notified in accordance with required procedures for the report of a release (telephone (888) 304-1133).

MassDOT works with first responders and/or public water supply owners to determine the best approach to protect water supplies, and provides training and materials to carry out action plans. In the case of a spill, applicable containment and clean-up procedures will be performed immediately. These procedures are implemented in accordance with the Unified Response Manual at the local level by first responders, which includes the *Becket* local public safety departments (e.g., fire, police, public works, board of health). MassDOT will be on-site to aid with traffic control and to provide clean-up supplies, as necessary. Spill material collected during the response will be promptly removed and disposed of in accordance with Federal, State, and local requirements. If necessary, a licensed emergency response contractor will assist in cleanup of releases depending on the amount of the release and the ability of the responsible party to perform the required response.

Appendix F: Figures

- Stormwater Alternatives Analysis Plans
- HydroCAD Existing Contributing Areas Plan
- HydroCAD Proposed Contributing Areas Plan

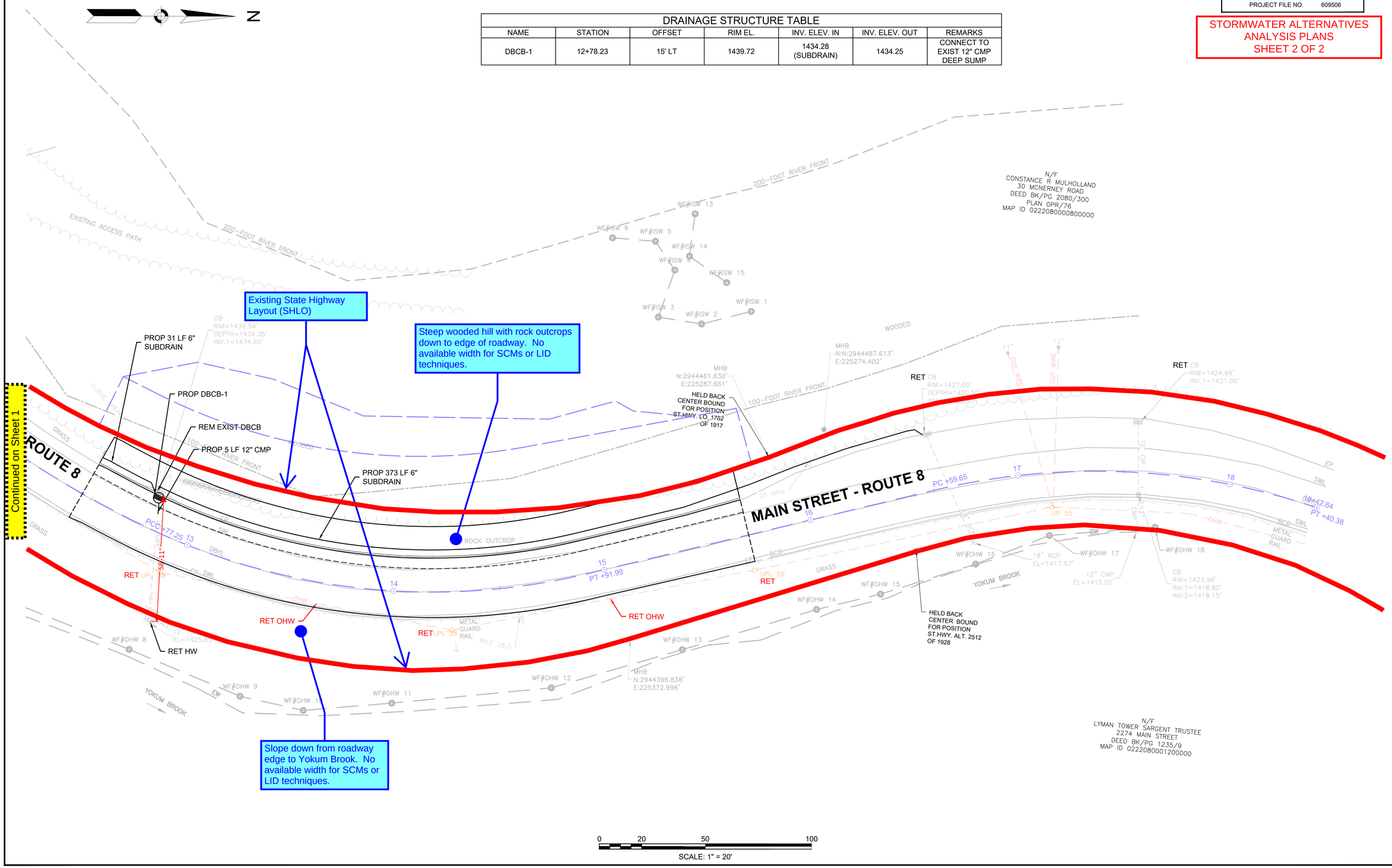

BECKET
MAIN STREET/ROUTE 8
STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS
MA | - | 22 | 49
PROJECT FILE NO. 609506
STORMWATER ALTERNATIVES ANALYSIS PLANS SHEET 1 OF 2
N
McNERNEY ROAD
COUNTY ROAD
N/F CONSTANCE R MULHOLLAND 0 MCNERNEY ROAD DEED BK/PG 2080/300 MAP ID 0222080000600000
N/F CONSTANCE R MULHOLLAND 30 MCNERNEY ROAD DEED BK/PG 2080/300 PLAN OPR/76 MAP ID 0222080000800000
200-FOOT RIVER FRONT
100-FOOT RIVER FRONT
Existing State Highway Layout (SHLO)
Steep wooded hill with rock outcrops down to edge of roadway. No available width for SCMs or LID techniques.
Slope down from roadway to Yokum Brook. No available width for SCMs or LID techniques.
MAIN STREET - ROUTE 8
Continued on Sheet 2
LOCATION LINE OF 1917 ST.HWY.LO.
LOCATION LINE OF 1928 ST.HWY.ALT.
RET OHW
YOKUM BROOK
N/F MADELEINE SWINDLEHURST 9 COUNTRY ROAD DEED BK/PG 5785/132 MAP ID 0222080003300000
N/F MADELEINE SWINDLEHURST 2601 MAIN STREET DEED BK/PG 978/190 MAP ID 0222080003200000
N/F OLIVIA ROSE KRYWUCKI 2588 MAIN STREET DEED BK/PG 6679/140 PLAN OPR/19 MAP ID 0222080000900000
N/F LYMAN TOWER SARGENT TRUSTEE 2274 MAIN STREET DEED BK/PG 1235/9 MAP ID 0222080001200000
MHB N:2943880.708' E:225026.287'
MHB N:2944027.541' E:225191.341'
MHB N:2944038.259' E:225273.666'
MHB GRAN BACK CENTER
0 20 50 100
SCALE: 1" = 20'
609506_HD(DRAINAGE AND UTILITY).DWG Plotted on 3-Sep-2025 8:52 PM

BECKET
MAIN STREET/ROUTE 8

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	23	49
PROJECT FILE NO.	609506		

STORMWATER ALTERNATIVES
ANALYSIS PLANS
SHEET 2 OF 2

DRAINAGE STRUCTURE TABLE						
NAME	STATION	OFFSET	RIM EL.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
DBCB-1	12+78.23	15' LT	1439.72	1434.28 (SUBDRAIN)	1434.25	CONNECT TO EXIST 12" CMP DEEP SUMP



