AB

COMMONWEALTH OF MASSACHUSETTS

# CONTRACT DOCUMENTS AND SPECIAL PROVISIONS

| | |
|---|---|
| PROPOSAL NO. | 608616-131225 |
| P.V. = | $12,389,000.00 |
| PLANS | YES |

FOR

**Federal Aid Project No. STP(BR-OFF)-003S(863)X**
**Bridge Replacement, T-01-024, Scadding Street over Snake River**

**in the City of**

**TAUNTON**

In accordance with the STANDARD SPECIFICATIONS
for HIGHWAYS and BRIDGES dated 2025

This Proposal to be opened and read: **TUESDAY, AUGUST 12, 2025 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.

**TUESDAY, AUGUST 12, 2025 at 2:00 P.M. ****
**TAUNTON**
**Federal Aid Project No. STP(BR-OFF)-003S(863)X**
**Bridge Replacement, T-01-024, Scadding Street over Snake River**
****Date Subject to Change**

PROJECT VALUE = $12,389,000.00

Bidders must be pre-qualified by the Department in the BRIDGE - 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 $635.00 per ton, Portland cement $425.13 per ton, diesel fuel $2.766 per gallon, and gasoline $2.453 per gallon, and Steel Base Price Index 340.6. 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: Monica G. Tibbits-Nutt, Secretary and CEO, MassDOT
Jonathan L. Gulliver, Administrator, MassDOT Highway Division
SATURDAY, JULY 12, 2025

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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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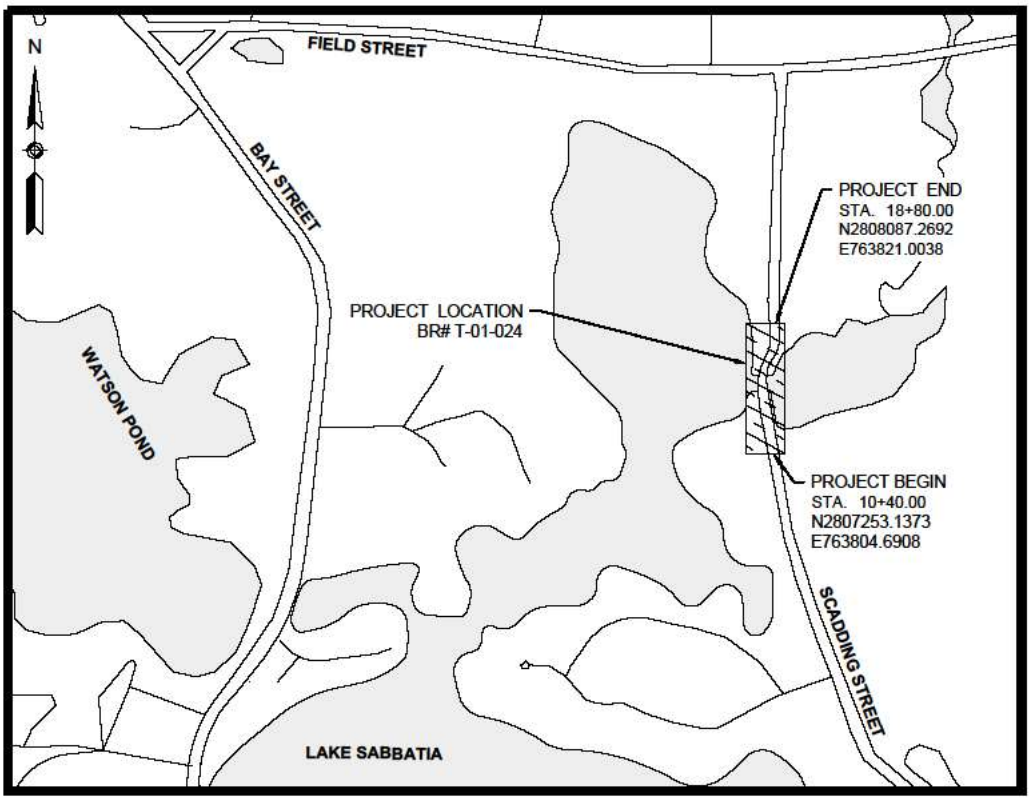
DOCUMENT 00331

# LOCUS MAP

## TAUNTON
## Federal Aid Project No. STP(BR-OFF)-003S(863)X
## Bridge Replacement, T-01-024, Scadding Street over Snake River

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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:_____

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WORK NOT COMPLETED WITHIN SPECIFIED TIME: _____

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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: _____

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WORK NOT COMPLETED WITHIN SPECIFIED TIME: _____

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Revised: 04/28/17

*** END OF DOCUMENT ***

DOCUMENT 00710
GENERAL CONTRACT PROVISIONS
Revised: 04-16-25

NOTICE OF AVAILABILITY

The STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES dated 2025, 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.

*** END OF DOCUMENT ***

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DOCUMENT 00715

# SUPPLEMENTAL SPECIFICATIONS

MARCH 31, 2025

The 2025 *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 2.00: PROPOSAL REQUIREMENTS AND CONDITIONS

Subsection 2.09: Rejection of Proposals
*Replace bullet (i) in the third paragraph with the following:*

(i.) award of the contract would result in the Bidder exceeding the Aggregate Bonding Capacity or the Single Bonding Capacity established by its Surety Company, or the Bidder's Proposal exceeds its Single Contract Limit, or the Bidder was not prequalified in the specified class of work on or before the time of bid opening; or

## SECTION 7.00: LEGAL RELATIONS AND RESPONSIBILITY TO PPUBLIC

Subsection 7.05: Insurance Requirements
*Change the title of paragraph A to Workers' Compensation Insurance*

Subsection 7.22: Labor, Lodging, Board, Maximum Hours of Employment, Weekly Payment, Keeping of Payroll Records.
*In the second paragraph replace the word "workman" to "worker" and the word "workmen" to "workers".*

*Replace the third paragraph with the following:*

Attention of Bidders is called to MGL Chapter 149, Section 148 requiring the weekly payment of employee wages.

## SECTION 9.00: MEASUREMENT AND PAYMENT

Subsection 9.03: Payment for Extra Work
*Replace paragraph B., first paragraph, numbers (2) and (3) with the following.*

(2) Plus 13 percent of direct labor, for the estimated costs of Federal Insurance Contribution Act (FICA) including Medicare; Federal Unemployment Tax Act (FUTA); State Unemployment Tax Act (SUTA), which includes Unemployment Insurance, the Workforce Training Fund Program,-Employer Medical Assistance Contribution, and COVID-19 Recovery Assessment; Earned Sick Time (EST) Law (940 CMR 33.00); and Paid Family and Medical Leave (PFML) Act (458 CMR 2.00);

or, as an alternative to the above 13 percent, the Contractor may elect to use actual rates for FICA, FUTA, SUTA, EST and PFML provided the actual rates are supported with verifiable documentation and shall be subject to review by MassDOT Audit Operations.

(3) Plus the estimated cost of Workers' Compensation and Liability Insurance, Health, Welfare and Pension benefits, and such additional fringe benefits which the Contractor is required to pay as a result of Union Labor Agreements and/or is required by authorized governmental agencies;

*In paragraph B., second paragraph, number (3), replace the word "Workmen's" with "Workers'" .*

# DIVISION III

# MATERIALS SPECIFICATIONS

# SECTION M2: AGGREGATES AND RELATED MATERIALS

Subsection M2.01.0 Crushed Stone
*Replace the fourth paragraph and the associated asterisk notes with the following;*

The crushed stone shall have a maximum 45% wear as determined by the Los Angeles Abrasion Test (AASHTO T 96)

# SECTION M7: PAINTS, PROTECTIVE COATINGS AND PAVEMENT MARKINGS

Subsection M7.01.04 Fast Drying White and Yellow Waterborne Traffic Paint
*Replace the subsection with the following;*

Approved waterborne traffic paint shall be tested in accordance with AASHTO M 348, Code of Federal Regulations: 40 CFR 261.24, for heavy metal content and be listed on the QCML. The markings shall be installed using reflective glass beads meeting the requirements of M7.01.07. For waterborne yellow paint use Organic Yellow No. 65 or No. 75 pigment.

**<<<<<<<<<<>>>>>>>>>>**

END OF SUPPLEMENTAL SPECIFICATIONS

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DOCUMENT 00719

*(Revised September 14, 2023 – for all Federally Aided Projects)*

# SPECIAL PROVISIONS FOR PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES

(IMPLEMENTING TITLE 49 OF THE CODE OF FEDERAL REGULATIONS, PART 26)

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## POLICY

The Massachusetts Department of Transportation (MassDOT) receives Federal financial assistance from the Federal Highway Administration (FHWA), United States Department of Transportation (U.S. DOT), and as a condition of receiving this assistance, has signed an assurance that it will comply with 49 CFR Part 26 (Participation By Disadvantaged Business Enterprises In Department Of Transportation Financial Assistance Programs). The U.S. DOT Disadvantaged Business Enterprise Program is authorized by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users ("SAFETEA-LU"), as amended, at Title 23, United States Code, § 1101.

Accordingly, MassDOT has established a Disadvantaged Business Enterprise (DBE) Program in accordance with 49 CFR Part 26. It is the policy of MassDOT to ensure that DBEs have an equal opportunity to receive and participate in U.S. DOT assisted Contracts, without regard to race, color, national origin, or sex. To this end, MassDOT shall not directly, or through contractual or other arrangements, use criteria or methods of administration that have the effect of defeating or substantially impairing accomplishment of the program objectives stated below:

- To ensure nondiscrimination in the award and administration of U.S. DOT assisted Contracts;
- To create a level playing field on which DBEs can compete fairly for U.S. DOT assisted Contracts;
- To ensure that the DBE Program is narrowly tailored in accordance with applicable law;
- To ensure that only firms that fully meet 49 CFR Part 26 eligibility standards are permitted to participate as DBEs;
- To help remove barriers to the participation of DBEs in U.S. DOT assisted Contracts; and
- To assist the development of firms that can compete successfully in the market place outside the DBE Program.

The Director of Civil Rights of MassDOT has been designated as the DBE Liaison Officer. The DBE Liaison Officer is responsible for implementing all aspects of the DBE Program. Other MassDOT employees are responsible for assisting the Office of Civil Rights in carrying out this obligation. Implementation of the DBE Program is accorded the same priority as compliance with all other legal obligations incurred by MassDOT in its financial assistance agreements with each operating administration of the U.S. DOT. Information on the Federal requirements and MassDOT's policies and information can be found at:

| ***Type of Info*** | ***Website*** | ***Description*** |
|---|---|---|
| MassDOT Highway Division Policies and Info | https://www.mass.gov/disadvantaged-business-enterprise-goals-2019-2022 | *MassDOT–Highway Div'n Page* |
| For copies of the Code of Federal Regulations | http://www.gpo.gov/fdsys/browse/collectionCfr.action?collectionCode=CFR | FDsys – US Gov't Printing Office |
| For information about the U.S.DOT DBE Program | https://www.transportation.gov/civil-rights/disadvantaged-business-enterprise | U.S. DOT/ FHWA page |

## 1. DEFINITIONS

As used in these provisions, the terms set out below are defined as follows:

"Broker", for purposes of these provisions, shall mean a DBE Entity that has entered into a legally binding relationship to provide goods or services delivered or performed by a third party. A broker may be a DBE Entity that arranges or expedites transactions but performs no work or installation services.

"Contractor", "General" or "Prime" Contractor, "Bidder," and "DB Entity" shall mean a person, firm, or other entity that has contracted directly with MassDOT to provide contracted work or services.

"Contract" shall mean the Contract for work between the Contractor and MassDOT.

"DBB" or "Design-Bid-Build" shall mean the traditional design, bid and project delivery method consisting of separate contracts between awarding authority and a designer resulting in a fully designed project; and a separate bidding process and Contract with a construction Contractor or Bidder.

"DB" or "Design-Build" shall mean an accelerated design, bid and project delivery method consisting of a single contract between the awarding authority and a DB Entity, consisting of design and construction companies that will bring a project to full design and construction.

"Disadvantaged Business Enterprise" or "DBE" shall mean a for-profit, small business concern:

(a) that is at least fifty-one (51%) percent owned by one or more individuals who are both socially and economically disadvantaged, or, in the case of any corporation, in which at least fifty-one (51%) percent of the stock is owned by one or more such individuals; and

(b) where the management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

"FHWA" shall mean the Federal Highway Administration," an agency within U.S. DOT that supports State and local governments in the design, and maintenance of the Nation's highway system (Federal Aid Highway Program).

"Good faith efforts" shall mean efforts to achieve a DBE participation goal or other requirement of these Special Provisions that, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement. Such efforts must be deemed acceptable by MassDOT.

"Joint Venture" shall mean an association of a DBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which the parties combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the Contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest.

"Approved Joint Venture" shall mean a joint venture, as defined above, which has been approved by MassDOT's Prequalification Office and Office of Civil Rights for DBE participation on a particular Contract.

"Manufacturer" shall mean a firm that operates or maintains a factory or establishment that produces, on the premises, the materials, supplies, articles or equipment required under the contract and of the general character described by the specifications.

"Regular Dealer" shall mean a DBE firm that owns, operates, or maintains a store, warehouse, or other establishment in which materials, supplies, articles or equipment of the general character described by the specifications and required under the Contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business.

(a) To be a regular dealer, the firm must be an established, regular business that engages, as its principal business, and under its own name, in the purchase and sale of the products in question.

(b) A person may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business as provided above if the person both owns and operates distribution equipment for the products. Any supplementing of regular dealers' own distribution equipment shall be by long term lease agreement and not on an ad hoc or contract by contract basis.

(c) Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions are not regular dealers within the meaning of this definition.

"Responsive" and "Responsible" refers to the bidder's submittal meeting all of the requirements of the advertised request for proposal. The term responsible refers to the ability of the Contractor to perform the work. This ability can be determined prior to bid invitations.

"Small Business or Small Business Concern" shall mean a small business concern or company as defined in Section 3 of the Small Business Act and SBA regulations implementing it (13 CFR Part 121); and is a business that does not exceed the cap on annual average gross receipts established by the U.S. Secretary of Transportation pursuant to 49 CFR Part 26.65; see also 49 CFR Part 26.39.

"SDO" shall mean the Massachusetts Supplier Diversity Office, formerly known as the State Office of Minority and Women Business Assistance (SOMWBA). In 2010, SOMWBA was abolished and the SDO was established. *See* St. 2010, c. 56. The SDO has assumed all the functions of SOWMBA. SDO is an agency within the Commonwealth of Massachusetts Executive office of Administration and Finance (ANF) Operational Services Division (OSD). The SDO mandate is to help promote the development of business enterprises and non-profit organizations owned and operated by minorities and women.

"Socially and economically disadvantaged individuals" shall mean individuals who are citizens of the United States (or lawfully admitted permanent residents) and who are:

(a) Individuals found by SDO to be socially and economically disadvantaged individuals on a case by case basis.

(b) Individuals in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:

(1) "Black Americans" which includes persons having origin in any of the Black racial groups of Africa; (2) "Hispanic Americans" which include persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race; (3) "Native Americans" which include persons who are American Indians, Eskimos, Aleuts, or Native Hawaiians; (4) "Asian Pacific Americans" which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kiribati, Tuvalu, Nauru, Federated States of Micronesia, or Hong Kong; (5) "Subcontinent Asian Americans" which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka; (6) Women; or (7) Any additional groups whose members are designated as socially and economically disadvantaged by the Small Business Administration (SBA), at such time as the SBA designation becomes effective.

Other terms and definitions applicable to the U.S. DOT DBE Program may be found at 49 CFR Part 26 and related appendices and guidance pages.

## 2. DBE PARTICIPATION

### a. Goal

On this Contract, MassDOT has established the following goal(s) for participation by firms owned and controlled by socially and economically disadvantaged persons. At least half of the goal must be met in the form of DBE Subcontractor construction activity as opposed to material supplies or other services. The applicable goal remains in effect throughout the life of the contract regardless of whether pre-identified DBE Subcontractors remain on the Project or under Contract.

☒ Design-Bid-Build Projects: DBE Participation Goal **16 %**
(*One half of this goal shall be met in the form of Subcontractor construction activity*)

☐ Design-Build Projects: DBE Design Participation Goal ____**%** and DBE Construction Participation Goal **%**
*(One half of the Construction Goal shall be met in the form of Subcontractor construction activity)*

### b. Bidders List

Pursuant to the provisions of 49 CFR Part 26.11(c), Recipients such as MassDOT, must collect from all Bidders who seek work on Federally assisted Contracts the firm full company name(s), addresses and telephone numbers of all firms that have submitted bids or quotes to the Bidders in connection with this Project. All bidders should refer to the Special Provision Document "A00801" of the Project proposal for this requirement.

In addition, MassDOT must provide to U.S. DOT, information concerning contractors firm status as a DBE or non-DBE, the age of the firm, and the annual gross receipts of the firm within a series of brackets (e.g., less than $500,000; $500,000–$1 million; $1–2 million; $2–5 million, etc.). The status, firm age, and annual gross receipt information will be sought by MassDOT regularly prior to setting its DBE participation goal for submission to U.S. DOT. MassDOT will survey each individual firm for this information directly.

Failure to comply with a written request for this information within fifteen (15) business days may result in the suspension of bidding privileges or other such sanctions, as provided for in Section 9 of this provision, until the information is received.

## 3. CONTRACTOR ASSURANCES

No Contractor or any Subcontractor shall 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 in all respects and as applicable prior to, or subsequent to, award of U.S. DOT assisted Contracts. The Contractor agrees to affirmatively seek out and consider DBE firms as Contractors, Subcontractors, and/or suppliers of materials and services for this Contract. No Contract will be approved until MassDOT has reviewed Bidders'/Contractors' affirmative actions concerning DBEs. Failure to carry out these requirements is a material breach of this Contract which may result in the termination of the Contract or such other remedy as MassDOT or FHWA deem appropriate.

## 4. REQUIRED SUBCONTRACT PROVISIONS

The Prime Contractor shall include the provisions of Section 3 above in every subcontract, making those provisions binding on each Subcontractor; in addition, the Prime Contractor shall include a copy of this Special Provision, in its entirety, in every subcontract with a DBE firm which is, or may be, submitted for credit toward the Contract participation goal.

## 5. ELIGIBILITY OF DBES

Only firms that have been certified by SDO and confirmed by MassDOT as eligible in accordance with 49 CFR Part 26 to participate as DBEs on federally aided MassDOT Contracts may be used on this Contract for credit toward the DBE participation goal.

### a. Massachusetts DBE Directory

MassDOT makes available to all bidders the most current Massachusetts Disadvantaged Business Enterprise Directory. This directory is made available for Contractors' convenience and is informational only. The Directory lists those firms that have been certified as eligible in accordance with the criteria of 49 CFR Part 26 to participate as DBEs on federally aided MassDOT contracts. The Directory also lists the kinds of work each firm is certified to perform but does not constitute an endorsement of the quality of performance of any business and does not represent MassDOT Subcontractor approval.

Contractors are encouraged to make use of the DBE Directory maintained by SDO on the Internet. This listing is updated daily and may be accessed at the SDO's website at:
https://www.diversitycertification.mass.gov/BusinessDirectory/BusinessDirectorySearch.aspx

### b. DBE Certification

A firm must apply to SDO, currently acting as certification agent for MassDOT, for DBE certification to participate on federally aided MassDOT Contracts. A DBE application may be made in conjunction with a firm's application to SDO for certification to participate in state-funded minority and women business enterprise programs or may be for DBE certification only. An applicant for DBE certification must identify the area(s) of work it seeks to perform on U.S. DOT funded projects.

### c. Joint Venture Approval

To obtain recognition as an approved DBE Joint Venture, the parties to the joint venture must provide to MassDOT's Office of Civil Rights and Prequalification Office, at least fourteen (14) business days before the bid opening date, an Affidavit of DBE/Non-DBE Joint Venture in the form attached hereto, and including, but not limited to the following:

1. a copy of the Joint Venture Agreement;
2. a description of the distinct, clearly defined portion of the contract work that the DBE will perform with its own forces; and,
3. all such additional information as may be requested by MassDOT for the purpose of determining whether the joint venture is eligible.

## 6. COUNTING DBE PARTICIPATION TOWARDS DBE PARTICIPATION GOALS

In order for DBE participation to count toward the Contract participation goal, the DBE(s) must have served a commercially useful function in the performance of the Contract and must have been paid in full for acceptable performance.

### a. Commercially Useful Function

**(1)** In general, a DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. With respect to materials and supplies used on the Contract, the DBE must be responsible for negotiating price, determining quality and quantity, ordering the material, installing (where applicable) and paying for the material itself.

**(2)** To determine whether a DBE is performing a commercially useful function, MassDOT will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the Contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and other relevant factors.

**(3)** A DBE does not perform a commercially useful function if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. In determining whether a DBE is such an extra participant, MassDOT will examine similar transactions, particularly those in which DBEs do not participate.

### b. Counting Participation Toward The Contract Participation Goal

DBE participation which serves a commercially useful function shall be counted toward the DBE participation goal in accordance with the Provisions of 49 CFR Part 26.55(a) to (h), as follows:

**(1)** When a DBE participates in a construction Contract, MassDOT will count the value of the work performed by the DBE's own forces. MassDOT will count the cost of supplies and materials obtained by the DBE for the work of its contract, including supplies purchased or equipment leased by the DBE. Supplies, labor, or equipment the DBE Subcontractor uses, purchases, or leases from the Prime Contractor or any affiliate of the Prime Contractor will not be counted.

**(2)** MassDOT will count the entire amount of fees or commissions charged by a DBE firm for providing bona fide services, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a U.S. DOT assisted Contract, toward DBE participation goals, provided it is determined that the fee is reasonable and not excessive as compared with fees customarily allowed for similar services.

**(3)** When a DBE performs as a participant in a joint venture, MassDOT will count toward DBE participation goals a portion of the total dollar value of the contract that is equal to the distinct, clearly defined portion of the work of the Contract that the DBE performs with its own forces.

**(4)** MassDOT will use the following factors in determining whether a DBE trucking company is performing a commercially useful function:

(i) the DBE must be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract; there cannot be a contrived arrangement for the purpose of meeting DBE participation goals.

(ii) the DBE must itself own and operate at least one fully licensed, insured, and operational truck used on the Contract.

(iii) the Contractor will receive DBE credit for the total value of the transportation services the DBE provides on the Contract using trucks owned, insured, and operated by the DBE itself and using drivers the DBE employs alone.

(iv) the DBE may lease trucks from another DBE firm, including an owner-operator who is certified as a DBE. The Contractor who has a contract with a DBE who leases trucks from another DBE will receive credit for the total value of the transportation services of the lease.

(v) the DBE may also lease trucks from a non-DBE firm, including an owner-operator. The Contractor who has a Contract with a DBE who leases trucks from a non-DBE is entitled to credit for the total value of the transportation services provided by non-DBE lessees not to the exceed the value of transportation services provided by DBE-owned trucks on the Contract. Additional participation by non-DBE lessees receives credit only for the fee or commission it receives as a result of the lease arrangement, fee or commission it receives as a result of the lease arrangement. The DBE does not receive credit for the total value of the transportation services provided by the lessee, since these services are not provided by a DBE.

(vi) the lease must indicate that the DBE has exclusive use of, and control over, the truck. This does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. Leased trucks must display the name and identification number of the DBE.

**(5)** MassDOT will count the Prime Contractor's expenditures with DBEs for materials or supplies toward DBE participation goals as follows:

(i) if the materials or supplies are obtained from a DBE manufacturer, as defined in Section 1 above, MassDOT will count one hundred (100%) percent of the cost of the materials or supplies toward DBE participation goals, provided the DBE meets the other requirements of the regulations.

(ii) if the materials or supplies are purchased from a DBE regular dealer, as defined in Section 1 above, MassDOT will count sixty (60%) percent of the cost of the materials or supplies toward the Contract participation goal, provided the DBE meets the other requirements of the regulations.

(iii) for materials or supplies purchased from a DBE which is neither a manufacturer nor a regular dealer, MassDOT will count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site toward the Contract participation goal, provided that MassDOT determines the fees to be reasonable and not excessive as compared with fees customarily allowed for similar services; the cost of the materials and supplies themselves will not be counted; and provided the DBE meets the other requirements of the regulations.

**c. Joint Check Policy**

MassDOT recognizes that the use of joint checks may be a business practice required by material suppliers and vendors in the construction industry. A joint check is a two-party check issued by a/the Prime Contractor to a DBE third party such as a regular dealer of material or supplies. The Prime Contractor issues the check as payor to the DBE and the third party jointly as payees to guarantee payment to the third party for materials or supplies obtained or to be used by the DBE. FHWA has established criteria to ensure that DBEs are in fact performing a commercially useful function ("CUF") while using a joint check arrangement. Contractors and DBEs must meet and conform to these conditions and criteria governing the use of joint checks.

In the event that a Contractor or DBE Subcontractor desires to a use joint check, MassDOT will require prior notice and will closely monitor the arrangement for compliance with FHWA regulations and guidance. MassDOT may allow a joint check arrangement and give credit to a Contractor for use of the DBE where one or more of the following conditions exist:

- The use of a joint check is in fact required by this type of vendor or supplier as a standard industry practice that applies to all Contractors (DBEs and non-DBEs); or is required by a specific vendor or supplier;
- Payment for supplies or materials would be delayed for an unreasonably extended period without the joint check arrangement;
- The DBE (or any of its Subcontractors) has a pattern or history of not paying a vendor or supplier within a reasonable time or has not established enough of a credit history with the supplier or vendor; and/or
- The presence of severe adverse economic conditions, where credit resources may be limited and such practices may be necessary or required to effect timely payments.

Other factors MassDOT may consider:

- Whether there is a requirement by the Prime Contractor that a DBE should use a specific vendor or supplier to meet their Subcontractor specifications;
- Whether there is a requirement that a DBE use the Prime Contractor's negotiated price;
- The independence of the DBE;
- Whether approval has been sought prior to use of a joint check arrangement; and
- Whether any approved joint check arrangement has exceeded a reasonable period of use;
- The operation of the joint check arrangement; and
- Whether the DBE has made an effort to establish alternate arrangements for following periods ( i.e., the DBE must show it can, or has, or why it has not, established or increased a credit line with the vendor or supplier).

Even with the use of a Joint Check, both the Contractor and DBE remain responsible for compliance with all other elements under 49 CFR § 26.55 (c) (1), and must still be able to prove that a commercially useful function is being performed for the Contractor.

**d. Joint Check Procedure(s)**

- The DBE advises its General or Prime Contractor that it will have to use a Joint Check and provide proof of such requirement.
- The General or the Prime Contractor submits a request for approval to MassDOT, using MassDOT's approved Joint Check Request form (Document B00855) and by notification on the DBE Letter of Intent (Document B00854), and any other relevant documents. Requests that are not initiated during the bid process should be made in writing and comply with the procedure.
- The MassDOT Office of Civil Rights will review the request and render a decision as part of the approval process for DBE Schedules and Letters of Intent.
- Review and Approval will be project specific and relevant documents will be made part of the project Contract file.
- Payments should be made in the name of both the DBE and vendor or supplier. Payments should be issued and signed by the Contractor as only the guarantor for prompt payment of purchases to the vendor or supplier. The payment to the vendor or supplier should be handled by the DBE (i.e. if possible, funds or the joint check should be processed by the DBE and sent by the DBE to the vendor or supplier).
- MassDOT may request copies of cancelled checks (front and back) and transmittal information to verify any payments made to the DBE and vendor or supplier.
- MassDOT may request other information and documents, and may ask questions of the Contractor, Subcontractor and vendor or supplier prior to, during, and after the project performance to ascertain whether the Subcontractor is performing a commercially useful function and all parties are complying with DBE Program policies and procedures as part of the Subcontractor approval process.

## 7. AWARD DOCUMENTATION AND PROCEDURES

**a.** The two lowest bidders/the two bidders with the lowest price per quality score point, shall submit, by the close of business on the third (3rd) business day after the bid opening, a completed Schedule of Participation by DBEs (Document B00853) which shall list:

(1) The full company name, address and telephone number of each DBE with whom the bidder intends to make a commitment.

(2) The contract item(s), by number(s) and quantity(ies), if applicable, or specific description of other business activity to be performed by each DBE as set forth in the Letters of Intent. The Bidder shall list only firms which have the capacity to perform, manage and supervise the work proposed in accordance with the requirements of 49 CFR Part 26 and Section **6.b** of these Special Provisions.

(3) The total dollar amount to be paid to each DBE. (Bidders are cautioned that at least one half of the participation goal must be met with construction activity work.)

(4) The total dollar amount to be paid to each DBE that is eligible for credit toward the DBE participation goal under the counting rules set out in Section **6.b**.

(5) The total creditable DBE participation as a percentage of the total bid price.

**b.** All firms listed on the Schedule must be currently certified.

**c.** The two lowest bidders/the two bidders with the lowest price per quality score point, shall each submit, with their Schedules of Participation, fully completed, signed Letters of Intent (Document B00854) from each of the DBEs listed on the Schedule. The Letters of Intent shall be in the form attached and shall identify specifically the contract activity the DBE proposes to perform, expressed as contract item number, if applicable, description of the activity, NAICS code, quantity, unit price and total price. In the event of discrepancy between the Schedule and the Letter of Intent, the Letter of Intent shall govern.

**d.** Evidence of good faith efforts will be evaluated by MassDOT in the selection of the lowest responsible bidder.

All information requested by MassDOT for the purpose of evaluating the Contractor's efforts to achieve the participation goal must be provided within three (3) calendar days and must be accurate and complete in every detail. The apparent low bidder's attainment of the DBE participation goal or a satisfactory demonstration of good faith efforts is a prerequisite for award of the Contract.

**e.** Failure to meet, or to demonstrate good faith efforts to meet, the requirements of these Special Provisions shall render a bid non-responsive. Therefore, in order to be eligible for award, the bidder (1) must list all DBE's it plans to employ on the Schedule of Participation; and provide the required Letters of Intent for, DBE participation which meets or exceeds the Contract goal in accordance with the terms of these Special Provisions or (2) must demonstrate, to the satisfaction of MassDOT, that good faith efforts were made to achieve the participation goal. MassDOT will adhere to the guidance provided in Appendix A to 49 CFR Part 26 on the determination of a Contractor's good faith efforts to meet the DBE participation goal(s) set forth in Section 2 herein.

**f.** If MassDOT finds that the percentage of DBE participation submitted by the bidder on its Schedule does not meet the Contract participation goal, or that Schedule and Letters of Intent were not timely filed, and that the bidder has not demonstrated good faith efforts to comply with these requirements, it shall propose that the bidder be declared ineligible for award. In that case, the bidder may request administrative reconsideration. Such requests must be sent in writing within three (3) calendar days of receiving notice of proposed ineligibility to: The Office of the General Counsel, Massachusetts Department of Transportation, 10 Park Plaza, Boston, MA, 02116.

**g.** If, after administrative reconsideration, MassDOT finds that the bidder has not shown that sufficient good faith efforts were made to comply with the requirements of these Special Provisions, it shall reject the bidder's proposal and may retain the proposal guaranty.

**h.** Actions which constitute evidence of good faith efforts to meet a DBE participation goal include, but are not limited to, the following examples, which are set forth in 49 CFR Part 26, Appendix A:

(1) Soliciting through all reasonable and available means (e.g., attendance at pre-bid meetings, advertising and/or written notices) the interest of all certified DBEs who have the capability to perform the work of the Contract. The bidder must solicit this interest within sufficient time to allow the DBEs to respond to the solicitation. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

(2) Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE participation goal will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate DBE participation, even when the Prime Contractor might otherwise prefer to perform these work items with its own forces.

(3) Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.

(4) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE Subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE Subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone number of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.

A bidder using good business judgment would consider a number of factors in negotiating with Subcontractors, including DBE Subcontractors, and would take a firm's price and capabilities as well as Contract participation goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the Contract DBE participation goal, as long as such costs are reasonable. Also, the ability or desire of a Prime Contractor to perform the work of a Contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Prime Contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.

(5) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. Contractors should be careful of adding additional requirements of performance that would in effect limit participation by DBEs or any small business. The Contractor's standing within its industry, membership in specific groups, organizations, or associations and political or social affiliations (for example union vs. nonunion employee status) are not legitimate causes for the rejection or non-solicitation of bids in the Contractor's efforts to meet the Contract participation goal.

(6) Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or contractor.

(7) Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

(8) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; local, state, and federal minority/women business assistance offices; and other organizations as allowed on a case by case basis to provide assistance in the recruitment and placement of DBEs.

## 8. COMPLIANCE

**a.** All activity performed by a DBE for credit toward the Contract participation goal must be performed, managed and supervised by the DBE in accordance with all commercially useful function requirements of 49 CFR Part 26. The Prime Contractor shall not enter into, or condone, any other arrangement.

**b.** The Prime Contractor shall not perform with its own organization, or assign to any other business, an activity designated for the DBE(s) named on the Schedule(s) submitted by the Prime Contractor under Section 7 or under paragraph **8.f** of this section, without the approval of MassDOT in accordance with the requirements of paragraphs **8.f** and **8.j** of this section.

**c.** MassDOT may suspend payment for any activity that was not performed by the DBE to whom the activity was committed on the approved Schedule of Participation, or that was not performed in accordance with the requirements of Section 6.

**d.** MassDOT retains the right to approve or disapprove of any or all Subcontractors. Requests by the Prime Contractor for approval of participation by a DBE Subcontractor for credit toward the Contract participation goal must include, in addition to any other requirements for Subcontractor approval, the following:

(1) A copy of the proposed subcontract. The subcontract must be for at least the dollar amount, and for the work described, in the Bidder's Schedule of Participation.

(2) A resume stating the qualifications and experience of the DBE Superintendent and/or foreperson who will supervise the on-site work. A new resume will be required for any change in supervisory personnel during the progress of the work.

(3) A Schedule of Operations indicating when the DBE is expected to perform the work.

(4) A list of (1) equipment owned by the DBE to be used on the Project, and (2) equipment to be leased by the DBE for use on the Project.

(5) A list of: (1) all projects (public and private) which the DBE is currently performing; (2) all projects (public and private) to which the DBE is committed; and (3) all projects (public and private) to which the DBE intends to make a commitment. For each Contract, list the contracting organization, the name and telephone number of a contact person for the contracting organization, the dollar value of the work, a description of the work, and the DBE's work schedule for each project.

**e.** If, pursuant to the Subcontractor approval process, MassDOT finds that a DBE Subcontractor does not have sufficient experience or resources to perform, manage and supervise work of the kind proposed in accordance with the requirements of 49 CFR Part 26, approval of the DBE Subcontractor may be denied. In the event of such denial, the Prime Contractor shall proceed in accordance with the requirements paragraphs **8.f** and **8.j** of this section.

**f.** If, for reasons beyond its control, the Prime Contractor cannot comply with its DBE participation commitment in accordance with the Schedule of Participation submitted under Section 7, the Prime Contractor shall submit to MassDOT the reasons for its inability to comply with its obligations and shall submit, and request approval for, a revised Schedule of Participation. If approved by MassDOT, the revised Schedule shall govern the Prime Contractor's performance in meeting its obligations under these Special Provisions.

**g.** A Prime Contractor's compliance with the participation goal in Section 2 shall be determined by reference to the established percentage of the total contract price, provided, however, that no decrease in the dollar amount of a bidder's commitment to any DBE shall be allowed without the approval of MassDOT.

**h.** If the contract amount is increased, the Prime Contractor may be required to submit a revised Schedule of Participation in accordance with paragraphs **8.f** and **8.j** of this section.

**i.** In the event of the decertification of a DBE scheduled to participate on the Contract for credit toward the participation goal, but not under subcontract, the Contractor shall proceed in accordance with paragraphs **8.f** and **8.j** of this section.

**j.** The Prime Contractor shall notify MassDOT immediately of any facts that come to its attention indicating that it may or will be unable to comply with any aspect of its DBE obligation under this Contract.

**k.** Any notice required by these Special Provisions shall be given in writing to: (1) the Resident Engineer; (2) the District designated Compliance Officer; and (3) the DBE Liaison Officer, MassDOT Office of Civil Rights, 10 Park Plaza, – 3rd Floor - West, Boston, MA, 02116 and cc'd to the Deputy Chief of External Programs.

**l.** The Prime Contractor and its Subcontractors shall comply with MassDOT's Electronic Reporting System Requirements (MassDOT Document 00821) and submit all information required by MassDOT related to the DBE Special Provisions through the Equitable Business Opportunity Solution ("EBO"). MassDOT reserves the right to request reports in the format it deems necessary anytime during the performance of the Contract.

**m.** Termination of DBE by Prime Contractor

(1) A Prime Contractor shall not terminate a DBE Subcontractor or an approved substitute DBE firm without the prior written consent of MassDOT. This includes, but is not limited to, instances in which a Prime Contractor seeks to perform work originally designated for a DBE Subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

(2) MassDOT may provide such written consent only if MassDOT agrees, for reasons stated in its concurrence document, that the Prime Contractor has good cause to terminate the DBE firm.

(3) For purposes of this paragraph, good cause includes the following circumstances:

(i) The DBE Subcontractor fails or refuses to execute a written contract;

(ii) The DBE Subcontractor fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Good cause, however, does not exist if the failure or refusal of the DBE Subcontractor to perform its work on the subcontract results from the bad faith or discriminatory action of the Prime Contractor;

(iii) The DBE Subcontractor fails or refuses to meet the Prime Contractor's reasonable, nondiscriminatory bond requirements.

(iv) The DBE Subcontractor becomes bankrupt, insolvent, or exhibits credit unworthiness;

(v) The DBE Subcontractor is ineligible to work on public works projects because of suspension and debarment proceedings pursuant 2 CFR Parts 180, 215 and 1,200 or applicable State law;

(vi) (vii) MassDOT has determined that the listed DBE Subcontractor is not a responsible contractor;

(vii) The listed DBE Subcontractor voluntarily withdraws from the Project and provides written notice of its withdrawal;

(viii) The listed DBE is ineligible to receive DBE credit for the type of work required;

(ix) A DBE owner dies or becomes disabled with the result that the listed DBE Contractor is unable to complete its work on the Contract;

(x) Other documented good cause that MassDOT determines compels the termination of the DBE Subcontractor. Good cause, however, does not exist if the Prime Contractor seeks to terminate a DBE it relied upon to obtain the Contract so that the Prime Contractor can self-perform the DBE work or substitute another DBE or non-DBE Contractor after Contract Award.

(4) Before transmitting to MassDOT a request to terminate and/or substitute a DBE Subcontractor, the Prime Contractor must give notice in writing to the DBE Subcontractor, with a copy to MassDOT, of its intent to request to terminate and/or substitute, and the reason for the request.

(5) The Prime Contractor must give the DBE five (5) business days to respond to the Prime Contractor's notice. The DBE must advise MassDOT and the Contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why MassDOT should not approve the Prime Contractor's action. If required in a particular case as a matter of public necessity (e.g., safety), MassDOT may provide a response period shorter than five (5) business days.

(6) In addition to post-award terminations, the provisions of this section apply to pre-award deletions of or substitutions for DBE firms.

**n.** Prompt Payment.

Contractors are required to promptly pay Subcontractors under this Prime Contract within ten (10) business days from the receipt of each payment the Prime Contractor receives from MassDOT. Failure to comply with this requirement may result in the withholding of payment to the Prime Contractor until such time as all payments due under this provision have been received by the Subcontractor(s) and/or referral to the Prequalification Committee for action which may affect the Contractor's prequalification status.

## 9. SANCTIONS

If the Prime Contractor does not comply with the terms of these Special Provisions and cannot demonstrate to the satisfaction of MassDOT that good faith efforts were made to achieve such compliance, MassDOT may, in addition to any other remedy provided for in the Contract, and notwithstanding any other provision in the Contract:

**a.** Retain, in connection with final acceptance and final payment processing, an amount determined by multiplying the total contract amount by the percentage in Section 2, less the amount paid to approved DBE(s) for work performed under the Contract in accordance with the provisions of Section 8.

**b.** Suspend, terminate or cancel this Contract, in whole or in part, and call upon the Prime Contractor's surety to perform all terms and conditions in the Contract.

**c.** In accordance with 720 CMR 5.05(1)(f), modify or revoke the Prime Contractor's Prequalification status or recommend that the Prime Contractor not receive award of a pending Contract. The Prime Contractor may appeal the determination of the Prequalification Committee in accordance with the provisions of 720 CMR 5.06.

**d.** Initiate debarment proceedings pursuant to M.G.L. c. 29 §29F and, as applicable, 2 CFR Parts 180, 215 and 1,200.

**e.** Refer the matter to the Massachusetts Attorney General for review and prosecution, if appropriate, of any false claim or pursuant to M.G.L. c. 12, §§ 5A to 5O (the Massachusetts False Claim Act).

**f.** Refer the matter to the U.S. DOT's Office of the Inspector General or other agencies for prosecution under Title 18, U.S.C. § 1001, 49 CFR Parts 29 and 31, and other applicable laws and regulations.

## 10. FURTHER INFORMATION; ENFORCEMENT, COOPERATION AND CONFIDENTIALITY.

**a.** Any proposed DBE, bidder, or Contractor shall provide such information as is necessary in the judgment of MassDOT to ascertain its compliance with the terms of this Special Provision. Further, pursuant to 49 CFR, Part 26.107:

**(1)** If you are a firm that does not meet the eligibility criteria of 49 CFR, Parts 26.61 to 26.73 ("subpart D"), that attempts to participate in a DOT- assisted program as a DBE on the basis of false, fraudulent, or deceitful statements or representations or under circumstances indicating a serious lack of business integrity or honesty, MassDOT or FHWA may initiate suspension or debarment proceedings against you under 49 CFR Part 29.

**(2)** If you are a firm that, in order to meet DBE Contract participation goals or other DBE Program requirements, uses or attempts to use, on the basis of false, fraudulent or deceitful statements or representations or under circumstances indicating a serious lack of business integrity or honesty, another firm that does not meet the eligibility criteria of subpart D, FHWA may initiate suspension or debarment proceedings against you under 49 CFR Part 29.

**(3)** In a suspension or debarment proceeding brought either under subparagraph a.(1) or b.(2) of this section, the concerned operating administration may consider the fact that a purported DBE has been certified by a recipient. Such certification does not preclude FHWA from determining that the purported DBE, or another firm that has used or attempted to use it to meet DBE participation goals, should be suspended or debarred.

**(4)** FHWA may take enforcement action under 49 CFR Part 31, Program Fraud and Civil Remedies, against any participant in the DBE Program whose conduct is subject to such action under 49 CFR Part 31.

**(5)** FHWA may refer to the Department of Justice, for prosecution under 18 U.S.C. 1001 or other applicable provisions of law, any person who makes a false or fraudulent statement in connection with participation of a DBE in any DOT-assisted program or otherwise violates applicable Federal statutes.

**b.** Pursuant to 49 CFR Part 26.109, the rules governing information, confidentiality, cooperation, and intimidation or retaliation are as follows:

**(1)** Availability of records.

(i) In responding to requests for information concerning any aspect of the DBE Program, FHWA complies with provisions of the Federal Freedom of Information and Privacy Acts (5 U.S.C. 552 and 552a). FHWA may make available to the public any information concerning the DBE Program release of which is not prohibited by Federal law.

(ii) MassDOT shall safeguard from disclosure to unauthorized persons information that may reasonably be considered as confidential business information, consistent with Federal and Massachusetts General Law (M.G.L. c. 66, § 10, M.G.L. c. 4, §7 (26), 950 CMR 32.00).

**(2)** Confidentiality of information on complainants. Notwithstanding the provisions of subparagraph b.(1) of this section, the identity of complainants shall be kept confidential, at their election. If such confidentiality will hinder the investigation, proceeding or hearing, or result in a denial of appropriate administrative due process to other parties, the complainant must be advised for the purpose of waiving the privilege. Complainants are advised that, in some circumstances, failure to waive the privilege may result in the closure of the investigation or dismissal of the proceeding or hearing.

**(3)** Cooperation. All participants in FHWA's DBE Program (including, but not limited to, recipients, DBE firms and applicants for DBE certification, complainants and appellants, and Contractors using DBE firms to meet Contract participation goals) are required to cooperate fully and promptly with U.S. DOT and recipient compliance reviews, certification reviews, investigations, and other requests for information. Failure to do so shall be a ground for appropriate action against the party involved (e.g., with respect to recipients, a finding of noncompliance; with respect to DBE firms, denial of certification or removal of eligibility and/or suspension and debarment; with respect to a complainant or appellant, dismissal of the complaint or appeal; with respect to a Contractor which uses DBE firms to meet participation goals, findings of non-responsibility for future Contracts and/or suspension and debarment).

**(4)** Intimidation and retaliation. No recipient, Contractor, or any other participant in the program, may intimidate, threaten, coerce, or discriminate against any individual or firm for the purpose of interfering with any right or privilege secured by this part or because the individual or firm has made a complaint, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing under this part. If any recipient or contractor violates this prohibition, that entity is in noncompliance with this 49 CFR Part 26.

**11. LIST OF ADDITIONAL DOCUMENTS.**

**a.** The following documents shall be completed and signed by the bidder and designated DBEs in accordance with Section 7 - Award Documentation and Procedures. These documents must be returned by the bidder to MassDOT's Bid Document Distribution Center:

- □ Schedule of DBE Participation (Document B00853)
- □ Letter of Intent (Document B00854)
- □ DBE Joint Check Arrangement Approval Form (Document B00855), if Contractor and DBE plan, or if DBE is required to use a Joint Check

**b.** The following document shall be signed and returned by Contractor and Subcontractors/DBEs to the MassDOT District Office overseeing the Project, as applicable:

- □ Contractor/Subcontractor Certification Form (Document No. 00859) (a checklist of other documents to be included with every subcontract (DBEs and non-DBEs alike)).

**c.** The following document shall be provided to MassDOT's Office of Civil Rights and Prequalification Office at least fourteen (14) business days before the bid opening date, if applicable:

- □ Affidavit of DBE/Non-DBE Joint Venture (Document B00856)

**d.** The following document shall be provided to MassDOT's District Office of Civil Rights within 30 calendar days after the work of the DBE is completed, or no later than 30 calendar days after the work of the DBE is on a completed and processed CQE. This document shall be completed and submitted by the Prime Contractor:

- □ Certificate of Completion by a Minority/Women or Disadvantaged Business Enterprise (M/W/DBE) (Form No. CSD-100)

*** END OF DOCUMENT ***

DOCUMENT 00760

FHWA-1273 – Revised October 23, 2023

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

I. General
II. Nondiscrimination
III. Non-segregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
XI. Certification Regarding Use of Contract Funds for Lobbying
XII. 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. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements 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 shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The 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, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

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. 23 CFR 633.102(d).

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 (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 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; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 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; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

**1. Equal Employment Opportunity:** Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (*see* 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. 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. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

**2. EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

**3. Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

**4. Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

**5. Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

**6. Training and Promotion:**

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

**7. Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

**8. Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

**9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

**10. Assurances Required:**

a. The requirements of 49 CFR Part 26 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 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 are incorporated by reference. 49 CFR Part 21.

**11. Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

## III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than $10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

## IV. 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 V, 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

the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

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 IV. 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 FHWA-1273 in any subcontracts, 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.

## V. 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.

* $31 as of January 15, 2023 (See 88 FR 88 FR 2210) 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 IV 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.

**VI. 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 Section VI 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 Section VI 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).

**VII. 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).

**VIII. 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."

**IX. 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.

**X. 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.

* * * * *

**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.

* * * * *

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.

* * * * *

**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.

* * * * *

**XI. 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.

**XII. 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** (23 CFR 633, Subpart B, Appendix B) 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 23 CFR 633.207(e) 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:<br>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<br>(Both Factors used) | 0.29<br>Gallons / CY. | 0.15<br>Gallons / CY |
| Surfacing Work:<br>All Items containing Hot Mix Asphalt | 2.90<br>Gallons / Ton | Does Not Apply |

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DOCUMENT 00813

SPECIAL PROVISIONS

PRICE ADJUSTMENTS FOR STRUCTURAL STEEL AND REINFORCING STEEL

June 18, 2025

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 | $0.52 |
| 2 | ASTM A27 (AASHTO M103) Steel Castings, H-Pile Points & Pipe Pile Shoes (See Note below.) | $0.73 |
| 3 | ASTM A668 / A668M (AASHTO M102) Steel Forgings | $0.73 |
| 4 | ASTM A108 (AASHTO M169) Steel Forgings for Shear Studs | $0.75 |
| 5 | ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Plate | $0.79 |
| 6 | ASTM A709/A709M Grade 36 / AASHTO M270M/M270 Grade 36 or 250 Structural Steel Shapes | $0.74 |
| 7 | ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Plate | $0.79 |
| 8 | ASTM A709/A709M Grade 50 / AASHTO M270M/M270 Grade 50 or 345 Structural Steel Shapes | $0.74 |
| 9 | ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Plate | $0.82 |
| 10 | ASTM A709/A709M Grade 50WT / AASHTO M270M/M270 Grade 50WT or 345WT Structural Steel Shapes | $0.75 |
| 11 | ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W 345W Structural Steel Plate | $0.82 |
| 12 | ASTM A709/A709M Grade 50W / AASHTO M270M/M270 Grade 50W or 345W Structural Steel Shapes | $0.75 |
| 13 | ASTM A709/A709M Grade HPS 50W / AASHTO M270M/M270 Grade HPS 50W or 345W Structural Steel Plate | $0.86 |
| 14 | ASTM A709/A709M Grade HPS 70W / AASHTO M270M/M270 Grade HPS 70W or 485W Structural Steel Plate | $0.92 |
| 15 | ASTM A514/A514M-05 Grade HPS 100W / AASHTO M270M/M270 Grade HPS 100W or 690W Structural Steel Plate | $1.41 |
| 16 | ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Plate | $0.82 |
| 17 | ASTM A992/A992M Grade 50S / AASHTO M270M/M270 Grade 50S or 345S Structural Steel Shapes | $0.75 |
| 18 | ASTM A276 Type 316 Stainless Steel | $4.24 |
| 19 | ASTM A240 Type 316 Stainless Steel | $4.24 |
| 20 | ASTM A148 Grade 80/50 Steel Castings (See Note below.) | $1.46 |
| 21 | ASTM A53 Grade B Structural Steel Pipe | $0.92 |
| 22 | ASTM A500 Grades A, B, 36 & 50 Structural Steel Pipe | $0.92 |
| 23 | ASTM A252, Grades 240 (36 KSI) & 414 (60 KSI) Pipe Pile | $0.73 |
| 24 | ASTM 252, Grade 2 Permanent Steel Casing | $0.73 |
| 25 | ASTM A36 (AASHTO M183) for H-piles, steel supports and sign supports | $0.77 |
| 26 | ASTM A328 / A328M, Grade 50 (AASHTO M202) Steel Sheetpiling | $1.39 |
| 27 | ASTM A572 / A572M, Grade 50 Sheetpiling | $1.39 |
| 28 | ASTM A36/36M, Grade 50 | $0.79 |
| 29 | ASTM A570, Grade 50 | $0.77 |
| 30 | ASTM A572 (AASHTO M223), Grade 50 H-Piles | $0.79 |
| 31 | ASTM A1085 Grade A (50 KSI) Steel Hollow Structural Sections (HSS), heat-treated per ASTM A1085 Supplement S1 | $0.92 |
| 32 | AREA 140 LB Rail and Track Accessories | $0.48 |

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*

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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.

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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:** 131225 **Project No.** 608616 **Federal Aid No.:** STP(BR-OFF)-003S(863)X

**Location:** TAUNTON

**Project Description:** Bridge Replacement, T-01-024, Scadding Street over Snake River

**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. You may also find guidance at: http://www.dol.gov/ofccp/TAguides/consttag.pdf or http://www.wdol.gov/dba.aspx#0.
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 HEALY
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:** | MassDOT Highway | **City/Town:** | TAUNTON |
| **Contract Number:** | 131225 | | |
| **Description of Work:** | TAUNTON - Federal Aid Project No. STP(BR-OFF)-003S(863)X Bridge Replacement, T-01-024, Scadding Street over Snake River | | |
| **Job Location:** | Scadding Street over the Snake River | | |

**Information about Prevailing Wage Schedules for Awarding Authorities and Contractors**

- The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor. For multi-year CM AT RISK projects, the awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. The updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.
- This annual update requirement is generally not applicable to 27F “rental of equipment” contracts. For such contracts, the prevailing wage rates issued by DLS shall remain in effect for the duration of the contract term. However, if the prevailing wage rate sheet issued does not contain wage rates for each year covered by the contract term, the Awarding Authority must request updated rate sheets from DLS and provide them to the contractor to ensure the correct rates are being paid throughout the duration of the contract. Additionally, if an Awarding Authority exercises an option to renew or extend the contract term, they must request updated rate sheets form DLS and provide them to the contractor.
- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the “Wage Request Number” on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or a sub-contractor.
- Apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentices must keep their apprentice identification card on their persons during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DAS regardless of whether they are registered with another federal, state, local, or private agency must be paid the journeyworker's rate.**
- Every contractor or subcontractor working on the construction project must submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee’s name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. For a sample payroll reporting form go to http://www.mass.gov/dols/pw.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Contractors must obtain the wage schedules from awarding authorities. Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may file a complaint with the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| (2 AXLE) DRIVER - EQUIPMENT<br>TEAMSTERS JOINT COUNCIL NO. 10<br>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B | 6/1/2025 | $40.95 | $15.57 | $20.17 | $0.00 | $0.00 | $76.69 |
| | 12/1/2025 | $40.95 | $15.57 | $21.78 | $0.00 | $0.00 | $78.30 |
| | 1/1/2026 | $40.95 | $16.17 | $21.78 | $0.00 | $0.00 | $78.90 |
| | 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<br>TEAMSTERS JOINT COUNCIL NO. 10<br>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B | 6/1/2025 | $41.02 | $15.57 | $20.17 | $0.00 | $0.00 | $76.76 |
| | 12/1/2025 | $41.02 | $15.57 | $21.78 | $0.00 | $0.00 | $78.37 |
| | 1/1/2026 | $41.02 | $16.17 | $21.78 | $0.00 | $0.00 | $78.97 |
| | 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<br>TEAMSTERS JOINT COUNCIL NO. 10<br>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B | 6/1/2025 | $41.14 | $15.57 | $20.17 | $0.00 | $0.00 | $76.88 |
| | 12/1/2025 | $41.14 | $15.57 | $21.78 | $0.00 | $0.00 | $78.49 |
| | 1/1/2026 | $41.14 | $16.17 | $21.78 | $0.00 | $0.00 | $79.09 |
| | 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<br>PILE DRIVER LOCAL 56<br>PILE DRIVER LOCAL 56 (ZONE 1) | 1/1/2024 | $117.16 | $10.08 | $11.62 | $12.67 | $0.00 | $151.53 |
| For apprentice rates see "Apprentice- PILE DRIVER" | | | | | | | |
| AIR TRACK OPERATOR<br>LABORERS<br>LABORERS - ZONE 2 | 6/1/2025 | $41.09 | $9.90 | $9.25 | $9.11 | $0.00 | $69.35 |
| | 12/1/2025 | $42.47 | $9.90 | $9.25 | $9.11 | $0.00 | $70.73 |
| | 6/1/2026 | $43.91 | $9.90 | $9.25 | $9.11 | $0.00 | $72.17 |
| | 12/1/2026 | $45.35 | $9.90 | $9.25 | $9.11 | $0.00 | $73.61 |
| | 6/1/2027 | $46.80 | $9.90 | $9.25 | $9.11 | $0.00 | $75.06 |
| | 12/1/2027 | $48.25 | $9.90 | $9.25 | $9.11 | $0.00 | $76.51 |
| | 6/1/2028 | $49.75 | $9.90 | $9.25 | $9.11 | $0.00 | $78.01 |
| | 12/1/2028 | $51.25 | $9.90 | $9.25 | $9.11 | $0.00 | $79.51 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| AIR TRACK OPERATOR (HEAVY & HIGHWAY)<br>LABORERS<br>LABORERS - ZONE 2 (HEAVY & HIGHWAY) | 6/1/2025 | $41.09 | $9.90 | $9.25 | $9.21 | $0.00 | $69.45 |
| | 12/1/2025 | $42.47 | $9.90 | $9.25 | $9.21 | $0.00 | $70.83 |
| | 6/1/2026 | $43.91 | $9.90 | $9.25 | $9.21 | $0.00 | $72.27 |
| | 12/1/2026 | $45.35 | $9.90 | $9.25 | $9.21 | $0.00 | $73.71 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | | |
| ASBESTOS WORKER (PIPES & TANKS)<br>HEAT & FROST INSULATORS LOCAL 6<br>HEAT & FROST INSULATORS LOCAL 6 (SOUTHERN MASS) | 6/1/2025 | $43.80 | $14.50 | $4.30 | $6.75 | $0.00 | $69.35 |
| | 12/1/2025 | $44.80 | $14.50 | $4.30 | $6.75 | $0.00 | $70.35 |
| ASPHALT RAKER<br>LABORERS<br>LABORERS - ZONE 2 | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.11 | $0.00 | $68.85 |
| | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.11 | $0.00 | $70.23 |
| | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.11 | $0.00 | $71.67 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.11 | $0.00 | $73.11 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| | 6/1/2027 | $46.30 | $9.90 | $9.25 | $9.11 | $0.00 | $74.56 |
| | 12/1/2027 | $47.75 | $9.90 | $9.25 | $9.11 | $0.00 | $76.01 |
| | 6/1/2028 | $49.25 | $9.90 | $9.25 | $9.11 | $0.00 | $77.51 |
| | 12/1/2028 | $50.75 | $9.90 | $9.25 | $9.11 | $0.00 | $79.01 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| ASPHALT RAKER (HEAVY & HIGHWAY)<br>LABORERS<br>LABORERS - ZONE 2 (HEAVY & HIGHWAY) | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.21 | $0.00 | $68.95 |
| | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.21 | $0.00 | $70.33 |
| | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.21 | $0.00 | $71.77 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.21 | $0.00 | $73.21 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | | |
| ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS LOCAL 4 | 6/1/2025 | $58.33 | $15.55 | $13.25 | $3.25 | $0.00 | $90.38 |
| | 12/1/2025 | $59.78 | $15.55 | $13.25 | $3.25 | $0.00 | $91.83 |
| | 6/1/2026 | $61.08 | $15.55 | $13.25 | $3.25 | $0.00 | $93.13 |
| | 12/1/2026 | $62.53 | $15.55 | $13.25 | $3.25 | $0.00 | $94.58 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| BACKHOE/FRONT-END LOADER<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS LOCAL 4 | 6/1/2025 | $58.33 | $15.55 | $13.25 | $3.25 | $0.00 | $90.38 |
| | 12/1/2025 | $59.78 | $15.55 | $13.25 | $3.25 | $0.00 | $91.83 |
| | 6/1/2026 | $61.08 | $15.55 | $13.25 | $3.25 | $0.00 | $93.13 |
| | 12/1/2026 | $62.53 | $15.55 | $13.25 | $3.25 | $0.00 | $94.58 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| BARCO-TYPE JUMPING TAMPER<br>LABORERS<br>LABORERS - ZONE 2 | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.11 | $0.00 | $68.85 |
| | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.11 | $0.00 | $70.23 |
| | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.11 | $0.00 | $71.67 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.11 | $0.00 | $73.11 |
| | 6/1/2027 | $46.30 | $9.90 | $9.25 | $9.11 | $0.00 | $74.56 |
| | 12/1/2027 | $47.75 | $9.90 | $9.25 | $9.11 | $0.00 | $76.01 |
| | 6/1/2028 | $49.25 | $9.90 | $9.25 | $9.11 | $0.00 | $77.51 |
| | 12/1/2028 | $50.75 | $9.90 | $9.25 | $9.11 | $0.00 | $79.01 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| BLOCK PAVER, RAMMER / CURB SETTER<br>LABORERS<br>LABORERS - ZONE 2 | 6/1/2025 | $41.09 | $9.90 | $9.25 | $9.11 | $0.00 | $69.35 |
| | 12/1/2025 | $42.47 | $9.90 | $9.25 | $9.11 | $0.00 | $70.73 |
| | 6/1/2026 | $43.91 | $9.90 | $9.25 | $9.11 | $0.00 | $72.17 |
| | 12/1/2026 | $45.35 | $9.90 | $9.25 | $9.11 | $0.00 | $73.61 |
| | 6/1/2027 | $46.80 | $9.90 | $9.25 | $9.11 | $0.00 | $75.06 |
| | 12/1/2027 | $48.25 | $9.90 | $9.25 | $9.11 | $0.00 | $76.51 |
| | 6/1/2028 | $49.75 | $9.90 | $9.25 | $9.11 | $0.00 | $78.01 |
| | 12/1/2028 | $51.25 | $9.90 | $9.25 | $9.11 | $0.00 | $79.51 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY)<br>LABORERS<br>LABORERS - ZONE 2 (HEAVY & HIGHWAY) | 6/1/2025 | $41.09 | $9.90 | $9.25 | $9.21 | $0.00 | $69.45 |
| | 12/1/2025 | $42.47 | $9.90 | $9.25 | $9.21 | $0.00 | $70.83 |
| | 6/1/2026 | $43.91 | $9.90 | $9.25 | $9.21 | $0.00 | $72.27 |
| | 12/1/2026 | $45.35 | $9.90 | $9.25 | $9.21 | $0.00 | $73.71 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | | |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| BOILER MAKER<br>BOILERMAKERS LOCAL 29<br>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 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)<br>BRICKLAYERS LOCAL 3<br>BRICKLAYERS LOCAL 3 (FOXBORO) | 2/1/2025 | $63.66 | $11.49 | $15.57 | $7.33 | $0.00 | $98.05 |
| | 8/1/2025 | $65.81 | $11.49 | $15.57 | $7.33 | $0.00 | $100.20 |
| | 2/1/2026 | $67.16 | $11.49 | $15.57 | $7.33 | $0.00 | $101.55 |
| | 8/1/2026 | $69.36 | $11.49 | $15.57 | $7.33 | $0.00 | $103.75 |
| | 2/1/2027 | $70.76 | $11.49 | $15.57 | $7.33 | $0.00 | $105.15 |

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

**Effective Date: 2/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $31.83 | $11.49 | $15.57 | $7.33 | $0.00 | $66.22 |
| 2 | 60.00 | $38.20 | $11.49 | $15.57 | $7.33 | $0.00 | $72.59 |
| 3 | 70.00 | $44.56 | $11.49 | $15.57 | $7.33 | $0.00 | $78.95 |
| 4 | 80.00 | $50.93 | $11.49 | $15.57 | $7.33 | $0.00 | $85.32 |
| 5 | 90.00 | $57.29 | $11.49 | $15.57 | $7.33 | $0.00 | $91.68 |

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

**Effective Date: 8/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $32.91 | $11.49 | $15.57 | $7.33 | $0.00 | $67.30 |
| 2 | 60.00 | $39.49 | $11.49 | $15.57 | $7.33 | $0.00 | $73.88 |
| 3 | 70.00 | $46.07 | $11.49 | $15.57 | $7.33 | $0.00 | $80.46 |
| 4 | 80.00 | $52.65 | $11.49 | $15.57 | $7.33 | $0.00 | $87.04 |
| 5 | 90.00 | $59.23 | $11.49 | $15.57 | $7.33 | $0.00 | $93.62 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| BULLDOZER/GRADER/SCRAPER<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS LOCAL 4 | 6/1/2025 | $57.68 | $15.55 | $13.25 | $3.25 | $0.00 | $89.73 |
| | 12/1/2025 | $59.12 | $15.55 | $13.25 | $3.25 | $0.00 | $91.17 |
| | 6/1/2026 | $60.40 | $15.55 | $13.25 | $3.25 | $0.00 | $92.45 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| | 12/1/2026 | $61.84 | $15.55 | $13.25 | $3.25 | $0.00 | $93.89 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| CAISSON & UNDERPINNING BOTTOM MAN | 6/1/2025 | $48.85 | $9.90 | $9.25 | $9.80 | $0.00 | $77.80 |
| LABORERS | 12/1/2025 | $50.35 | $9.90 | $9.25 | $9.80 | $0.00 | $79.30 |
| LABORERS - FOUNDATION AND MARINE | 6/1/2026 | $51.90 | $9.90 | $9.25 | $9.80 | $0.00 | $80.85 |
| | 12/1/2026 | $53.40 | $9.90 | $9.25 | $9.80 | $0.00 | $82.35 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| CAISSON & UNDERPINNING LABORER | 6/1/2025 | $47.70 | $9.90 | $9.25 | $9.80 | $0.00 | $76.65 |
| LABORERS | 12/1/2025 | $49.20 | $9.90 | $9.25 | $9.80 | $0.00 | $78.15 |
| LABORERS - FOUNDATION AND MARINE | 6/1/2026 | $50.75 | $9.90 | $9.25 | $9.80 | $0.00 | $79.70 |
| | 12/1/2026 | $52.25 | $9.90 | $9.25 | $9.80 | $0.00 | $81.20 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| CAISSON & UNDERPINNING TOP MAN | 6/1/2025 | $48.03 | $9.90 | $9.25 | $9.80 | $0.00 | $76.98 |
| LABORERS | 12/1/2025 | $49.53 | $9.90 | $9.25 | $9.80 | $0.00 | $78.48 |
| LABORERS - FOUNDATION AND MARINE | 6/1/2026 | $51.08 | $9.90 | $9.25 | $9.80 | $0.00 | $80.03 |
| | 12/1/2026 | $52.58 | $9.90 | $9.25 | $9.80 | $0.00 | $81.53 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| CARBIDE CORE DRILL OPERATOR | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.11 | $0.00 | $68.85 |
| LABORERS | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.11 | $0.00 | $70.23 |
| LABORERS - ZONE 2 | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.11 | $0.00 | $71.67 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.11 | $0.00 | $73.11 |
| | 6/1/2027 | $46.30 | $9.90 | $9.25 | $9.11 | $0.00 | $74.56 |
| | 12/1/2027 | $47.75 | $9.90 | $9.25 | $9.11 | $0.00 | $76.01 |
| | 6/1/2028 | $49.25 | $9.90 | $9.25 | $9.11 | $0.00 | $77.51 |
| | 12/1/2028 | $50.75 | $9.90 | $9.25 | $9.11 | $0.00 | $79.01 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| CARPENTER | 3/1/2025 | $49.62 | $9.83 | $11.47 | $8.50 | $0.00 | $79.42 |
| CARPENTERS | 9/1/2025 | $50.87 | $9.83 | $11.47 | $8.50 | $0.00 | $80.67 |
| CARPENTERS -ZONE 2 (Eastern Massachusetts) | 3/1/2026 | $52.12 | $9.83 | $11.47 | $8.50 | $0.00 | $81.92 |
| | 9/1/2026 | $53.37 | $9.83 | $11.47 | $8.50 | $0.00 | $83.17 |
| | 3/1/2027 | $54.62 | $9.83 | $11.47 | $8.50 | $0.00 | $84.42 |

**Apprentice: CARPENTER**

**Effective Date: 3/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 45.00 | $22.33 | $9.83 | $0.00 | $1.73 | $0.00 | $33.89 |
| 2 | 45.00 | $22.33 | $9.83 | $0.00 | $1.73 | $0.00 | $33.89 |
| 3 | 55.00 | $27.29 | $9.83 | $0.00 | $3.40 | $0.00 | $40.52 |
| 4 | 55.00 | $27.29 | $9.83 | $0.00 | $3.40 | $0.00 | $40.52 |
| 5 | 70.00 | $34.73 | $9.83 | $11.41 | $5.10 | $0.00 | $61.07 |
| 6 | 70.00 | $34.73 | $9.83 | $11.41 | $5.10 | $0.00 | $61.07 |
| 7 | 80.00 | $39.70 | $9.83 | $11.44 | $6.80 | $0.00 | $67.77 |
| 8 | 80.00 | $39.70 | $9.83 | $11.44 | $6.80 | $0.00 | $67.77 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| CARPENTER WOOD FRAME | 10/1/2024 | $26.65 | $7.02 | $3.80 | $1.00 | $0.00 | $38.47 |
| CARPENTERS | 10/1/2025 | $27.75 | $7.02 | $3.80 | $1.00 | $0.00 | $39.57 |
| CARPENTERS-ZONE 3 (Wood Frame) | 10/1/2026 | $28.85 | $7.02 | $3.80 | $1.00 | $0.00 | $40.67 |

All Aspects of New Wood Frame Work

**Apprentice: CARPENTER**

**Effective Date: 9/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 45.00 | $22.89 | $9.83 | $0.00 | $1.73 | $0.00 | $34.45 |
| 2 | 45.00 | $22.89 | $9.83 | $0.00 | $1.73 | $0.00 | $34.45 |
| 3 | 55.00 | $27.98 | $9.83 | $0.00 | $3.40 | $0.00 | $41.21 |
| 4 | 55.00 | $27.98 | $9.83 | $0.00 | $3.40 | $0.00 | $41.21 |
| 5 | 70.00 | $35.61 | $9.83 | $11.41 | $5.10 | $0.00 | $61.95 |
| 6 | 70.00 | $35.61 | $9.83 | $11.41 | $5.10 | $0.00 | $61.95 |
| 7 | 80.00 | $40.70 | $9.83 | $11.44 | $6.80 | $0.00 | $68.77 |
| 8 | 80.00 | $40.70 | $9.83 | $11.44 | $6.80 | $0.00 | $68.77 |

**Apprentice: CARPENTER WOOD FRAME**

**Effective Date: 10/1/2024**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 60.00 | $15.99 | $7.02 | $0.00 | $0.00 | $0.00 | $23.01 |
| 2 | 60.00 | $15.99 | $7.02 | $0.00 | $0.00 | $0.00 | $23.01 |
| 3 | 65.00 | $17.32 | $7.02 | $0.00 | $1.00 | $0.00 | $25.34 |
| 4 | 70.00 | $18.66 | $7.02 | $0.00 | $1.00 | $0.00 | $26.68 |
| 5 | 75.00 | $19.99 | $7.02 | $3.80 | $1.00 | $0.00 | $31.81 |
| 6 | 80.00 | $21.32 | $7.02 | $3.80 | $1.00 | $0.00 | $33.14 |
| 7 | 85.00 | $22.65 | $7.02 | $3.80 | $1.00 | $0.00 | $34.47 |
| 8 | 90.00 | $23.99 | $7.02 | $3.80 | $1.00 | $0.00 | $35.81 |

**Apprentice: CARPENTER WOOD FRAME**

**Effective Date: 10/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 60.00 | $16.65 | $7.02 | $0.00 | $0.00 | $0.00 | $23.67 |
| 2 | 60.00 | $16.65 | $7.02 | $0.00 | $0.00 | $0.00 | $23.67 |
| 3 | 65.00 | $18.04 | $7.02 | $0.00 | $1.00 | $0.00 | $26.06 |
| 4 | 70.00 | $19.43 | $7.02 | $0.00 | $1.00 | $0.00 | $27.45 |
| 5 | 75.00 | $20.81 | $7.02 | $3.80 | $1.00 | $0.00 | $32.63 |
| 6 | 80.00 | $22.20 | $7.02 | $3.80 | $1.00 | $0.00 | $34.02 |
| 7 | 85.00 | $23.59 | $7.02 | $3.80 | $1.00 | $0.00 | $35.41 |
| 8 | 90.00 | $24.98 | $7.02 | $3.80 | $1.00 | $0.00 | $36.80 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| CEMENT MASONRY/PLASTERING | 7/1/2024 | $49.19 | $13.35 | $16.43 | $7.78 | $1.80 | $88.55 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| BRICKLAYERS LOCAL 3<br>BRICKLAYERS LOCAL 3 (FOXBORO) | | | | | | | |