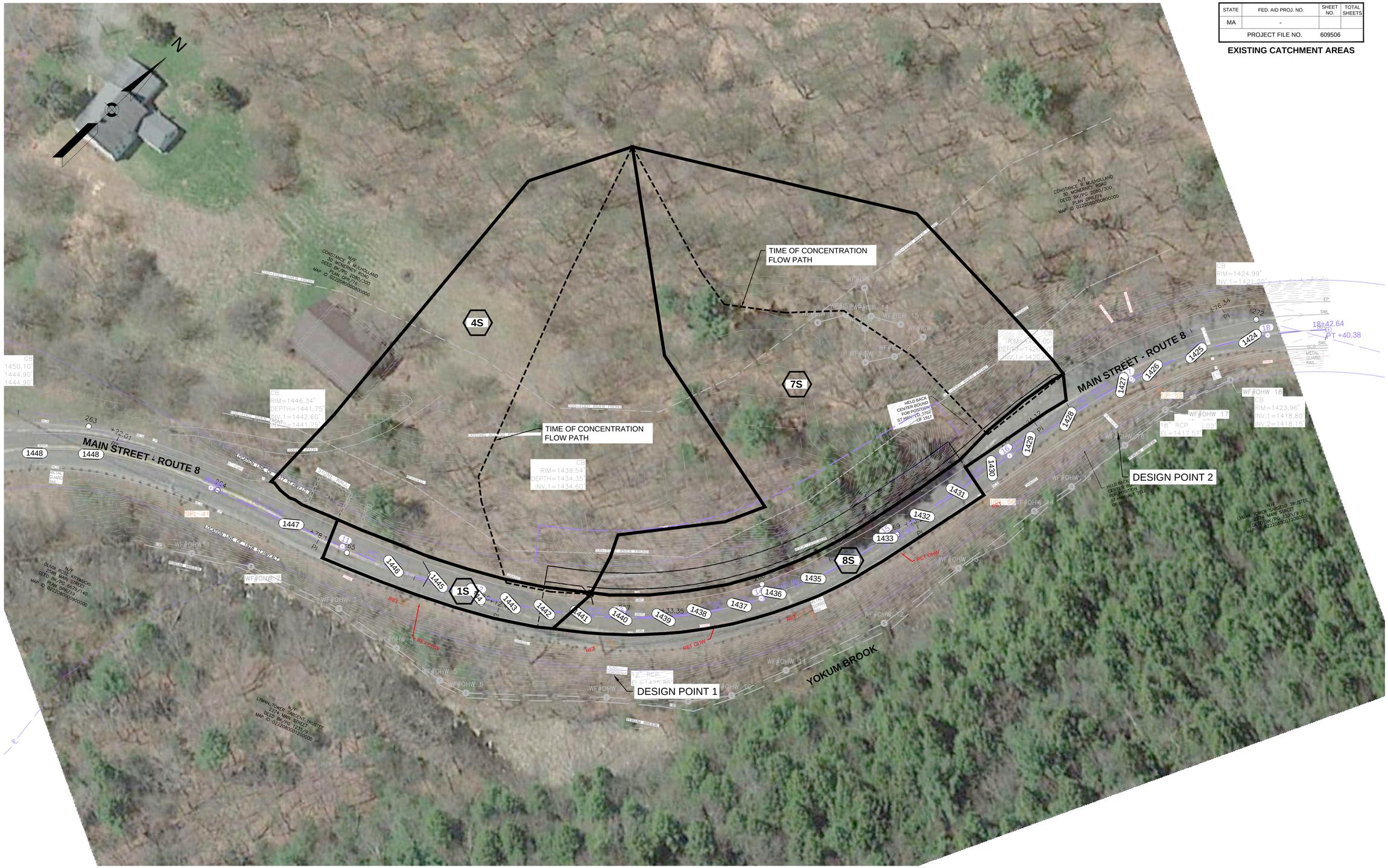
609506_HD(DRAINAGE AND UTILITY).DWG Plotted on 3-Sep-2025 8:52 PM

BECKET
MAIN STREET/ROUTE 8

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-		
PROJECT FILE NO.	609506		

EXISTING CATCHMENT AREAS

609506_HD AREAS.DWG Plotted on 22-Jan-2026 2:51 PM

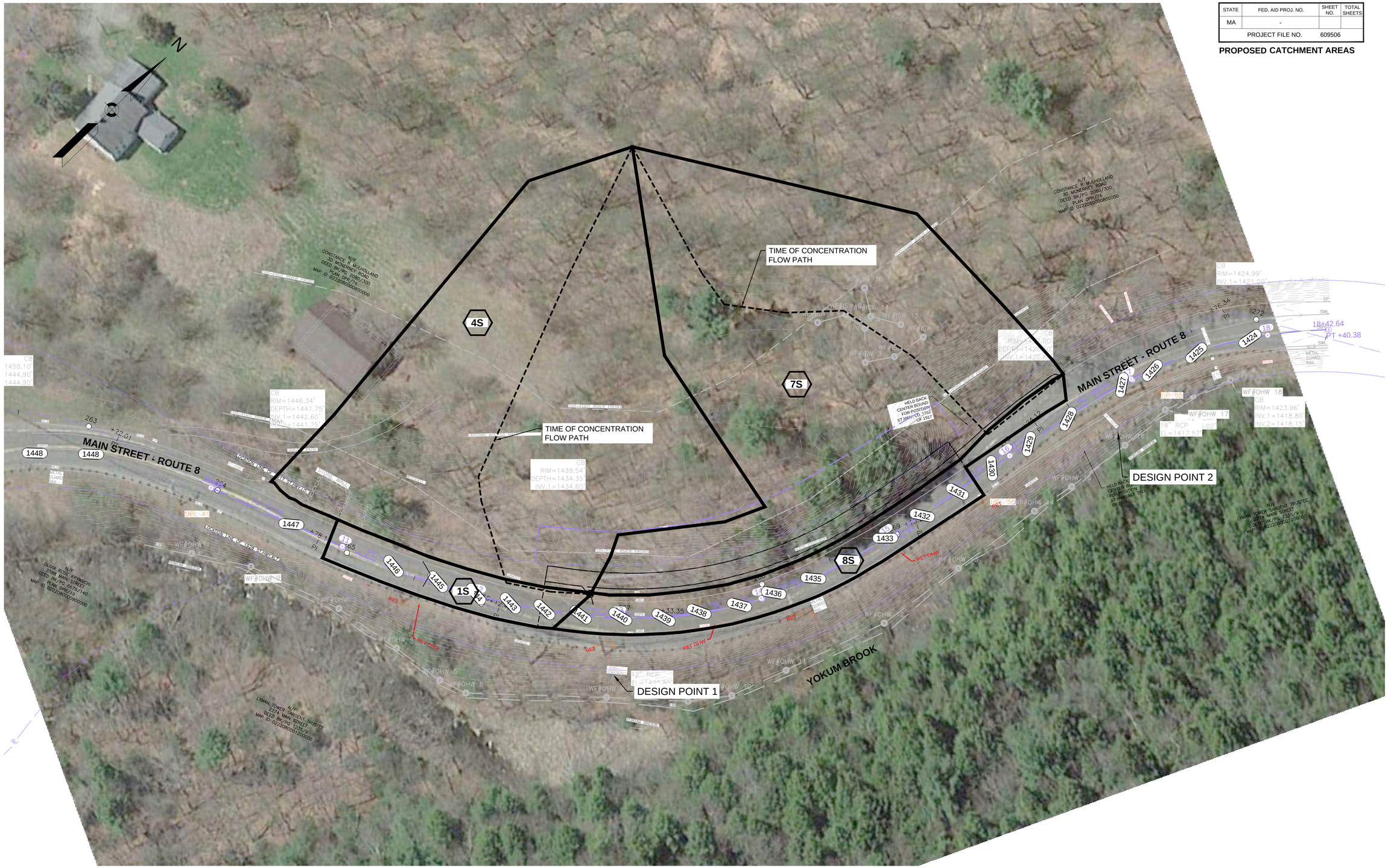


BECKET
MAIN STREET/ROUTE 8

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-		
PROJECT FILE NO.	609506		

PROPOSED CATCHMENT AREAS

609506_HD AREAS.DWG Plotted on 22-Jan-2026 2:24 PM



Appendix G: Illicit Discharge Statement

infiltrating stormwater on site including stormwater best management practices and any pipes intended

following activities or facilities: firefighting, water line flushing, landscape irrigation, uncontaminated

individual resident car washing, flows from riparian habitats and wetlands, dechlorinated water from

I, Brian J. Montejunas (print name), certify that I have conducted a proper site investigation and verify that to the best of my knowledge there are no illicit discharges to the existing drainage infrastructure within the project limits in Becket, Massachusetts.

Signature

1/30/2026

Date

Attachment D – Permit Drawings

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

PLAN AND PROFILE OF

MAIN STREET/ROUTE 8

IN THE TOWN OF

BECKET

BERKSHIRE COUNTY

FEDERAL AID PROJECT NO. -

ENVIRONMENTAL PLANS

BECKET
MAIN STREET/ROUTE 8

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	1	8
PROJECT FILE NO.		609506	

ENVIRONMENTAL PLANS
TITLE SHEET & INDEX

609506_EV(TITLE).DWG Plotted on 28-Jan-2026 11:08 AM

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET & INDEX
2	LEGENDS & ABBREVIATIONS
3	TYPICAL SECTIONS
4-7	ENVIRONMENTAL PLANS
8	DETAILS

LEGEND

WF#OHW — WF#ISW — EXISTING BANK OR BVW

100' BUFFER ZONE

200' RIVERFRONT AREA

EXISTING IMPACTS

EXISTING DEGRADED RIVERFRONT ON SITE INNER RIPARIAN

PROPOSED IMPACTS

PROPOSED LIMITS OF ALTERATIONS OUTER RIPARIAN

PROPOSED LIMIT OF ALTERATIONS INNER RIPARIAN

PROPOSED PERMANENT DEGRADED INNER RIPARIAN

PROPOSED PERMANENT DISTURBED INNER RIPARIAN

TEMPORARY IMPACTS

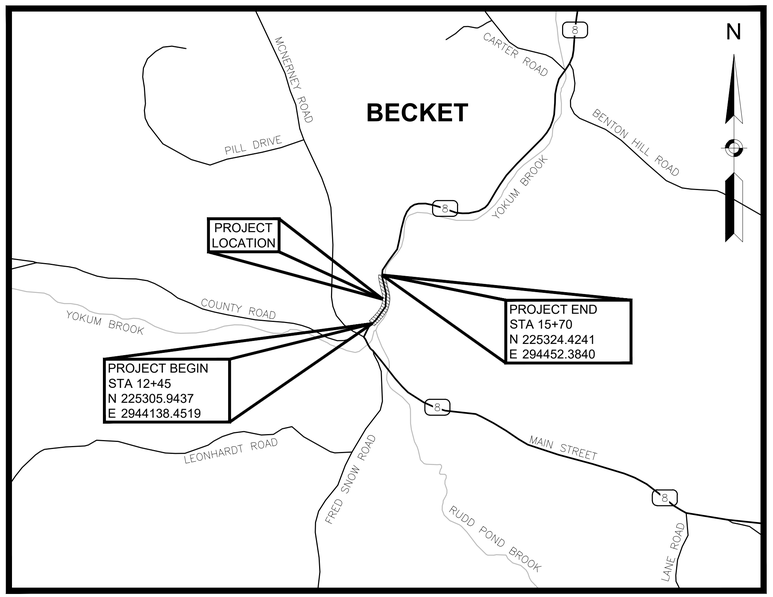
PROPOSED TEMPORARY ALTERATIONS INNER RIPARIAN