**Apprentice: CEMENT MASONRY/PLASTERING**

**Effective Date: 7/1/2024**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $24.60 | $13.35 | $16.43 | $0.00 | $0.00 | $54.38 |
| 2 | 60.00 | $29.51 | $13.35 | $16.43 | $2.78 | $1.80 | $63.87 |
| 3 | 65.00 | $31.97 | $13.35 | $16.43 | $3.78 | $1.80 | $67.33 |
| 4 | 70.00 | $34.43 | $13.35 | $16.43 | $4.78 | $1.80 | $70.79 |
| 5 | 75.00 | $36.89 | $13.35 | $16.43 | $5.78 | $1.80 | $74.25 |
| 6 | 80.00 | $39.35 | $13.35 | $16.43 | $6.78 | $1.80 | $77.71 |
| 7 | 90.00 | $44.27 | $13.35 | $16.43 | $7.78 | $1.80 | $83.63 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| CHAIN SAW OPERATOR<br>LABORERS<br>LABORERS - ZONE 2 | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.11 | $0.00 | $68.85 |
| | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.11 | $0.00 | $70.23 |
| | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.11 | $0.00 | $71.67 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.11 | $0.00 | $73.11 |
| | 6/1/2027 | $46.30 | $9.90 | $9.25 | $9.11 | $0.00 | $74.56 |
| | 12/1/2027 | $47.75 | $9.90 | $9.25 | $9.11 | $0.00 | $76.01 |
| | 6/1/2028 | $49.25 | $9.90 | $9.25 | $9.11 | $0.00 | $77.51 |
| | 12/1/2028 | $50.75 | $9.90 | $9.25 | $9.11 | $0.00 | $79.01 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS LOCAL 4 | 6/1/2025 | $59.51 | $15.55 | $13.25 | $3.25 | $0.00 | $91.56 |
| | 12/1/2025 | $60.98 | $15.55 | $13.25 | $3.25 | $0.00 | $93.03 |
| | 6/1/2026 | $62.31 | $15.55 | $13.25 | $3.25 | $0.00 | $94.36 |
| | 12/1/2026 | $63.79 | $15.55 | $13.25 | $3.25 | $0.00 | $95.84 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| COMPRESSOR OPERATOR<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS LOCAL 4 | 6/1/2025 | $37.52 | $15.55 | $13.25 | $3.25 | $0.00 | $69.57 |
| | 12/1/2025 | $38.47 | $15.55 | $13.25 | $3.25 | $0.00 | $70.52 |
| | 6/1/2026 | $39.33 | $15.55 | $13.25 | $3.25 | $0.00 | $71.38 |
| | 12/1/2026 | $40.28 | $15.55 | $13.25 | $3.25 | $0.00 | $72.33 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| DELEADER (BRIDGE)<br>PAINTERS LOCAL 35<br>PAINTERS LOCAL 35 - ZONE 2 | 1/1/2025 | $58.46 | $9.95 | $11.85 | $12.10 | $0.00 | $92.36 |

**Apprentice: DELEADER (BRIDGE)**

**Effective Date: 1/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $29.23 | $9.95 | $0.00 | $0.00 | $0.00 | $39.18 |
| 2 | 55.00 | $32.15 | $9.95 | $0.00 | $6.66 | $0.00 | $48.76 |
| 3 | 60.00 | $35.08 | $9.95 | $0.00 | $7.26 | $0.00 | $52.29 |

**Construction**

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

**Apprentice: DELEADER (BRIDGE)**

**Effective Date: 1/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 4 | 65.00 | $38.00 | $9.95 | $0.00 | $7.87 | $0.00 | $55.82 |
| 5 | 70.00 | $40.92 | $9.95 | $11.85 | $8.47 | $0.00 | $71.19 |
| 6 | 75.00 | $43.85 | $9.95 | $11.85 | $9.08 | $0.00 | $74.73 |
| 7 | 80.00 | $46.77 | $9.95 | $11.85 | $9.68 | $0.00 | $78.25 |
| 8 | 90.00 | $52.61 | $9.95 | $11.85 | $10.89 | $0.00 | $85.30 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DEMO: ADZEMAN | 6/2/2025 | $47.75 | $9.90 | $9.25 | $9.65 | $0.00 | $76.55 |
| LABORERS | 12/1/2025 | $49.25 | $9.90 | $9.25 | $9.65 | $0.00 | $78.05 |
| LABORERS - ZONE 2 | 6/1/2026 | $50.80 | $9.90 | $9.25 | $9.65 | $0.00 | $79.60 |
| | 12/7/2026 | $52.30 | $9.90 | $9.25 | $9.65 | $0.00 | $81.10 |
| | 6/7/2027 | $53.90 | $9.90 | $9.25 | $9.65 | $0.00 | $82.70 |
| | 12/6/2027 | $55.50 | $9.90 | $9.25 | $9.65 | $0.00 | $84.30 |
| | 6/5/2028 | $57.18 | $9.90 | $9.25 | $9.65 | $0.00 | $85.98 |
| | 12/4/2028 | $58.85 | $9.90 | $9.25 | $9.65 | $0.00 | $87.65 |

For apprentice rates see "Apprentice- LABORER"

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DEMO: BACKHOE/LOADER/HAMMER OPERATOR | 6/2/2025 | $48.75 | $9.90 | $9.25 | $9.65 | $0.00 | $77.55 |
| LABORERS | 12/1/2025 | $50.25 | $9.90 | $9.25 | $9.65 | $0.00 | $79.05 |
| LABORERS - ZONE 2 | 6/1/2026 | $51.80 | $9.90 | $9.25 | $9.65 | $0.00 | $80.60 |
| | 12/7/2026 | $53.30 | $9.90 | $9.25 | $9.65 | $0.00 | $82.10 |
| | 6/7/2027 | $54.90 | $9.90 | $9.25 | $9.65 | $0.00 | $83.70 |
| | 12/6/2027 | $56.50 | $9.90 | $9.25 | $9.65 | $0.00 | $85.30 |
| | 6/5/2028 | $58.18 | $9.90 | $9.25 | $9.65 | $0.00 | $86.98 |
| | 12/4/2028 | $59.85 | $9.90 | $9.25 | $9.65 | $0.00 | $88.65 |

For apprentice rates see "Apprentice- LABORER"

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DEMO: BURNERS | 6/2/2025 | $48.50 | $9.90 | $9.25 | $9.65 | $0.00 | $77.30 |
| LABORERS | 12/1/2025 | $50.00 | $9.90 | $9.25 | $9.65 | $0.00 | $78.80 |
| LABORERS - ZONE 2 | 6/1/2026 | $51.55 | $9.90 | $9.25 | $9.65 | $0.00 | $80.35 |
| | 12/7/2026 | $53.05 | $9.90 | $9.25 | $9.65 | $0.00 | $81.85 |
| | 6/7/2027 | $54.65 | $9.90 | $9.25 | $9.65 | $0.00 | $83.45 |
| | 12/6/2027 | $56.25 | $9.90 | $9.25 | $9.65 | $0.00 | $85.05 |
| | 6/5/2028 | $57.93 | $9.90 | $9.25 | $9.65 | $0.00 | $86.73 |
| | 12/4/2028 | $59.60 | $9.90 | $9.25 | $9.65 | $0.00 | $88.40 |

For apprentice rates see "Apprentice- LABORER"

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DEMO: CONCRETE CUTTER/SAWYER | 6/2/2025 | $48.75 | $9.90 | $9.25 | $9.65 | $0.00 | $77.55 |
| LABORERS | 12/1/2025 | $50.25 | $9.90 | $9.25 | $9.65 | $0.00 | $79.05 |
| LABORERS - ZONE 2 | 6/1/2026 | $51.80 | $9.90 | $9.25 | $9.65 | $0.00 | $80.60 |
| | 12/7/2026 | $53.30 | $9.90 | $9.25 | $9.65 | $0.00 | $82.10 |
| | 6/7/2027 | $54.90 | $9.90 | $9.25 | $9.65 | $0.00 | $83.70 |
| | 12/6/2027 | $56.50 | $9.90 | $9.25 | $9.65 | $0.00 | $85.30 |
| | 6/5/2028 | $58.18 | $9.90 | $9.25 | $9.65 | $0.00 | $86.98 |
| | 12/4/2028 | $59.85 | $9.90 | $9.25 | $9.65 | $0.00 | $88.65 |

For apprentice rates see "Apprentice- LABORER"

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| DEMO: JACKHAMMER OPERATOR | 6/2/2025 | $48.50 | $9.90 | $9.25 | $9.65 | $0.00 | $77.30 |
| LABORERS | 12/1/2025 | $50.00 | $9.90 | $9.25 | $9.65 | $0.00 | $78.80 |
| LABORERS - ZONE 2 | 6/1/2026 | $51.55 | $9.90 | $9.25 | $9.65 | $0.00 | $80.35 |
| | 12/7/2026 | $53.05 | $9.90 | $9.25 | $9.65 | $0.00 | $81.85 |
| | 6/7/2027 | $54.65 | $9.90 | $9.25 | $9.65 | $0.00 | $83.45 |
| | 12/6/2027 | $56.25 | $9.90 | $9.25 | $9.65 | $0.00 | $85.05 |
| | 6/5/2028 | $57.93 | $9.90 | $9.25 | $9.65 | $0.00 | $86.73 |
| | 12/4/2028 | $59.60 | $9.90 | $9.25 | $9.65 | $0.00 | $88.40 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| DEMO: WRECKING LABORER | 6/2/2025 | $47.75 | $9.90 | $9.25 | $9.65 | $0.00 | $76.55 |
| LABORERS | 12/1/2025 | $49.25 | $9.90 | $9.25 | $9.65 | $0.00 | $78.05 |
| LABORERS - ZONE 2 | 6/1/2026 | $50.80 | $9.90 | $9.25 | $9.65 | $0.00 | $79.60 |
| | 12/7/2026 | $52.30 | $9.90 | $9.25 | $9.65 | $0.00 | $81.10 |
| | 6/7/2027 | $53.90 | $9.90 | $9.25 | $9.65 | $0.00 | $82.70 |
| | 12/6/2027 | $55.50 | $9.90 | $9.25 | $9.65 | $0.00 | $84.30 |
| | 6/5/2028 | $57.18 | $9.90 | $9.25 | $9.65 | $0.00 | $85.98 |
| | 12/4/2028 | $58.85 | $9.90 | $9.25 | $9.65 | $0.00 | $87.65 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| DIRECTIONAL DRILL MACHINE OPERATOR | 6/1/2025 | $57.68 | $15.55 | $13.25 | $3.25 | $0.00 | $89.73 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $59.12 | $15.55 | $13.25 | $3.25 | $0.00 | $91.17 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $60.40 | $15.55 | $13.25 | $3.25 | $0.00 | $92.45 |
| | 12/1/2026 | $61.84 | $15.55 | $13.25 | $3.25 | $0.00 | $93.89 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| DIVER | 8/1/2024 | $78.11 | $10.08 | $11.62 | $10.04 | $0.00 | $109.85 |
| PILE DRIVER LOCAL 56 | | | | | | | |
| PILE DRIVER LOCAL 56 (ZONE 1) | | | | | | | |
| 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 | 8/1/2024 | $55.79 | $10.08 | $11.62 | $12.67 | $0.00 | $90.16 |
| PILE DRIVER LOCAL 56 | | | | | | | |
| PILE DRIVER LOCAL 56 (ZONE 1) | | | | | | | |
| 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) | 8/1/2024 | $83.69 | $10.08 | $11.62 | $12.67 | $0.00 | $118.06 |
| PILE DRIVER LOCAL 56 | | | | | | | |
| PILE DRIVER LOCAL 56 (ZONE 1) | | | | | | | |
| For apprentice rates see "Apprentice- PILE DRIVER" | | | | | | | |
| DIVER/SLURRY (EFFLUENT) | 8/1/2024 | $117.16 | $10.08 | $11.62 | $12.67 | $0.00 | $151.53 |
| PILE DRIVER LOCAL 56 | | | | | | | |
| PILE DRIVER LOCAL 56 (ZONE 1) | | | | | | | |
| For apprentice rates see "Apprentice- PILE DRIVER" | | | | | | | |
| DRAWBRIDGE OPERATOR (Construction) | 7/1/2020 | $26.77 | $6.67 | $3.93 | $0.00 | $0.16 | $37.53 |
| DRAWBRIDGE - SEIU LOCAL 888 | | | | | | | |
| DRAWBRIDGE - SEIU LOCAL 888 | | | | | | | |
| ELECTRICIAN | 9/1/2024 | $50.02 | $12.00 | $14.22 | $3.50 | $0.00 | $79.74 |
| ELECTRICIANS LOCAL 223 | 9/1/2025 | $52.25 | $12.25 | $14.86 | $3.75 | $0.00 | $83.11 |
| ELECTRICIANS LOCAL 223 | | | | | | | |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| | 9/1/2026 | $54.72 | $12.50 | $15.56 | $4.00 | $0.00 | $86.78 |

**Apprentice: ELECTRICIAN**

**Effective Date: 9/1/2024**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 40.00 | $20.01 | $12.00 | $0.60 | $0.00 | $0.00 | $32.61 |
| 2 | 45.00 | $22.51 | $12.00 | $0.68 | $0.00 | $0.00 | $35.19 |
| 3 | 50.00 | $25.01 | $12.00 | $0.75 | $0.00 | $0.00 | $37.76 |
| 4 | 55.00 | $27.51 | $12.00 | $6.34 | $2.25 | $0.00 | $48.10 |
| 5 | 60.00 | $30.01 | $12.00 | $6.90 | $2.25 | $0.00 | $51.16 |
| 6 | 65.00 | $32.51 | $12.00 | $7.49 | $2.25 | $0.00 | $54.25 |
| 7 | 70.00 | $35.01 | $12.00 | $8.05 | $2.25 | $0.00 | $57.31 |
| 8 | 75.00 | $37.52 | $12.00 | $8.64 | $2.25 | $0.00 | $60.41 |

**Apprentice: ELECTRICIAN**

**Effective Date: 9/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 40.00 | $20.90 | $12.25 | $0.63 | $0.00 | $0.00 | $33.78 |
| 2 | 45.00 | $23.51 | $12.25 | $0.71 | $0.00 | $0.00 | $36.47 |
| 3 | 50.00 | $26.13 | $12.25 | $0.78 | $0.00 | $0.00 | $39.16 |
| 4 | 55.00 | $28.74 | $12.25 | $6.61 | $2.50 | $0.00 | $50.10 |
| 5 | 60.00 | $31.35 | $12.25 | $7.21 | $2.50 | $0.00 | $53.31 |
| 6 | 65.00 | $33.96 | $12.25 | $7.82 | $2.50 | $0.00 | $56.53 |
| 7 | 70.00 | $36.58 | $12.25 | $8.41 | $2.50 | $0.00 | $59.74 |
| 8 | 75.00 | $39.19 | $12.25 | $9.02 | $2.50 | $0.00 | $62.96 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ELEVATOR CONSTRUCTOR<br>ELEVATOR CONSTRUCTORS LOCAL 4<br>ELEVATOR CONSTRUCTORS LOCAL 4 | 1/1/2022 | $65.62 | $16.03 | $10.71 | $9.50 | $0.00 | $101.86 |

**Apprentice: ELEVATOR CONSTRUCTOR**

**Effective Date: 1/1/2022**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $32.81 | $16.03 | $0.00 | $0.00 | $0.00 | $48.84 |
| 2 | 55.00 | $36.09 | $16.03 | $10.71 | $9.50 | $0.00 | $72.33 |
| 3 | 65.00 | $42.65 | $16.03 | $10.71 | $9.50 | $0.00 | $78.89 |
| 4 | 70.00 | $45.93 | $16.03 | $10.71 | $9.50 | $0.00 | $82.17 |
| 5 | 80.00 | $52.50 | $16.03 | $10.71 | $9.50 | $0.00 | $88.74 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ELEVATOR CONSTRUCTOR HELPER<br>ELEVATOR CONSTRUCTORS LOCAL 4<br>ELEVATOR CONSTRUCTORS LOCAL 4 | 1/1/2022 | $45.93 | $16.03 | $10.71 | $9.50 | $0.00 | $82.17 |

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.21 | $0.00 | $68.95 |
| LABORERS | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.21 | $0.00 | $70.33 |
| LABORERS - ZONE 2 (HEAVY & HIGHWAY) | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.21 | $0.00 | $71.77 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.21 | $0.00 | $73.21 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway) | | | | | | | |
| FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY | 5/1/2025 | $53.22 | $15.30 | $13.15 | $3.25 | $0.00 | $84.92 |
| OPERATING ENGINEERS LOCAL 4 | 11/1/2025 | $54.51 | $15.30 | $13.15 | $3.25 | $0.00 | $86.21 |
| OPERATING ENGINEERS LOCAL 4 | 5/1/2026 | $55.95 | $15.30 | $13.15 | $3.25 | $0.00 | $87.65 |
| | 11/1/2026 | $57.24 | $15.30 | $13.15 | $3.25 | $0.00 | $88.94 |
| | 5/1/2027 | $58.67 | $15.30 | $13.15 | $3.25 | $0.00 | $90.37 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY | 5/1/2025 | $54.82 | $15.30 | $13.15 | $3.25 | $0.00 | $86.52 |
| OPERATING ENGINEERS LOCAL 4 | 11/1/2025 | $56.12 | $15.30 | $13.15 | $3.25 | $0.00 | $87.82 |
| OPERATING ENGINEERS LOCAL 4 | 5/1/2026 | $57.57 | $15.30 | $13.15 | $3.25 | $0.00 | $89.27 |
| | 11/1/2026 | $58.87 | $15.30 | $13.15 | $3.25 | $0.00 | $90.57 |
| | 5/1/2027 | $60.32 | $15.30 | $13.15 | $3.25 | $0.00 | $92.02 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY | 5/1/2025 | $26.22 | $15.30 | $13.15 | $3.25 | $0.00 | $57.92 |
| OPERATING ENGINEERS LOCAL 4 | 11/1/2025 | $26.98 | $15.30 | $13.15 | $3.25 | $0.00 | $58.68 |
| OPERATING ENGINEERS LOCAL 4 | 5/1/2026 | $27.83 | $15.30 | $13.15 | $3.25 | $0.00 | $59.53 |
| | 11/1/2026 | $28.59 | $15.30 | $13.15 | $3.25 | $0.00 | $60.29 |
| | 5/1/2027 | $29.44 | $15.30 | $13.15 | $3.25 | $0.00 | $61.14 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| FIRE ALARM INSTALLER | 9/1/2024 | $50.02 | $12.00 | $14.22 | $3.50 | $0.00 | $79.74 |
| ELECTRICIANS LOCAL 223 | 9/1/2025 | $52.25 | $12.25 | $14.86 | $3.75 | $0.00 | $83.11 |
| ELECTRICIANS LOCAL 223 | 9/1/2026 | $54.72 | $12.50 | $15.56 | $4.00 | $0.00 | $86.78 |
| For apprentice rates see "Apprentice- ELECTRICIAN" | | | | | | | |
| FIRE ALARM REPAIR / MAINTENANCE | 9/1/2024 | $50.02 | $12.00 | $14.22 | $3.50 | $0.00 | $79.74 |
| / COMMISSIONING | 9/1/2025 | $52.25 | $12.25 | $14.86 | $3.75 | $0.00 | $83.11 |
| ELECTRICIANS LOCAL 223 | 9/1/2026 | $54.72 | $12.50 | $15.56 | $4.00 | $0.00 | $86.78 |
| ELECTRICIANS LOCAL 223 | | | | | | | |
| For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN" | | | | | | | |
| FIREMAN (ASST. ENGINEER) | 6/1/2025 | $47.02 | $15.55 | $13.25 | $3.25 | $0.00 | $79.07 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $48.19 | $15.55 | $13.25 | $3.25 | $0.00 | $80.24 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $49.25 | $15.55 | $13.25 | $3.25 | $0.00 | $81.30 |
| | 12/1/2026 | $50.43 | $15.55 | $13.25 | $3.25 | $0.00 | $82.48 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| FLAGGER & SIGNALER (HEAVY & HIGHWAY) | 6/1/2025 | $28.09 | $9.90 | $9.25 | $9.21 | $0.00 | $56.45 |
| LABORERS | 12/1/2025 | $28.09 | $9.90 | $9.25 | $9.21 | $0.00 | $56.45 |
| LABORERS - ZONE 2 (HEAVY & HIGHWAY) | 6/1/2026 | $29.21 | $9.90 | $9.25 | $9.21 | $0.00 | $57.57 |
| | 12/1/2026 | $29.21 | $9.90 | $9.25 | $9.21 | $0.00 | $57.57 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway) | | | | | | | |
| FLOORCOVERER | 3/1/2024 | $49.47 | $8.83 | $11.47 | $8.80 | $0.00 | $78.57 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| FLOORCOVERERS LOCAL 2168<br>FLOORCOVERERS LOCAL 2168 ZONE II | | | | | | | |

**Apprentice: FLOORCOVERER**

**Effective Date: 3/1/2024**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $24.74 | $8.83 | $0.00 | $1.76 | $0.00 | $35.33 |
| 2 | 55.00 | $27.21 | $8.83 | $0.00 | $1.76 | $0.00 | $37.80 |
| 3 | 60.00 | $29.68 | $8.83 | $0.00 | $3.52 | $0.00 | $42.03 |
| 4 | 65.00 | $32.16 | $8.83 | $0.00 | $3.52 | $0.00 | $44.51 |
| 5 | 70.00 | $34.63 | $8.83 | $11.47 | $5.28 | $0.00 | $60.21 |
| 6 | 75.00 | $37.10 | $8.83 | $11.47 | $5.28 | $0.00 | $62.68 |
| 7 | 80.00 | $39.58 | $8.83 | $11.47 | $7.04 | $0.00 | $66.92 |
| 8 | 85.00 | $42.05 | $8.83 | $11.47 | $7.04 | $0.00 | $69.39 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| FORK LIFT/CHERRY PICKER<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS LOCAL 4 | 6/1/2025 | $58.33 | $15.55 | $13.25 | $3.25 | $0.00 | $90.38 |
| | 12/1/2025 | $59.78 | $15.55 | $13.25 | $3.25 | $0.00 | $91.83 |
| | 6/1/2026 | $61.08 | $15.55 | $13.25 | $3.25 | $0.00 | $93.13 |
| | 12/1/2026 | $62.53 | $15.55 | $13.25 | $3.25 | $0.00 | $94.58 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| GENERATOR/LIGHTING PLANT/HEATERS<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS LOCAL 4 | 6/1/2025 | $37.52 | $15.55 | $13.25 | $3.25 | $0.00 | $69.57 |
| | 12/1/2025 | $38.47 | $15.55 | $13.25 | $3.25 | $0.00 | $70.52 |
| | 6/1/2026 | $39.33 | $15.55 | $13.25 | $3.25 | $0.00 | $71.38 |
| | 12/1/2026 | $40.28 | $15.55 | $13.25 | $3.25 | $0.00 | $72.33 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)<br>GLAZIERS LOCAL 1333<br>GLAZIERS LOCAL 1333 | 6/1/2020 | $39.18 | $10.80 | $6.70 | $3.75 | $0.00 | $60.43 |

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

**Effective Date: 6/1/2020**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $19.59 | $10.80 | $1.50 | $0.30 | $0.00 | $32.19 |
| 2 | 56.25 | $22.04 | $10.80 | $1.50 | $0.30 | $0.00 | $34.64 |
| 3 | 62.50 | $24.49 | $10.80 | $1.95 | $0.50 | $0.00 | $37.74 |
| 4 | 68.75 | $26.94 | $10.80 | $1.95 | $0.50 | $0.00 | $40.19 |
| 5 | 75.00 | $29.39 | $10.80 | $2.50 | $0.65 | $0.00 | $43.34 |
| 6 | 81.25 | $31.83 | $10.80 | $2.50 | $0.65 | $0.00 | $45.78 |
| 7 | 87.50 | $34.28 | $10.80 | $6.70 | $3.75 | $0.00 | $55.53 |
| 8 | 93.75 | $36.73 | $10.80 | $6.70 | $3.75 | $0.00 | $57.98 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HOISTING ENGINEER/CRANES/GRADALLS<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS LOCAL 4 | 6/1/2025 | $58.33 | $15.55 | $13.25 | $3.25 | $0.00 | $90.38 |
| | 12/1/2025 | $59.78 | $15.55 | $13.25 | $3.25 | $0.00 | $91.83 |
| | 6/1/2026 | $61.08 | $15.55 | $13.25 | $3.25 | $0.00 | $93.13 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| | 12/1/2026 | $62.53 | $15.55 | $13.25 | $3.25 | $0.00 | $94.58 |

**Apprentice: HOISTING ENGINEER/CRANES/GRADALLS**

**Effective Date: 6/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 55.00 | $32.08 | $0.00 | $0.00 | $0.00 | $0.00 | $32.08 |
| 2 | 60.00 | $35.00 | $15.55 | $13.25 | $3.25 | $0.00 | $67.05 |
| 3 | 65.00 | $37.91 | $15.55 | $13.25 | $3.25 | $0.00 | $69.96 |
| 4 | 70.00 | $40.83 | $15.55 | $13.25 | $3.25 | $0.00 | $72.88 |
| 5 | 75.00 | $43.75 | $15.55 | $13.25 | $3.25 | $0.00 | $75.80 |
| 6 | 80.00 | $46.66 | $15.55 | $13.25 | $3.25 | $0.00 | $78.71 |
| 7 | 85.00 | $49.58 | $15.55 | $13.25 | $3.25 | $0.00 | $81.63 |
| 8 | 90.00 | $52.50 | $15.55 | $13.25 | $3.25 | $0.00 | $84.55 |

**Apprentice: HOISTING ENGINEER/CRANES/GRADALLS**

**Effective Date: 12/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 55.00 | $32.88 | $0.00 | $0.00 | $0.00 | $0.00 | $32.88 |
| 2 | 60.00 | $35.87 | $15.55 | $13.25 | $3.25 | $0.00 | $67.92 |
| 3 | 65.00 | $38.86 | $15.55 | $13.25 | $3.25 | $0.00 | $70.91 |
| 4 | 70.00 | $41.85 | $15.55 | $13.25 | $3.25 | $0.00 | $73.90 |
| 5 | 75.00 | $44.84 | $15.55 | $13.25 | $3.25 | $0.00 | $76.89 |
| 6 | 80.00 | $47.82 | $15.55 | $13.25 | $3.25 | $0.00 | $79.87 |
| 7 | 85.00 | $50.81 | $15.55 | $13.25 | $3.25 | $0.00 | $82.86 |
| 8 | 90.00 | $53.80 | $15.55 | $13.25 | $3.25 | $0.00 | $85.85 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HVAC (DUCTWORK) | 2/1/2025 | $59.13 | $14.91 | $18.74 | $9.53 | $2.98 | $105.29 |
| SHEETMETAL WORKERS LOCAL 17 | 8/1/2025 | $60.98 | $14.91 | $18.74 | $9.53 | $2.98 | $107.14 |
| SHEETMETAL WORKERS LOCAL 17 - A | 2/1/2026 | $62.93 | $14.91 | $18.74 | $9.53 | $2.98 | $109.09 |

For apprentice rates see "Apprentice- SHEET METAL WORKER"

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HVAC (ELECTRICAL CONTROLS) | 9/1/2024 | $50.02 | $12.00 | $14.22 | $3.50 | $0.00 | $79.74 |
| ELECTRICIANS LOCAL 223 | 9/1/2025 | $52.25 | $12.25 | $14.86 | $3.75 | $0.00 | $83.11 |
| ELECTRICIANS LOCAL 223 | 9/1/2026 | $54.72 | $12.50 | $15.56 | $4.00 | $0.00 | $86.78 |

For apprentice rates see "Apprentice- ELECTRICIAN"

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HVAC (TESTING AND BALANCING - AIR) | 2/1/2025 | $59.13 | $14.91 | $18.74 | $9.53 | $2.98 | $105.29 |
| SHEETMETAL WORKERS LOCAL 17 | 8/1/2025 | $60.98 | $14.91 | $18.74 | $9.53 | $2.98 | $107.14 |
| SHEETMETAL WORKERS LOCAL 17 - A | 2/1/2026 | $62.93 | $14.91 | $18.74 | $9.53 | $2.98 | $109.09 |

For apprentice rates see "Apprentice- SHEET METAL WORKER"

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| HVAC (TESTING AND BALANCING -WATER) | 8/26/2024 | $52.49 | $10.80 | $16.80 | $4.60 | $0.00 | $84.69 |
| PLUMBERS & PIPEFITTERS LOCAL 51 | 8/25/2025 | $55.24 | $10.80 | $16.80 | $4.60 | $0.00 | $87.44 |
| PLUMBERS & PIPEFITTERS LOCAL 51 | | | | | | | |

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

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| HVAC MECHANIC | 8/26/2024 | $52.49 | $10.80 | $16.80 | $4.60 | $0.00 | $84.69 |
| PLUMBERS & PIPEFITTERS LOCAL 51 | 8/25/2025 | $55.24 | $10.80 | $16.80 | $4.60 | $0.00 | $87.44 |
| PLUMBERS & PIPEFITTERS LOCAL 51 | | | | | | | |
| For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER" | | | | | | | |
| HYDRAULIC DRILLS | 6/1/2025 | $41.09 | $9.90 | $9.25 | $9.11 | $0.00 | $69.35 |
| LABORERS | 12/1/2025 | $42.47 | $9.90 | $9.25 | $9.11 | $0.00 | $70.73 |
| LABORERS - ZONE 2 | 6/1/2026 | $43.91 | $9.90 | $9.25 | $9.11 | $0.00 | $72.17 |
| | 12/1/2026 | $45.35 | $9.90 | $9.25 | $9.11 | $0.00 | $73.61 |
| | 6/1/2027 | $46.80 | $9.90 | $9.25 | $9.11 | $0.00 | $75.06 |
| | 12/1/2027 | $48.25 | $9.90 | $9.25 | $9.11 | $0.00 | $76.51 |
| | 6/1/2028 | $49.75 | $9.90 | $9.25 | $9.11 | $0.00 | $78.01 |
| | 12/1/2028 | $51.25 | $9.90 | $9.25 | $9.11 | $0.00 | $79.51 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| HYDRAULIC DRILLS (HEAVY & HIGHWAY) | 6/1/2025 | $41.09 | $9.90 | $9.25 | $9.21 | $0.00 | $69.45 |
| LABORERS | 12/1/2025 | $42.47 | $9.90 | $9.25 | $9.21 | $0.00 | $70.83 |
| LABORERS - ZONE 2 (HEAVY & HIGHWAY) | 6/1/2026 | $43.91 | $9.90 | $9.25 | $9.21 | $0.00 | $72.27 |
| | 12/1/2026 | $45.35 | $9.90 | $9.25 | $9.21 | $0.00 | $73.71 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | | |
| INSULATOR (PIPES & TANKS) | 9/1/2024 | $51.23 | $14.75 | $9.52 | $10.09 | $0.00 | $85.59 |
| HEAT & FROST INSULATORS LOCAL 6 | 9/1/2025 | $54.31 | $14.75 | $9.52 | $10.09 | $0.00 | $88.67 |
| HEAT & FROST INSULATORS LOCAL 6 (SOUTHERN MASS) | 9/1/2026 | $57.38 | $14.75 | $9.52 | $10.09 | $0.00 | $91.74 |

**Apprentice: INSULATOR (PIPES & TANKS)**

**Effective Date: 9/1/2024**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $25.62 | $14.75 | $9.27 | $5.05 | $0.00 | $54.69 |
| 2 | 60.00 | $30.74 | $14.75 | $9.32 | $6.05 | $0.00 | $60.86 |
| 3 | 70.00 | $35.86 | $14.75 | $9.37 | $7.06 | $0.00 | $67.04 |
| 4 | 80.00 | $40.98 | $14.75 | $9.42 | $8.07 | $0.00 | $73.22 |

**Apprentice: INSULATOR (PIPES & TANKS)**

**Effective Date: 9/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $27.16 | $14.75 | $9.27 | $5.05 | $0.00 | $56.23 |
| 2 | 60.00 | $32.59 | $14.75 | $9.32 | $6.05 | $0.00 | $62.71 |
| 3 | 70.00 | $38.02 | $14.75 | $9.37 | $7.06 | $0.00 | $69.20 |
| 4 | 80.00 | $43.45 | $14.75 | $9.42 | $8.07 | $0.00 | $75.69 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| IRONWORKER/WELDER | 3/16/2021 | $42.46 | $7.70 | $12.10 | $5.00 | $0.00 | $67.26 |
| IRONWORKERS LOCAL 37 | | | | | | | |
| IRONWORKERS LOCAL 37 | | | | | | | |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| JACKHAMMER & PAVING BREAKER OPERATOR | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.11 | $0.00 | $68.85 |
| LABORERS | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.11 | $0.00 | $70.23 |
| LABORERS - ZONE 2 | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.11 | $0.00 | $71.67 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.11 | $0.00 | $73.11 |
| | 6/1/2027 | $46.30 | $9.90 | $9.25 | $9.11 | $0.00 | $74.56 |
| | 12/1/2027 | $47.75 | $9.90 | $9.25 | $9.11 | $0.00 | $76.01 |
| | 6/1/2028 | $49.25 | $9.90 | $9.25 | $9.11 | $0.00 | $77.51 |
| | 12/1/2028 | $50.75 | $9.90 | $9.25 | $9.11 | $0.00 | $79.01 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| LABORER | 6/1/2025 | $40.34 | $9.90 | $9.25 | $9.11 | $0.00 | $68.60 |
| LABORERS | 12/1/2025 | $41.72 | $9.90 | $9.25 | $9.11 | $0.00 | $69.98 |
| LABORERS - ZONE 2 | 6/1/2026 | $43.16 | $9.90 | $9.25 | $9.11 | $0.00 | $71.42 |
| | 12/1/2026 | $44.60 | $9.90 | $9.25 | $9.11 | $0.00 | $72.86 |
| | 6/1/2027 | $46.05 | $9.90 | $9.25 | $9.11 | $0.00 | $74.31 |
| | 12/1/2027 | $47.50 | $9.90 | $9.25 | $9.11 | $0.00 | $75.76 |
| | 6/1/2028 | $49.00 | $9.90 | $9.25 | $9.11 | $0.00 | $77.26 |
| | 12/1/2028 | $50.50 | $9.90 | $9.25 | $9.11 | $0.00 | $78.76 |

**Apprentice: IRONWORKER/WELDER**

**Effective Date: 3/16/2021**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 70.00 | $29.72 | $7.70 | $12.10 | $5.00 | $0.00 | $54.52 |
| 2 | 75.00 | $31.85 | $7.70 | $12.10 | $5.00 | $0.00 | $56.65 |
| 3 | 80.00 | $33.97 | $7.70 | $12.10 | $5.00 | $0.00 | $58.77 |
| 4 | 85.00 | $36.09 | $7.70 | $12.10 | $5.00 | $0.00 | $60.89 |
| 5 | 90.00 | $38.21 | $7.70 | $12.10 | $5.00 | $0.00 | $63.01 |
| 6 | 95.00 | $40.34 | $7.70 | $12.10 | $5.00 | $0.00 | $65.14 |

**Apprentice: LABORER**

**Effective Date: 6/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 60.00 | $24.20 | $9.90 | $9.25 | $9.11 | $0.00 | $52.46 |
| 2 | 70.00 | $28.24 | $9.90 | $9.25 | $9.11 | $0.00 | $56.50 |
| 3 | 80.00 | $32.27 | $9.90 | $9.25 | $9.11 | $0.00 | $60.53 |
| 4 | 90.00 | $36.31 | $9.90 | $9.25 | $9.11 | $0.00 | $64.57 |

**Apprentice: LABORER**

**Effective Date: 12/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 60.00 | $25.03 | $9.90 | $9.25 | $9.11 | $0.00 | $53.29 |
| 2 | 70.00 | $29.20 | $9.90 | $9.25 | $9.11 | $0.00 | $57.46 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| **Apprentice: LABORER** | | | | | | | |
| **Effective Date: 12/1/2025** | | | | | | | |
| **Step / Percent** | | **Apprentice Base Wage** | | | | | |
| 3 / 80.00 | | $33.38 | $9.90 | $9.25 | $9.11 | $0.00 | $61.64 |
| 4 / 90.00 | | $37.55 | $9.90 | $9.25 | $9.11 | $0.00 | $65.81 |
| LABORER (HEAVY & HIGHWAY)<br>LABORERS<br>LABORERS - ZONE 2 (HEAVY & HIGHWAY) | 6/1/2025 | $40.34 | $9.90 | $9.25 | $9.21 | $0.00 | $68.70 |
| | 12/1/2025 | $41.72 | $9.90 | $9.25 | $9.21 | $0.00 | $70.08 |
| | 6/1/2026 | $43.16 | $9.90 | $9.25 | $9.21 | $0.00 | $71.52 |
| | 12/1/2026 | $44.60 | $9.90 | $9.25 | $9.21 | $0.00 | $72.96 |
| **Apprentice: LABORER (HEAVY & HIGHWAY)** | | | | | | | |
| **Effective Date: 6/1/2025** | | | | | | | |
| **Step / Percent** | | **Apprentice Base Wage** | | | | | |
| 1 / 60.00 | | $24.20 | $9.90 | $9.25 | $9.21 | $0.00 | $52.56 |
| 2 / 70.00 | | $28.24 | $9.90 | $9.25 | $9.21 | $0.00 | $56.60 |
| 3 / 80.00 | | $32.27 | $9.90 | $9.25 | $9.21 | $0.00 | $60.63 |
| 4 / 90.00 | | $36.31 | $9.90 | $9.25 | $9.21 | $0.00 | $64.67 |
| **Apprentice: LABORER (HEAVY & HIGHWAY)** | | | | | | | |
| **Effective Date: 12/1/2025** | | | | | | | |
| **Step / Percent** | | **Apprentice Base Wage** | | | | | |
| 1 / 60.00 | | $25.03 | $9.90 | $9.25 | $9.21 | $0.00 | $53.39 |
| 2 / 70.00 | | $29.20 | $9.90 | $9.25 | $9.21 | $0.00 | $57.56 |
| 3 / 80.00 | | $33.38 | $9.90 | $9.25 | $9.21 | $0.00 | $61.74 |
| 4 / 90.00 | | $37.55 | $9.90 | $9.25 | $9.21 | $0.00 | $65.91 |
| LABORER: CARPENTER TENDER<br>LABORERS<br>LABORERS - ZONE 2 | 6/1/2025 | $40.34 | $9.90 | $9.25 | $9.11 | $0.00 | $68.60 |
| | 12/1/2025 | $41.72 | $9.90 | $9.25 | $9.11 | $0.00 | $69.98 |
| | 6/1/2026 | $43.16 | $9.90 | $9.25 | $9.11 | $0.00 | $71.42 |
| | 12/1/2026 | $44.60 | $9.90 | $9.25 | $9.11 | $0.00 | $72.86 |
| | 6/1/2027 | $46.05 | $9.90 | $9.25 | $9.11 | $0.00 | $74.31 |
| | 12/1/2027 | $47.50 | $9.90 | $9.25 | $9.11 | $0.00 | $75.76 |
| | 6/1/2028 | $49.00 | $9.90 | $9.25 | $9.11 | $0.00 | $77.26 |
| | 12/1/2028 | $50.50 | $9.90 | $9.25 | $9.11 | $0.00 | $78.76 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| LABORER: CEMENT FINISHER TENDER<br>LABORERS<br>LABORERS - ZONE 2 | 6/1/2025 | $40.34 | $9.90 | $9.25 | $9.11 | $0.00 | $68.60 |
| | 12/1/2025 | $41.72 | $9.90 | $9.25 | $9.11 | $0.00 | $69.98 |
| | 6/1/2026 | $43.16 | $9.90 | $9.25 | $9.11 | $0.00 | $71.42 |
| | 12/1/2026 | $44.60 | $9.90 | $9.25 | $9.11 | $0.00 | $72.86 |
| | 6/1/2027 | $46.05 | $9.90 | $9.25 | $9.11 | $0.00 | $74.31 |
| | 12/1/2027 | $47.50 | $9.90 | $9.25 | $9.11 | $0.00 | $75.76 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| | 6/1/2028 | $49.00 | $9.90 | $9.25 | $9.11 | $0.00 | $77.26 |
| | 12/1/2028 | $50.50 | $9.90 | $9.25 | $9.11 | $0.00 | $78.76 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER<br>LABORERS<br>LABORERS - ZONE 2 | 6/2/2025 | $40.43 | $9.90 | $9.25 | $9.17 | $0.00 | $68.75 |
| | 12/1/2025 | $41.81 | $9.90 | $9.25 | $9.17 | $0.00 | $70.13 |
| | 6/1/2026 | $43.25 | $9.90 | $9.25 | $9.17 | $0.00 | $71.57 |
| | 12/7/2026 | $44.69 | $9.90 | $9.25 | $9.17 | $0.00 | $73.01 |
| | 6/7/2027 | $46.14 | $9.90 | $9.25 | $9.17 | $0.00 | $74.46 |
| | 12/6/2027 | $47.59 | $9.90 | $9.25 | $9.17 | $0.00 | $75.91 |
| | 6/5/2028 | $49.09 | $9.90 | $9.25 | $9.17 | $0.00 | $77.41 |
| | 12/4/2028 | $50.59 | $9.90 | $9.25 | $9.17 | $0.00 | $78.91 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| LABORER: MASON TENDER<br>LABORERS<br>LABORERS - ZONE 2 | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.11 | $0.00 | $68.85 |
| | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.11 | $0.00 | $70.23 |
| | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.11 | $0.00 | $71.67 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.11 | $0.00 | $73.11 |
| | 6/1/2027 | $46.30 | $9.90 | $9.25 | $9.11 | $0.00 | $74.56 |
| | 12/1/2027 | $47.75 | $9.90 | $9.25 | $9.11 | $0.00 | $76.01 |
| | 6/1/2028 | $49.25 | $9.90 | $9.25 | $9.11 | $0.00 | $77.51 |
| | 12/1/2028 | $50.75 | $9.90 | $9.25 | $9.11 | $0.00 | $79.01 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| LABORER: MASON TENDER (HEAVY & HIGHWAY)<br>LABORERS<br>LABORERS - ZONE 2 (HEAVY & HIGHWAY) | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.21 | $0.00 | $68.95 |
| | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.21 | $0.00 | $70.33 |
| | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.21 | $0.00 | $71.77 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.21 | $0.00 | $73.21 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | | |
| LABORER: MULTI-TRADE TENDER<br>LABORERS<br>LABORERS - ZONE 2 | 6/1/2025 | $40.34 | $9.90 | $9.25 | $9.11 | $0.00 | $68.60 |
| | 12/1/2025 | $41.72 | $9.90 | $9.25 | $9.11 | $0.00 | $69.98 |
| | 6/1/2026 | $43.16 | $9.90 | $9.25 | $9.11 | $0.00 | $71.42 |
| | 12/1/2026 | $44.60 | $9.90 | $9.25 | $9.11 | $0.00 | $72.86 |
| | 6/1/2027 | $46.05 | $9.90 | $9.25 | $9.11 | $0.00 | $74.31 |
| | 12/1/2027 | $47.50 | $9.90 | $9.25 | $9.11 | $0.00 | $75.76 |
| | 6/1/2028 | $49.00 | $9.90 | $9.25 | $9.11 | $0.00 | $77.26 |
| | 12/1/2028 | $50.50 | $9.90 | $9.25 | $9.11 | $0.00 | $78.76 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| LABORER: TREE REMOVER<br>LABORERS<br>LABORERS - ZONE 2 | 6/1/2025 | $40.34 | $9.90 | $9.25 | $9.11 | $0.00 | $68.60 |
| | 12/1/2025 | $41.72 | $9.90 | $9.25 | $9.11 | $0.00 | $69.98 |
| | 6/1/2026 | $43.16 | $9.90 | $9.25 | $9.11 | $0.00 | $71.42 |
| | 12/1/2026 | $44.60 | $9.90 | $9.25 | $9.11 | $0.00 | $72.86 |
| | 6/1/2027 | $46.05 | $9.90 | $9.25 | $9.11 | $0.00 | $74.31 |
| | 12/1/2027 | $47.50 | $9.90 | $9.25 | $9.11 | $0.00 | $75.76 |
| | 6/1/2028 | $49.00 | $9.90 | $9.25 | $9.11 | $0.00 | $77.26 |
| | 12/1/2028 | $50.50 | $9.90 | $9.25 | $9.11 | $0.00 | $78.76 |
| 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" | | | | | | | |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| LASER BEAM OPERATOR<br>LABORERS<br>LABORERS - ZONE 2 | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.11 | $0.00 | $68.85 |
| | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.11 | $0.00 | $70.23 |
| | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.11 | $0.00 | $71.67 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.11 | $0.00 | $73.11 |
| | 6/1/2027 | $46.30 | $9.90 | $9.25 | $9.11 | $0.00 | $74.56 |
| | 12/1/2027 | $47.75 | $9.90 | $9.25 | $9.11 | $0.00 | $76.01 |
| | 6/1/2028 | $49.25 | $9.90 | $9.25 | $9.11 | $0.00 | $77.51 |
| | 12/1/2028 | $50.75 | $9.90 | $9.25 | $9.11 | $0.00 | $79.01 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| LASER BEAM OPERATOR (HEAVY & HIGHWAY)<br>LABORERS<br>LABORERS - ZONE 2 (HEAVY & HIGHWAY) | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.21 | $0.00 | $68.95 |
| | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.21 | $0.00 | $70.33 |
| | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.21 | $0.00 | $71.77 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.21 | $0.00 | $73.21 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | | |
| MARBLE & TILE FINISHERS<br>BRICKLAYERS LOCAL 3<br>BRICKLAYERS LOCAL 3 - MARBLE & TILE | 2/1/2025 | $50.36 | $11.49 | $15.57 | $6.05 | $0.00 | $83.47 |
| | 8/1/2025 | $52.08 | $11.49 | $15.57 | $6.05 | $0.00 | $85.19 |
| | 2/1/2026 | $53.16 | $11.49 | $15.57 | $6.05 | $0.00 | $86.27 |
| | 8/1/2026 | $54.92 | $11.49 | $15.57 | $6.05 | $0.00 | $88.03 |
| | 2/1/2027 | $56.04 | $11.49 | $15.57 | $6.05 | $0.00 | $89.15 |

**Apprentice: MARBLE & TILE FINISHERS**

**Effective Date: 2/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $25.18 | $11.49 | $15.57 | $6.05 | $0.00 | $58.29 |
| 2 | 60.00 | $30.22 | $11.49 | $15.57 | $6.05 | $0.00 | $63.33 |
| 3 | 70.00 | $35.25 | $11.49 | $15.57 | $6.05 | $0.00 | $68.36 |
| 4 | 80.00 | $40.29 | $11.49 | $15.57 | $6.05 | $0.00 | $73.40 |
| 5 | 90.00 | $45.32 | $11.49 | $15.57 | $6.05 | $0.00 | $78.43 |

**Apprentice: MARBLE & TILE FINISHERS**

**Effective Date: 8/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $26.04 | $11.49 | $15.57 | $6.05 | $0.00 | $59.15 |
| 2 | 60.00 | $31.25 | $11.49 | $15.57 | $6.05 | $0.00 | $64.36 |
| 3 | 70.00 | $36.46 | $11.49 | $15.57 | $6.05 | $0.00 | $69.57 |
| 4 | 80.00 | $41.66 | $11.49 | $15.57 | $6.05 | $0.00 | $74.77 |
| 5 | 90.00 | $46.87 | $11.49 | $15.57 | $6.05 | $0.00 | $79.98 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| MARBLE MASONS,TILELAYERS & TERRAZZO MECH<br>BRICKLAYERS LOCAL 3<br>BRICKLAYERS LOCAL 3 - MARBLE & TILE | 2/1/2025 | $65.82 | $11.49 | $15.57 | $7.99 | $0.00 | $100.87 |
| | 8/1/2025 | $67.97 | $11.49 | $15.57 | $7.99 | $0.00 | $103.02 |
| | 2/1/2026 | $69.32 | $11.49 | $15.57 | $7.99 | $0.00 | $104.37 |
| | 8/1/2026 | $71.52 | $11.49 | $15.57 | $7.99 | $0.00 | $106.57 |
| | 2/1/2027 | $72.92 | $11.49 | $15.57 | $7.99 | $0.00 | $107.97 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| MECH. SWEEPER OPERATOR (ON CONST. SITES) | 6/1/2025 | $57.68 | $15.55 | $13.25 | $3.25 | $0.00 | $89.73 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $59.12 | $15.55 | $13.25 | $3.25 | $0.00 | $91.17 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $60.40 | $15.55 | $13.25 | $3.25 | $0.00 | $92.45 |
| | 12/1/2026 | $61.84 | $15.55 | $13.25 | $3.25 | $0.00 | $93.89 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| MECHANICS MAINTENANCE | 6/1/2025 | $57.68 | $15.55 | $13.25 | $3.25 | $0.00 | $89.73 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $59.12 | $15.55 | $13.25 | $3.25 | $0.00 | $91.17 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $60.40 | $15.55 | $13.25 | $3.25 | $0.00 | $92.45 |
| | 12/1/2026 | $61.84 | $15.55 | $13.25 | $3.25 | $0.00 | $93.89 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| MILLWRIGHT (Zone 2) | 1/6/2025 | $45.09 | $10.08 | $11.47 | $10.00 | $0.00 | $76.64 |
| MILLWRIGHTS LOCAL 1121 | 1/5/2026 | $47.42 | $10.08 | $11.47 | $10.00 | $0.00 | $78.97 |
| MILLWRIGHTS LOCAL 1121 - Zone 2 | | | | | | | |

**Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH**

**Effective Date: 2/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $32.91 | $11.49 | $15.57 | $7.99 | $0.00 | $67.96 |
| 2 | 60.00 | $39.49 | $11.49 | $15.57 | $7.99 | $0.00 | $74.54 |
| 3 | 70.00 | $46.07 | $11.49 | $15.57 | $7.99 | $0.00 | $81.12 |
| 4 | 80.00 | $52.66 | $11.49 | $15.57 | $7.99 | $0.00 | $87.71 |
| 5 | 90.00 | $59.24 | $11.49 | $15.57 | $7.99 | $0.00 | $94.29 |

**Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH**

**Effective Date: 8/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $33.99 | $11.49 | $15.57 | $7.99 | $0.00 | $69.04 |
| 2 | 60.00 | $40.78 | $11.49 | $15.57 | $7.99 | $0.00 | $75.83 |
| 3 | 70.00 | $47.58 | $11.49 | $15.57 | $7.99 | $0.00 | $82.63 |
| 4 | 80.00 | $54.38 | $11.49 | $15.57 | $7.99 | $0.00 | $89.43 |
| 5 | 90.00 | $61.17 | $11.49 | $15.57 | $7.99 | $0.00 | $96.22 |

**Apprentice: MILLWRIGHT (Zone 2)**

**Effective Date: 1/6/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 55.00 | $24.80 | $10.08 | $0.00 | $5.50 | $0.00 | $40.38 |
| 2 | 65.00 | $29.31 | $10.08 | $0.00 | $6.50 | $0.00 | $45.89 |
| 3 | 75.00 | $33.82 | $10.08 | $11.47 | $7.50 | $0.00 | $62.87 |
| 4 | 85.00 | $38.33 | $10.08 | $11.47 | $8.50 | $0.00 | $68.38 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| **Apprentice: MILLWRIGHT (Zone 2)** | | | | | | | |
| **Effective Date: 1/5/2026** | | | | | | | |
| **Step 1 – Percent 55.00** | | $26.08 | $10.08 | $0.00 | $5.50 | $0.00 | $41.66 |
| **Step 2 – Percent 65.00** | | $30.82 | $10.08 | $0.00 | $6.50 | $0.00 | $47.40 |
| **Step 3 – Percent 75.00** | | $35.57 | $10.08 | $11.47 | $7.50 | $0.00 | $64.62 |
| **Step 4 – Percent 85.00** | | $40.31 | $10.08 | $11.47 | $8.50 | $0.00 | $70.36 |
| MORTAR MIXER | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.11 | $0.00 | $68.85 |
| LABORERS | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.11 | $0.00 | $70.23 |
| LABORERS - ZONE 2 | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.11 | $0.00 | $71.67 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.11 | $0.00 | $73.11 |
| | 6/1/2027 | $46.30 | $9.90 | $9.25 | $9.11 | $0.00 | $74.56 |
| | 12/1/2027 | $47.75 | $9.90 | $9.25 | $9.11 | $0.00 | $76.01 |
| | 6/1/2028 | $49.25 | $9.90 | $9.25 | $9.11 | $0.00 | $77.51 |
| | 12/1/2028 | $50.75 | $9.90 | $9.25 | $9.11 | $0.00 | $79.01 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| OILER (OTHER THAN TRUCK CRANES,GRADALLS) | 6/1/2025 | $25.97 | $15.30 | $13.15 | $3.25 | $0.00 | $57.67 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $26.63 | $15.30 | $13.15 | $3.25 | $0.00 | $58.33 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $27.22 | $15.30 | $13.15 | $3.25 | $0.00 | $58.92 |
| | 12/1/2026 | $27.89 | $15.30 | $13.15 | $3.25 | $0.00 | $59.59 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| OILER (TRUCK CRANES, GRADALLS) | 6/1/2025 | $31.80 | $15.30 | $13.15 | $3.25 | $0.00 | $63.50 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $32.60 | $15.30 | $13.15 | $3.25 | $0.00 | $64.30 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $33.32 | $15.30 | $13.15 | $3.25 | $0.00 | $65.02 |
| | 12/1/2026 | $34.12 | $15.30 | $13.15 | $3.25 | $0.00 | $65.82 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| OTHER POWER DRIVEN EQUIPMENT - CLASS II | 6/1/2025 | $57.68 | $15.55 | $13.25 | $3.25 | $0.00 | $89.73 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $59.12 | $15.55 | $13.25 | $3.25 | $0.00 | $91.17 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $60.40 | $15.55 | $13.25 | $3.25 | $0.00 | $92.45 |
| | 12/1/2026 | $61.84 | $15.55 | $13.25 | $3.25 | $0.00 | $93.89 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| PAINTER (BRIDGES/TANKS) | 1/1/2025 | $58.46 | $9.95 | $11.85 | $12.10 | $0.00 | $92.36 |
| PAINTERS LOCAL 35 | | | | | | | |
| PAINTERS LOCAL 35 - ZONE 2 | | | | | | | |
| **Apprentice: PAINTER (BRIDGES/TANKS)** | | | | | | | |
| **Effective Date: 1/1/2025** | | | | | | | |
| **Step 1 – Percent 50.00** | | $29.23 | $9.95 | $0.00 | $0.00 | $0.00 | $39.18 |
| **Step 2 – Percent 55.00** | | $32.15 | $9.95 | $0.00 | $6.66 | $0.00 | $48.76 |

**Construction**

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

**Apprentice: PAINTER (BRIDGES/TANKS)**

**Effective Date: 1/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 3 | 60.00 | $35.08 | $9.95 | $0.00 | $7.26 | $0.00 | $52.29 |
| 4 | 65.00 | $38.00 | $9.95 | $0.00 | $7.87 | $0.00 | $55.82 |
| 5 | 70.00 | $40.92 | $9.95 | $11.85 | $8.47 | $0.00 | $71.19 |
| 6 | 75.00 | $43.85 | $9.95 | $11.85 | $9.08 | $0.00 | $74.73 |
| 7 | 80.00 | $46.77 | $9.95 | $11.85 | $9.68 | $0.00 | $78.25 |
| 8 | 90.00 | $52.61 | $9.95 | $11.85 | $10.89 | $0.00 | $85.30 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PAINTER (SPRAY OR SANDBLAST, NEW) * | 1/1/2025 | $49.36 | $9.95 | $11.85 | $12.10 | $0.00 | $83.26 |

* 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 2

**Apprentice: PAINTER (SPRAY OR SANDBLAST, NEW) ***

**Effective Date: 1/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $24.68 | $9.95 | $0.00 | $0.00 | $0.00 | $34.63 |
| 2 | 55.00 | $27.15 | $9.95 | $0.00 | $6.66 | $0.00 | $43.76 |
| 3 | 60.00 | $29.62 | $9.95 | $0.00 | $7.26 | $0.00 | $46.83 |
| 4 | 65.00 | $32.08 | $9.95 | $0.00 | $7.87 | $0.00 | $49.90 |
| 5 | 70.00 | $34.55 | $9.95 | $11.85 | $8.47 | $0.00 | $64.82 |
| 6 | 75.00 | $37.02 | $9.95 | $11.85 | $9.08 | $0.00 | $67.90 |
| 7 | 80.00 | $39.49 | $9.95 | $11.85 | $9.68 | $0.00 | $70.97 |
| 8 | 90.00 | $44.42 | $9.95 | $11.85 | $10.89 | $0.00 | $77.11 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PAINTER (SPRAY OR SANDBLAST, REPAINT) | 1/1/2025 | $47.42 | $9.95 | $11.85 | $12.10 | $0.00 | $81.32 |

PAINTERS LOCAL 35
PAINTERS LOCAL 35 - ZONE 2

**Apprentice: PAINTER (SPRAY OR SANDBLAST, REPAINT)**

**Effective Date: 1/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $23.71 | $9.95 | $0.00 | $0.00 | $0.00 | $33.66 |
| 2 | 55.00 | $26.08 | $9.95 | $0.00 | $6.66 | $0.00 | $42.69 |
| 3 | 60.00 | $28.45 | $9.95 | $0.00 | $7.26 | $0.00 | $45.66 |
| 4 | 65.00 | $30.82 | $9.95 | $0.00 | $7.87 | $0.00 | $48.64 |
| 5 | 70.00 | $33.19 | $9.95 | $11.85 | $8.47 | $0.00 | $63.46 |
| 6 | 75.00 | $35.57 | $9.95 | $11.85 | $9.08 | $0.00 | $66.45 |
| 7 | 80.00 | $37.94 | $9.95 | $11.85 | $9.68 | $0.00 | $69.42 |
| 8 | 90.00 | $42.68 | $9.95 | $11.85 | $10.89 | $0.00 | $75.37 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| PAINTER / TAPER (BRUSH, NEW) * | 1/1/2025 | $47.96 | $9.95 | $11.85 | $12.10 | $0.00 | $81.86 |
| * 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 2 | | | | | | | |

**Apprentice: PAINTER / TAPER (BRUSH, NEW) ***

**Effective Date: 1/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $23.98 | $9.95 | $0.00 | $0.00 | $0.00 | $33.93 |
| 2 | 55.00 | $26.38 | $9.95 | $0.00 | $6.66 | $0.00 | $42.99 |
| 3 | 60.00 | $28.78 | $9.95 | $0.00 | $7.26 | $0.00 | $45.99 |
| 4 | 65.00 | $31.17 | $9.95 | $0.00 | $7.87 | $0.00 | $48.99 |
| 5 | 70.00 | $33.57 | $9.95 | $11.85 | $8.47 | $0.00 | $63.84 |
| 6 | 75.00 | $35.97 | $9.95 | $11.85 | $9.08 | $0.00 | $66.85 |
| 7 | 80.00 | $38.37 | $9.95 | $11.85 | $9.68 | $0.00 | $69.85 |
| 8 | 90.00 | $43.16 | $9.95 | $11.85 | $10.89 | $0.00 | $75.85 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PAINTER / TAPER (BRUSH, REPAINT) | 1/1/2025 | $46.02 | $9.95 | $11.85 | $12.10 | $0.00 | $79.92 |
| PAINTERS LOCAL 35 | | | | | | | |
| PAINTERS LOCAL 35 - ZONE 2 | | | | | | | |

**Apprentice: PAINTER / TAPER (BRUSH, REPAINT)**

**Effective Date: 1/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $23.01 | $9.95 | $0.00 | $0.00 | $0.00 | $32.96 |
| 2 | 55.00 | $25.31 | $9.95 | $0.00 | $6.66 | $0.00 | $41.92 |
| 3 | 60.00 | $27.61 | $9.95 | $0.00 | $7.26 | $0.00 | $44.82 |
| 4 | 65.00 | $29.91 | $9.95 | $0.00 | $7.87 | $0.00 | $47.73 |
| 5 | 70.00 | $32.21 | $9.95 | $11.85 | $8.47 | $0.00 | $62.48 |
| 6 | 75.00 | $34.52 | $9.95 | $11.85 | $9.08 | $0.00 | $65.40 |
| 7 | 80.00 | $36.82 | $9.95 | $11.85 | $9.68 | $0.00 | $68.30 |
| 8 | 90.00 | $41.42 | $9.95 | $11.85 | $10.89 | $0.00 | $74.11 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY) | 6/1/2025 | $40.34 | $9.90 | $9.25 | $9.21 | $0.00 | $68.70 |
| LABORERS | 12/1/2025 | $41.72 | $9.90 | $9.25 | $9.21 | $0.00 | $70.08 |
| LABORERS - ZONE 2 (HEAVY & HIGHWAY) | 6/1/2026 | $43.16 | $9.90 | $9.25 | $9.21 | $0.00 | $71.52 |
| | 12/1/2026 | $44.60 | $9.90 | $9.25 | $9.21 | $0.00 | $72.96 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway) | | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PANEL & PICKUP TRUCKS DRIVER | 6/1/2025 | $40.78 | $15.57 | $20.17 | $0.00 | $0.00 | $76.52 |
| TEAMSTERS JOINT COUNCIL NO. 10 | 12/1/2025 | $40.78 | $15.57 | $21.78 | $0.00 | $0.00 | $78.13 |
| TEAMSTERS JOINT COUNCIL NO. 10 ZONE B | 1/1/2026 | $40.78 | $16.17 | $21.78 | $0.00 | $0.00 | $78.73 |
| | 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 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)<br>PILE DRIVER LOCAL 56<br>PILE DRIVER LOCAL 56 (ZONE 1) | 8/1/2024 | $55.79 | $10.08 | $11.62 | $12.67 | $0.00 | $90.16 |
| For apprentice rates see "Apprentice- PILE DRIVER" | | | | | | | |
| PILE DRIVER<br>PILE DRIVER LOCAL 56<br>PILE DRIVER LOCAL 56 (ZONE 1) | 8/1/2024 | $55.79 | $10.08 | $11.62 | $12.67 | $0.00 | $90.16 |

**Apprentice: PILE DRIVER**

**Effective Date: 8/1/2024**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 45.00 | $25.11 | $10.08 | $0.00 | $2.53 | $0.00 | $37.72 |
| 2 | 55.00 | $30.68 | $10.08 | $0.00 | $5.07 | $0.00 | $45.83 |
| 3 | 70.00 | $39.05 | $10.08 | $11.62 | $7.60 | $0.00 | $68.35 |
| 4 | 80.00 | $44.63 | $10.08 | $11.62 | $10.14 | $0.00 | $76.47 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| PIPELAYER<br>LABORERS<br>LABORERS - ZONE 2 | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.11 | $0.00 | $68.85 |
| | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.11 | $0.00 | $70.23 |
| | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.11 | $0.00 | $71.67 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.11 | $0.00 | $73.11 |
| | 6/1/2027 | $46.30 | $9.90 | $9.25 | $9.11 | $0.00 | $74.56 |
| | 12/1/2027 | $47.75 | $9.90 | $9.25 | $9.11 | $0.00 | $76.01 |
| | 6/1/2028 | $49.25 | $9.90 | $9.25 | $9.11 | $0.00 | $77.51 |
| | 12/1/2028 | $50.75 | $9.90 | $9.25 | $9.11 | $0.00 | $79.01 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| PIPELAYER (HEAVY & HIGHWAY)<br>LABORERS<br>LABORERS - ZONE 2 (HEAVY & HIGHWAY) | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.21 | $0.00 | $68.95 |
| | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.21 | $0.00 | $70.33 |
| | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.21 | $0.00 | $71.77 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.21 | $0.00 | $73.21 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | | |
| PLUMBER & PIPEFITTER<br>PLUMBERS & PIPEFITTERS LOCAL 51<br>PLUMBERS & PIPEFITTERS LOCAL 51 | 8/26/2024 | $52.49 | $10.80 | $16.80 | $4.60 | $0.00 | $84.69 |
| | 8/25/2025 | $55.24 | $10.80 | $16.80 | $4.60 | $0.00 | $87.44 |

**Apprentice: PLUMBER & PIPEFITTER**

**Effective Date: 8/26/2024**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 40.00 | $21.00 | $10.15 | $2.50 | $0.00 | $0.00 | $33.65 |
| 2 | 50.00 | $26.25 | $10.15 | $2.50 | $0.00 | $0.00 | $38.90 |
| 3 | 60.00 | $31.49 | $10.15 | $8.40 | $0.50 | $0.00 | $50.54 |
| 4 | 70.00 | $36.74 | $10.15 | $13.44 | $0.80 | $0.00 | $61.13 |
| 5 | 80.00 | $41.99 | $10.15 | $16.80 | $1.00 | $0.00 | $69.94 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| **Apprentice: PLUMBER & PIPEFITTER** | | | | | | | |
| **Effective Date: 8/25/2025** | | | | | | | |
| **Step / Percent** | | **Apprentice Base Wage** | **Health** | **Pension** | **Annuity** | **Supplemental Unemployment** | **Total Rate** |
| 1 / 40.00 | | $22.10 | $10.15 | $2.50 | $0.00 | $0.00 | $34.75 |
| 2 / 50.00 | | $27.62 | $10.15 | $2.50 | $0.00 | $0.00 | $40.27 |
| 3 / 60.00 | | $33.14 | $10.15 | $8.40 | $0.50 | $0.00 | $52.19 |
| 4 / 70.00 | | $38.67 | $10.15 | $13.44 | $0.80 | $0.00 | $63.06 |
| 5 / 80.00 | | $44.19 | $10.15 | $16.80 | $1.00 | $0.00 | $72.14 |
| PNEUMATIC CONTROLS (TEMP.) | 8/26/2024 | $52.49 | $10.80 | $16.80 | $4.60 | $0.00 | $84.69 |
| PLUMBERS & PIPEFITTERS LOCAL 51 | 8/25/2025 | $55.24 | $10.80 | $16.80 | $4.60 | $0.00 | $87.44 |
| PLUMBERS & PIPEFITTERS LOCAL 51 | | | | | | | |
| For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER" | | | | | | | |
| PNEUMATIC DRILL/TOOL OPERATOR | 6/1/2025 | $41.09 | $9.90 | $9.25 | $8.29 | $0.00 | $68.53 |
| LABORERS | 12/1/2025 | $42.47 | $9.90 | $9.25 | $8.29 | $0.00 | $69.91 |
| LABORERS - ZONE 2 | 6/1/2026 | $43.91 | $9.90 | $9.25 | $8.29 | $0.00 | $71.35 |
| | 12/1/2026 | $45.35 | $9.90 | $9.25 | $8.29 | $0.00 | $72.79 |
| | 6/1/2027 | $46.80 | $9.90 | $9.25 | $8.29 | $0.00 | $74.24 |
| | 12/1/2027 | $48.25 | $9.90 | $9.25 | $8.29 | $0.00 | $75.69 |
| | 6/1/2028 | $49.75 | $9.90 | $9.25 | $8.29 | $0.00 | $77.19 |
| | 12/1/2028 | $51.25 | $9.90 | $9.25 | $8.29 | $0.00 | $78.69 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.21 | $0.00 | $68.95 |
| LABORERS | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.21 | $0.00 | $70.33 |
| LABORERS - ZONE 2 (HEAVY & HIGHWAY) | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.21 | $0.00 | $71.77 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.21 | $0.00 | $73.21 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | | |
| POWDERMAN & BLASTER | 6/1/2025 | $41.34 | $9.90 | $9.25 | $9.11 | $0.00 | $69.60 |
| LABORERS | 12/1/2025 | $42.72 | $9.90 | $9.25 | $9.11 | $0.00 | $70.98 |
| LABORERS - ZONE 2 | 6/1/2026 | $44.16 | $9.90 | $9.25 | $9.11 | $0.00 | $72.42 |
| | 12/1/2026 | $45.60 | $9.90 | $9.25 | $9.11 | $0.00 | $73.86 |
| | 6/1/2027 | $47.05 | $9.90 | $9.25 | $9.11 | $0.00 | $75.31 |
| | 12/1/2027 | $48.50 | $9.90 | $9.25 | $9.11 | $0.00 | $76.76 |
| | 6/1/2028 | $50.00 | $9.90 | $9.25 | $9.11 | $0.00 | $78.26 |
| | 12/1/2028 | $51.50 | $9.90 | $9.25 | $9.11 | $0.00 | $79.76 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| POWDERMAN & BLASTER (HEAVY & HIGHWAY) | 6/1/2025 | $41.34 | $9.65 | $9.25 | $9.21 | $0.00 | $69.45 |
| LABORERS | 12/1/2025 | $42.72 | $9.65 | $9.25 | $9.21 | $0.00 | $70.83 |
| LABORERS - ZONE 2 (HEAVY & HIGHWAY) | 6/1/2026 | $44.16 | $9.65 | $9.25 | $9.21 | $0.00 | $72.27 |
| | 12/1/2026 | $45.60 | $9.65 | $9.25 | $9.21 | $0.00 | $73.71 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | | |
| POWER SHOVEL/DERRICK/TRENCHING MACHINE | 6/1/2025 | $58.33 | $15.55 | $13.25 | $3.25 | $0.00 | $90.38 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $59.78 | $15.55 | $13.25 | $3.25 | $0.00 | $91.83 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $61.08 | $15.55 | $13.25 | $3.25 | $0.00 | $93.13 |
| | 12/1/2026 | $62.53 | $15.55 | $13.25 | $3.25 | $0.00 | $94.58 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| PUMP OPERATOR (CONCRETE) | 6/1/2025 | $57.68 | $15.55 | $13.25 | $3.25 | $0.00 | $89.73 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $59.12 | $15.55 | $13.25 | $3.25 | $0.00 | $91.17 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $60.40 | $15.55 | $13.25 | $3.25 | $0.00 | $92.45 |
| | 12/1/2026 | $61.84 | $15.55 | $13.25 | $3.25 | $0.00 | $93.89 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| PUMP OPERATOR (DEWATERING, OTHER) | 6/1/2025 | $37.52 | $15.55 | $13.25 | $3.25 | $0.00 | $69.57 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $38.47 | $15.55 | $13.25 | $3.25 | $0.00 | $70.52 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $39.33 | $15.55 | $13.25 | $3.25 | $0.00 | $71.38 |
| | 12/1/2026 | $40.28 | $15.55 | $13.25 | $3.25 | $0.00 | $72.33 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| READY-MIX CONCRETE DRIVER | 1/1/2025 | $27.60 | $11.26 | $6.15 | $0.00 | $0.00 | $45.01 |
| TEAMSTERS 170 | | | | | | | |
| TEAMSTERS 170 - Dauphinais (Bellingham) | | | | | | | |
| RECLAIMERS | 6/1/2025 | $57.68 | $15.55 | $13.25 | $3.25 | $0.00 | $89.73 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $59.12 | $15.55 | $13.25 | $3.25 | $0.00 | $91.17 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $60.40 | $15.55 | $13.25 | $3.25 | $0.00 | $92.45 |
| | 12/1/2026 | $61.84 | $15.55 | $13.25 | $3.25 | $0.00 | $93.89 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| RIDE-ON MOTORIZED BUGGY OPERATOR | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.11 | $0.00 | $68.85 |
| LABORERS | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.11 | $0.00 | $70.23 |
| LABORERS - ZONE 2 | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.11 | $0.00 | $71.67 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.11 | $0.00 | $73.11 |
| | 6/1/2027 | $46.30 | $9.90 | $9.25 | $9.11 | $0.00 | $74.56 |
| | 12/1/2027 | $47.75 | $9.90 | $9.25 | $9.11 | $0.00 | $76.01 |
| | 6/1/2028 | $49.25 | $9.90 | $9.25 | $9.11 | $0.00 | $77.51 |
| | 12/1/2028 | $50.75 | $9.90 | $9.25 | $9.11 | $0.00 | $79.01 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| ROLLER/SPREADER/MULCHING MACHINE | 6/1/2025 | $57.68 | $15.55 | $13.25 | $3.25 | $0.00 | $89.73 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $59.12 | $15.55 | $13.25 | $3.25 | $0.00 | $91.17 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $60.40 | $15.55 | $13.25 | $3.25 | $0.00 | $92.45 |
| | 12/1/2026 | $61.84 | $15.55 | $13.25 | $3.25 | $0.00 | $93.89 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) | 2/1/2025 | $52.03 | $13.28 | $12.67 | $9.03 | $0.00 | $87.01 |
| ROOFERS LOCAL 33 | 8/1/2025 | $53.53 | $13.28 | $12.67 | $9.03 | $0.00 | $88.51 |
| ROOFERS LOCAL 33 | 2/1/2026 | $54.78 | $13.28 | $12.67 | $9.03 | $0.00 | $89.76 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| ROOFER SLATE / TILE / PRECAST CONCRETE<br>ROOFERS LOCAL 33<br>ROOFERS LOCAL 33 | 2/1/2025 | $52.28 | $13.28 | $12.67 | $9.03 | $0.00 | $87.26 |
| | 8/1/2025 | $53.78 | $13.28 | $12.67 | $9.03 | $0.00 | $88.76 |
| | 2/1/2026 | $55.03 | $13.28 | $12.67 | $9.03 | $0.00 | $90.01 |
| For apprentice rates see "Apprentice- ROOFER" | | | | | | | |
| SHEETMETAL WORKER<br>SHEETMETAL WORKERS LOCAL 17<br>SHEETMETAL WORKERS LOCAL 17 - A | 2/1/2025 | $59.13 | $14.91 | $18.74 | $9.53 | $2.98 | $105.29 |
| | 8/1/2025 | $60.98 | $14.91 | $18.74 | $9.53 | $2.98 | $107.14 |
| | 2/1/2026 | $62.93 | $14.91 | $18.74 | $9.53 | $2.98 | $109.09 |