PROPOSED TEMPORARY ALTERATIONS OUTER RIPARIAN

TOTAL IMPACTS

TOTAL RIVERFRONT AREA INNER RIPARIAN

TOTAL RIVERFRONT AREA OUTER RIPARIAN



0 1000 2000 3000 4000

SCALE: 1" = 1000'

LENGTH OF PROJECT = 325.00 FEET = 0.062 MILES

DESIGN DESIGNATION (MAIN STREET/ROUTE 8)	
DESIGN SPEED	**35 MPH**
ADT (2024)	1326
ADT (2044)	1465
K	8.6%
D	50.3% (SB)
T (PEAK HOUR)	4.3%
T (AVERAGE DAY)	8.4%
DHV	114
DDHV	63
FUNCTIONAL CLASSIFICATION	RURAL ARTERIAL

DATE	DESCRIPTION	REV #

Jacobs
120 St. James Avenue
5th Floor
Boston, MA 02116

massDOT Massachusetts Department of Transportation Highway Division

APPROVED

CHIEF ENGINEER **DATE**

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
		SILT SACK
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WG	WG	WATER GATE
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
100 99		CONTOURS (ON-THE-GROUND SURVEY DATA)
100 99		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
x	x	CHAIN LINK OR METAL FENCE
		WOOD FENCE
		SEDIMENT BARRIER
		COIR LOG SEDIMENT BARRIER
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
℄		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
1	1	CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
	*	EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
RRSG	RRSG	RAILROAD SIGNAL
OR		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
	20'	MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
	20'	MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE
	CW	CROSSWALK
	SWL	SOLID WHITE LINE
	SYL	SOLID YELLOW LINE
	BWL	BROKEN WHITE LINE
	BYL	BROKEN YELLOW LINE
	DWL	DOTTED WHITE LINE
	DYL	DOTTED YELLOW LINE
	DWLEx	DOTTED WHITE LINE EXTENSION
	DYLEx	DOTTED YELLOW LINE EXTENSION
	DBWL	DOUBLE WHITE LINE
	DBYL	DOUBLE YELLOW LINE

ABBREVIATIONS

GENERAL

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
M&O	MILL & OVERLAY
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PCR	PEDESTRIAN CURB RAMP
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY

BECKET
MAIN STREET/ROUTE 8

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	2	8
PROJECT FILE NO.	609506		

ENVIRONMENTAL PLANS
LEGEND & ABBREVIATIONS

ABBREVIATIONS (cont.)

GENERAL

PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATER WAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

TRAFFIC SIGNAL ABBREVIATIONS

CAB	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY UPRAISED HAND
FDW	FLASHING UPRAISED HAND
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR YELLOW
FYL	FLASHING YELLOW LEFT ARROW
FYR	FLASHING YELLOW RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILT, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALKING PERSON
Y	STEADY CIRCULAR YELLOW
YL	STEADY YELLOW LEFT ARROW

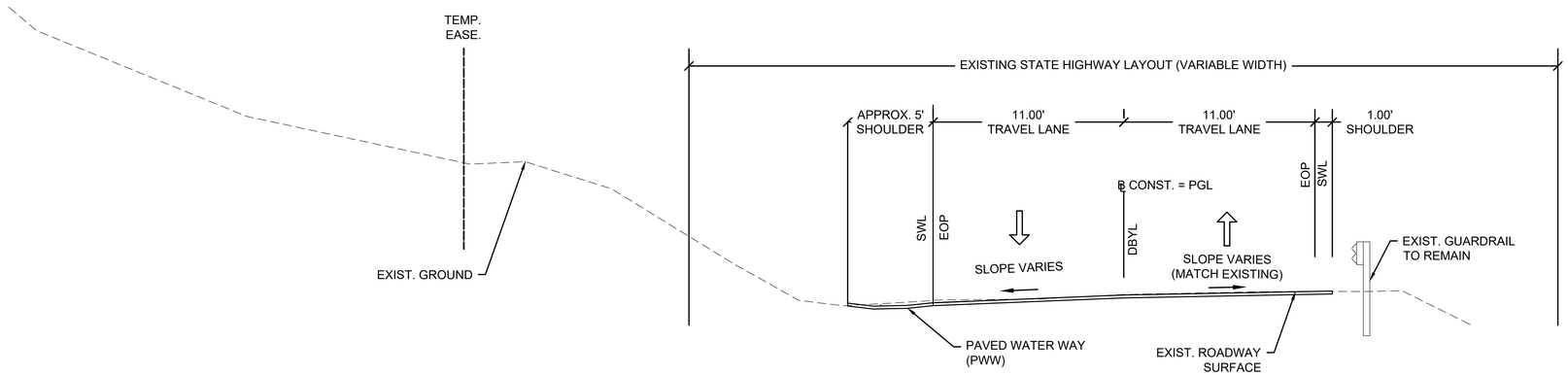
609506_EV(LEGEND).DWG Plotted on 28-Jan-2026 11:16 AM

BECKET
MAIN STREET/ROUTE 8

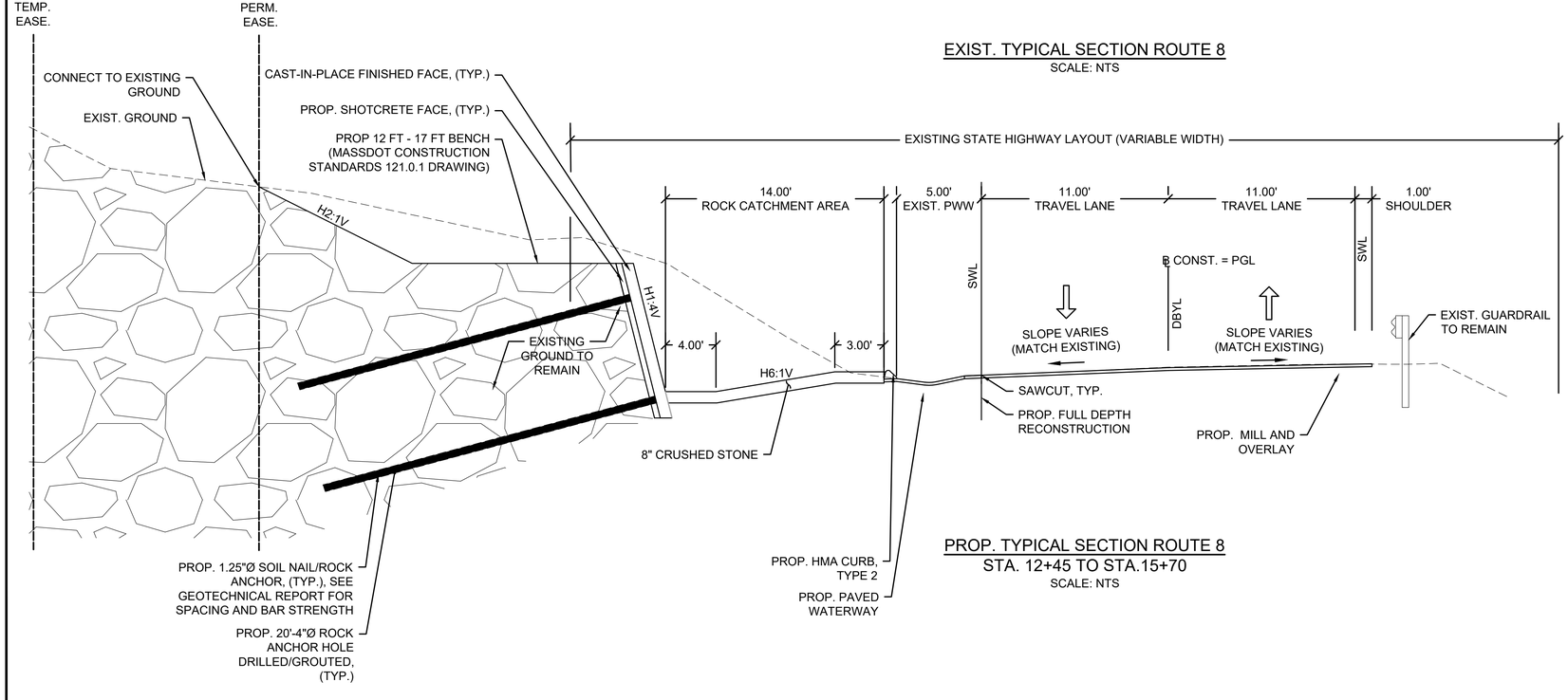
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	3	8
PROJECT FILE NO.	609506		