**Apprentice: ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg)**

**Effective Date: 2/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $26.02 | $13.28 | $6.52 | $9.03 | $0.00 | $54.85 |
| 2 | 60.00 | $31.22 | $13.28 | $12.67 | $9.03 | $0.00 | $66.20 |
| 3 | 65.00 | $33.82 | $13.28 | $12.67 | $9.03 | $0.00 | $68.80 |
| 4 | 75.00 | $39.02 | $13.28 | $12.67 | $9.03 | $0.00 | $74.00 |
| 5 | 85.00 | $44.23 | $13.28 | $12.67 | $9.03 | $0.00 | $79.21 |

**Apprentice: ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg)**

**Effective Date: 8/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $26.77 | $13.28 | $6.52 | $9.03 | $0.00 | $55.60 |
| 2 | 60.00 | $32.12 | $13.28 | $12.67 | $9.03 | $0.00 | $67.10 |
| 3 | 65.00 | $34.79 | $13.28 | $12.67 | $9.03 | $0.00 | $69.77 |
| 4 | 75.00 | $40.15 | $13.28 | $12.67 | $9.03 | $0.00 | $75.13 |
| 5 | 85.00 | $45.50 | $13.28 | $12.67 | $9.03 | $0.00 | $80.48 |

**Apprentice: SHEETMETAL WORKER**

**Effective Date: 2/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 42.00 | $24.83 | $14.91 | $6.13 | $0.00 | $0.00 | $45.87 |
| 2 | 42.00 | $24.83 | $14.91 | $6.13 | $0.00 | $0.00 | $45.87 |
| 3 | 47.00 | $27.79 | $14.91 | $11.01 | $1.25 | $1.62 | $56.58 |
| 4 | 47.00 | $27.79 | $14.91 | $11.01 | $1.25 | $1.62 | $56.58 |
| 5 | 52.00 | $30.75 | $14.91 | $11.74 | $1.50 | $1.74 | $60.64 |
| 6 | 52.00 | $30.75 | $14.91 | $11.74 | $1.75 | $1.75 | $60.90 |
| 7 | 60.00 | $35.48 | $14.91 | $12.90 | $2.00 | $1.93 | $67.22 |
| 8 | 65.00 | $38.43 | $14.91 | $13.63 | $2.25 | $2.04 | $71.26 |
| 9 | 75.00 | $44.35 | $14.91 | $15.09 | $2.75 | $2.28 | $79.38 |
| 10 | 85.00 | $50.26 | $14.91 | $16.55 | $2.75 | $2.49 | $86.96 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| **Apprentice: SHEETMETAL WORKER** | | | | | | | |
| **Effective Date: 8/1/2025** | | | | | | | |
| **Step / Percent** | | **Apprentice Base Wage** | | | | | |
| 1 / 42.00 | | $25.61 | $14.91 | $6.13 | $0.00 | $0.00 | $46.65 |
| 2 / 42.00 | | $25.61 | $14.91 | $6.13 | $0.00 | $0.00 | $46.65 |
| 3 / 47.00 | | $28.66 | $14.91 | $11.01 | $1.25 | $1.62 | $57.45 |
| 4 / 47.00 | | $28.66 | $14.91 | $11.01 | $1.25 | $1.62 | $57.45 |
| 5 / 52.00 | | $31.71 | $14.91 | $11.74 | $1.50 | $1.74 | $61.60 |
| 6 / 52.00 | | $31.71 | $14.91 | $11.74 | $1.75 | $1.75 | $61.86 |
| 7 / 60.00 | | $36.59 | $14.91 | $12.90 | $2.00 | $1.93 | $68.33 |
| 8 / 65.00 | | $39.64 | $14.91 | $13.63 | $2.25 | $2.04 | $72.47 |
| 9 / 75.00 | | $45.74 | $14.91 | $15.09 | $2.75 | $2.28 | $80.77 |
| 10 / 85.00 | | $51.83 | $14.91 | $16.55 | $2.75 | $2.49 | $88.53 |
| SPECIALIZED EARTH MOVING EQUIP < 35 TONS<br>TEAMSTERS JOINT COUNCIL NO. 10<br>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B | 6/1/2025 | $41.24 | $15.57 | $20.17 | $0.00 | $0.00 | $76.98 |
| | 12/1/2025 | $41.24 | $15.57 | $21.78 | $0.00 | $0.00 | $78.59 |
| | 1/1/2026 | $41.24 | $16.17 | $21.78 | $0.00 | $0.00 | $79.19 |
| | 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<br>TEAMSTERS JOINT COUNCIL NO. 10<br>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B | 6/1/2025 | $41.53 | $15.57 | $20.17 | $0.00 | $0.00 | $77.27 |
| | 12/1/2025 | $41.53 | $15.57 | $21.78 | $0.00 | $0.00 | $78.88 |
| | 1/1/2026 | $41.53 | $16.17 | $21.78 | $0.00 | $0.00 | $79.48 |
| | 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<br>SPRINKLER FITTERS LOCAL 550<br>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1 | 3/1/2025 | $72.14 | $11.51 | $7.30 | $16.50 | $0.00 | $107.45 |
| **Apprentice: SPRINKLER FITTER** | | | | | | | |
| **Effective Date: 3/1/2025** | | | | | | | |
| **Step / Percent** | | **Apprentice Base Wage** | | | | | |
| 1 / 35.00 | | $25.25 | $11.51 | $13.07 | $0.00 | $0.00 | $49.83 |
| 2 / 40.00 | | $28.86 | $11.51 | $13.90 | $0.00 | $0.00 | $54.27 |
| 3 / 45.00 | | $32.46 | $11.51 | $14.73 | $0.00 | $0.00 | $58.70 |
| 4 / 50.00 | | $36.07 | $11.51 | $15.55 | $0.00 | $0.00 | $63.13 |
| 5 / 55.00 | | $39.68 | $11.51 | $16.37 | $0.00 | $0.00 | $67.56 |
| 6 / 60.00 | | $43.28 | $11.51 | $17.20 | $0.00 | $0.00 | $71.99 |
| 7 / 65.00 | | $46.89 | $11.51 | $18.03 | $0.00 | $0.00 | $76.43 |
| 8 / 70.00 | | $50.50 | $11.51 | $18.85 | $0.00 | $0.00 | $80.86 |
| 9 / 75.00 | | $54.11 | $11.51 | $19.67 | $0.00 | $0.00 | $85.29 |
| 10 / 80.00 | | $57.71 | $11.51 | $20.50 | $0.00 | $0.00 | $89.72 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| STEAM BOILER OPERATOR | 6/1/2025 | $57.68 | $15.55 | $13.25 | $3.25 | $0.00 | $89.73 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $59.12 | $15.55 | $13.25 | $3.25 | $0.00 | $91.17 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $60.40 | $15.55 | $13.25 | $3.25 | $0.00 | $92.45 |
| | 12/1/2026 | $61.84 | $15.55 | $13.25 | $3.25 | $0.00 | $93.89 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN | 6/1/2025 | $57.68 | $15.55 | $13.25 | $3.25 | $0.00 | $89.73 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $59.12 | $15.55 | $13.25 | $3.25 | $0.00 | $91.17 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $60.40 | $15.55 | $13.25 | $3.25 | $0.00 | $92.45 |
| | 12/1/2026 | $61.84 | $15.55 | $13.25 | $3.25 | $0.00 | $93.89 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| TELECOMMUNICATION TECHNICIAN | 9/1/2024 | $40.69 | $11.75 | $11.53 | $3.00 | $0.00 | $66.97 |
| ELECTRICIANS LOCAL 223 | 9/1/2025 | $42.52 | $12.00 | $12.05 | $3.25 | $0.00 | $69.82 |
| ELECTRICIANS LOCAL 223 | 9/1/2026 | $44.41 | $12.25 | $12.59 | $3.50 | $0.00 | $72.75 |
| | 9/1/2027 | $46.51 | $12.50 | $13.18 | $3.75 | $0.00 | $75.94 |

**Apprentice: TELECOMMUNICATION TECHNICIAN**

**Effective Date: 9/1/2024**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TERRAZZO FINISHERS | 2/1/2025 | $64.74 | $11.49 | $15.57 | $8.02 | $0.00 | $99.82 |
| BRICKLAYERS LOCAL 3 | 8/1/2025 | $66.89 | $11.49 | $15.57 | $8.02 | $0.00 | $101.97 |
| BRICKLAYERS LOCAL 3 - MARBLE & TILE | 2/1/2026 | $68.24 | $11.49 | $15.57 | $8.02 | $0.00 | $103.32 |
| | 8/1/2026 | $70.44 | $11.49 | $15.57 | $8.02 | $0.00 | $105.52 |
| | 2/1/2027 | $71.84 | $11.49 | $15.57 | $8.02 | $0.00 | $106.92 |

**Apprentice: TERRAZZO FINISHERS**

**Effective Date: 2/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $32.37 | $11.49 | $15.57 | $8.02 | $0.00 | $67.45 |
| 2 | 60.00 | $38.84 | $11.49 | $15.57 | $8.02 | $0.00 | $73.92 |
| 3 | 70.00 | $45.32 | $11.49 | $15.57 | $8.02 | $0.00 | $80.40 |
| 4 | 80.00 | $51.79 | $11.49 | $15.57 | $8.02 | $0.00 | $86.87 |
| 5 | 90.00 | $58.27 | $11.49 | $15.57 | $8.02 | $0.00 | $93.35 |

**Apprentice: TERRAZZO FINISHERS**

**Effective Date: 8/1/2025**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 50.00 | $33.45 | $11.49 | $15.57 | $8.02 | $0.00 | $68.53 |
| 2 | 60.00 | $40.13 | $11.49 | $15.57 | $8.02 | $0.00 | $75.21 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| **Apprentice: TERRAZZO FINISHERS** | | | | | | | |
| **Effective Date: 8/1/2025** | | | | | | | |
| **Step / Percent** | | **Apprentice Base Wage** | | | | | |
| 3 / 70.00 | | $46.82 | $11.49 | $15.57 | $8.02 | $0.00 | $81.90 |
| 4 / 80.00 | | $53.51 | $11.49 | $15.57 | $8.02 | $0.00 | $88.59 |
| 5 / 90.00 | | $60.20 | $11.49 | $15.57 | $8.02 | $0.00 | $95.28 |
| TEST BORING DRILLER | 6/1/2025 | $51.70 | $9.90 | $9.25 | $9.80 | $0.00 | $80.65 |
| LABORERS | 12/1/2025 | $53.20 | $9.90 | $9.25 | $9.80 | $0.00 | $82.15 |
| LABORERS - FOUNDATION AND MARINE | 6/1/2026 | $54.75 | $9.90 | $9.25 | $9.80 | $0.00 | $83.70 |
| | 12/1/2026 | $56.25 | $9.90 | $9.25 | $9.80 | $0.00 | $85.20 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| TEST BORING DRILLER HELPER | 6/1/2025 | $47.82 | $9.90 | $9.25 | $9.80 | $0.00 | $76.77 |
| LABORERS | 12/1/2025 | $49.32 | $9.90 | $9.25 | $9.80 | $0.00 | $78.27 |
| LABORERS - FOUNDATION AND MARINE | 6/1/2026 | $50.87 | $9.90 | $9.25 | $9.80 | $0.00 | $79.82 |
| | 12/1/2026 | $52.37 | $9.90 | $9.25 | $9.80 | $0.00 | $81.32 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| TEST BORING LABORER | 6/1/2025 | $47.70 | $9.90 | $9.25 | $9.80 | $0.00 | $76.65 |
| LABORERS | 12/1/2025 | $49.20 | $9.90 | $9.25 | $9.80 | $0.00 | $78.15 |
| LABORERS - FOUNDATION AND MARINE | 6/1/2026 | $50.75 | $9.90 | $9.25 | $9.80 | $0.00 | $79.70 |
| | 12/1/2026 | $52.25 | $9.90 | $9.25 | $9.80 | $0.00 | $81.20 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| TRACTORS/PORTABLE STEAM GENERATORS | 6/1/2025 | $57.68 | $15.55 | $13.25 | $3.25 | $0.00 | $89.73 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $59.12 | $15.55 | $13.25 | $3.25 | $0.00 | $91.17 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $60.40 | $15.55 | $13.25 | $3.25 | $0.00 | $92.45 |
| | 12/1/2026 | $61.84 | $15.55 | $13.25 | $3.25 | $0.00 | $93.89 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| TRAILERS FOR EARTH MOVING EQUIPMENT | 6/1/2025 | $41.82 | $15.57 | $20.17 | $0.00 | $0.00 | $77.56 |
| TEAMSTERS JOINT COUNCIL NO. 10 | 12/1/2025 | $41.82 | $15.57 | $21.78 | $0.00 | $0.00 | $79.17 |
| TEAMSTERS JOINT COUNCIL NO. 10 ZONE B | 1/1/2026 | $41.82 | $16.17 | $21.78 | $0.00 | $0.00 | $79.77 |
| | 6/1/2026 | $42.82 | $16.17 | $21.78 | $0.00 | $0.00 | $80.77 |
| | 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 | 6/1/2025 | $59.93 | $9.90 | $9.25 | $10.25 | $0.00 | $89.33 |
| LABORERS | 12/1/2025 | $61.43 | $9.90 | $9.25 | $10.25 | $0.00 | $90.83 |
| LABORERS (COMPRESSED AIR) | 6/1/2026 | $62.98 | $9.90 | $9.25 | $10.25 | $0.00 | $92.38 |
| | 12/1/2026 | $64.48 | $9.90 | $9.25 | $10.25 | $0.00 | $93.88 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) | 6/1/2025 | $61.93 | $9.90 | $9.25 | $10.25 | $0.00 | $91.33 |
| LABORERS | 12/1/2025 | $63.43 | $9.90 | $9.25 | $10.25 | $0.00 | $92.83 |
| LABORERS (COMPRESSED AIR) | 6/1/2026 | $64.98 | $9.90 | $9.25 | $10.25 | $0.00 | $94.38 |
| | 12/1/2026 | $66.48 | $9.90 | $9.25 | $10.25 | $0.00 | $95.88 |

**Construction**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| TUNNEL WORK - FREE AIR | 6/1/2025 | $52.00 | $9.90 | $9.25 | $10.25 | $0.00 | $81.40 |
| LABORERS | 12/1/2025 | $53.50 | $9.90 | $9.25 | $10.25 | $0.00 | $82.90 |
| LABORERS (FREE AIR TUNNEL) | 6/1/2026 | $55.05 | $9.90 | $9.25 | $10.25 | $0.00 | $84.45 |
| | 12/1/2026 | $56.55 | $9.90 | $9.25 | $10.25 | $0.00 | $85.95 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| TUNNEL WORK - FREE AIR (HAZ. WASTE) | 6/1/2025 | $54.00 | $9.90 | $9.25 | $10.25 | $0.00 | $83.40 |
| LABORERS | 12/1/2025 | $55.50 | $9.90 | $9.25 | $10.25 | $0.00 | $84.90 |
| LABORERS (FREE AIR TUNNEL) | 6/1/2026 | $57.05 | $9.90 | $9.25 | $10.25 | $0.00 | $86.45 |
| | 12/1/2026 | $58.55 | $9.90 | $9.25 | $10.25 | $0.00 | $87.95 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| VAC-HAUL | 6/1/2025 | $41.24 | $15.57 | $20.17 | $0.00 | $0.00 | $76.98 |
| TEAMSTERS JOINT COUNCIL NO. 10 | 12/1/2025 | $41.24 | $15.57 | $21.78 | $0.00 | $0.00 | $78.59 |
| TEAMSTERS JOINT COUNCIL NO. 10 ZONE B | 1/1/2026 | $41.24 | $16.17 | $21.78 | $0.00 | $0.00 | $79.19 |
| | 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 |
| WAGON DRILL OPERATOR | 6/1/2025 | $42.00 | $9.65 | $9.00 | $8.70 | $0.00 | $69.35 |
| LABORERS | 12/1/2025 | $43.38 | $9.65 | $9.00 | $8.70 | $0.00 | $70.73 |
| LABORERS - ZONE 2 | 6/1/2026 | $44.82 | $9.65 | $9.00 | $8.70 | $0.00 | $72.17 |
| | 12/1/2026 | $46.26 | $9.65 | $9.00 | $8.70 | $0.00 | $73.61 |
| | 6/1/2027 | $47.71 | $9.65 | $9.00 | $8.70 | $0.00 | $75.06 |
| | 12/1/2027 | $49.16 | $9.65 | $9.00 | $8.70 | $0.00 | $76.51 |
| | 6/1/2028 | $50.66 | $9.65 | $9.00 | $8.70 | $0.00 | $78.01 |
| | 12/1/2028 | $52.16 | $9.65 | $9.00 | $8.70 | $0.00 | $79.51 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | | |
| WAGON DRILL OPERATOR (HEAVY & HIGHWAY) | 6/1/2025 | $40.59 | $9.90 | $9.25 | $9.21 | $0.00 | $68.95 |
| LABORERS | 12/1/2025 | $41.97 | $9.90 | $9.25 | $9.21 | $0.00 | $70.33 |
| LABORERS - ZONE 2 (HEAVY & HIGHWAY) | 6/1/2026 | $43.41 | $9.90 | $9.25 | $9.21 | $0.00 | $71.77 |
| | 12/1/2026 | $44.85 | $9.90 | $9.25 | $9.21 | $0.00 | $73.21 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | | |
| WASTE WATER PUMP OPERATOR | 6/1/2025 | $58.33 | $15.55 | $13.25 | $3.25 | $0.00 | $90.38 |
| OPERATING ENGINEERS LOCAL 4 | 12/1/2025 | $59.78 | $15.55 | $13.25 | $3.25 | $0.00 | $91.83 |
| OPERATING ENGINEERS LOCAL 4 | 6/1/2026 | $61.08 | $15.55 | $13.25 | $3.25 | $0.00 | $93.13 |
| | 12/1/2026 | $62.53 | $15.55 | $13.25 | $3.25 | $0.00 | $94.58 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | | |
| WATER METER INSTALLER | 8/26/2024 | $52.49 | $10.80 | $16.80 | $4.60 | $0.00 | $84.69 |
| PLUMBERS & PIPEFITTERS LOCAL 51 | 8/25/2025 | $55.24 | $10.80 | $16.80 | $4.60 | $0.00 | $87.44 |
| PLUMBERS & PIPEFITTERS LOCAL 51 | | | | | | | |
| For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER" | | | | | | | |

**Marine Drilling**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| BLASTER<br>MARINE DRILLING<br>MARINE DRILLING | 1/1/2018 | $41.82 | $7.63 | $2.35 | $1.25 | $0.00 | $53.05 |
| BOAT CAPTAIN<br>MARINE DRILLING<br>MARINE DRILLING | 1/1/2018 | $33.87 | $7.63 | $2.35 | $0.95 | $0.00 | $44.80 |
| BOAT CAPTAIN / Over 1,000 hp<br>MARINE DRILLING<br>MARINE DRILLING | 1/1/2018 | $38.06 | $7.63 | $2.35 | $1.25 | $0.00 | $49.29 |
| CORE DRILLER<br>MARINE DRILLING<br>MARINE DRILLING | 1/1/2018 | $31.43 | $7.63 | $2.25 | $0.65 | $0.00 | $41.96 |
| CORE DRILLER HELPER<br>MARINE DRILLING<br>MARINE DRILLING | 1/1/2018 | $28.47 | $7.63 | $2.35 | $0.65 | $0.00 | $39.10 |
| DRILLER<br>MARINE DRILLING<br>MARINE DRILLING | 1/1/2018 | $39.70 | $7.63 | $2.35 | $1.25 | $0.00 | $50.93 |
| ENGINEER<br>MARINE DRILLING<br>MARINE DRILLING | 1/1/2018 | $39.69 | $7.63 | $2.25 | $1.25 | $0.00 | $50.82 |
| HELPER<br>MARINE DRILLING<br>MARINE DRILLING | 1/1/2018 | $34.24 | $7.63 | $2.35 | $0.65 | $0.00 | $44.87 |
| MACHINIST<br>MARINE DRILLING<br>MARINE DRILLING | 1/1/2018 | $38.88 | $7.63 | $2.35 | $0.95 | $0.00 | $49.81 |
| OILER - MARINE DRILLING<br>MARINE DRILLING<br>MARINE DRILLING | 1/1/2018 | $34.24 | $7.63 | $2.35 | $0.65 | $0.00 | $44.87 |
| TUG DECKHAND<br>MARINE DRILLING<br>MARINE DRILLING | 1/1/2018 | $27.61 | $7.63 | $2.35 | $0.65 | $0.00 | $38.24 |
| WELDER<br>MARINE DRILLING<br>MARINE DRILLING | 1/1/2018 | $38.88 | $7.63 | $2.35 | $0.95 | $0.00 | $49.81 |

**Op Eng Marine (Dredging Work)**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| BOAT OPERATOR<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS - MARINE DIVISION | 10/1/2017 | $29.26 | $7.63 | $2.35 | $0.95 | $0.00 | $40.19 |
| CERTIFIED WELDER<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS - MARINE DIVISION | 10/1/2017 | $31.09 | $7.63 | $2.35 | $1.25 | $0.00 | $42.32 |
| CHIEF WELDER/ CHIEF MATE<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS - MARINE DIVISION | 10/1/2017 | $33.02 | $7.63 | $2.35 | $1.25 | $0.00 | $44.25 |
| DERRICK / SPIDER / SPILLBARGE OPERATOR<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS - MARINE DIVISION | 10/1/2017 | $33.02 | $7.63 | $2.35 | $1.25 | $0.00 | $44.25 |
| DRAG BARGE OPERATOR / WELDER / MATE<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS - MARINE DIVISION | 10/1/2017 | $30.24 | $7.63 | $2.35 | $0.95 | $0.00 | $41.17 |
| ENGINEER / ELECTRICIAN<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS - MARINE DIVISION | 10/1/2017 | $33.02 | $7.63 | $2.35 | $1.25 | $0.00 | $44.25 |
| LICENSED BOAT OPERATOR<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS - MARINE DIVISION | 10/1/2017 | $33.02 | $7.63 | $2.35 | $1.25 | $0.00 | $44.25 |
| LICENSED TUG OPERATOR OVER 1000HP<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS - MARINE DIVISION | 10/1/2017 | $38.18 | $7.63 | $2.35 | $1.25 | $0.00 | $49.41 |
| MAINTENANCE ENGINEER<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS - MARINE DIVISION | 10/1/2017 | $33.03 | $7.63 | $2.35 | $1.25 | $0.00 | $44.26 |
| OILER - MARINE DIVISION<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS - MARINE DIVISION | 10/1/2017 | $24.30 | $7.63 | $2.35 | $0.65 | $0.00 | $34.93 |
| OPERATOR / LEVERMAN<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS - MARINE DIVISION | 10/1/2017 | $38.18 | $7.63 | $2.35 | $1.25 | $0.00 | $49.41 |
| RODMAN / SCOWMAN<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS - MARINE DIVISION | 10/1/2017 | $24.30 | $7.63 | $2.35 | $0.65 | $0.00 | $34.93 |
| SHOREMAN / DECKHAND<br>OPERATING ENGINEERS LOCAL 4<br>OPERATING ENGINEERS - MARINE DIVISION | 10/1/2017 | $24.30 | $7.63 | $2.35 | $0.65 | $0.00 | $34.93 |

**Outside Electrical**

| Classification | Effective Date | Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| CABLE TECHNICIAN (Power Zone)<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>For apprentice rates see "Apprentice- LINEMAN" | 8/30/2020 | $29.67 | $9.25 | $0.89 | $1.00 | $0.00 | $40.81 |
| CABLEMAN (Underground Ducts & Cables)<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>For apprentice rates see "Apprentice- LINEMAN" | 8/30/2020 | $42.03 | $9.25 | $1.26 | $9.01 | $0.00 | $61.55 |
| DRIVER / GROUNDMAN CDL<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>For apprentice rates see "Apprentice- LINEMAN" | 8/30/2020 | $34.62 | $9.25 | $1.04 | $9.03 | $0.00 | $53.94 |
| DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs)<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>For apprentice rates see "Apprentice- LINEMAN" | 8/30/2020 | $27.20 | $9.25 | $0.82 | $1.00 | $0.00 | $38.27 |
| EQUIPMENT OPERATOR (Class A CDL)<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>For apprentice rates see "Apprentice- LINEMAN" | 8/30/2020 | $42.03 | $9.25 | $1.26 | $13.09 | $0.00 | $65.63 |
| EQUIPMENT OPERATOR (Class B CDL)<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>For apprentice rates see "Apprentice- LINEMAN" | 8/30/2020 | $37.09 | $9.25 | $1.11 | $9.76 | $0.00 | $57.21 |
| GROUNDMAN<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>For apprentice rates see "Apprentice- LINEMAN" | 8/30/2020 | $27.20 | $9.25 | $0.82 | $1.00 | $0.00 | $38.27 |
| GROUNDMAN -Inexperienced (<2000 Hrs.)<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>For apprentice rates see "Apprentice- LINEMAN" | 8/30/2020 | $22.25 | $9.25 | $0.82 | $1.00 | $0.00 | $33.32 |
| JOURNEYMAN LINEMAN<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 | 8/30/2020 | $49.45 | $9.25 | $1.48 | $16.00 | $0.00 | $76.18 |

**Apprentice: JOURNEYMAN LINEMAN**

**Effective Date: 8/30/2020**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 1 | 60.00 | $29.67 | $9.25 | $0.89 | $2.50 | $0.00 | $42.31 |
| 2 | 65.00 | $32.14 | $9.25 | $0.96 | $2.50 | $0.00 | $44.85 |
| 3 | 70.00 | $34.62 | $9.25 | $1.04 | $2.50 | $0.00 | $47.41 |
| 4 | 75.00 | $37.09 | $9.25 | $1.11 | $4.00 | $0.00 | $51.45 |

**Outside Electrical**

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

**Apprentice: JOURNEYMAN LINEMAN**

**Effective Date: 8/30/2020**

| Step | Percent | Apprentice Base Wage | Health | Pension | Annuity | Supplemental Unemployment | Total Rate |
|---|---|---|---|---|---|---|---|
| 5 | 80.00 | $39.56 | $9.25 | $1.19 | $4.00 | $0.00 | $54.00 |
| 6 | 85.00 | $42.03 | $9.25 | $1.26 | $4.00 | $0.00 | $56.54 |
| 7 | 90.00 | $44.51 | $9.25 | $1.34 | $6.00 | $0.00 | $61.10 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TELEDATA CABLE SPLICER<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 | 2/4/2019 | $30.73 | $4.70 | $0.92 | $2.25 | $0.00 | $38.60 |
| TELEDATA LINEMAN/EQUIPMENT OPERATOR<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 | 2/4/2019 | $28.93 | $4.70 | $0.89 | $2.25 | $0.00 | $36.77 |
| TELEDATA WIREMAN/INSTALLER/TECHNICIAN<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104<br>OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 | 2/4/2019 | $28.93 | $4.70 | $0.89 | $2.25 | $0.00 | $36.77 |

**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.

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STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS
(EXECUTIVE ORDER 11246)
Revised April 9, 2019

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 (pursuant to 41 CFR 60-4.5) 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, Executive Order 11246, or the regulations promulgated pursuant thereto.

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 where there is an obligation to do so under 41 CFR Part 60-3.

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 pursuant to Executive Order 11246.

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 pursuant to Executive Order 11246, as amended, and its implementing regulations, 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 and Executive Order 11246, as amended.

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.

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:<br>SMSA Counties:<br>1123 Boston-Lowell-Brockton-Lawrence-Haverhill, MA-NH | 4.0 |
| MA Essex, MA Middlesex, MA Norfolk, MA Plymouth,<br>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<br>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 **4**

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: MA20250017 07/11/2025

Superseded General Decision Number: MA20240017

State: Massachusetts

Construction Type: Highway

County: Bristol County in Massachusetts.

HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally
required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658.
Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

| | |
|---|---|
| If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022: | . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours |

| | |
|---|---|
| | spent performing on the contract in 2025. |
| If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022: | . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025. |

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

| Modification Number | Publication Date |
|---|---|
| 0 | 01/03/2025 |
| 1 | 03/14/2025 |
| 2 | 03/21/2025 |
| 3 | 04/04/2025 |
| 4 | 07/11/2025 |

ELEC0103-003 03/01/2025

| | Rates | Fringes |
|---|---|---|
| ELECTRICIAN (Includes Traffic Signalization) | $ 64.26 | 36.99 |

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* ENGI0004-021 06/01/2025

| | Rates | Fringes |
|---|---|---|
| POWER EQUIPMENT OPERATOR | | |
| GROUP 1 | $ 57.83 | 33.70 |
| GROUP 2 | $ 57.18 | 33.70 |

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

POWER EQUIPMENT OPERATORS CLASSIFICATIONS
Group 1: Backhoe/Excavator/Trackhoe; Bobcat/Skid Steer/Skid Loader; Broom/Sweeper; Crane; Gradall; Loader; Paver (Asphalt, Aggregate, and Concrete); Post Driver (Guardrail/Fences)
Group 2: Bulldozer; Grader/Blade; Milling Machine; Roller

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IRON0007-029 03/16/2024

| | Rates | Fringes |
|---|---|---|
| IRONWORKER, ORNAMENTAL | $ 54.68 | 36.48 |

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LABO0133-001 12/01/2024

| | Rates | Fringes |
|---|---|---|
| LABORER (Concrete Surfacer) | $ 46.20 | 29.85 |

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LABO0385-001 12/01/2024

| | Rates | Fringes |
|---|---|---|
| LABORER | | |
| Common or General | $ 38.95 | 29.41 |
| Fence Erection | $ 38.95 | 29.41 |

---

LABO0721-001 12/01/2024

| | Rates | Fringes |
|---|---|---|
| LABORER (Guardrail Installation) | $ 38.95 | 29.81 |

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LABO0876-002 06/01/2018

| | Rates | Fringes |
|---|---|---|
| LABORER (Landscape) | $ 33.25 | 22.92 |

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PAIN0035-023 07/01/2024

| | Rates | Fringes |
|---|---|---|
| PAINTER (Steel) | $ 56.76 | 36.00 |

---

SUMA2014-007 01/11/2017

| | Rates | Fringes |
|---|---|---|
| CEMENT MASON/CONCRETE FINISHER | $ 56.70 | 21.08 |

IRONWORKER, REINFORCING.....$ 42.13 18.15

IRONWORKER, STRUCTURAL.....$ 45.19 17.30

LABORER: Asphalt, Includes
Raker, Shoveler, Spreader and
Distributor.....$ 34.72 16.01

LABORER: Concrete Saw (Hand
Held/Walk Behind).....$ 44.43 14.18

LABORER: Jack Hammer.....$ 35.32 18.48

OPERATOR: Forklift.....$ 64.67 0.00

OPERATOR: Mechanic.....$ 48.74 11.79

OPERATOR: Piledriver.....$ 42.56 17.34

PAINTER: Spray (Linestriping)....$ 47.30 6.42

TRAFFIC CONTROL: Flagger.....$ 23.00 20.44

TRAFFIC CONTROL:
Laborer-Cones/
Barricades/Barrels -
Setter/Mover/Sweeper.....$ 53.35 12.78

TRUCK DRIVER: Concrete Truck....$ 33.69 15.79

TRUCK DRIVER: Dump Truck.....$ 39.03 12.89

TRUCK DRIVER: Flatbed Truck.....$ 48.53 0.00

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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.

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)).

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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.

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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"

"General Decision Number: MA20250008 07/11/2025

Superseded General Decision Number: MA20240008

State: Massachusetts

Construction Types: Heavy (Heavy and Marine)

Counties: Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Plymouth and Suffolk Counties in Massachusetts.

HEAVY AND MARINE CONTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally
required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658.
Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

| | |
|---|---|
| If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022: | . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.75 per hour (or the applicable wage rate listed on this wage determination, if it is |

| | | higher) for all hours |
|---|---|---|
| | | spent performing on the |
| | | contract in 2025. |
| If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022: | . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025. | |

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

| Modification Number | Publication Date |
|---|---|
| 0 | 01/03/2025 |
| 1 | 03/07/2025 |
| 2 | 03/14/2025 |
| 3 | 03/21/2025 |
| 4 | 07/11/2025 |

BOIL0029-001 01/01/2025

| | Rates | Fringes |
|---|---|---|
| BOILERMAKER | $ 50.62 | 28.82 |

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BRMA0001-011 02/01/2023

FOXBORO CHAPTER

BRISTOL (Attleboro, Berkley, Dighton, Mansfield, North Attleboro, Norton, Raynham, Rehoboth, Seekonk, Taunton); NORFOLK, (Bellingham, Canton, Dedham, Foxboro, Franklin, Norfolk, Norwood, Plainville, Sharon, Walpole, Westrwood, Wrentham); and PLYMOUTH (Lakeville)

| | Rates | Fringes |
|---|---|---|
| Bricklayer/Cement Mason | $ 60.35 | 34.40 |

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BRMA0001-012 02/01/2023

LOWELL CHAPTER

MIDDLESEX (Acton, Ashby, Ayer, Bedford, Billerica, Boxboro, Carlisle, Chemsford, Dracut, Dunstabale, Ft Devens, Groton, Littleton, Lowell, North Acton, Pepperell, Shirley, South Acton, Tewksbury, Townsend, Tyngsboro, West Acton, Westford,
Wilmington)

| | Rates | Fringes |
|---|---|---|

BRICKLAYER.....$ 58.21 33.71

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BRMA0001-013 08/01/2023

LOWELL CHAPTER
MIDDLESEX (Ashland, Framingham, Holliston, Hopkinton, Hudson,
Maynard, Natick, Sherbvorn, Stow); and NORFOLK (Medfield, Medway, Millis)

| | Rates | Fringes |
|---|---|---|
| BRICKLAYER..... | $ 62.40 | 34.40 |

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BRMA0003-001 08/01/2024

| | Rates | Fringes |
|---|---|---|
| Marble & Tile Finisher..... | $ 49.32 | 35.26 |
| Marble, Tile & Terrazzo Workers..... | $ 64.52 | 37.51 |
| TERRAZZO FINISHER..... | $ 63.44 | 37.33 |

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BRMA0003-003 08/01/2024

BOSTON CHAPTER
MIDDLESEX (Arlington, Cambridge, Everett, Malden, Medford, Melrose, Somerville); NORFOLK (Brookline, Milton); and SUFFOLK

| | Rates | Fringes |
|---|---|---|
| BRICKLAYER..... | $ 64.50 | 37.54 |

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BRMA0003-011 08/01/2024

LYNN CHAPTER

ESSEX (Amesbury, Andover, Beverly, Boxford, Danvers, Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill,

Ipswich, Lawrence, Lynn, Lynnfield, Manchester, Marblehead, Merrimac, Methuen, Middleton, Nahant, Newbury, Newburyport, North Andover, Peabody, Rockport, Rowley, Salisbury, Salem, Saugus, Swampscott, Topsfield, Wakefield, Wenham, West Newbury); and MIDDLESEX (North Reading, Reading, Wakefield)

| | Rates | Fringes |
|---|---|---|
| Bricklayer/Cement Mason..... | $ 64.50 | 37.54 |

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BRMA0003-012 08/01/2024

| | Rates | Fringes |
|---|---|---|
| BRICKLAYER<br>WALTHAM CHAPTER -<br>MIDDLESEX (Belmont, Burlington, Concord, Lexington, Lincoln, Stoneham, Sudbury, Waltham, Watertown, Wayland, Weston, Winchester, Woburn)..... | $ 64.50 | 37.54 |

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BRMA0003-014 08/01/2024

QUINCY CHAPTER

PLYMOUTH COUNTY (Abington, Bridgewater, Brockton, Carver, Duxbury, East Bridgewater, Halifax, Hanover, Hanson, Hingham,
Hull, Kingston, Marshfield, Middleboro, Norwell, Pembroke, Plymouth, Rockland, Scituate, West Bridgewater, Whitman)

| | Rates | Fringes |
|---|---|---|
| Bricklayer/Cement Mason..... | $ 64.50 | 37.54 |

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BRMA0003-025 08/01/2024

NEW BEDFORD CHAPTER

BARNSTABLE; BRISTOL (Acushnet, Darmouth, Fairhaven, Fall River,
Freetown, New Bedford, Somerset, Swansea, Westport); DUKES;
NANTUCKET; PLYMOUTH (Marion, Mattapoisett, Rochester,
Wareham)

| | Rates | Fringes |
|---|---|---|
| Bricklayer/Cement Mason..... | $ 64.50 | 37.54 |

BRMA0003-033 08/01/2024

NEWTON CHAPTER
MIDDLESEX (Newton); NORFOLK (Dover, Needham, Wellesley)

| | Rates | Fringes |
|---|---|---|
| Bricklayer, Plasterer..... | $ 64.50 | 37.54 |

CARP0056-001 08/01/2024

All of SUFFOLK COUNTY; and those areas of BARNSTABLE, BRISTOL,
ESSEX, MIDDLESEX, NORFOLK, and PLYMOUTH COUNTIES situated INSIDE Boston Beltway (I-495) and North of Cape Cod Canal. ALL
of DUKES and NANTUCKET COUNTIES

| | Rates | Fringes |
|---|---|---|
| PILEDRIVERMAN..... | $ 55.79 | 35.47 |

CARP0056-002 08/01/2024

The areas of BARNSTABLE, BRISTOL, PLYMOUTH, and NORFOLK COUNTIES situated OUTSIDE Boston Beltway (I-495) and South of
Cape Cod Canal

| | Rates | Fringes |
|---|---|---|
| PILEDRIVERMAN | $ 51.97 | 35.47 |

CARP0056-003 08/01/2024

Those areas of ESSEX and MIDDLESEX COUNTIES situated OUTSIDE
Boston Beltway (I-495)

| | Rates | Fringes |
|---|---|---|
| PILEDRIVERMAN | $ 49.19 | 35.47 |

CARP0056-004 08/01/2024

| | Rates | Fringes |
|---|---|---|
| DIVER TENDER | $ 61.70 | 35.47 |
| DIVER | $ 78.11 | 35.47 |

CARP0327-002 03/01/2025

MIDDLESEX (Belmont, Cambridge, Everett, Malden, Medford, Somerville); NORFOLK (Brookline, Dedham, Milton); AND SUFFOLK
COUNTIES

| | Rates | Fringes |
|---|---|---|
| CARPENTER | $ 59.94 | 31.30 |

CARP0339-002 03/01/2025

BRISTOL (Attleborough, North Attleborough); ESSEX; MIDDLESEX
(Except Belmont, Cambridge, Everett, Malden, Medford, Somerville); AND NORFOLK (Bellingham, Braintree, Canton, Cohassett, Foxboro, Franklin, Medfield, Medway, Millis,

Needham, Norfolk, Norwood, Plainville, Quincy, Sharon, Walpole,
Wellesley, Westwood, Weymouth, Wrentham) COUNTIES

| | Rates | Fringes |
|---|---|---|
| CARPENTER..... | $ 49.10 | 31.20 |

CARP0346-001 03/01/2025

NORFOLK (Braintree, Quincy, Cohasset, Weymouth, etc.) PLYMOUTH
(Duxbury, Hanover, Hull, Hingham, Marshfield, Norwell, Pembroke
Rockland, Scituate)

| | Rates | Fringes |
|---|---|---|
| CARPENTER..... | $ 49.10 | 31.20 |

CARP0624-002 09/01/2017

DUKES; NANTUCKET

| | Rates | Fringes |
|---|---|---|
| CARPENTER..... | $ 46.43 | 28.35 |

CARP0624-006 09/01/2017

BARNSTABLE; BRISTOL (Except Attleboro & North Attleboro); NORFOLK (Avon, Holbrook, Randolph, Stoughton); PLYMOUTH (Bridgewater, Kingston, Lakeville, Middleboro, Plymouth, S. Hanover, Whitman)

| | Rates | Fringes |
|---|---|---|
| CARPENTER..... | $ 39.28 | 27.90 |

CARP1121-001 01/06/2025

SUFFOLK COUNTY

| | Rates | Fringes |
|---|---|---|
| MILLWRIGHT | $ 50.47 | 33.50 |

CARP1121-005 01/06/2025

BARNSTABLE, BRISTOL, DUKES, ESSEX, MIDDLESEX, NANTUCKET, NORFOLK and PLYMOUTH COUNTIES

| | Rates | Fringes |
|---|---|---|
| MILLWRIGHT | $ 45.03 | 33.25 |

ELEC0096-001 09/01/2024

MIDDLESEX (Ashby, Ashland, Ayer, Ft. Devens, Groton, Hopkinton,
Hudson, Marlboro, Pepperell, Shirley, Stow, Townsend)

| | Rates | Fringes |
|---|---|---|
| ELECTRICIAN | $ 45.99 | 33.06 |
| Teledata System Installer | $ 35.29 | 32.98 |

ELEC0099-001 06/01/2024

BRISTOL (Attleboro, North Attleboro, Seekonk)

| | Rates | Fringes |
|---|---|---|
| ELECTRICIAN | $ 52.11 | 47.25% |
| Teledata System Installer | $ 39.09 | 11.02%+15.31 |

ELEC0103-002 03/01/2025

ESSEX (Amesbury, Andover, Boxford, Georgetown, Groveland,

Haverhill, Lawrence, Merrimac, Methuen, Newbury, Newburyport,
North Andover, Rowley, Salisbury, West Newbury); MIDDLESEX (Bedford, Billerica, Boxboro, Burlington, Carlisle, Chelmsford,
Dracut, Dunstable littleton, Lowell, North Reading, Tewksbury,
Tyngsboro, Westford, Wilmington)

| | Rates | Fringes |
|---|---|---|
| ELECTRICIAN | $ 64.26 | 36.99 |

ELEC0103-004 03/01/2025

ESSEX (Beverly, Danvers, Essex, Gloucester, Hamilton, Ipswich,
Manchester, Marblehead, Middleton, Peabody, Rockport, Salem,
Topsfield, Wenham)

| | Rates | Fringes |
|---|---|---|
| ELECTRICIAN | $ 64.26 | 36.99 |

ELEC0103-005 03/01/2025

ESSEX (Lynn, Lynnfield, Nahant, Saugus, Swampscott); MIDDLESEX
(Acton, Arlington, Belmont, Cambridge, Concord, Everett, Framingham, Holliston, Lexington, Lincoln, Malden, Maynard, Medford, Melrose, Natick, Newton, Reading, Sherborn, Somerville, Stoneham, Sudbury, Wakefield, Waltham, Watertown,
Wayland, Weston, Winchester, Woburn); NORFOLK (Bellingham, Braintree, Brookline, Canton, Cohasset, Dedham, Dover, Foxboro,
Frankloin, Medfield, Medway, Millis, Milton, Needham, Norfolk,
Norwood, Quincy, Sharon, Walpole, Wellesley, Westwood, Weymouth, Wrentham); PLYMOUTH (Hingham and Hull);SUFFOLK

| | Rates | Fringes |
|---|---|---|
| ELECTRICIAN | $ 64.26 | 36.99 |

ELEC0104-001 09/01/2024

| | Rates | Fringes |
|---|---|---|
| Line Construction: | | |
| Cableman | $ 58.41 | 30.19+A |
| Equipment Operator | $ 49.65 | 26.72+A |
| Groundman | $ 32.13 | 12.70+A |
| Lineman | $ 58.41 | 30.19+A |

A. PAID HOLIDAYS: New Year's Day; Memorial Day; Independence Day; Labor Day; Thanksgiving Day; Christmas Day and Columbus Day, provided the employee has been employed 5 working days prior to any one of the listed holidays.

ELEC0223-002 09/01/2024

BARNSTABLE, BRISTOL (Except Attleboro, North Attleboro, Seekonk); DUKES; NANTUCKET; PLYMOUTH (Except Hingham and Hull
Twps); NORFOLK (Avon, Halbrook, Randolph, Sloughton)

| | Rates | Fringes |
|---|---|---|
| ELECTRICIAN | $ 50.02 | 31.09%+15.50 |

* ENGI0004-009 06/01/2025

| | Rates | Fringes |
|---|---|---|
| Power equipment operators: | | |
| Group 1 | $ 57.83 | 33.70 |
| Group 2 | $ 57.18 | 33.70 |
| Group 3 | $ 37.02 | 33.70 |
| Group 4 | $ 46.52 | 33.70 |

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     Group 5.....................$ 25.02            33.70
     Group 6.....................$ 30.85            33.70

HOURLY PREMIUM FOR BOOM LENGTHS (Including Jib):
  Over 150 ft.   +2.18
  Over 185 ft.   +3.84
  Over 210 ft.   +5.39
  Over 250 ft.   +8.16
  Over 295 ft. +11.29
  Over 350 ft. +13.14

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

  POWER EQUIPMENT OPERATORS CLASSIFICATIONS  [HEAVY
  CONSTRUCTION]
  GROUP 1:  Power shovel; crane; truck crane; derrick; pile
  driver; trenching machine; mechanical hoist pavement
  breaker; cement concrete paver; dragline; hoisting
engine;
  three drum machine; pumpcrete machine; loaders; shovel
  dozer; front end loader; mucking machine; shaft hoist;
  steam engine; backhoe; gradall; cable way; fork lift;
  cherry picker; boring machine; rotary drill; post hole
  hammer; post hole digger; asphalt plant on job site;
  concrete batching and/or mixing plant on job site;
crusher
  plant on job site; paving concrete mixer; timber jack
  GROUP 2:  Sonic or vibratory hammer; grader; scraper;
tandem
  scraper; bulldozer; tractor; mechanic - maintenance; York
  rake; mulching machine; paving screed machine;stationary
  steam boiler; paving concrete finishing machine; grout
  pump; portable steam boiler; portable steam generator;
  roller; spreader; asphalt paver; locomotives or machines
  used in place thereof; tamper (self propelled or
  tractor-draw); cal tracks; ballast regulator;rail anchor
  machine; switch tamper; tire truck
  GROUP 3:  Pumps (1-3 grouped); compressor; welding
machines
  (1-3 grouped);  generator; sighting plant; heaters (power
  driven, 1- 5); syphon-pulsometer; concrete mixer; valves
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controlling permanent plant air steam, conveyor, wellpoint
system (operating)
GROUP 4: Assitant engineer (fireman)
GROUP 5: Oiler (other than truck cranes and gradalls)
GROUP 6: Oiler (on truck cranes and gradalls)

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IRON0007-001 03/16/2024

AREA 1: BRISTOL (Easton); ESSEX (Beverly,Gloucester,Lynn, Lynnfield, Manchester,Marblehead, Nahant, Rockport, Salem, Saugus, Swampscott); MIDDLESEX (Arlington, Bedford, Belmont, Burlington, Cambridge, Carlisle, Concord, Dunstable, Everett, Framingham, Lexington, Lincoln, Malden, Maynard, Medford, Melrose, Natick, Newton, Reading, Sherborn, Somerville, Stoneham, Sudbury, Wakefield, Waltham, Watertown, Wayland, Weston, Winchester, Woburn); NORFOLK (Except Medway); PLYMOUTH (Abington, Bridgewater, Brocton, Duxbury, East Bridgewater, Halifax, Hanover, Hanson, Hingham, Hull, Kingston, Marshfield, Norwell, Pembroke, Plymouth, Plympton, Rockland, Scituate, West Bridgewater, Whitman); SUFFOLK

AREA 2: ESSEX (Amesbury, Andover, Boxford, Danvers, Essex, Georgetown, Hamilton, Haverhill, Ipswich, Lawrence, Merrimac, Methuen, Newbury, Newburyport, North Andover, Rowley, Salisbury, Topsfield, Wenham, West Newbury); MIDDLESEX (Action,Billerica, Chelmsford, Dracut, Groton, Groveland, Littleton, Lowell, Middleton, North Reading, Pepperell, Tewksbury, Tyngsboro, Westford, Wilminton)

| | Rates | Fringes |
|---|---|---|
| IRONWORKER | | |
| AREA 1 | $ 54.68 | 36.48 |
| AREA 2 | $ 50.27 | 36.48 |

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IRON0007-010 03/16/2024

MIDDLESEX (Ashby, Ashland, Ayer, Boxboro, Holliston, Hopkinton,
Hudson, Marlboro, Shirley, Stow, Townsend); NORFOLK (Medway)

| | Rates | Fringes |
|---|---|---|
| IRONWORKER | $ 54.38 | 36.48 |

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* IRON0037-002 03/16/2025

BARNSTABLE; BRISTOL (Acushnet, Attleboro, Berkley, Dartmouth,
Dighton, Fairhaven, Fall River, Freetown, Mansfield, New Bedford, North Attleboro, Norton, Raynham, Rehoboth, Seekonk,
Somerset, Swansea, Taunton, Westport); DUKES; NANTUCKET; NORFOLK (Billingham, Franklin, Plainville, Wrentham); PLYMOUTH
(Lakeville, Marion, Mattapoisett, Middleboro, Rochester, Wareham)

| | Rates | Fringes |
|---|---|---|
| IRONWORKER | $ 42.58 | 32.98 |

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LABO0022-006 12/01/2024

SUFFOLK COUNTY (Boston, Chelsea, Revere, Winthrop, Deer & Nut
Islands); MIDDLESEX COUNTY (Arlington, Belmont, Burlington, Cambridge, Everett, Malden, Medford, Melrose, Reading, Somerville, Stoneham, Wakefield, Winchester, Winthrop and Woburn only); NORFOLK COUNTY (Brookline, Dedham, and Milton only)

| | Rates | Fringes |
|---|---|---|

| Laborers: | | |
|---|---|---|
| GROUP 1 | $ 46.20 | 29.70 |
| GROUP 2 | $ 46.20 | 29.70 |
| GROUP 3 | $ 46.20 | 29.70 |
| GROUP 4 | $ 46.20 | 29.70 |
| GROUP 5 | $ 27.01 | 29.70 |
| GROUP 6 | $ 46.20 | 29.70 |

LABORERS CLASSIFICATIONS

GROUP 1: Laborers; carpenter tenders; cement finisher tenders

GROUP 2: Asphalt raker; fence and guard rail erector; laser beam operator; mason tender; pipelayer; pneumatic drill operator; pneumatic tool operator; wagon drill operator

GROUP 3: Air track operator; block paver; rammer; curb setter

GROUP 4: Blaster; powderman

GROUP 5: Flagger

GROUP 6: Asbestos Abatement; Toxic and Hazardous Waste Laborers

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LABO0022-012 12/01/2024

Counties of BARNSTABLE; BRISTOL; DUKES; ESSEX; NANTUCKET; PLYMOUTH; MIDDLESEX (With the exception of Arlington, Belmont, Burlington, Cambridge, Everett, Malden, Melrose, Reading, Somerville, Stoneham, Wakefield, Winchester, Winthrop and Woburn); NORFOLK (With the exception of Brookline, Dedham, and Milton)

| | Rates | Fringes |
|---|---|---|
| Laborers: | | |

| | | |
|---|---|---|
| GROUP 1 | $ 38.95 | 29.70 |
| GROUP 2 | $ 38.95 | 29.70 |
| GROUP 3 | $ 38.95 | 29.70 |
| GROUP 4 | $ 38.95 | 29.70 |
| GROUP 5 | $ 27.01 | 29.70 |
| GROUP 6 | $ 46.10 | 29.70 |

LABORERS CLASSIFICATIONS

GROUP 1: Laborers; carpenter tenders; cement finisher tenders

GROUP 2: Asphalt raker; fence and guard rail erector; laser beam operator; mason tender; pipelayer; pneumatic drill operator; pneumatic tool operator; wagon drillperator

GROUP 3: Air track operator; block paver; rammer; curb setter; hydraulic & similar self powere drills

GROUP 4: Blaster; powderman

GROUP 5: Flagger

GROUP 6: Asbestos Abatement; Toxic and Hazardous Waste Laborers

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LABO0022-013 12/01/2024

| | Rates | Fringes |
|---|---|---|
| Laborers: | | |
| (FREE AIR OPERATION): SHIELD DRIVEN AND LINER PLATE IN FREE AIR) | | |
| GROUP 1 | $ 50.50 | 29.70 |
| GROUP 2 | $ 50.50 | 29.70 |
| (OPEN AIR CASSONS, UNDERPINNING AND TEST BORING INDUSTRIES): | | |
| TEST BORING & WELL DRILLING | | |
| Driller | $ 50.20 | 29.70 |
| Laborer | $ 46.20 | 29.70 |

| | | |
|---|---|---|
| (OPEN AIR CASSONS, UNDERPINNING AND TEST BORING INDUSTRIES): | | |
| OPEN AIR CASSON, UNDERPINNING WORK & BORING CREW | | |
| Bottom man | $ 47.35 | 29.70 |
| Laborers; Top man | $ 46.20 | 29.70 |
| (TUNNELS, CAISSON & CYLINDER WORK IN COMPRESSED AIR) | | |
| GROUP 1 | $ 47.95 | 29.70 |
| GROUP 2 | $ 58.43 | 29.70 |
| GROUP 3 | $ 58.43 | 29.70 |
| GROUP 4 | $ 58.43 | 29.70 |
| GROUP 5 | $ 58.43 | 29.70 |
| GROUP 6 | $ 58.43 | 29.70 |
| CLEANING CONCRETE AND CAULKING TUNNEL (Both New & Existing) | | |
| GROUP 1 | $ 50.50 | 29.70 |
| GROUP 2 | $ 50.50 | 29.70 |
| ROCK SHAFT, CONCRETE LINING OF SAME AND TUNNEL IN FREE AIR | | |
| GROUP 1 | $ 47.95 | 29.70 |
| GROUP 2 | $ 50.50 | 29.70 |
| GROUP 3 | $ 50.50 | 29.70 |
| GROUP 4 | $ 50.50 | 29.70 |
| GROUP 5 | $ 52.50 | 29.70 |

LABORERS CLASSIFICATIONS for TUNNELS, CAISSON & CYLINDER WORK IN COMPRESSED AIR

GROUP 1: Powder watchman; Top man on iron bolt; change house attendant

GROUP 2: Brakeman; trackman; groutman; tunnel laborer; outside lock tender; lock tender; guage tender

GROUP 3: Motorman, miner

GROUP 4: Blaster

GROUP 5: Mucking machine operator

GROUP 6: Hazardous Waste work within the ""HOT"" zone. (A premium of two dollars $2.00 per hour over the basic wage rate.

LABORERS CLASSIFICATIONS for (FREE AIR OPERATION): SHIELD DRIVEN AND LINER PLATE IN FREE AIR

GROUP 1: Miner; miner welder; conveyor operator; motorman; mucking machine operator; nozzle man; grout man-; pumps, shaft and tunnel steel and rodman; shield and erector arm operators, mole nipper, outside motorman, burner, TBM operator, safety miner; laborer topside; heading motormen; erecting operators; top signal men

GROUP 2: Brakeman; trackman

LABORERS CLASSIFICATIONS FOR CLEANING CONCRETE AND CAULKING TUNNEL (Both New & Existing)

GROUP 1: Concrete workers; strippers and form movers (wood & steel), cement finisher

GROUP 2: Form erector (wood & steel and all accessories)

LABORERS CLASSIFICATIONS for ROCK SHAFT, CONCRETE LINING OF SAME AND TUNNE IN FREE AIR

GROUP 1: Change house attendants

GROUP 2: Laborers, topside, bottom men (when heading is 50 ft. from shaft) and all other laborers

GROUP 3: Brakeman; trackman; tunnel laborers; shaft laborers

GROUP 4: Miner; cage tender; bellman

GROUP 5: Hazardous Waste work within the ""HOT"" zone. (A premium of two dollars $2.00 per hour over the basic wage rate)

FOOTNOTE FOR LABORERS:

A. PAID HOLIDAYS: New Year's Day, Washington's Birthday, Patriot's Day, Memorial Day, Independence Day, Labor Day, Columbus Day, Veteran's Day, Thanksgiving Day, and Christmas Day

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LABO1421-001 12/02/2024

WRECKING LABORERS:

| | Rates | Fringes |
|---|---|---|
| Laborers: (Wrecking) | | |
| Group 1 | $ 46.25 | 29.70 |
| Group 2 | $ 47.00 | 29.70 |
| Group 3 | $ 47.25 | 29.70 |
| Group 4 | $ 42.25 | 29.70 |
| Group 5 | $ 45.35 | 29.70 |
| Group 6 | $ 46.25 | 29.70 |

Group 1: Adzeman, Wrecking Laborer.
Group 2: Burners, Jackhammers.
Group 3: Small Backhoes, Loaders on tracks, Bobcat Type Loaders, Hydraulic ""Brock"" Type Hammer Operators, Concrete Cutting Saws.
Group 4: Yardman (Salvage Yard Only).
Group 5: Yardman, Burners, Sawyers.
Group 6: Asbestos, Lead Paint, Toxic and Hazardous Waste.

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PAIN0035-001 07/01/2024

BARNSTABLE BRISTOL; DUKES; ESSEX; NANTUCKET; PLYMOUTH
(Remainder of NORFOLK; MIDDLESEX AND SUFFOLK COUNTIES)

| | Rates | Fringes |
|---|---|---|
| PAINTER | | |
| NEW CONSTRUCTION: | | |
| Bridge | $ 50.36 | 30.25 |
| Brush, Taper | $ 39.86 | 30.25 |
| Spray, Sandblast | $ 41.26 | 30.25 |
| REPAINT: | | |
| Bridge | $ 56.76 | 36.00 |
| Brush, Taper | $ 37.92 | 30.25 |
| Spray, Sandblast | $ 39.32 | 30.25 |

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PAIN0035-015 07/01/2024

MIDDLESEX (Cambridge, Everett, Malden, Medford,
Sommerville)
SUFFOLK COUNTY (Boston, Chelsea) NORFOLK COUNTY (Brookline)

| | Rates | Fringes |
|---|---|---|
| PAINTER | | |
| NEW CONSTRUCTION: | | |
| Brush, Taper | $ 46.26 | 36.00 |
| Spay, Sandblast | $ 47.66 | 36.00 |
| Spray, Sandblast | $ 47.05 | 30.25 |
| REPAINT: | | |
| Bridge | $ 56.76 | 36.00 |
| Brush, Taper | $ 44.32 | 36.00 |
| Spray, Sandblast | $ 45.72 | 36.00 |

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PLAS0534-001 07/01/2024

ESSEX; MIDDLESEX; NORFOLK AND SUFFOLK COUNTY

| | Rates | Fringes |
|---|---|---|

CEMENT MASON/CONCRETE FINISHER...$ 49.19 40.86

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PLUM0004-001 03/01/2025

MIDDLESEX (Ashby, Ayer-West of Greenville branch of Boston and
Maine Railroad, Ft. Devens, Groton, Shirley, Townsend)

| | Rates | Fringes |
|---|---|---|
| Plumbers and Pipefitters.....$ | 55.00 | 30.17 |

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PLUM0012-001 03/02/2025

ESSEX (Ames, Andover, Beverly, Boxford, Byfield, Danvers, Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill,
Ipswich, Lawrence,Manchester, Marblehead, Merrimac, Methuem,
Middleton, Newbury, Newburyport, North Andover, Peabody, Rockport, Rowley, Salem, Salisbury, Topsfieild, Wenham, West
Newbury)

| | Rates | Fringes |
|---|---|---|
| PLUMBER.....$ | 69.84 | 36.43 |

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PLUM0012-003 03/02/2025

ESSEX (Ames, Andover, Beverly, Boxford, Byfield, Danvers, Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill,
Ipswich, Lawrence, Manchester, Marblehead, Merrimac, Methuen,
Middleton, Newbury, Newburyport, North Andover, Peabody, Rockport, Rowley, Salem, Salisbury, Topsfield, Wenham, West Newbury)

| | Rates | Fringes |
|---|---|---|
| Plumber, Pipefitter, Steamfitter | $ 69.84 | 36.43 |

PLUM0012-006 03/02/2025

ESSEX (Lynn, Lynnfield, Nahant, Saugus, and Swampscott); MIDDLESEX (Acton, Arlington, Ashland, Ayer - except W. of Greenville Branch of Boston & Maine RR, Bedford, Belmont, Billerica, Boxboro, Burlington, Cambridge, Carlisle, Chelmsford, Concord, Dracut, Dunstable, Everett, Framingham, Hudson, Holliston, Hopkinton, Lexington, Lincoln, Littleton, Lowell, Malden, Marlboro, Maynard, Medford, Melrose, Natick, Newton, North Reading, Pepperell, Reading, Sherborn, Somerville, Stoneham, Stow, Sudbury, Tewksbury, Tyngsboro, Wakefield, Waltham, Watertown, Wayland, Westford, Wilmington, Winchester, Woburn); NORFOLK (Bellingham, Braintree, Brookline, Canton, Cohasset, Dedham, Dover,Foxboro, Franklin, Medfield, Medway, Millis, Milton, Needham, Norfolk, Norwood, Plainville, Quincy, Sharon, Walpole, Wellesley, Westwood, Weymouth, Wrentham); PLYMOUTH (Hingham, Hull, Scituate); SUFFOLK

| | Rates | Fringes |
|---|---|---|
| PLUMBER | $ 69.84 | 36.43 |

PLUM0051-005 08/26/2024

BARNSTABLE; BRISTOL; DUKES; NANTUCKET; NORFOLK (Avon, Holbrook, Randolph, Stoughton) PLYMOUTH(Remainder of County)

| | Rates | Fringes |
|---|---|---|

Plumbers and Pipefitters.....$ 52.49 33.60

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PLUM0537-001 03/01/2025

MIDDLESEX (Arlington, Cambridge, Everett, Malden, Medford, Melrose, Reading, Wakefield, Winchester and Woburn); NORFOLK (Bellingham, Braintree, Brookline, Canton Cashasset, Dedham, Foxboro, Franklin, Millis, Milton, Sharon, Walpole, Westwood, and Wrenthan); PLYMOUTH (Hingham, Hull, Scituate); ESSEX (Ames, Andover, Beverly, Boxford, Byfield, Danvers, Essex, Georgetown, Gloucester, Groveland, Hamilton, Haverhill, Ipswich, Lawrence,Lynn, Lynnfield, Manchester, Marblehead, Merrimac, Methuem, Middleton, Nahant, Newbury, Newburyport, North Andover, Peabody, Rockport, Rowley, Salem, Salisbury, Saugus, Swampscott, Topsfieild, Wenham, West Newbury)

| | Rates | Fringes |
|---|---|---|
| PIPEFITTER | $ 66.58 | 39.22 |

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* TEAM0379-001 06/01/2025

| | Rates | Fringes |
|---|---|---|
| Truck drivers: | | |
| Group 1 | $ 40.78 | 37.35+a+b |
| Group 2 | $ 40.95 | 37.35+a+b |
| Group 3 | $ 41.02 | 37.35+a+b |
| Group 4 | $ 41.14 | 37.35+a+b |
| Group 5 | $ 41.24 | 37.35+a+b |
| Group 6 | $ 41.53 | 37.35+a+b |
| Group 7 | $ 41.82 | 37.35+a+b |

POWER TRUCKS $.25 DIFFERENTIAL BY AXLE
TUNNEL WORK (UNDERGROUND ONLY) $.40 DIFFERENTIAL BY AXLE
HAZARDOUS MATERIALS (IN HOT ZONE ONLY) $2.00 PREMIUM

TRUCK DRIVERS CLASSIFICATIONS

Group 1: Station wagons; panel trucks; and pickup trucks

Group 2: Two axle equipment; & forklift operator

Group 3: Three axle equipment and tireman

Group 4: Four and Five Axle equipment

Group 5: Specialized earth moving equipment under 35 tons
other than conventional type trucks; low bed; vachual;
mechanics, paving restoration equipment

Group 6: Specialized earth moving equipment over 35 tons

Group 7: Trailers for earth moving equipment (double hookup)

FOOTNOTES:

A. PAID HOLIDAYS: New Year's Day, Washington's Birthday,
Memorial Day, Independence Day, Labor Day, Patriot's Day,
Columbus Day, Veteran's Day, Thanksgiving Day and Christmas
Day

B. PAID VACATION: Employees with 4 months to 1 year of service receive 1/2 day's pay per month; 1 week vacation for 1 - 5 years of service; 2 weeks vacation for 5 - 10 years of service; and 3 weeks vacation for more than 10 years of service

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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.

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)).

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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.

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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"

"General Decision Number: MA20250006 02/21/2025

Superseded General Decision Number: MA20240006

State: Massachusetts

Construction Type: Heavy Dredging

Counties: Massachusetts Statewide.
STATEWIDE

Massacusetts All Dredging, except self-propelled hopper dredges, on the Atlantic Coast & tributary waters emptying into
the Atlantic Ocean.

Note: Contracts subject to the Davis-Bacon Act are generally
required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658.
Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

| | |
|---|---|
| If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022: | . Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.75 per hour (or the applicable wage rate listed on this wage |

| | | |
|---|---|---|
| | | determination, if it is |
| | | higher) for all hours |
| | | spent performing on the |
| | | contract in 2025. |
| If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022: | . Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025. | |

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the
Executive Orders and a classification considered necessary for
performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker

protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

| Modification Number | Publication Date |
|---|---|
| 0 | 01/03/2025 |
| 1 | 02/21/2025 |

* ENGI0025-001 10/01/2024

STATEWIDE

| | Rates | Fringes |
|---|---|---|
| Dredging: | | |
| CLASS A1 | $ 47.07 | 15.34+a+b |
| CLASS A2 | $ 41.94 | 14.99+a+b |
| CLASS B1 | $ 40.71 | 14.90+a+b |
| CLASS B2 | $ 38.31 | 14.73+a+b |
| CLASS C1 | $ 37.26 | 14.66+a+b |
| CLASS C2 | $ 36.07 | 14.57+a+b |
| CLASS D | $ 29.96 | 14.15+a+b |

CLASSIFICATIONS:
CLASS A1: Deck Captain; Mechanical Dredge Operator, Leverman, Licensed Tug Operator over 1000 HP.
CLASS A2: Crane Operator (360 swing).
CLASS B1: Derrick Operator (180 swing), Spider/Spill Barge Operator, Engineer, Electrician, Chief Welder, Chief Mate, Fill Placer, Operator II, Maintenance Engineer, Licensed Boat Operator, Licensed Crew Boat Operator.
CLASS B2: Certified Welder.
CLASS C1: Mate, Drag Barge Operator, Assistant Fill Placer, Welder, Steward.
CLASS C2: Boat Operator.
CLASS D: Oiler, Deckhand, Shoreman, Rodman, Scowman, Cook, Messman, Porter/Janitor.

INCENTIVE PAY: (Add to Hourly Rate)
Operator (NCCCO License/Certification) $1.80 Licensed Tug

Operator over 1000 HP (Assigned as Master) (USCG licensed
Master of Towing Vessels (MOTV) $1.80; Licensed Boat Operator (Assigned as lead boat captain) USCG licensed boat operator $1.30; Engineer (QMED and Tankerman endorsement or licensed engineer (USCG) $1.80
Oiler (QMED and Tankerman endorsement (USCG) $1.80; All classifications (Tankerman endorsement only) USCG $1.55; Deckhand or Mate (AB with Lifeboatman endorsement (USCG) $1.80; All classifications (lifeboatman endorsement only (USCG) $1.55; Welder (ABS certification) $1.55

FOOTNOTES APPLICABLE TO ABOVE CRAFTS:
a. PAID HOLIDAYS: New Year's Day, Martin Luther King, Jr.'s
Birthday, Memorial Day, Good Friday, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day and Christmas Day
b. VACATION: Eight percent (8%) of the straight time rate,
multiplied by the total hours worked.

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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.

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)).

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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.

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collective bargaining agreements on which the rate is based.

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state completed the survey on which the listed classifications
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adopted.

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and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7).
Requests for review and reconsideration can be submitted via
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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
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3) If the decision of the Administrator is not favorable, an
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Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
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200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION"

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DOCUMENT A00801

# SPECIAL PROVISIONS

## TAUNTON
## Federal Aid Project No. STP(BR-OFF)-003S(863)X
## Bridge Replacement, T-01-024, Scadding Street over Snake River

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

The work under this contract consists of the replacement of the Scadding Street Bridge over Snake River in Taunton, MA. The existing single-span structure will be replaced with a new single-span precast concrete beam superstructure on an improved alignment. The approach roadway will be widened to fit the proposed bridge cross-section with a new sidewalk and roadway construction for approximately 200 feet to the south, and 450 feet to the north of the bridge.