ENVIRONMENTAL PLANS
TYPICAL SECTIONS

609506_EV(TYP SECTIONS).DWG Plotted on 28-Jan-2026 11:16 AM



EXIST. TYPICAL SECTION ROUTE 8
SCALE: NTS



PROP. TYPICAL SECTION ROUTE 8
STA. 12+45 TO STA.15+70
SCALE: NTS

MILL AND OVERLAY PAVEMENT CONSTRUCTION

SURFACE COURSE: 1.75" SUPERPAVE SURFACE COURSE 9.5 POLYMER (SSC-9.5-P)

SURFACE PREPARATION: 1.75" PAVEMENT FINE MILL

ROCK CATCHMENT AREA

SURFACE COURSE: 8" CRUSHED STONE

NOTES

1. HMA, HMA FOR PATCHING, ASPHALT EMULSION FOR TACK COAT HMA JOINT ADHESIVE, AND PAVEMENT MILLING SHALL BE IN ACCORDANCE WITH SECTION 450 QUALITY ASSURANCE OF HMA SPECIFICATION.
2. ASPHALT EMULSION FOR TACK COAT (RS-1H) SHALL BE APPLIED AT THE RATE OF 0.06 TO 0.08 GALLONS PER SQUARE YARD OVER NEW HMA SURFACES NOT OPENED TO TRAFFIC AS WELL AS OVER EXISTING TIGHT SMOOTH PAVEMENT. ON MILLED SURFACES, THE EMULSION APPLICATION RATE SHALL EQUAL 0.07 TO 0.09 GALLONS PER SQUARE YARD. ON NEW HMA PATCHES, THE EMULSION APPLICATION RATE SHALL EQUAL 0.06 TO 0.09 GALLONS PER SQUARE YARD.
3. CONTRACTOR TO MATCH EXISTING ROADWAY CROSS SLOPE WITHIN LIMITS OF MILL AND OVERLAY.
4. ROCK EXCAVATION AND BLASTING OPERATIONS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 120.63, PRESPLITTING ROCK, OF THE MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES, UNLESS OTHERWISE DIRECTED BY THE ENGINEER. PRESPLITTING SHALL BE PERFORMED TO PRODUCE A UNIFORM, STABLE ROCK FACE AND TO PREVENT FRACTURING OR OVERBREAK BEYOND THE DESIGN SLOPE LINE.
5. BLASTING METHODS SHALL BE CONTROLLED SUCH THAT ROCK EXCAVATION DOES NOT EXTEND MORE THAN 24 INCHES BEYOND AND PARALLEL TO THE SLOPE LINES SHOWN ON THE PLANS OR AS ORDERED IN WRITING BY THE ENGINEER, IN ACCORDANCE WITH SECTION 120.80. ROCK EXCAVATION EXTENDING BEYOND THESE LIMITS SHALL BE CONSIDERED OVERBLAST RESULTING FROM THE CONTRACTOR'S BLASTING OPERATIONS AND SHALL NOT BE PAID FOR.

BECKET
MAIN STREET/ROUTE 8

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	4	8
PROJECT FILE NO.	609506		

ENVIRONMENTAL PLANS
TOTAL RIVERFRONT AREA

N

LEGEND

- WF#OHW — WF#ISW — EXISTING BANK OR BVW
- 100' BUFFER ZONE
- 200' RIVERFRONT AREA
- TOTAL RIVERFRONT AREA INNER RIPARIAN
- TOTAL RIVERFRONT AREA OUTER RIPARIAN

TOTAL RIVERFRONT AREA OUTER RIPARIAN (25,379 SF)

TOTAL RIVERFRONT AREA INNER RIPARIAN (32,967 SF)

200-FOOT RIVER FRONT

100-FOOT RIVER FRONT

EXISTING ACCESS PATH

N/F
CONSTANCE R MULHOLLAND
30 MCNERNEY ROAD
DEED BK/PG 2080/300
PLAN 0PR/76
MAP ID 0222080000800000

WF#ISW 13
WF#ISW 6
WF#ISW 5
WF#ISW 14
WF#ISW 4
WF#ISW 15
WF#ISW 3
WF#ISW 2
WF#ISW 1

CB
RIM=1439.54'
DEPTH=1434.35'
INV.1=1434.60'

CB
RIM=1427.00'
DEPTH=1420.50'
INV.1=1420.65'

CB
RIM=1424.99'
INV.1=1421.00'

PROP SILT SACK (TYP)

PROP HMA CURB TYPE 2

TOE OF SLOPE

14' ROCK CATCHMENT AREA

REM EXISTING GUARDRAIL AND FENCE

PROP SEDIMENT CONTROL BARRIER (STA 10+00 TO STA 16+20)

WF#OHW 8
WF#OHW 9
WF#OHW 10
WF#OHW 11
WF#OHW 12
WF#OHW 13
WF#OHW 14
WF#OHW 15
WF#OHW 16
WF#OHW 17
WF#OHW 18

YOKUM BROOK

18" RCP
EL=1417.57'

12" CMP
EL=1415.02'

CB
RIM=1423.96'
INV.1=1418.80'
INV.2=1418.15'

N/F
LYMAN TOWER SARGENT TRUSTEE
2274 MAIN STREET
DEED BK/PG 1235/9
MAP ID 0222080001200000

0 20 50 100
SCALE: 1" = 20'

FOR CONSTRUCTION PROFILE:
SEE SHEET NO. XX

609506_EV (ENVIROMENTAL PLANS)_CJD.DWG Plotted on 28-Jan-2026 11:35 AM

BECKET
MAIN STREET/ROUTE 8

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	5	8
PROJECT FILE NO.	609506		

ENVIRONMENTAL PLANS
EXISTING DEGRADED RIVERFRONT ON SITE

609506_EV (ENVIROMENTAL PLANS)_CJD.DWG Plotted on 28-Jan-2026 11:35 AM

N

LEGEND

WF#OHW — WF#ISW — EXISTING BANK OR BVW

100' BUFFER ZONE

200' RIVERFRONT AREA

EXISTING IMPACTS

EXISTING DEGRADED RIVERFRONT ON SITE INNER RIPARIAN

200-FOOT RIVER FRONT

100-FOOT RIVER FRONT

EXISTING PATH

MITCHELL T. MULHOLLAND,
WILLIAM D. MULHOLLAND,
SEAN T. MULHOLLAND AND
KATHLEEN M. RODHOUSE
30 MCNERNEY ROAD
DEED BK/PG 2080/300
PLAN 0PR/76
MAP ID 0222080000800000

WF#ISW 1
WF#ISW 2
WF#ISW 3
WF#ISW 4
WF#ISW 5
WF#ISW 6
WF#ISW 13
WF#ISW 14
WF#ISW 15

CB
RIM=1439.54'
DEPTH=1434.35'
INV.1=1434.60'

MHB
N:N:2944461.630'
E:225287.661'

MHB
N:N:2944487.613'
E:225274.402'

CB
RIM=1427.00'
DEPTH=1420.50'
INV.1=1420.65'

CB
RIM=1424.99'
INV.1=1421.00'

PROP SILT SACK
(TYP)

MAIN STREET - ROUTE 8

MAIN STREET (ROUTE 8)
(PUBLIC)

1928 BASELINE – SECTION 1

CONST. BASELINE

1928 STATE HIGHWAY ALTERATION (LO. NO. 2521)–SECTION 1

EXISTING DEGRADED AREA -
INNER RIPARIAN ONLY (9,705 SF)

PROP HMA CURB
TYPE 2

TOE OF SLOPE

14' ROCK CATCHMENT AREA

REM EXISTING
GUARDRAIL AND FENCE

PROP SEDIMENT
CONTROL BARRIER
(STA 10+00 TO STA 16+20)

WF#OHW 8
WF#OHW 9
WF#OHW 10
WF#OHW 11
WF#OHW 12
WF#OHW 13
WF#OHW 14
WF#OHW 15
WF#OHW 16
WF#OHW 17
WF#OHW 18

YOKUM BROOK

MHB
N:2944396.836'
E:225372.996'

CB
RIM=1423.96'
INV.1=1418.80'
INV.2=1418.15'

18" RCP
EL=1417.57'

12" CMP
EL=1415.02'

END OF PROJECT
END MILL AND OVERLAY AND FULL
DEPTH RECONSTRUCTION IN SHOULDER
STA. 15+70
N: 2944452.3119
E: 225324.1292
MATCH EXISTING

N/F
LYMAN TOWER SARGENT TRUSTEE
2274 MAIN STREET
DEED BK/PG 1235/9
MAP ID 0222080001200000

0 20 50 100
SCALE: 1" = 20'

BECKET
MAIN STREET/ROUTE 8

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	6	8
PROJECT FILE NO.	609506		

ENVIRONMENTAL PLANS
LIMITS OF PROPOSED ALTERATIONS

LEGEND

WF#OHW / WF#ISW — EXISTING BANK OR BVW
100' BUFFER ZONE
200' RIVERFRONT AREA
PROPOSED LIMIT OF ALTERATIONS INNER RIPARIAN
PROPOSED LIMITED OF ALTERATIONS OUTER RIPARIAN