The work is comprised of, but is not limited to:

- Setting up a detour and closing the bridge to traffic.
- Demolition of the existing bridge.
- Construction of the new bridge consisting of earth and muck excavation, installing excavation support system, bridge excavation, control of water, driving steel piles, placing crushed stone, placing gravel borrow, and gravel borrow for backfilling structures and pipes, placing the reinforced concrete cast-in-place footings, abutments, wingwalls, and retaining walls, installing S3-TL4 Bridge Railing, installing the precast highway guardrail transitions, backfilling, and installing the SUPERPAVE wearing surface, and other items considered incidental to complete the work.
- Modified rock-fill revetment.
- Full-depth reconstruction of the approach roadways including excavation and removal of the existing pavement, new gravel sub-base and new SUPERPAVE HMA pavement.
- Transfer of existing overhead utilities on wood poles to a pair of underground ducts banks. One for electrical and one for communications.
- Remove the existing streetlights. Install new light poles on corbels on the retaining walls and run new conduit in the retaining wall for power for the new lights.
- Use of a temporary traffic detour to facilitate closure of the bridge during construction.

All work under this Contract shall be done in conformance with the *2025 Standard Specifications for Highways and Bridges, the Supplemental Specifications* contained in this book, the *Construction Standard Details* in effect as of June, 2025, the *1990 Standard Drawings for Signs and Supports*, the 2015 *Overhead Signal Structure and Foundation Standard Drawings*, the *2009 Manual on Uniform Traffic Control Devices (MUTCD) with Revisions 1, 2, and 3 and the November 2022 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.

## SUBSECTION 7.05 INSURANCE REQUIREMENTS
## B. Public Liability Insurance

The insurance requirements set forth in this subsection are in addition to the requirements of the Standard Specifications and supersede all other requirements.

### Paragraphs 1 and 2

The Massachusetts Department of Transportation and applicable railroads shall be named as additional insureds.

## LOCATION

The project is located in the City of Taunton. The major project components include:

1. Reconstructing Scadding Street, beginning approximately 200 feet south of the bridge crossing at Snake River; and, ending approximately 450 feet north of the bridge crossing at Snake River.
2. Replacement of the existing bridge on Scadding Street over the Snake River.

## CONTRACTOR QUESTIONS AND ADDENDUM ACKNOWLEDGMENTS

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.

## PRECONSTRUCTION CONFERENCE

Prior to the start of construction, but no later than 15 days after Notice to Proceed, a preconstruction conference shall be held with the Engineer, representatives from the Engineer's design consultant, the Contractor, major Subcontractors and other concerned parties. The purpose of the preconstruction conference is to review the construction sequence, equipment and materials to be used, parking availability, material storage areas, construction site access, working hours and all other related matters.

## 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.
- 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.

## 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.

## 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.

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.

**HOLIDAY WORK RESTRICTIONS** (Continued)

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

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.

## SUBSECTION 7.12 USE OF EXPLOSIVES

Replace this subsection with the following:

The use of explosives and any blasting operations are not permitted on this project.

## SUBSECTION 7.13 PROTECTION AND RESTORATION OF PROPERTY

Add/amend the following at the end of the Section:

The Contractor shall utilize nondestructive investigation and testing methods to identify, locate and avoid embedded items including but not limited to gas mains that could potentially interfere with the work. The means and methods shall be submitted for review and approval by the Engineer. Review of the means and methods may require a mock-up and/or trial demonstration by the Contractor to the satisfaction of the Engineer prior to approval.

## NOTICE TO OWNERS OF UTILITIES

(Supplementing Subsection 7.13)

Written notice shall be given by the Contractor to all public service corporations or officials owning or having charge of publicly or privately owned utilities of their intention to commence operations affecting such utilities at least one week in advance of the commencement of such non-emergency operations. The Contractor shall at that time file a copy of such notice with the Engineer.

The following website lists the names and addresses of the utilities presumed to be affected, but the completeness of the list is not guaranteed: http://www.mass.gov/info-details/utility-contacts-by-district-and-municipality.

**NOTICE TO OWNERS OF UTILITIES** (Continued)

The name and address of MassDOT DUCE contact is as follows:

**MassDOT District 5 Utility/Constructability Engineer**
Richard Bilski
857-368-5052
Richard.Bilski@dot.state.ma.us

Dig-Safe Call Center – 1-800-322-4844

**Pole Set Responsibility**
Verizon

**Electric – De-Energize, Energize**
Taunton Municipal Light Plant
P.O. Box 870
Taunton, MA 02780

Joe Fernandes
508-824-5844
Josephfernandes@tmlp.com

**Gas**
Enbridge
8 Wilson Way
Westwood, MA 02090

Kathy Aruda
508-938-7728
Kathleen.aruda@enbridge.com

Eversource Gas
995 Belmont St.
Brockton, MA 02301

Chris Fontaine
508-895-4818
Christopher.fontaine@eversource.com

**Telephone**
Verizon
385 Myles Standish Blvd.
Taunton, MA 02780

Karen Mealey
774-409-3160
karen.m.mealey@verizon.com

**Water**
Taunton DPW - Water Division
90 Ingell St.
Taunton, MA 02780

Cathal O'Brien
508-821-1431

**Sewer**
Veolia Water
825 West St.
Taunton, MA 02780

Anicet Teves
508-823-3582

**Cable**
Crown Castle
80 Central Street
Boxorough, MA 01719

Mark Bonanno
508-616-7818
Mark.bonanno@crowncastle.com

**NOTICE TO OWNERS OF UTILITIES** (Continued)

Comcast Cable Corporation
P.O. Box 6505, 5 Omni Way
Chelmsford, MA 01824

Wendy Brown
978-848-5163
Wendy_Brown@comcast.com

AT&T Teleport Communications
c/o Siena Engineering Group
50 Mall Rd., Suite 203
Burlington, MA 01803

Hayleigh Walker
781-221-8400
Haleigh.Walker@sienaengineeringgroup.com

**City Engineer**
Michael Patneaude, PE
90 Ingell St
Taunton, MA 02780
mpatneaude@taunton-ma.gov

**Taunton Police Department**
23 Summer St
Taunton, MA 02780
508-824-7522

**Taunton Fire Department**
50 School St.
Taunton, MA 02780
508-824-4024

Note: There are no gas utilities associated with this project.

Municipal officials are shown at the website http://www.mass.gov under the "Government, Taxes & Public Service" tab, select "Cities & towns, comprehensive information" under the "Local & county government" heading.

**EVERSOURCE EMERGENCY TELEPHONE NUMBERS**

GAS:
Outage/ Emergency: 800-592-2000
New Service: 866-678-2744
Customer Support: 800-592-2000

## 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.

## 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 33,000 18-kip (80-kn) ESALs.

## 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. This project has been consulted with the USFWS through the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and Federal Transit Administration (FTA) Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat revised February 5, 2018 and amended March 31, 2023.

On June 20, 2023, Tetra Tech on behalf of MassDOT Highway Division Environmental Services, conducted a northern long-eared bat summer presence/absence survey using acoustic detection methods, in accordance with the 2023 survey guidelines. The survey did not confirm the presence of NLEB and/or TCB, and as stated within the survey guidelines, the survey is valid for five years. Due to the 5-year validity of the negative presence/absence survey, it is recommended that the contractor conduct all activities that could result in stressors to the bats such as tree removal/trimming, bridge and/or structure removal/maintenance, lighting, or use of percussive, by June 20, 2028. If additional stressor producing work is proposed by the Contractor past this date, additional review is required by the MassDOT Highway Division's Environmental Services Section, and additional review and restrictions may be required by the USFWS.

## NORTHERN LONG-EARED BAT AND TRICOLORED BAT PROTECTION (Continued)

Due to the negative survey results, the project is eligible for a May Affect, Not Likely to Adversely Affect (NLAA) determination, with Avoidance and Minimizations Measures (AMMs), in accordance with the FHWA, FRA and FTA Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat. On behalf of FHWA, the lead federal agency for Section 7 consultation, MassDOT submitted a Programmatic Consultation for Transportation Projects affecting NLEB or Indiana Bat to the USFWS through the Information for Planning and Consultation (IPaC) webpage and generated a NLAA documentation letter (see **Document A00855**). Therefore, the project has completed Section 7 consultation through the Endangered Species Act, and the AMMs listed below.

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 AMM

- 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.

### Bridge AMM

- On June 20, 2023 Tetra Tech, on behalf of MassDOT Highway Division Environmental Services conducted a northern long-eared bat bridge/structure bat assessment, in accordance with the USFWS guidelines. The assessment did not find presence of, or evidence of use by bats, and as stated within the guidelines, the assessment is valid for two years. If bridge work is not complete before June 20, 2025, assessment of the bridge for the presence of, or evidence of use by, bats shall be completed by contractor/consultant/DOT prior to continuing bridge work. The Contractor shall notify the MassDOT Wildlife Unit no later than fourteen (14) days prior to June 20, 2025 to provide adequate time for inspection. If bats are found to be present, or, if there is evidence of bat usage, work at the bridge shall not commence until after the MassDOT Wildlife Unit has completed coordination with the US Fish and Wildlife Service to determine the appropriate follow up or mitigation actions.

## 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:

- 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.

**SUBSECTION 8.14** (Continued)

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.

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.

**SUBSECTION 8.14** (Continued)

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.

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.

## UTILITY WORK AND COORDINATION

Utility work for this project includes relocation by the utility owners of existing overhead power and communication lines running parallel to the roadway into temporary and then into permanent below grade duct banks as shown on the drawings. The utility lines will be de-energized prior to the bridge demolition, and then again during the cutovers to the new lines.

The Contractor shall coordinate with the utility companies and the Engineer to determine the final duct bank locations and schedule for their respective relocations.

Coordinate this work in compliance with Subsection 8.14.

Electric
The Taunton Municipal Light Plant (TMLP) will install cut-off switches near the limits of work to allow their facilities located within the work zone to be de-energized during the work. TMLP retains the right to re-energize their facilities, if required, due to peak period demand (typically mid-July through the end of August). Contractor shall coordinate with TMLP to schedule their work and de-energize their lines.

Communications
Verizon has stated that their existing overhead copper cables are not used and will be cut and removed by Verizon. Verizon fiber shall be maintained in place until relocated to the temporary conduits by Verizon.

Comcast lines shall be maintained in place until relocated to the temporary conduits by Comcast.

## SUBSECTION 8.06 LIMITATIONS OF OPERATIONS

Add/amend the following at the end of the Section:

The Contractor shall provide roadway closures and associated detours in a manner consistent with the TTCP.

Attention is directed to the schedule of allowed work hours and required lane/roadway restrictions given in the supplement to Subsection 8.02, SCHEDULE OF OPERATIONS. The Contractor shall strictly conform to these requirements. Any deviation from the requirements requires the approval of the Engineer before any work is performed outside of the project schedule of operations.

The Contractor's attention is directed to the location of the work and the limited availability of on-site areas for mobilization, staging and storage for the Contractor and Subcontractors. Off-site areas as necessary for Contractor parking, field offices, lay down area, work storage and work staging areas shall be the responsibility of the Contractor.

**SUBSECTION 8.06 LIMITATIONS OF OPERATIONS** (Continued)

Mobilization including locating and establishing appropriate off-site properties for the Contractor's and Engineer's field office, parking, work storage, lay down and work staging area(s) necessary to support the Contractor's operations and all work under this Contract shall be incidental to the Contract and the costs included in the unit bid price for the items of the Contract. The work required to provide for off-site Contractor operations shall conform to any pertinent local, state or federal law, regulation or code.

**Access Restraints:**

This contract contains Access Restraint(s) to provide an anticipated start date of certain portions of the Work that are restrained by a Utility Party. An Access Restraint is a restriction of physical work, of a specific area or operation in the Contract, to allow all bidders to evaluate anticipated work restrictions, equally, during the pre-bid planning stages. In respect to utilities, the Contract Time (duration) has considered these portions of the utility work and has been developed with the initial information that has been provided by the Utility Party, and accepted by MassDOT. The Contractor shall be required to communicate and coordinate with all affected Utilities, and may be required to perform support aspects of the utility relocation (as noted in the Contract Documents) well in advance of the start of the applicable utility relocation. As part of this work, the Contractor is to demonstrate proper coordination and notification with the impacted Utility(s), no less than 45 days before the start of the work.

The Contractor must clearly identify all aspects of this work in the preparation of the Construction Schedule and throughout the contract duration.

This contract contains the following utility Access Restraints that are to be included in the Contractor's Baseline Schedule submission:

**AR#01 – Access Restraint #01:** The Contractor will be restricted from starting any physical work associated with the demolition of the bridge superstructure or installation of temporary sheeting for **two (2) calendar days** during which Taunton Municipal Lighting Plant installs cut-off switches for de-energizing the overhead lines that run through the project.

The Contractor is reminded that, in bidding this work, the Contractor is obliged to meet the Contract Milestones and is obligated to plan the successful completion of Work, prior to submitting the bid.

In submitting a bid price for this contract, the Contractor acknowledges that a detailed plan, has been developed to meet the Contract Time for all aspects of the Contract; including shift work; extended work hour requirements/restrictions; all of the limitations of operations; utility coordination, as well as the planning of all subcontractor and supplier operations.

## WOOD TURTLE PROTECTION PLAN

General

**This section outlines the requirements of the Natural Heritage and Endangered Species Program (NHESP) of the Division of Fisheries and Wildlife (DFW) for projects that occur in the vicinity of high-priority wood turtle populations.** The work to be done consists of the monitoring and protection of turtles during the demolition and construction of the bridge and approach roadways carrying Scadding Street over Snake River, in Taunton.

One Time Sweeps – Prior to Vegetation Clearing and Excavation Support System Installation

MassDOT shall identify a Turtle Monitor assigned to this project prior to the start of the work. The Turtle Monitor shall be a MassDOT biologist (Timothy Dexter, 857-368-8794, timothy.dexter@state.ma.us) approved by the Natural Heritage and Endangered Species Program (NHESP). The Turtle Monitor shall obtain a scientific collecting permit from the NHESP to handle wood turtles. The NHESP-approved Turtle Monitor shall visit the site prior to the start of major work activity. The Turtle Monitor shall sweep the site prior to any site clearing, grubbing, or site preparations. The Turtle Monitor shall inspect vegetation within 200' of the stream, prior to the establishment of the limit of work line.

In addition, the Monitor shall provide a sweep of the site prior to any work in water. The Monitor shall inspect all areas of land under water where excavation support systems are to be installed, paying close attention to overhanging banks.

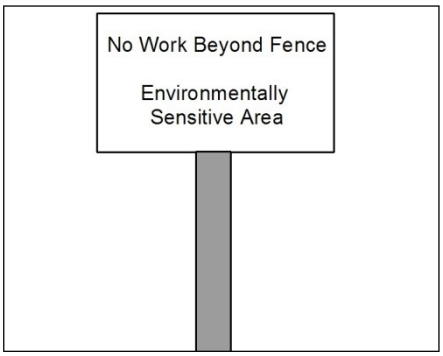
The Turtle Monitor shall visually sweep the described areas immediately before machines enter the area and relocate any turtles to suitable habitat immediately beyond the construction site. The Turtle Monitor shall provide contact information to the project supervisor in the event a wood turtle is discovered on-site. The Monitor may visit the site on only one day if the vegetation clearing and in-water work are initiated on the same day. Upon completion of the monitoring, the Monitor shall provide the NHESP with a summary of activities at the construction site. This report shall include the number and duration of visits and rare species observation forms for all state-listed species encountered. In the event of finding an injured turtle, the turtle shall be transported to a suitable veterinarian. In the event of finding a turtle with a radio transmitter, NHESP and the contact on the transmitter shall be alerted immediately.

All state-listed species encountered in or near the project shall be reported to the NHESP through a Rare Animal/Plan Observation Report with the required supporting materials within 10 days of the observation. No state-listed species may be removed from the project site unless under the direct supervision of the biologist or the NHESP.

Establishment of a Limit of Work Barrier

Following the sweep of the work site, a limit of work barrier shall be installed by the Contractor. This line shall consist of staked compost filter tubes and silt fence (silt fence as the outer boundary) and shall contain signage clearly identifying it as the limits of work in all four quadrants of the bridge. The barrier shall be installed as shown on the plans. The barrier shall be maintained in good working condition by the Contractor for the duration of construction.

**WOOD TURTLE PROTECTION PLAN** (Continued)




*Example limit of work sign.*

Installation of the barrier must be conducted using methods that result in a minimum of disturbance (i.e., hand-dug, "2-man" trencher or auger). It is not appropriate to clear large access paths prior to sweeps for turtle. No clearing may occur outside the limit of work approved by the NHESP.

1. The barrier must be composed of at least 2 1/2 feet of vertical barrier above ground and an additional 4-6 inches buried below ground.
2. The face of the material must be relatively smooth. Materials commonly used are staked at 6 – 10-foot intervals and include tightly woven geotextile, aluminum flashing, or other such materials stapled or tacked to stakes. Loosely woven geotextile fabrics, hay/straw bales, wattles or tubular materials are not generally sufficient.
3. The bottom of the silt fencing must be carefully buried in a 4 - 6-inch-deep trench. The trench must be backfilled and compacted. If it is not possible to dig a trench, then the bottom of the barrier must be affixed to the surface.
4. If hay or straw bales are to be used with silt fencing, they shall be installed on the work-side of the silt fence to avoid turtles using these to breach the barrier.
5. Once installed, the barrier shall be taut between the stakes. Slumps or loose materials will undermine the effectiveness of the barrier. In some circumstances, geotextile fabrics may need to be reinforced with backer material to ensure integrity. Backer material is typically similar to hardware cloth.
6. In areas where the barrier adjoins the excavation support system, the connection will be tight to prevent any gaps that could be breached by wood turtles.

Once per week, a person familiar with barrier maintenance and installation shall inspect the barrier and facilitate any repairs or alterations. The limit of work barrier should remain taught between stakes and any holes along the bottom repaired. MassDOT shall provide NHESP with the name and contact information of the Resident Engineer responsible for coordinating necessary sweeps and maintaining appropriate barriers.

Construction Worker Training:

The Monitor shall provide to the construction foreperson wood turtle identification and handling pamphlets. All construction, landscaping, and other sub-contractors associated with the Project shall be informed in writing of the likely presence of State-listed Species on the Property and what measures (observation and injury) should be implemented to minimize direct harm to State-listed Species.

**WOOD TURTLE PROTECTION PLAN** (Continued)

Further, no wildlife shall be removed from the Property without approval of a qualified wildlife biologist or the Division except as necessary to receive veterinary treatment in the case of harm during construction.

**This protocol may require only one to three days** of labor, including field surveys and correspondence with the NHESP.

Basis of Payment:
There will be no payment for the hiring of a Turtle Monitor, as they will be provided to the Contractor as a free service by MassDOT. Installation of a limit of work barrier and signage shall be considered included under Item 767.121. "Sedimentation Control Barrier".

## 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.

## 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.

## 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.

## ENVIRONMENTAL PERMITTING

The proposed work does occur in jurisdictional wetland resources subject to section 401 or section 404 of the Clean Water Act; therefore, the project does require a Water Quality Certification from the Massachusetts Department of Environmental Protection and authorization from the US Army Corps of Engineers. The proposed work qualifies for the bridge exemption authorized in the Transportation Bond Bill and is, therefore, not subject to the Massachusetts Wetlands Protection Act, the Massachusetts Public Waterfront Act (Chapter 91) or the Massachusetts Environmental Policy Act.

If field conditions and/or Contractor proposed erection, demolition, staging, or other procedures 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 obtained allowing such work. The Contractor must notify the District 5 Highway Director and Resident Engineer in writing at least 60 days prior to the desired commencement of the proposed activity. All environmental submittals, including any Contract with Local, State, or Federal environmental agencies, must be coordinated with the District 5 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 obtain the environmental permits.

## 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.

**BUILD AMERICA BUY AMERICA PREFERENCE** (Continued)

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.

NOTE: The requirements for manufactured products indicated in paragraph (2) above are not in effect for this contract.

**PIGEON WASTE**

The Contractor shall remove and dispose of the pigeon waste and any other debris accumulated on the steel members and bridge seats in areas where work is being performed. Pigeon waste and debris material contaminants will require special handling and disposal in accordance with all Federal, state, and local requirements. No separate payment will be made for removal and disposal of pigeon waste. Cost shall be incidental to the contract pay items.

**2026 FIFA WORLD CUP – BOSTON, MASSACHUSETTS**

The 2026 FIFA World Cup will be held at Gillette Stadium in Foxborough and related events will be held throughout the region. Matches and Fan Fest activities are scheduled from June 11, 2026 through July 19, 2026. MassDOT will impose work restrictions as necessary to minimize traffic impacts during FIFA events when the Contractor's operations could impact vehicular traffic, particularly on interstate highways and major arterials throughout the region and local roads near the event site. No additional compensation will be allowed for work restrictions except as determined under Subsection 8.10

## GENERAL REQUIREMENTS FOR DEMOLITION AND WORK INVOLVING PAINTED STEEL

(02/06/2020)

Demolition and work involving painted steel shall conform to the requirements of Subsection 961 of the Standard Specifications.

### Work Involving Painted Steel

Hazardous materials shall be removed in the immediate area of any intended welding, heating, saw cutting or burning of steel. Hazardous material removal is required to allow the demolition of structural steel, railings, drainage systems, utility supports, steel lamp posts, etc.

The contractor shall assume that the coatings on the steel contain lead (Pb), unless otherwise determined by testing. The contractor shall certify in writing to the Engineer the results of all testing, and shall also certify that any lead (Pb) coated steel removed from the project was not reused or buried, but was sent to a scrap metal recycling facility.

Implement and maintain programs and procedures, which comply with the requirements of this specification and all applicable standards and regulations. Comply with all applicable regulations even if the regulation is not specifically referenced herein. If a state or local regulation is more restrictive than the regulation of this specification, follow the more restrictive requirements.

This requirement is intended only for the demolition and preparation prior to repair and does not include provisions for recoating of steel.

### Environmental

All applicable portions of Subsections 961.65 “Worker Protection” and 961.66 “Environmental Protection and Monitoring” shall be followed when performing this work.

During chemical stripping a hand washing facility may be used in lieu of a decontamination/changing facility.

Hazardous material shall be collected during the disassembly and disposed of as outlined in Subsection 961.68 “Handling of Hazardous Waste and Reporting Release Programs”.

The applicable submittals shall be according to Subsection 961.69 “Submittals”.

**GENERAL REQUIREMENTS FOR DEMOLITION AND WORK INVOLVING PAINTED STEEL** (Continued)

**Cleaning/Removal**

**Cutting Or Burning Of Steel**

All surfaces to be welded, heated, saw cut or burned shall be cleaned so as to remove all contaminants and/or hazardous materials, which could be discharged to the environment as a function of the subsequent operations.

Lead paint shall be removed in its entirety in an area prescribed by a 6 inch (15 cm) minimum offset from the required work. The paint removal operation may be dry abrasive blasting, wet abrasive blasting or chemical stripping.

Proper level of containment shall be used when performing this work in accordance with Subsection 961.67 "Containment". Full containment is not required during chemical stripping operation however; the Contractor shall install proper shielding and/or tarpaulins under the chemical stripping operations in order to catch all debris generated during this procedure. A cleaned area must be inspected and approved before the demolition operations are started.

During cleaning operations the Contractor shall be required to furnish and erect temporary floodlights illuminating the steel surface at a minimum of 30-foot candles. This lighting shall be used in areas where there is insufficient lighting for proper cleaning operations and inspection. The Contractor shall supply electrical power.

The Contractor shall provide support for interim and final inspection of the bridge during cleaning operations. This support shall include the necessary traffic controls and safe access to the work.

**Mechanical Disassembly Of Steel**

All surfaces to be mechanically disassembled by shear cutting or removing bolts or rivets shall not require deleading. When shear cutting or removing bolts or rivets, the Contractor shall not use any method that will cause dust and/or particles to be emitted and/or dispersed into the environment to an extent that would expose the workers above the Action Levels of 30µg/m3.

For purposes of limiting the lead (Pb) dust, the Contractor will be required to dampen the lead paint work areas.

The contractor shall install a proper shielding and/or tarpaulins under all lead-paint-coated surfaces to be shear cut or bolts or rivets ordered removed in order to catch any loose lead paint chips, dust or particles.

## WATERWORKS

(Supplementing Section 300)

The items of work covered under this Section consist of furnishing all labor, materials, tools, and equipment necessary to install new 4-inch and 12-inch ductile iron mains and all appurtenances including gate valves, fittings, test connections, service connections, connections to existing City mains; etc.; perform all leakage tests, disinfect all completed water lines, adjust gate valve boxes to grade and furnish and install curb stop boxes along Scadding Street as required in conjunction with the proposed waterworks improvements. All work shall be in accordance with these Specifications, City of Taunton requirements, the details shown on the Contract Drawings or as directed by the Engineer.

All personnel employed by the Contractor on this work shall be experienced and skilled in water main installation.

Notices shall be given to the City of Taunton Water Department at least 48 hours before any water is shut-off, and in no case shall an existing gate valve or hydrant be opened or shut by the Contractor, except in an emergency. Existing gates and hydrants shall be opened or shut by personnel of the Taunton Water Department. The Contractor shall be responsible for notifying affected water consumers at least 24 hours prior to water shutdowns.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE HIS SCHEDULE OF OPERATIONS AND THE SHUTDOWN OF EXISTING WATER MAINS WITH THE ENGINEER AND THE TAUNTON WATER AND FIRE DEPARTMENTS. IT IS THE INTENT OF THIS CONTRACT TO MAINTAIN CUSTOMER SERVICE AT ALL TIMES, EXCEPT WHEN THE SERVICE IS BEING CONNECTED. WATER SHUTDOWNS SHALL BE ONLY TO THE EXTENT AND DURATION REQUIRED TO COMPLETE THE CONSTRUCTION AND IN NO INSTANCE SHALL EXTEND BEYOND THE HOURS FROM 8:00 AM TO 4:00 PM, PREVAILING TIME.

Prior to commencing work, the Contractor shall submit in writing, to the Engineer for approval, a schedule of proposed construction procedures and methods to be used in installing the new ductile iron water mains and all appurtenances. The schedule of construction operations submitted for approval shall include the following: (1) the extent and duration of proposed water shutdowns to include dates and approximate times and (2) alternate methods for maintaining customer services if and when the Contractor proposes water shutdowns in excess of those stated hereinbefore. The Contractor shall not place or cause to be placed into service new water lines or sections thereof until such time as the new lines have been disinfected and tested in accordance with these Specifications.

# SECTION 722
# CONSTRUCTION SCHEDULING
# DESCRIPTION

## 722.20 General

The Contractor's approach to prosecution of the Work shall be disclosed to the Department by submission of a Critical Path Method (CPM) schedule and a cost/resource loaded Construction Schedule as defined by the schedule type set forth below. These requirements are in addition to any requirements imposed in other sections.

This section establishes the requirement for scheduling submissions. There are four schedule types identified as types A, B, C and D.

All schedules shall be prepared and submitted in accordance with this specification and the instructions contained in the Construction Schedule Toolkit located on the MassDOT-Highway Division website at https://www.mass.gov/info-details/massdot-highway-contractors-schedule-toolkit.

**Type A** –

- Schedule Planning Session
- Baseline CPM Schedule
- Monthly Update CPM Schedule
- Short-term Construction Schedule
- Contract Schedule Update Meeting
  - Cost-loaded & Resource Loaded CPM
- Resources Graphic Reporting
- Cash Flow Projections from the CPM
- Cash Flow Charts
- Monthly Projected Spending Report (PSR)
- Contractor-furnished CPM software and computer

**Type B** –

- Schedule Planning Session
  - Baseline CPM Schedule
  - Monthly Update CPM Schedule
- Short-term Construction Schedule
- Contract Schedule Update Meeting
- Cost-loaded & Resource Loaded CPM
- Monthly Projected Spending Report (PSR)
- Contractor-furnished CPM software and computer

**Type C** –

- Schedule Planning Session
- Baseline CPM Schedule
- Monthly Update CPM Schedule
- Short-term Construction Schedule
- Contract Schedule Update Meeting
  - Monthly Projected Spending Report (PSR)
- Contractor-furnished CPM software and computer

**SECTION 722** (Continued)

**Type D -**

- Bar chart schedule updated monthly or at the request of the Engineer
- Short-term Construction Schedule
- Monthly Projected Spending Report (PSR)

## EQUIPMENT, PERSONNEL

### 722.40 General

A. **Software Requirements**

The Contractor shall use Primavera P6 computer scheduling software.

In addition to the requirements of Section 740 – Engineer's Field Office and Equipment, the Contractor shall provide to the Department one (1) copy of the scheduling software, one (1) software license and one (1) computer capable of running the scheduling software for the duration of the Contract. This computer and software shall be installed in the Engineer's Field Office. The computer and software shall be maintained and serviced at no additional cost to the Department.

**B. Scheduler Requirements**

The Scheduler shall be approved by the Engineer.

For Type A, B and C Schedules the name of the Contractor's Project Scheduler together with his/her qualifications shall be submitted to the Department for approval by the Engineer within seven (7) Calendar Days after NTP. The Project Scheduler shall have a minimum of five (5) years of project CPM scheduling experience, three (3) years of which shall be on projects of similar scope and value as the project for which the Project Scheduler is being proposed. References shall be provided from past projects that can attest to the capabilities of the Project Scheduler.

## SCHEDULING METHODS

### 722.60 General

A. **Schedule Planning Session**

The Contractor shall conduct a schedule planning session prior to submission of the Baseline Schedule. This session will be attended by the Department and its consultants. During this session, the Contractor shall present its planned approach to the project including, but not limited to:

1. the Work to be performed by the Contractor and its subcontractors;
2. the planned construction sequence and phasing; planned crew sizes;
3. summary of equipment types, sizes, and numbers to be used for each work activity;
4. all early work related to third party utilities;
5. identification of the most critical submittals and projected submission timelines;
6. estimated durations of major work activities;
7. the anticipated Critical Path of the project and a summary of the activities on that Critical Path;
8. a summary of the most difficult schedule challenges the Contractor is anticipating and how it plans to manage and control those challenges;

**SECTION 722** (Continued)

9. a summary of the anticipated quarterly cash flow over the life of the project.

This will be an interactive session and the Contractor shall answer all questions that the Department and its consultants may have. The Contractor shall provide a written summary of the information presented and discussed during the session to the Engineer. The Contractor's Baseline Schedule and accompanying Schedule Narrative shall incorporate the information discussed at this Schedule Planning Session.

B. **Schedule Reviews by the Department**

1. Baseline Schedule Reviews
   The Engineer will respond to the Baseline Schedule Submission within thirty (30) Calendar Days of receipt providing comments, questions and/or disposition that either accepts the schedule or requires revision and resubmittal. Rejected Baseline Schedules shall be resubmitted within fifteen (15) Calendar Days after receipt of the Engineer's comments.
2. Contract Progress Schedule / Monthly Update Reviews / Recovery Schedules
   The Engineer will respond to each submittal within twenty-one (21) Calendar Days. Rejected schedules shall be resubmitted by the Contractor within five (5) Calendar Days after receipt of the Engineer's comments.

The Engineer's review comments shall not be construed as direction to change the Contractor's means and methods. The review and acceptance of the CPM schedule does not relieve the Contractor of the responsibility for accomplishing the work within the contract required completion dates. Omissions and errors in the accepted CPM schedule shall not excuse performance less than that required by the Contract.

**722.61 Schedule Content and Preparation Requirements**

All schedules shall be prepared and submitted in accordance with the instructions contained in the Construction Schedule Toolkit located on the MassDOT-Highway Division website at:
https://www.mass.gov/info-details/massdot-highway-contractors-schedule-toolkit
and the following:

A. **LOGIC**

The schedules shall divide the Work into activities with appropriate logic ties to show:

1. conformance with the requirements of this Section and Division I, Subsection 8.02 - Schedule of Operations
2. the Contractor's overall approach to the planning, scheduling, and execution of the Work
3. conformance with any additional sequences of Work required by the Contract Documents, including, but not limited to, Subsection 8.03 - Prosecution of Work and Subsection 8.06 – Limitations of Operations.

**SECTION 722** (Continued)

B. **ACTIVITIES**

The schedule shall clearly define the progression of the Work from the Notice to Proceed (NTP) to Contractor Field Completion (CFC) by using separate activities, or including attributes within appropriate activities, to address each of the following:

1. Notice to Proceed
2. Work Breakdown Structure
3. The Critical Path is clearly defined and organized.
4. Float shall be clearly identified.
5. Detailed activities to satisfy permit requirements.
6. Subcontractor approvals at fifteen (15) Calendar Days from submittal to response
7. The preparation and submission of shop drawings, procedures, and other required submittals, with a planned duration that is to be demonstrated to the Engineer as reasonable.
8. The review and return of shop drawings, procedures, and other required submittals, approved or with comments, the duration of which shall be thirty (30) Calendar Days, unless otherwise specified or as approved by the Engineer.
9. Procurement of fabricated materials and equipment with long lead times, including time for review and approval of submittals required before procuring and fabricating.
10. Each component of the Work defined by specific activities.
11. Right-of-Way (ROW) takings that have been identified in the Contract.
12. Early Utility Relocation (by others) that has been identified in the Contract.
13. Interfaces with adjacent work, utility companies, other public agencies, sensitive abutters, and/or any other third-party work affecting the Contract.
14. Utility work to be performed in accordance with the Project Utility Coordination (PUC) Form as provided in Section 8.14 - Utilities Coordination, Documentation and Monitoring Responsibilities
15. Access Restraints – restrictions on access to areas of the Work that are defined by the Department in the bid package, in Subsection 8.06 – Limitations of Operations or elsewhere in the Contract
16. Limitations of Work – time of year restrictions and any other limitations identified in the contract
17. Traffic work zone set-up and removal, night work and phasing
18. Material Certifications
19. Milestones listed in Subsection 8.03 - Prosecution of Work or elsewhere in the Contract Documents
20. For Type A and B Contracts only: All items to be paid for, including all Unit Price and Lump Sum pay items, shall be identified by activity. This shall include all non-construction activities such as engineering work; purchase of permanent materials and equipment, purchase of structural steel stock, equipment procurement, equipment delivery to the site or storage location and the representative amount of overhead/indirect costs that was included in the Contractor's Bid Prices.

**SECTION 722** (Continued)

21. Contractor's request for validation of FBU (ready to open to traffic)
22. Full Beneficial Use (FBU) Contract Milestone per the following requirements: The majority of contract Work has been completed and the asset(s) has been opened for full multi-modal transportation use, except for limited contract work items that do not materially impair or hinder the intended public use of the transportation facility. All anticipated lane takings have been completed, except for minor, short term work items and as defined in Subsection 8.03 - Prosecution of Work
23. The Department's confirmation of completed work to allow for FBU.
24. Contractor's request for validation of Substantial Completion
25. Department generated punch list of twenty-one (21) Calendar Days
26. Substantial Completion Contract Milestone as defined in the standard specifications.
27. Punch list Completion Period of at least thirty (30) Calendar Days per the requirements of Subsections 5.11 - Final Acceptance, 7.15 - Claims Against Contractors for Payment of Labor, Materials and Other Purposes
28. Contractor confirmation that all punchlist work and documentation has been completed.
29. Physical Completion of the Work Contract Milestone per the requirements of Subsections 5.11 - Final Acceptance and 8.03 - Prosecution of Work
30. Documentation Completion per the requirements of Subsections 5.11 - Final Acceptance and 8.03 - Prosecution of Work
31. Contractor Field Completion Contract Milestone (which can also be considered the completion date) per the following requirements: All physical contract Work is complete including punchlist. The Contractor has fully de-mobilized from field operations and as defined in Subsection 5.11

C. **EARLY AND LATE DATES**

Early Dates shall be based on proceeding with the Work or a designated part of the Work exactly on the date when the corresponding Contract Time commences. Late Dates shall be based on completing the Work or a designated part of the Work exactly on the corresponding Contract Time, even if the Contractor anticipates early completion.