N

200-FOOT RIVER FRONT
100-FOOT RIVER FRONT
EXISTING PATH
WF#ISW 1
WF#ISW 2
WF#ISW 3
WF#ISW 4
WF#ISW 5
WF#ISW 6
WF#ISW 13
WF#ISW 14
WF#ISW 15

MITCHELL T. MULHOLLAND,
WILLIAM D. MULHOLLAND,
SEAN T. MULHOLLAND AND
KATHLEEN M. RODHOUSE
30 MCNERNEY ROAD
DEED BK/PG 2080/300
PLAN 0PR/76
MAP ID 0222080000800000

PROPOSED TEMP ALTERATION OUTER RIPARIAN (6,714 SF)
PROPOSED TEMP ALTERATION INNER RIPARIAN (19,150 SF)
PROP HMA CURB TYPE 2
TOE OF SLOPE
14' ROCK CATCHMENT AREA
REM EXISTING GUARDRAIL AND FENCE
PROP SEDIMENT CONTROL BARRIER (STA 10+00 TO STA 16+20)
PROP SILT SACK (TYP)

CB RIM=1439.54' DEPTH=1434.35' INV.1=1434.60'
MHB N:N:2944487.613' E:225274.402'
MHB N:2944461.630' E:225287.661'
CB RIM=1427.00' DEPTH=1420.50' INV.1=1420.65'
CB RIM=1424.99' INV.1=1421.00'
CB RIM=1423.96' INV.1=1418.80' INV.2=1418.15'
MHB N:2944396.836' E:225372.996'

36'± 36'± 46'± 87'± 33'± 9'± 27'± 27'± 26'±
L=79'± L=316'± L=392'± L=9'±
79'± 101'±
29'± 25 MPH 25 MPH

MAIN STREET - ROUTE 8
MAIN STREET (ROUTE 8)
(PUBLIC)
1928 BASELINE – SECTION 1
CONST BASELINE
1928 STATE HIGHWAY ALTERATION (LO. NO. 2521)–SECTION 1
MILE 28.0

WOODED
GRASS
CURVE AHEAD (RET)
CONC HEADWALL
12" RCP EL=1425.85
METAL GUARD RAIL
UP 55
UPL 56
BCB
SWL
EP
OHW
GUY WIRE
12" CIP
12" CMP EL=1415.02
18" RCP EL=1417.57
METAL GUARD RAIL
ROCK CATCHMENT
YOKUM BROOK
EW

WF#OHW 8
WF#OHW 9
WF#OHW 10
WF#OHW 11
WF#OHW 12
WF#OHW 13
WF#OHW 14
WF#OHW 15
WF#OHW 16
WF#OHW 17
WF#OHW 18

STA 12+64
STA 18+42.64

END OF PROJECT
END MILL AND OVERLAY AND FULL DEPTH RECONSTRUCTION IN SHOULDER
STA. 15+70
N: 2944452.3119
E: 225324.1292
MATCH EXISTING

N/F
LYMAN TOWER SARGENT TRUSTEE
2274 MAIN STREET
DEED BK/PG 1235/9
MAP ID 0222080001200000

0 20 50 100
SCALE: 1" = 20'

FOR CONSTRUCTION PROFILE:
SEE SHEET NO. XX

609506_EV (ENVIROMENTAL PLANS)_CJD.DWG Plotted on 28-Jan-2026 11:36 AM

RIVERFRONT IMPACT CALCULATIONS (SQUARE FEET)				
PERMANENT IMPACTS		EXISTING	PROPOSED	NET CHANGE
	INNER RIPARIAN DEGRADED	9,705 SF	9,705 SF	0 SF
	INNER RIPARIAN DISTURBED	0 SF	5,993 SF	5,993 SF
	OUTER RIPARIAN DEGRADED	0 SF	0 SF	0 SF
	OUTER RIPARIAN DISTURBED	0 SF	0 SF	0 SF
TEMPORARY IMPACTS				
	INNER RIPARIAN TEMPORARY	0 SF	3,436 SF	3,436 SF
	OUTER RIPARIAN IMPACTS	0 SF	6,763 SF	6,763 SF

BECKET
MAIN STREET/ROUTE 8

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	7	8
PROJECT FILE NO.	609506		

ENVIRONMENTAL PLANS
PROPOSED RIVERFRONT AREA IMPACT

609506_EV (ENVIROMENTAL PLANS)_CJD.DWG Plotted on 28-Jan-2026 11:38 AM

LEGEND

- WF#OHW — WF#ISW — EXISTING BANK OR BVW
- 100' BUFFER ZONE
- 200' RIVERFRONT AREA
- PROPOSED DEGRADED — PROPOSED PERMANENT DEGRADED INNER RIPARIAN
- PROPOSED DISTURBED — PROPOSED PERMANENT DISTURBED INNER RIPARIAN
- TEMPORARY IMPACTS — PROPOSED TEMPORARY ALTERATIONS INNER RIPARIAN
- PROPOSED TEMPORARY ALTERATIONS OUTER RIPARIAN

N/F
CONSTANCE F MULHOLLAND
30 MCNERNEY ROAD
DEED BK/PG 2080/300
PLAN 0PR/76
MAP ID 0222080000800000

200-FOOT RIVER FRONT

WF#ISW 13, 6, 5, 14, 4, 15, 3, 2, 1

PROPOSED PERMANENT DISTURBED INNER RIPARIAN (5,993 SF)

PROPOSED PERMANENT DEGRADED INNER RIPARIAN (9,705 SF)

PROPOSED TEMP ALTERATION OUTER RIPARIAN (6,763 SF)

PROPOSED TEMP ALTERATION INNER RIPARIAN (3,436 SF)

CB RIM=1439.54' DEPTH=1434.35' INV.1=1434.60'

36'± 36'± 46'± 87'± 33'± 9'± 27'± 28'± 101'± 79'± 27'±

L=179'± L=316'± L=9'± L=392'±

EXISTING PATH

CURVE AHEAD (RET)

WOODED GRASS ROCK OUTCROP

100-FOOT RIVER FRONT

CONST BASELINE

1928 BASELINE - SECTION 1

1928 STATE HIGHWAY ALTERATION (LO. NO. 2521)-SECTION 1

MHB N:2944461.630' E:225287.661'

MHB N:2944487.613' E:225274.402'

MHB N:2944396.836' E:225372.996'

CB RIM=1427.00' DEPTH=1420.50' INV.1=1420.65'

CB RIM=1424.99' INV.1=1421.00'

CB RIM=1423.96' INV.1=1418.80' INV.2=1418.15'

PROP SILT SACK (TYP)

MAIN STREET - ROUTE 8

MAIN STREET (ROUTE 8) (PUBLIC)

25 MPH

UP 55 UP 56

12" CIP EL=1418.12

12" CMP EL=1415.02

18" RCP EL=1417.57

12" RCP EL=1425.85

CONC HEADWALL

METAL GUARD RAIL

MILE 28.0

BCB SWL EP OHW EW

GUY WIRE

WF#OHW 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18

YOKUM BROOK

PROP HMA CURB TYPE 2

TOE OF SLOPE

14' ROCK CATCHMENT AREA

REM EXISTING GUARDRAIL AND FENCE

PROP SEDIMENT CONTROL BARRIER (STA 10+00 TO STA 16+20)

END OF PROJECT

END MILL AND OVERLAY AND FULL DEPTH RECONSTRUCTION IN SHOULDER
STA. 15+70
N: 2944452.3119
E: 225324.1292
MATCH EXISTING

N/F
LYMAN TOWER SARGENT TRUSTEE
2274 MAIN STREET
DEED BK/PG 1235/9
MAP ID 0222080001200000

0 20 50 100
SCALE: 1" = 20'

FOR CONSTRUCTION PROFILE:
SEE SHEET NO. XX

BECKET
MAIN STREET/ROUTE 8

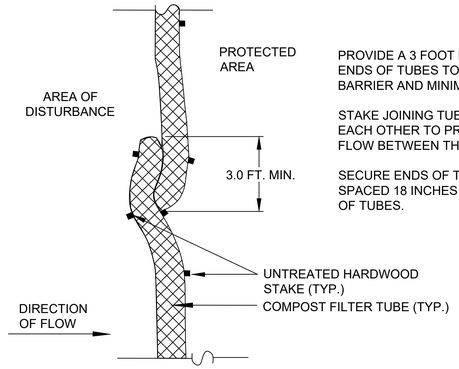
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	8	8
PROJECT FILE NO.	609506		

ENVIRONMENTAL PLANS
DETAILS

609506_EV(CONSTRUCTION DETAILS).DWG Plotted on 28-Jan-2026 11:44 AM

NOTES:

1. PROVIDE A MINIMUM TUBE DIAMETER OF 12 INCHES FOR SLOPES UP TO 50 FEET 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 SITUATIONS WITH LONGER 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 STORM WATER RUN-OFF.

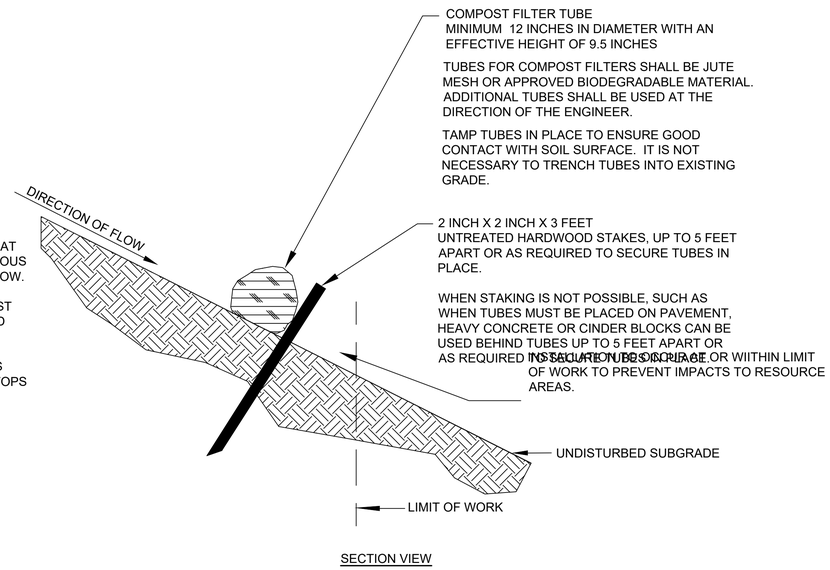


PLAN VIEW - JOIN DETAIL

PROVIDE A 3 FOOT MINIMUM OVERLAP AT ENDS OF TUBES TO JOIN IN A CONTINUOUS BARRIER AND MINIMIZE UNIMPEDED FLOW.

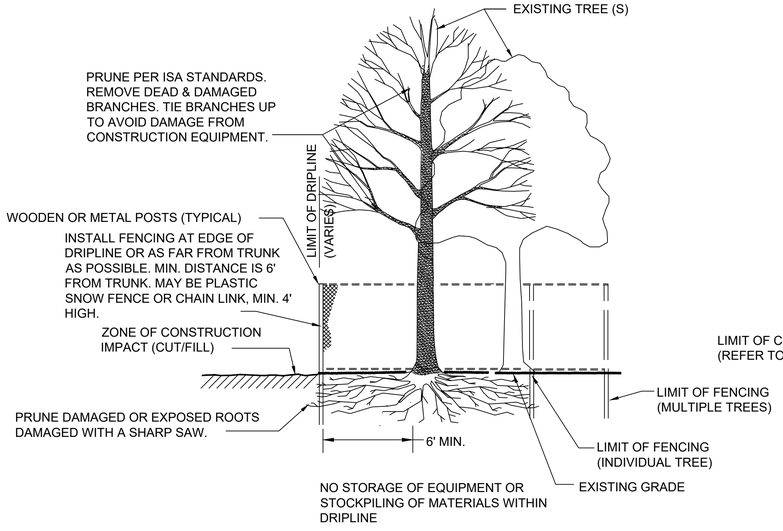
STAKE JOINING TUBES SNUGLY AGAINST EACH OTHER TO PREVENT UNFILTERED FLOW BETWEEN THEM.

SECURE ENDS OF TUBES WITH STAKES SPACED 18 INCHES APART THROUGH TOPS OF TUBES.

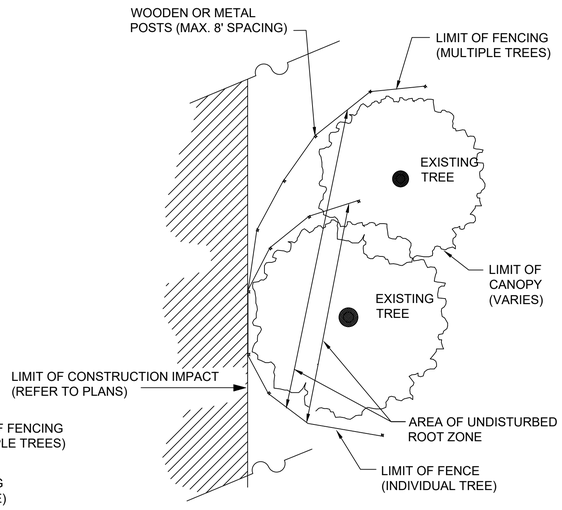


SECTION VIEW

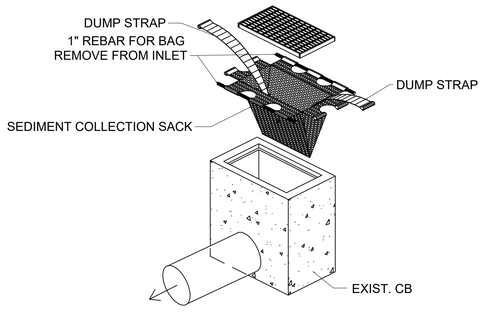
COMPOST FILTER TUBES
NOT TO SCALE



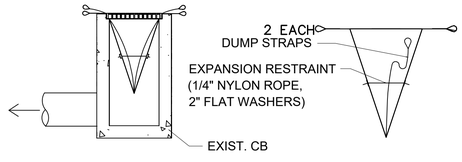
TREE PROTECTION DETAIL
NOT TO SCALE



PLAN VIEW

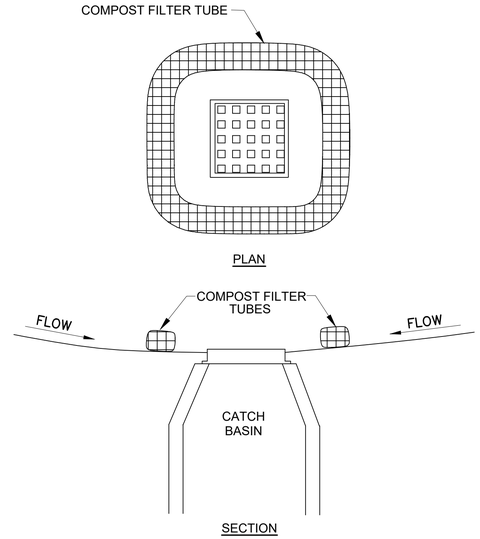


INSTALLATION DETAIL



BAG DETAIL

SEDIMENT COLLECTION SACK DETAIL (ITEM 697.1)
NOT TO SCALE



DETAIL FOR SEDIMENT CONTROL AT CATCH BASIN & DROP INLET
NOT TO SCALE

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DOCUMENT A00861

MASSACHUSETTS

DEPARTMENT OF ENVIRONMENTAL PROTECTION

ORDER OF CONDITIONS

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Massachusetts Department of Environmental Protection

eDEP Transaction Copy

Here is the file you requested for your records.

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Transaction ID:	**2008138**
Document:	**WPA Form 5 - OOC**
Size of File:	**151.72K**
Status of Transaction:	**In Process**
Date and Time Created:	**4/14/2026:10:10:21 AM**

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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 #:102-0508
eDEP Transaction #:2008138
City/Town:BECKET

A. General Information

1. Conservation Commission: BECKET
2. Issuance: a. ☑ OOC b. ☐ Amended OOC
3. Applicant Details

a. First Name	ERICA	b. Last Name	LARNER		
c. Organization	MA DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION				
d. Mailing Address	10 PARK PLZ				
e. City/Town	BOSTON	f. State	MA	g. Zip Code	02116

4. Property Owner

a. First Name	ERICA	b. Last Name	LARNER		
c. Organization	MA DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION				
d. Mailing Address	10 PARK PLZ				
e. City/Town	BOSTON	f. State	MA	g. Zip Code	02116

5. Project Location

a.Street Address	MAIN ST ON ROUTE 8		
b.City/Town	BECKET	c. Zip Code	01223
d. Assessors Map/Plat#	208	e. Parcel/Lot#	08
f. Latitude	42.31625N	g. Longitude	73.09348W

6. Property recorded at the Registry of Deed for:

a. County	b. Certificate	c. Book	d. Page
			N/A STATE HIGHWAY LAYOUT

7.Dates

a. Date NOI Filed : 2/24/2026 b. Date Public Hearing Closed: 3/24/2026 c. Date Of Issuance: 3/24/2026

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:
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION PLAN AND PROFILE OF MAIN STREET/ROUTE 8	JACOBS ENGINEERING	BRIAN MONTEJUNAS, P.E.	January 28, 2026	1"=20'

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

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 #:102-0508
eDEP Transaction #:2008138
City/Town:BECKET

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

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	_____ a. linear feet	_____ b. linear feet	_____ c. linear feet	_____ d. linear feet
5. ☐ Bordering Vegetated Wetland	_____ a. square feet	_____ b. square feet	_____ c. square feet	_____ d. square feet
6. ☐ Land under Waterbodies and Waterways	_____ a. square feet	_____ b. square feet	_____ c. square feet	_____ d. square feet
	_____ 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

Massachusetts Department of Environmental Protection
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Provided by MassDEP:
MassDEP File #:102-0508
eDEP Transaction #:2008138
City/Town:BECKET

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	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9.☑ Riverfront Area	16192 a. total sq. feet	16192 b. total sq. feet		
Sq ft within 100 ft	9429 c. square feet	9429 d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	6763 g. square feet	6763 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			

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 #:102-0508
eDEP Transaction #:2008138
City/Town:BECKET

21. ☐ Land Subject to Coastal Storm Flowage

c. c/y dredged _____ d. c/y dredged _____

a. square feet _____ b. square feet _____

22.

☐ 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.

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

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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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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..

10. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing the words,

" Massachusetts Department of Environmental Protection"
[or 'MassDEP"]
File Number :"102-0508"

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

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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 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.

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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 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:
SEE ATTACHED

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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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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Provided by MassDEP:
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2008138
eDEP Transaction #
Bedford
City/Town

E. Signatures

This Order is valid for three years, unless otherwise specified as a special condition pursuant to General Conditions #4, from the date of issuance.

3/26/2026
1. Date of Issuance

Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

4
2. Number of Signers

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.

Signature	Printed Name
David Johnson	David Johnson
	HENRY A. HABEMAN
Douglas D Bessone	Christopher Clapper
Douglas D Bessone	Douglas D. Bessone
Signature	Printed Name
Signature	Printed Name
Signature	Printed Name
Signature	Printed Name

☐ by hand delivery on

Date

☒ by certified mail, return receipt requested, on

7018 1830 0000 9876 7470

Date

4/10/2026

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 #:102-0508
eDEP Transaction #:2008138
City/Town:BECKET

subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

BECKET
Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

BECKET
Conservation Commission

Please be advised that the Order of Conditions for the Project at:

MAIN ST ON ROUTE 8 — Project Location

102-0508 — MassDEP File Number

Has been recorded at the Registry of Deeds of:

County | Book | Page

for:

Property Owner ERICA LARNER

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

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DOCUMENT A00875

POLICY DIRECTIVE P-22-001
AND
POLICY DIRECTIVE P-22-002

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massDOT Massachusetts Department of Transportation Highway Division

Number: P-22-001
Date: 9/23/22

POLICY DIRECTIVE

Jonathan Gulliver (signature on original)
HIGHWAY ADMINISTRATOR

Off-Site Stockpiling of Soil from MassDOT Construction Projects

Purpose

The purpose of this Policy Directive is to formally establish a policy and procedures for managing and stockpiling soil generated and transported from MassDOT construction projects. This Policy Directive does not supersede any Federal, State, or Local regulations.

Date of Effect

This Policy Directive is effective immediately for all projects, including active construction projects.

For active construction projects and for other projects advertised prior to October 15, 2022, changes to the contract documents needed to implement the requirements of this Policy Directive will be considered on a case-by-case basis and shall be approved by the District Highway Director, as necessary.

For projects advertised on or after October 15, 2022, MassDOT will include the requirements and implementation procedures of this Policy Directive in the construction contract documents.

Policy Requirements

This policy is intended to prevent the off-site relocation of excavated soil generated from MassDOT projects to areas near residential receptors and to control potential fugitive dusts and/or contaminants. To that end, excavated soil may not be moved from the project site without knowledge of the content of the material. Knowledge may include visual field observations for presence of staining, odor, and/or debris, screening with a photoionization detector (PID), laboratory analysis, and/or site history. Pavement millings and other non-soil materials are not subject to the requirements of this Policy Directive.

Moving soil from a MassDOT project site to a temporary off-site storage location must be approved in writing by the District Highway Director.

The Contractor must select a storage location that is at least 500 feet away from residential receptors, as defined herein to include, but not be limited to, residential dwellings, residentially

zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities.

Temporary off-site storage of excavated soil from a MassDOT project is only permissible at a location approved and permitted by MassDOT. The temporary storage location should be located within the same municipality where the soil was excavated, where possible. Stockpiled soil must be securely covered, and appropriate measures must be taken to minimize fugitive dust and erosion.

Signs indicating the source of the soil, the date the soil was generated, and contact information must be erected and maintained until the stockpiled soils are transported to a disposal facility or reused on the project site.

Implementation Procedures

To ensure that off-site storage of excavated soils is managed properly on MassDOT projects, this policy requires the following:

1. **Off-Site Stockpile Storage Locations**
    a. The Contractor shall provide proposed off-site storage locations to the Engineer for approval at least 30 days prior to transporting soil off site. Off-site storage locations should be in the same municipality as the work site.
    b. The Contractor shall keep excavated soil on site until adequately characterized to the satisfaction of the Engineer.
    c. The Contractor shall provide notification of the approved off-site storage location to the local Board of Health and the Town Manager's/Mayor's Office at least 7-days prior to transporting soil off site.
    d. The Contractor shall provide the Engineer with at least 3-days' notice prior to transporting soil off site.
    e. For off-site storage locations on MassDOT property, the Contractor is required to obtain an Access Permit through the District Permits Office prior to storage of soil or other materials. MassDOT will issue these permits at no cost to the Contractor. Information to be submitted by the Contractor as part of the permit application shall include:
        i. A description of material to be stored off-site, including available analytical data;
        ii. A figure of the location with distances to residences and residential receptors; and
        iii. Anticipated duration of temporary storage.
    f. Stockpile locations should not be within 500 feet of residential receptors (e.g., residential dwellings, residentially zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities).
        i. If the stockpile location must be within 500 feet of residential receptors, then soil must be less than RCS-1 (per 310 CMR 40.1600) and free of potentially hazardous or regulated items.

g. For off-site storage locations on non-MassDOT property, the Contractor must notify the property owner(s) at least 7 days prior to transporting material.
h. Exceptions to these rules will be reviewed by MassDOT and may be approved by the District Highway Director on a case-by-case basis.

2. Off-Site Stockpile Management

a. The Contractor shall keep soil stockpiles on impermeable surfaces (e.g., asphalt or concrete) or on 10-mil polyethylene sheeting.
b. The Contractor shall cover soil stockpiles with 10-mil polyethylene sheeting and surround with a berm made of hay bales, straw wattles, or similar.
    i. Piles that are actively being worked on must be covered and re-secured at the end of the work shift.
c. The Contractor shall label stockpiles with signs, including:
    i. Location of origin (including any Release Tracking Numbers)
    ii. Stockpile ID number (including MassDOT District office-assigned tracking ID, if different)
    iii. Date of initial accumulation
    iv. Applicable telephone numbers for the Contractor and MassDOT.
d. The Contractor shall mitigate fugitive dust at storage locations under the direction of an appropriately trained/certified environmental professional.
e. The Contractor shall remedy noncompliance with this policy within 48 hours.
f. The Contractor shall remedy noncompliance with this policy on the SAME DAY for potentially hazardous material, as determined by the Engineer.
g. The Contractor shall handle excavated soil according to federal, state, and local regulations.
h. The Contractor shall use appropriate shipping documents for all movements of excavated soil on public roadways (e.g., Bill of Lading, Material Shipping Record, Manifest, Asbestos Waste Shipment Record, etc.).

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massDOT Massachusetts Department of Transportation Highway Division

Number: P-22-002
Date: 9/23/22

POLICY DIRECTIVE

Jonathan Gulliver (signature on original)
HIGHWAY ADMINISTRATOR

Use of MassDOT Property for Staging and other Construction-Related Operations

Purpose

This Policy Directive is intended to address the use of MassDOT property by MassDOT Contractors for construction staging and other construction-related operations that are not specifically defined in the construction contract. Such use of MassDOT property will only be allowed if permitted by the District Office in accordance with 700 CMR 13.00, Approval of Access to MassDOT Highways and Other Property. This includes the use of MassDOT property for staging, laydown, and storage of equipment and materials, including soil excavated from a project site.

This Policy Directive requires the Contractor/applicant to obtain a Non-Vehicular Access Permit from MassDOT to use MassDOT property for these purposes.

This Policy Directive is effective immediately and applies to all MassDOT construction projects.

General Permit Considerations and Conditions

In addition to other normal MassDOT Access Permit procedures, MassDOT shall consider the following during the application, review, implementation and monitoring processes of Access Permits required by this Policy Directive:

- Storage and placement of the Contractor's equipment and materials should not be allowed within the clear zone of the roadway.
- Stockpiled soils should not be located within 500 feet of residential receptors, as defined herein to include, but not be limited to, residential dwellings, residentially zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities.
- The Contractor/applicant shall identify the access/egress locations of the proposed storage areas. MassDOT will only approve locations determined to be safe for roadway users, construction workers and the general public.
- The Contractor may be required to submit a Traffic Management Plan and/or Lighting Plan for MassDOT review and approval as part of the permit application, depending on the proposed use of the area.

- The Contractor shall submit the permit application through MassDOT's online State Highway Access Permit System (SHAPS).
- MassDOT will waive the permit application fee for any application received from a MassDOT Contractor for any permit required by this Policy Directive and will waive any subsequent amendment and extension fees that may otherwise be required.
- MassDOT will review the permit application in accordance with applicable standard procedures and will apply standard permit terms and conditions, as necessary.
- The Resident Engineer will verify that the permit is approved before allowing the Contractor to use the affected area for the requested purpose.
- Areas permitted are for use by the approved applicant only and are not to be shared with or used by other vendors. Subcontractors specifically engaged with the applicant working on the specific MassDOT project will be allowed to use the area in accordance with the terms of the permit.
- Permits are issued on an annual basis and will require the Contractor to file for an extension each year to continue use.

Exemptions from Permit Requirements

Equipment and materials being used for active construction operations and located within the work zone of the construction contract are exempt from this permit requirement, provided they do not interfere with the safety or operation of the roadway or the work zone. Examples of these types of exempt uses are:

- Equipment and materials parked or stored within a protected (barriered) work zone.
- Materials placed in the work zone prior to same-day installation or use.
- Soils excavated temporarily and scheduled to be replaced, such as for trenching operations or for installation of drainage structures.

DOCUMENT B00420

PROPOSAL

BECKET

For: **Ledge Removal along Route 8, between MM 28.002 and MM 27.998**

COMMONWEALTH OF MASSACHUSETTS

LOCATION

The work referred to herein is in the Town of BECKET in Berkshire County, in the Commonwealth of Massachusetts, and is shown by the locus map (Document 00331) in the Proposal Pamphlet, the work locations extend as follows:

Route 8

Beginning – Station 12+45.00 +/-
Ending –Station 15+70.00 +/-

The contract prices shall include the furnishing of all materials (except as otherwise herein specified), the performing of all the labor requisite or proper, the providing of all necessary machinery, tools, apparatus and other means of construction, the doing of all the abovementioned work in the manner set forth, described and shown in the specifications and on the drawings for the work, and in the form of contract, and the completion thereof within **395 CALENDAR DAYS** upon receipt of a Notice to Proceed, except that if the completion date falls between December 1 and March 15 then the same number of days beyond December 1st will be extended after March 15th.

The Work of this project is described by the following Items and quantities.

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Project # 609506	Contract # 136647			
Location : BECKET				
Description : Ledge Removal along Route 8, between MM 28.002 and MM 27.998				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
100.99	1	STRUCTURE AND GEOTECHNICAL MONITORING AT _____ LUMP SUM		
101.	0.24	CLEARING AND GRUBBING AT _____ PER ACRE		
102.1	325	TREE TRIMMING AT _____ PER FOOT		
102.521	325	TREE AND PLANT PROTECTION FENCE AT _____ PER FOOT		
120.	1,343	EARTH EXCAVATION AT _____ PER CUBIC YARD		
121.	2,920	CLASS A ROCK EXCAVATION AT _____ PER CUBIC YARD		
122.	724	PRESPLITTING ROCK AT _____ PER SQUARE YARD		
146.	1	DRAINAGE STRUCTURE REMOVED AT _____ EACH		
151.	6	GRAVEL BORROW AT _____ PER CUBIC YARD		

Project # 609506	Contract # 136647			
Location : BECKET				
Description : Ledge Removal along Route 8, between MM 28.002 and MM 27.998				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
156.	160	CRUSHED STONE AT _____ PER TON		
180.01	1	ENVIRONMENTAL HEALTH AND SAFETY PROGRAM AT _____ LUMP SUM		
180.02	40	PERSONAL PROTECTION LEVEL C UPGRADE AT _____ PER HOUR		
180.03	40	LICENSED SITE PROFESSIONAL SERVICES AT _____ PER HOUR		
181.11	1,080	DISPOSAL OF UNREGULATED SOIL AT _____ PER TON		
181.12	330	DISPOSAL OF REGULATED SOIL - IN-STATE FACILITY AT _____ PER TON		
181.13	370	DISPOSAL OF REGULATED SOIL - OUT-OF-STATE FACILITY AT _____ PER TON		
181.14	54	DISPOSAL OF HAZARDOUS WASTE AT _____ PER TON		
201.4	1	CATCH BASIN - DOUBLE GRATE AT _____ EACH		

Project # 609506	Contract # 136647			
Location : BECKET				
Description : Ledge Removal along Route 8, between MM 28.002 and MM 27.998				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
222.11	1	FRAME AND GRATE - DOUBLE CATCH BASIN AT _____ EACH		
223.2	2	FRAME AND GRATE (OR COVER) REMOVED AND DISCARDED AT _____ EACH		
230.212	5	12 INCH CORRUGATED METAL PIPE 14 GAGE AT _____ PER FOOT		
280.1	17	HOT MIX ASPHALT WATERWAY AT _____ PER TON		
415.2	1,015	PAVEMENT FINE MILLING AT _____ PER SQUARE YARD		
450.221	100	SUPERPAVE SURFACE COURSE - 9.5 POLYMER (SSC - 9.5 - P) AT _____ PER TON		
451.	17	HMA FOR PATCHING AT _____ PER TON		
452.	95	ASPHALT EMULSION FOR TACK COAT AT _____ PER GALLON		
453.	1,035	HMA JOINT ADHESIVE AT _____ PER FOOT		

Project # 609506	Contract # 136647			
Location : BECKET				
Description : Ledge Removal along Route 8, between MM 28.002 and MM 27.998				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
472.	1	TEMPORARY ASPHALT PATCHING AT _____ PER TON		
570.2	330	HOT MIX ASPHALT CURB TYPE 2 AT _____ PER FOOT		
628.304	2	TEMPORARY IMPACT ATTENUATOR, NON-REDIRECTIVE, TL-2 AT _____ EACH		
628.4	2	TEMPORARY IMPACT ATTENUATOR, REMOVED AND RESET AT _____ EACH		
630.1	105	HIGHWAY GUARD REMOVED AND STACKED AT _____ PER FOOT		
657.	210	TEMPORARY FENCE AT _____ PER FOOT		
665.	150	CHAIN LINK FENCE REMOVED AND STACKED AT _____ PER FOOT		
697.1	5	SILT SACK AT _____ EACH		
722.3	1	SCHEDULE OF OPERATIONS (TYPE C) - FIXED PRICE $34500 AT Thirty Four Thousand Five Hundred Dollars LUMP SUM	$34,500.00	$34,500.00

Project # 609506	Contract # 136647			
Location : BECKET				
Description : Ledge Removal along Route 8, between MM 28.002 and MM 27.998				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
740.	13	ENGINEER'S FIELD OFFICE AND EQUIPMENT (TYPE A) AT _____ PER MONTH		
748.	1	MOBILIZATION AT _____ LUMP SUM		
751.	5	LOAM FOR ROADSIDES AT _____ PER CUBIC YARD		
751.7	15	COMPOST BLANKET AT _____ PER CUBIC YARD		
765.411	2	SHORT GRASSLAND MIX AT _____ PER POUND		
765.635	540	NATIVE SEEDING AND ESTABLISHMENT AT _____ PER SQUARE YARD		
767.121	170	SEDIMENT CONTROL BARRIER AT _____ PER FOOT		
816.81	1	TEMPORARY TRAFFIC CONTROL SIGNAL AT _____ LUMP SUM		
850.41	480	ROADWAY FLAGGER AT _____ PER HOUR		

Project # 609506	Contract # 136647			
Location : BECKET				
Description : Ledge Removal along Route 8, between MM 28.002 and MM 27.998				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
852.	311	SAFETY SIGNING FOR TRAFFIC MANAGEMENT AT _____ PER SQUARE FOOT		
853.2	650	TEMPORARY BARRIER (TL-2) AT _____ PER FOOT		
853.21	650	TEMPORARY BARRIER REMOVED AND RESET AT _____ PER FOOT		
853.22	40	TEMPORARY BARRIER REMOVED AND STACKED AT _____ PER FOOT		
854.036	1,322	TEMPORARY PAVING MARKINGS - 6 INCH (TAPE) AT _____ PER FOOT		
854.1	650	PAVEMENT MARKING REMOVAL AT _____ PER SQUARE FOOT		
856.12	420	PORTABLE CHANGEABLE MESSAGE SIGN AT _____ PER DAY		
859.	2,940	REFLECTORIZED DRUM AT _____ PER DAY		
862.506	650	FAST DRY MULTI-COMPONENT PAVEMENT MARKINGS, RECESSED, WET REFLECTIVE (6 INCH WHITE LINE) AT _____ PER FOOT		

Project # 609506	Contract # 136647			
Location : BECKET				
Description : Ledge Removal along Route 8, between MM 28.002 and MM 27.998				
ITEM #	**QUANTITY**	**ITEM WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
863.506	650	FAST DRY MULTI-COMPONENT PAVEMENT MARKINGS, RECESSED, WET REFLECTIVE (6 INCH YELLOW LINE) AT _____ PER FOOT		
864.35	20	SLOTTED PAVEMENT MARKER TWO-WAY YELLOW/YELLOW AT _____ EACH		
901.	200	4000 PSI, 1.5 INCH, 565 CEMENT CONCRETE AT _____ PER CUBIC YARD		
953.1	9,150	EARTH ANCHOR AT _____ PER FOOT		
953.11	18	PROOF LOAD TESTS AT _____ EACH		
953.12	4	VERIFICATION LOAD TESTS AT _____ EACH		
953.2	6,900	SHOTCRETE FACING AT _____ PER SQUARE FOOT		
Total Qty:	36,616.24			

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