D. **DURATIONS**

Activity durations shall be in Work Days. Planned Original Durations shall be established with consideration of resources and production rates that correspond to the Contractor's Bid Price. Within all of the Department-required schedules, the Contractor shall plan the Work using durations for all physical construction activities of no less than one (1) Work Day and no greater than fourteen (14) Work Days, unless approved by the Engineer as part of the Baseline Schedule Review.

**SECTION 722** (Continued)

Should there be an activity with a duration that is determined by the Engineer to be unreasonable, the Contractor will be asked to provide a basis of the duration using bid documents, historic production rates for similar work, or other form of validation that is acceptable to the Engineer. Should the Contractor and the Engineer be unable to agree on reasonable activity durations, the Engineer will, at a minimum, note the disagreement in the Baseline Schedule Review along with a duration the Engineer considers reasonable and the basis for that duration. A schedule that contains a substantial number of activities with durations that are deemed unreasonable by the Engineer will not be accepted.

E. **MATERIALS ON HAND**

The Contractor shall identify in the Baseline Schedule all items of permanent materials (Materials On Hand) for which the Contractor intends to request payment prior to the incorporation of such items into the Work.

F. **ACTIVITY DESCRIPTIONS**

The Contractor shall use activity descriptions in all schedules that clearly describe the work to be performed using a combination of words, structure numbers, station numbers, bid item numbers, work breakdown structure (WBS) and/or elevations in a concise and compact label.

G. **ACTIVITY IDENTIFICATION NUMBERS**

The Contractor shall use the activity identification numbering system specified in the MassDOT Highway Division Contractor Construction Schedule Toolkit.

H. **ACTIVITY CODES**

The Contractor shall use the activity codes specified in the MassDOT Highway Division Contractor Construction Schedule Toolkit.

I. **CALENDARS**

Different calendars may be created and assigned to all activities or to individual activities. Calendars define the available hours of work in each Calendar Day, holidays and general or project-specific non-Work Days such as Fish Migration Periods, time-of-year (TOY) restrictions and/or area roadway restrictions. All calendars shall extend two years beyond the current project completion date.

Project Special Provisions identify specific calendar restrictions some examples of special calendars include, but are not limited to:

- Winter Shutdown Period, specific work is required by separate special provision to be performed during the winter. See Special Provision 8.03 (if applicable)
- Peak traffic hours on heavily traveled roadways. This shall be from 6:30 am to 9:30 am and from 3:30 pm to 7:00 pm, unless specified differently elsewhere in the Contract.
- Special requirements by sensitive abutters, railroads, utilities and/or other state agencies as defined in the Contract.
- Planting seasons for trees, shrubs and grasses and wetlands mitigation work.

**SECTION 722** (Continued)

- Cape Cod and the Islands Summer Roadway Work Restrictions: A general restriction against highway and bridge construction is enforced between Memorial Day and Labor Day, unless otherwise directed by the Engineer. Cape Ann Summer Roadway Work Restrictions: While there are no general restrictions for Cape Ann as there are for Cape Cod and the Islands, project-specific restrictions may be enforced.
- Turtle and/or Fish Migration Periods and/or other in-water work restrictions: Refer to the Project Special Provisions for specific restrictions.
- Working over Waterways Restricted Periods.
- Night-time paving and striping operations, traffic, and temperature restrictions.
- Utility Restrictions shall be as specified within the Contract.

J. **FLOAT**

For the calculation of float in the CPM schedule, the setting for *Retained Logic* is required for all schedule submissions, starting with the Baseline Schedule Submission. Should the Contractor have a reason to propose that an alternative calculation setting such as *Progress Override* be used, the Contractor shall obtain the Engineer's approval prior to modifying to this setting.

K. **COST AND RESOURCE LOADING (Types A and B only)**

For all Type A and B Schedules, the Contractor shall provide a cost and resource-loaded schedule with an accurate allocation of the costs and resources necessary to complete the Work. The costs and resources shall be assigned to all schedule activities in order to enable the Contractor to efficiently execute the Contract requirements and the Engineer to validate the original plan, monitor progress, provide cash flow projections, and analyze delays.

1. Each schedule activity shall have an assigned cost that accurately represents the value of the Work. Each schedule activity shall have its resources assigned to it by craft and the anticipated hours to accomplish the work. Each schedule activity's equipment resources shall be assigned to it by equipment type and hours operated. Front-loading or other unbalancing of the cost distribution will not be permitted.
2. The sum of the cost of all schedule activities shall be equal to the Contractor's Bid Price.
3. Indicating the labor hours per individual, per day, by craft and equipment hours/day will be acceptable.
4. The Engineer reserves the right to use the cost-loading as a means to resolve changes, disputes, time entitlement evaluations, increases or decreases in the scope of Work, unit price renegotiations and/or claims.
5. For all Type A and B Schedules, all subnets, fragnets, Proposal Schedules, and Recovery Schedules shall be cost and resource- loaded to help to quickly validate and monitor the duration of the Work to be performed.
6. For Type A Schedules, cost-loading of the schedule will also be used for cash flow projection purposes.
7. The cost-loading of each activity shall indicate the portion of the cost for that activity that is applicable to a specific bid item (cost account.) The total cost for each cost account must equal the bid item price.

**SECTION 722** (Continued)

L. **NOT TO BE USED IN THE CONTRACTOR'S CPM SCHEDULE**

1. Milestones or constraint dates not specified in the Contract.
2. Scheduled work not required for the accomplishment of a Contract Milestone
3. Use of activity durations, logic ties and/or sequences deemed unreasonable by the Engineer.
4. Delayed starts of follow-on trades.
5. Float suppression techniques.
6. Leads such as leads, lags, SS, SF, & FF relationships without the expressed permission of the Department.

**722.62 Submittal Requirements**

All schedules shall be prepared and submitted in accordance with the requirements listed below.

Each monthly Contract Progress Schedule submittal shall be uniquely identified.

Each Submission shall, at a minimum, include the following:

a. Narrative
b. Schedule submittals shall be signed by the Scheduler
c. Schedule Printout - All Activities
d. Schedule Printout - Critical Path Layout
e. Schedule Printout - Remaining Work
f. Schedule Printout - Top 3 Float Path
g. Work Breakdown Structure (WBS) Summary
h. Project Spending Report (PSR) in Portable Document Format (.PDF)
i. Project Spending Report (PSR) in Microsoft Excel spreadsheet (.XLS)
j. Oracle Primavera P6 Schedule File (.XER)

All digital file submittals will be labeled with the following information.

- Contract Number
- Project Number
- Project locations (i.e., town(s))
- Brief description
- Submittal description (i.e., UP07)
- Data Date (MM-DD-YY)
- File Description (i.e., Critical Path)

Example: C110464 (P606309) - Orange Route 2 over 202 – UP23 (07-15-22) - Critical Path

A. **Narratives**

A written narrative shall be submitted with every schedule submittal. The narrative shall:

1. itemize and describe the flow of work for all activities on the Critical Path in a format that includes any changes made to the schedule since the previous Contract Progress Schedule / Monthly Update or the Baseline Schedule, whichever is most recent.
2. provide a description of any specification requirements that are not being followed. Identify those that are improvements and those that are not considered to be meeting the requirements.

**SECTION 722** (Continued)

3. provide all references to any Notice of Delay that has been issued, within the time period of the Contract Progress Schedule Update, by letter to the Engineer. Note that any Notice of Delay that is not issued by letter will not be recognized by the Engineer. See Subsection 722.64.A – Notice of Delay.
4. provide a description of each third-party utility's planned vs. actual progress and note any that are trending late or are late per the durations and commitments as provided in the PUC Form; provide a description of the five (5) most important responses needed from the Department and the need date for the responses in order to maintain the current Schedule of Record.
5. provide a description of all critical issues that are not within the control of the Contractor or the Department (third party) and any impact they had or may have on the Critical Path.
6. provide a description of any possible considerations to improve the probability of completing the project early or on time.
7. compare Early and Late Dates for activities on the Critical Path and describe reasons for changes in the top three (3) most critical paths.
8. describe the Contractor's plan, approach, methodologies, and resources to be employed for completing the various operations and elements of the Work for the top three (3) most critical paths. For update schedules, describe and propose changes to those plans and verify that a Proposal Schedule is not required.
9. describe, in general, the need for shifts that are not 5 days/week, 8 hours/day, the holidays that are inserted into each calendar and a tabulation of each calendar that has been used in the schedule.
10. describe any out-of-sequence logic and provide an explanation of why each out-of-sequence activity does not require a correction, if one has not been provided, and an adequate demonstration that these changes represent the basis of how these activities will be built, including considerations for resources, dependencies, and previously approved production rates.
11. identify any possible duration increases resulting from actual or anticipated unit price item quantity overruns as compared to the baseline duration, with a corresponding suggestion to mitigate any possible delays to the Critical Path. If the delay is anticipated to impact the Critical Path, refer to Subsections 4.06 – Increased or Decreased Contract Quantities and 8.10 – Determination and Extension of Contract Time for Completion and submit a letter to the Engineer notifying of a potential delay.
12. include a schedule log consisting of the name of the schedule, the data date and the date submitted.
13. include and describe any notifications, communications and coordination meetings with third-parties such as utility companies that occurred from the last update including personnel names, job titles and contact information, date of meeting(s)/correspondence(s), topics discussed, and reasons the third party provided for deviations from the PUC form.

**SECTION 722** (Continued)

B. **CPM Bar Charts**

One (1) timescaled bar chart containing all activities shall be prepared and submitted using a scale that yields readable plots and that meets the requirements of Subsection 722.61 – Schedule Content and Preparation Requirements Activities shall be linked by logic ties and shown on their Early Dates. Critical Paths shall be highlighted, and Total Float shall be shown for all activities.

A second timescaled bar chart shall also be prepared containing only the Critical Path or, if the Critical Path is not the longest path, the Longest Path using a scale that yields readable plots and that meets the requirements of Subsection 722.61 – Schedule Content and Preparation Requirements. Activities shall be linked by logic ties and shown on their Early Dates. Total Float shall be shown for all activities.

**C. Detailed Activity Schedule Comparisons**

A Detailed Activity Schedule Comparison (DASC) is a simple reporting tool in the format of a graphical report that will provide Resident Engineers with immediate, timely and up-to-date information. The DASC consists of an updated bar chart that overlays the current time period's bar chart onto the previous time period's bar chart for an easily read comparison of progress during the present and previous reporting periods.

**D. Activity Cost Report and Monthly Cash Flow Projections (Type A only)**

With each Contractor Quantity Estimate (CQE), the Contractor shall submit an Activity Cost Report and Cash Flow Projection that includes all activities grouped by Contract Bid Item.

The Activity Cost Report shall be generated from the Schedule of Record and shall be the basis of the Monthly Cash Flow Projection. Within each contract Bid Item, activities shall be sequenced by ascending activity identification number and shall show:

1. activity ID and description,
2. forecast start and finish dates for each activity and,
3. when submitted as a revised schedule, actual start, and finish dates for each completed activity.
4. any variance to the estimated contract quantity shall be shown.

**E. Resource Graphs (Type A only)**

Monthly and cumulative resource graphs for the remaining Contract period using the Early Dates and Late Dates in the Contract Progress Schedule shall be included as part of each schedule submittal.

**SECTION 722** (Continued)

**F. Projected Spending Reports**

A Projected Spending Report (PSR) shall be prepared and submitted monthly. The PSR shall indicate the monthly spending (cash flow) projection for each month from NTP to Contractor Field Completion (CFC). Each month's actual spending shall be calculated using all CQEs paid during that month. The Projected Spending Report (PSR) shall be depicted in a tabular format and provided in both an .XLS and .PDF.

## 722.63. Progress Schedule Requirements

**A. Baseline Schedule**

The Baseline Schedule shall be due thirty (30) Calendar Days after Notice to Proceed (NTP). The Baseline Schedule shall only reflect the Work awarded to the Contractor and shall not include any additional work involving Extra Work Orders or any other type of alleged delay. The Baseline Schedule shall be prepared and submitted in accordance with Subsections 722.61 - Schedule Content and Preparation Requirements and 722.62 - Submittal Requirements. Once the Baseline Schedule has been accepted by the Engineer, with or without comments, it shall represent the as-planned schedule for the Work and become the Contract Progress Schedule of Record until such time as the schedule is updated or revised under Subsections 722.63.C - Contract Progress Schedules / Monthly Updates, 722.64.C - Recovery Schedules and 722.64.D - Proposal Schedules.

The Cost and Resource-Loading information (Types A and B only) shall be provided by the Contractor within forty-five (45) Calendar Days after NTP.

The Engineer's review comments on the Baseline Schedule and the Contractor's responses to them will be maintained for the duration of the Contract and will be used by the Engineer to monitor the Contractor's work progress by comparing it to the Contract Progress Schedule / Monthly Update.

**B. Interim Progress-Only Schedule Submissions**

The first monthly update of the Contract Progress Schedule/Monthly Update is due within seventy (70) Calendar Days after Notice to Proceed (NTP.) The Baseline Schedule review period ends at sixty (60) Calendar Days after NTP, see Subsection 722.60.B - Schedule Reviews by the Department. If the Baseline Schedule has not been accepted within sixty (60) Calendar Days after NTP, an Interim Progress-Only Schedule shall be due within seventy (70) Calendar Days after NTP. The purpose of the Interim Progress-Only Schedule is to document the actual progress of all activities, including non-construction activities, from NTP until the Baseline Schedule is accepted.

**SECTION 722** (Continued)

**C. Contract Progress Schedules / Monthly Updates**

The first Contract Progress Schedule shall be submitted by the Contractor no later than seventy (70) Calendar Days after NTP. The data date for this first Progress Schedule shall be two months (approximately sixty (60) Calendar Days) after NTP. Subsequent Progress Schedules shall be submitted monthly.

Each Contract Progress Schedule shall reflect progress up to the data date. Updated progress shall be limited to asbuilt sequencing and asbuilt dates for completed and inprogress activities. Asbuilt data shall include actual start dates, remaining Work Days and actual finish dates for each activity, but shall not change any activity descriptions, the Original Durations, or the Original Resources (as planned at the time of bid), without the acceptance of the Engineer. If any activities have been completed out-of-sequence, the Contractor shall propose new logic ties for affected in-progress and future activities that accurately reflect the previously approved sequencing. Alternatively, the Contractor may submit to the Engineer for approval an explanation of why an out-of-sequence activity does not require a correction and an adequate demonstration that the changes accurately represent how the activities will be built, including considerations for resources, dependencies, and previously approved production rates. Once approved by the Engineer, the Contractor may incorporate the changes in the next Contract Progress Schedule/Monthly Update with the affected activities clearly identified and explained in the Schedule Narrative.

No revisions to logic ties, sequence, description, or duration of future activities; or planned resource costs shall be made without prior approval by the Engineer.

Any proposed logic changes for in-progress or future activities shall be submitted to the Engineer for approval before being incorporated into a Contract Progress Schedule. The logic changes must be submitted using a Proposal Schedule or a schedule fragnet submission. Once approved by the Engineer, the Contractor may incorporate the logic in the next Contract Progress Schedule/Monthly Update with the affected activities clearly identified and explained in the Schedule Narrative.

For any proposed changes to the original sequence, description or duration of future activities, the Contractor shall submit to the Engineer for approval an explanation of how the proposed description or duration change reflects how the activity will be progressed, including considerations for resources and previously approved production rates. Any description or duration change that does not accurately reflect how the activity will be progressed will not be approved by the Engineer. Once approved by the Engineer, the Contractor may incorporate the changes in the next Contract Progress Schedule/Monthly Update with the affected activities clearly identified and explained in the Schedule Narrative.

Contract Progress Schedules that extend performance beyond the Contract Time or beyond any Contract Milestone shall not be approved by the Engineer. The Contractor shall submit a Recovery Schedule, or a Time Entitlement Analysis, if any Contract Progress Schedule/Monthly Update indicates a failure to meet the Contract Dates.

**SECTION 722** (Continued)

**D. Short-Term Construction Schedule**

The Contractor shall provide a Short-Term Construction Schedule that details daily work activities, including any multiple shift work that the Contractor intends to conduct, in a spreadsheet format. The daily activities shall directly correspond to the Contract Progress Schedule activities, with a matching reference to the activity identification number in the Contract Progress Schedule and may be at a greater level of detail. The Short-Term Construction Schedule shall be submitted every two weeks. It shall display all work for a thirty-five (35) Calendar Day period consisting of completed work for the two (2) week period prior and all planned work for the following three (3) week period. The initial submission shall be provided no later than thirty (30) Calendar Days after NTP or as required by the Engineer.

The Contractor shall be prepared to discuss the Short-Term Construction Schedule, in detail, with the Engineer in order to coordinate field inspection staff requirements, the schedule of work affecting abutters and any corresponding work with affected utilities. Short-Term Construction Schedules shall be prepared and submitted in accordance with Subsections 722.61 - Schedule Content and Preparation Requirements and 722.62 - Submittal Requirements.

**722.64 Impacted Schedule Requirements**

**A. Notice of Delay**

The Contractor shall notify the Engineer in writing, with copies to the District and State Construction Engineers, within fifteen (15) of the start of any delays to the Critical Path that are caused by actions or inactions that were not within the control of the Contractor. Delay notifications that are not provided in a letter to the Engineer, such as a delay notification in the schedule narrative, will not be recognized as contractual notice in the determination of any Time Extension related to the impacts to the work associated with this specific alleged delay. Should such a delay continue for more than one (1) week, the Contractor shall note it in the Schedule Narrative until the delay is no longer impacting the Critical Path for the completion of the Contract Milestones. The Engineer will evaluate the alleged delay and its impact and will respond to the Contractor within ten (10) Calendar Days after receipt of a notice of delay.

**B. Time Entitlement Analysis**

A Time Entitlement Analysis (TEA) shall consist of a descriptive narrative, prepared in accordance with Subsection 722.62.A - Narratives, and an as-built CPM schedule, which may be in the form of a schedule fragnet that has been developed from the project's Contract Progress Schedule of Record, and illustrates the impact of a delay to the Critical Path, Contract Milestones and/or Contract Completion Date as required in Subsection 8.10 - Determination and Extension of Contract Time for Completion. TEAs shall also be used to determine the schedule impact of proposed Extra Work Orders (EWO) as also required in Subsection 8.10.

TEAs shall be prepared and submitted in accordance with the requirements of Subsections 722.61 - Schedule Content and Preparation Requirements and 722.62 - Submittal Requirements and shall be based on the Contract Progress Schedule of Record applicable at the start of the delay or impact from an EWO. A TEA fragnet must start with a specific new activity describing the work contained in either a Notice of Delay previously submitted to the Department per Subsection 722.64.A - Notice of Delay or an EWO.

**SECTION 722** (Continued)

TEAs shall be submitted:

1. as part of any Extra Work Order that may impact Contract Time,
2. with a request for a Time Extension,
3. within fifteen (15) Calendar Days after a request for a TEA by the Engineer for any other reason.

A TEA shall be submitted to the Engineer before any Time Extension is granted to the Contractor. Time Extensions will not be granted unless the TEA accurately reflects an evaluation of all past delays and the actual events that occurred that impacted the Critical Path. The TEA must also demonstrate a plan for the efficient completion of all of the remaining work through an optimized CPM Schedule. The analysis shall include all delays, including Contractor-caused delays, and shall be subdivided into timeframes and causes of delays.

TEAs shall incorporate any proposed activities, logic ties, resource considerations, and activity costs required to demonstrate the schedule impacts most efficiently in addition to detailing all impacts to existing activities, logic ties, the Critical Path, Contract Milestones, and the Contract Completion Date. In addition, TEAs shall accurately reflect any changes made to activities, logic ties, restraints, and activity costs, necessitated by an Extra Work Order or other schedule impact, for the completion of the remaining work. The Contractor shall provide TEAs that demonstrate that all delays have been mitigated to the fullest extent possible without requiring an Equitable Adjustment to the original bid basis.

All TEAs shall clearly indicate any overtime hours, additional shifts and the resources that are proposed to be incorporated in the schedule. The Engineer shall have final discretion over the use of overtime hours and additional shifts. The Engineer shall have the right to require that overtime hours and/or additional shifts be used to minimize the duration of Time Extensions if it is determined to be in the best interest of the Department to do so.

When accepted, the changes included in a TEA shall be incorporated into the next Contract Progress Schedule per the requirements of Subsection 722.63.C - Contract Progress Schedules / Monthly Updates. During the review of any TEA, all Contract Progress Schedules shall continue to be submitted as required.

The Engineer may request that the Contractor prepare a Proposal Schedule or a Recovery Schedule to further mitigate any delays that are shown in the accepted TEA or Contract Progress Schedule.

### C. Recovery Schedules

The Contractor shall promptly report to the Engineer all schedule delays during the prosecution of the Work. Contract Progress Schedules that predict performance extended beyond the Contract Time or beyond any Contract Milestone shall not be approved as the schedule of record. This requirement is critical to the Department's ability to make informed decisions regarding Contract Time and costs.

The Contractor shall submit a Recovery Schedule within fifteen (15) Calendar Days of a Contract Progress Schedule submission that shows failure to meet the Contract Dates unless a recovery schedule is waived by the Department. Waiving the recovery schedule does not relieve the contractor of the responsibility for the delay. The Department may revoke the waiver of a Recovery Schedule, at which time a Recovery Schedule shall be submitted within fifteen (15) Calendar Days of the Contractor being notified.

Changes represented in accepted Recovery Schedules shall be incorporated into the next Contract Progress Schedule.

**SECTION 722** (Continued)

**D. Proposal Schedules**

A Proposal Schedule is an alternative schedule used to evaluate proposed changes to the Contract scope or significant alternatives to previously approved approaches to complete the Work, which may include changes to activity durations, logic, and sequence. For Types A and B Schedules, the Proposal Schedule shall be cost and resource loaded.

A Proposal Schedule may be requested by the Department at any time or may be offered by the Contractor. The Engineer may request that the Contractor prepare a Proposal Schedule to further mitigate any delays that are shown in an accepted TEA or Contract Progress Schedule.

The Contractor shall submit the Proposal Schedule within thirty (30) Calendar Days of a request from the Department.

The Proposal Schedule shall not be considered a Schedule of Record until the logic, durations, narrative, and basis of the Proposal Schedule have been accepted by the Engineer. If the Proposal Schedule took the form of a fragnet, it must be incorporated into the Contract Progress Schedule of Record showing the current progress of all other activities and the impacts/results of the changes made by the Proposal Schedule before the Proposal Schedule is accepted by the Department.

Proposal Schedules shall clearly indicate any proposed acceleration including overtime hours, additional shifts, and the resources that are proposed to be incorporated in the schedule. The Engineer shall have final discretion over the use of overtime hours and additional shifts. Proposal Schedules that contain a cost element shall be submitted with a separate Cost Proposal.

Changes represented in the accepted Proposal Schedules shall be incorporated into the next Contract Progress Schedule. During the review of any Proposal Schedule, all Contract Progress Schedules shall continue to be required every month.

**E. Disputes**

All schedules shall be submitted, reviewed, dispositioned, and accepted in the timely manner specified herein so as to provide the greatest possible benefit to the execution of this Contract.

The Contractor may dispute a decision by the Engineer by filing a claim notice within seven (7) days after the Contractor's request for additional time has been denied or if the Contractor does not accept the number of days granted in a time extension. The Contractor's claim notice shall include a revised time entitlement analysis that sufficiently explains the basis of the time-related claim. Failure to submit the required time entitlement analysis with the claim notice shall result in denial of the Contractor's claim. A determination on the Contractor’s claim shall be in accordance with Subsection 7.16 Claims of Contractor for Compensation. Pending resolution of any dispute, the last schedule accepted by the Engineer will remain the Contract Schedule of Record.

**SECTION 722** (Continued)

### 722.65 Schedule Type D Requirements

This section is to detail the requirements for Type D Schedules and is separate from the requirements listed above. These schedules are intended for a project in which a more formal schedule would not be practical.

Schedules for Type D projects shall be submitted for each work assignment. The Schedule Type D shall be submitted electronically in .XLS and .PDF format and meet the following requirements.

The schedule requirements for work assignments that are anticipated to last three weeks or less shall conform to the requirements for Short-term Construction Schedules below.

Work assignments that are anticipated to last longer than three weeks shall submit a bar chart baseline and provided update schedules upon request of the engineer as required under Bar Chart Schedule below in addition to meeting the Short-term Construction schedule requirements.

A. **Bar Chart Schedule**

A Bar Chart that shall include the following:

- Work Assignment start date.
- Activities to identify.
  - Major work operations broken down to be no longer than 14 days.
  - Procurement of fabricated materials and equipment with long lead times, including time for review and approval of submittals required before procuring and fabricating.
  - The preparation and submission of shop drawings, procedures, and other required submittals, with a planned duration that is to be demonstrated to the Engineer as reasonable.
  - The review and return of shop drawings, procedures, and other required submittals, approved or with comments, the duration of which shall be shown as thirty (30) Calendar Days,
  - Detailed activities to satisfy permit requirements.
  - Subcontractor approvals at fifteen (15) Calendar Days from submittal to response
  - Project Close out activities including a 21-calendar day creation of a punchlist activity and 30 calendar day minimum completion of punchlist activity.
- Interfaces with adjacent work, utility companies, other public agencies, sensitive abutters, and/or any other third-party work affecting the Contract.
- Access Restraints – restrictions on access to areas of the Work
- Traffic work zone set-up and removal, night work and phasing
- Contract Milestones including Full beneficial Use, Substantial Completion and Contractor Field Completion

The Bar Char Schedule shall be provided at the beginning of the project and updated with each work order created for the project.

**SECTION 722** (Continued)

B. **Short-Term Construction Schedule**

The Contractor shall provide a Short-Term Construction Schedule that details daily work activities, including any multiple shift work that the Contractor intends to conduct, in a spreadsheet format. The daily activities shall directly correspond to the Contract Progress Schedule activities, with a matching reference to the activity identification number in the Contract Progress Schedule and may be at a greater level of detail. See schedule toolkit for suggested format.

The Short-Term Construction Schedule shall be submitted every two weeks. It shall display all work for a thirty-five (35) Calendar Day period consisting of completed work on the assignment for the two week period prior and all planned work for the following three week period. The initial submission shall be provided no later than thirty (30) Calendar Days after NTP or as required by the Engineer.

The Contractor shall be prepared to discuss the Short-Term Construction Schedule, in detail, with the Engineer in order to coordinate field inspection staff requirements, the schedule of work affecting abutters and any corresponding work with affected utilities.

C. **Project Spending Report (PSR)**

A Projected Spending Report (PSR) shall be prepared and submitted monthly. The PSR shall be for all active work assignments, broken down by work assignment. The PSR shall indicate the monthly spending (cash flow) projection for each month from NTP to Contractor Field Completion (CFC). Each month's actual spending shall be calculated using all CQEs paid during that month. The Projected Spending Report (PSR) shall be depicted in a tabular format and provided in both an .XLS and .PDF

**SECTION 722** (Continued)

## COMPENSATION

### 722.80 Method of Measurement

Schedule of Operations (Type A, B and C)

The project bid documents specify the fixed-price amounts to be paid to the Contractor for the Project Schedule requirements contained herein. Each bidder shall include this fixed price bid item amounts in their bid. Failure to do so may be grounds for the rejection of the bid.

This fixed price amount is for payment purposes only and is separate from what the Department considers to be the Contractor's General Condition costs. If the Contractor deems it necessary to include additional costs to provide all of the requirements of this section, these additional costs shall be included in the Contractor's overall bid price.

All required schedule-related work, including, but not limited to computers, computer software, the planning and coordination with utilities, training, schedule preparation and schedule submittals will be paid for under the fixed price amount.

Twenty percent (20%) of this pay item will be paid upon the Engineer's acceptance of the Contractor's Baseline Schedule, prepared and submitted in accordance with Subsection 722.63.A.

The remaining eighty percent (80%) of this pay item will be paid in equal monthly installments distributed across the Contract Duration from Notice to Proceed (NTP) to Contractor Field Completion (CFC), less the 2 months required for the submittal and review of the Baseline Schedule in accordance with the following formula:

$$\text{Monthly Payment} = \frac{\text{Remaining Fixed Price amount (80\% of the Item Cost.)}}{\text{Contract Duration in whole months} - 2 \text{ months}}$$

The Schedule of Operations pay item will be adjusted to pay for only the actual quantity of schedules that have been submitted in accordance with this section.

Should there be a Time Extension granted to the Contractor, the Engineer may provide an Equitable Adjustment for additional Contract Progress Schedule Updates at intervals directed by the Engineer. The monthly payment will be the basis for this Equitable Adjustment.

Schedule of Operations (Type D)

For projects assigned with Type D schedule requirements, all scheduling work shall be considered incidental to the project with no separate payment under this section.

**SECTION 722** (Continued)

**722.81 Basis of Payment**

The timely and accurate submission of the Baseline Schedule is critical to the Contract and the Department's ability to make informed decisions. Only payments under Item 740 - Engineer's Field Office and Item 748 – Mobilization will be made until the Baseline Schedule is accepted by the Engineer.

All required schedule-related work, including, but not limited to computers, computer software, the planning and coordination with utilities, training, schedule preparation and schedule submittals (including monthly progress schedules, short-term schedules, project spending reports, TEAs, recovery schedules or impacted schedules) shall be included in this work.

No payment for any other pay item will be processed beyond seventy-five (75) Calendar Days from Notice to Proceed (NTP) until the Baseline Schedule is accepted by the Engineer. Until the Engineer's acceptance of the Baseline Schedule, the combined total of all payments made to the Contractor will be limited to an amount no greater than the total price for Item 748 - Mobilization or 3% of the contract price, whichever is less.

All Contract Progress Schedule Updates submitted later than ten (10) Calendar Days after the CQE (Contract Quantity Estimate) completion date, or greater than forty (40) Calendar Days from the Data Date of the previous submission, will be deemed to be no longer useful and will not qualify for payment. The late submission of Impacted schedules, including TEAs, recovery schedules and proposal schedules will result in the forfeiture of the monthly payment for the month in which they were due and subsequent months until the submission is made. Late submission of missed submittals will not result in recovery of the previously forfeited portion of the Schedule of Operations Fixed Price Payment Item.

Failure to submit schedules as and when required may result in the forfeiture of that portion of the Schedule of Operations Fixed Price Payment and/or the withholding of the full or partial CQE payments by the Engineer.

Failure to submit schedules that are acceptable to the Engineer may result in the forfeiture of that portion of the Schedule of Operations Fixed Price Payment and/or the withholding of the full or partial CQE payments by the Engineer.

The Schedule of Operations pay item will be adjusted to pay for only the actual quantity of schedules that have been submitted in accordance with this section.

The Contractor's failure or refusal to comply with the requirements of this Section shall be reasonable evidence that the Contractor is not prosecuting the Work with due diligence and may result in the Engineer withholding of full or partial payments of all work performed.

**722.82 Payment Items**

| | | |
|---|---|---|
| 722.1 | SCHEDULE OF OPERATIONS (TYPE A) - FIXED PRICE $_____ | LUMP SUM |
| 722.2 | SCHEDULE OF OPERATIONS (TYPE B) - FIXED PRICE $_____ | LUMP SUM |
| 722.3 | SCHEDULE OF OPERATIONS (TYPE C) - FIXED PRICE $_____ | LUMP SUM |

**ITEM 102.2 TREE TRIMMING LUMP SUM**

The work under this Item shall conform to the relevant provisions of Subsection 101 of the Standard Specifications and the following:

The work to be performed under this Item shall be done according to Subsection 101.62 of the Standard Specifications.

**BASIS OF PAYMENT**

Item 102.2 will be paid for at the Contract Lump Sum price, which price shall include all labor, tools, equipment, materials, and all incidental costs required to complete the work.

## ITEM 102.3 HERBICIDE TREATMENT OF INVASIVE PLANTS HOUR

This work must be performed by persons who meet the qualifications below and are approved by the Landscape Design Section.

Work under this item consists of herbicide treatment of invasive plants currently existing within the project limits and as directed. An Invasive Plant Management Strategy (IPMS) shall be submitted to the Engineer for review and approval and the IPMS shall be implemented on-site. The IPMS shall be written and submitted per Item 102.33 Invasive Plant Management Strategy and shall be measured and paid for under that Item.

Work under this item shall be coordinated with work and schedule for Selective Clearing, Clearing and Grubbing, Mowing, Tree Removal, Planting, and Wetland Mitigation items.

Payment is per hour on-site and shall be compensation for a minimum crew of 2 licensed applicators, 2 back-pack sprayers and mist-blowers, a properly equipped spray truck with spray hoses, and a tank with sufficient capacity for a full day of work. If there is only one applicator, hourly payment shall be adjusted to 50 percent of the unit price.

Date and time stamped photos indicating start and stop time of work must be submitted if requested.

This item is not intended for manual removal of plants.

Management of plants determined to have been introduced to the site via imported loam, compost, mulch, plants, equipment, or other construction activities will be the Contractor's responsibility and at the Contractor's expense.

Herbicide shall be applied during daytime hours only.

Measures to prevent the introduction of invasive plant species to the site and to address introduction due to construction-related activities shall be covered under the Standard Specifications, Division I - Subsections 7.01(D) Plant Pest Control and 7.13 Protection and Restoration of Property as amended in these Special Provisions.

Plant species targeted for management under this item shall be as determined in the field per the site walk and as specified in the IPMS.

The definition of invasive plant species shall be as described by Massachusetts Invasive Plant Advisory Group (MIPAG): "non-native species that have spread into native or minimally managed plant systems in Massachusetts, causing economic or environmental harm by developing self-sustaining populations and becoming dominant and/or disruptive to those systems."

Control of invasive plants shall begin immediately with the initiation of construction activities and prior to any clearing or site disturbance. Treatment areas shall include stockpile locations and may, upon approval of the Engineer, extend outside the project limit. Treatment shall be done each consecutive year for the duration of the contract unless specified otherwise in the IMPS or unless directed otherwise by the MassDOT invasive species contact. Work shall be done during the growing season from May – October unless otherwise specified in the IPMS.

**ITEM 102.3** (Continued)

Areas identified for vegetation control measures shall be as shown on the plans and as determined in the field by the Engineer and a MassDOT Landscape Architect. Contact at MassDOT Landscape Design Section may be contacted at: Maxwell.R.McNulty@dot.state.ma.us.

## QUALIFICATIONS

The applicators shall submit and meet the qualifications outlined below. A list of contractors specializing in invasive management and approved by MassDOT Landscape Design Section is available on the following website: https://www.mass.gov/lists/landscape-design-and-roadside-maintenance under Invasive Plant Management.

Requirements

1. Company must provide proof of qualifications by providing the following:
    a. Narrative describing company, its expertise and experience with invasive plant control.
    b. Demonstrate experience with herbicide treatment as part of restorations and in sensitive areas.
    c. Describe company's technical qualifications and past performance.

2. Company must meet licensing requirements:
    a. All crew applicators must have a Massachusetts Commercial Applicator License (CORE).
    b. At least one or more applicator must have a ROW certification, if required for work.
    c. Company must provide name(s) of applicator(s) and Applicator License/Certification number for all contractor crew leaders working on the project.
    d. Company must provide documentation of any warnings, penalties or fines received in the last three (3) years.

3. Company must provide proof of experience with invasive plant control and include following:
    a. At least five (5) references from prior invasive plant control work completed in last five (5) years. Provide contact information including address, phone number and email.
    b. Provide a summary of each of these projects including nature of the problem, specific invasive vegetation treated, dates and period of treatment, methodologies used, and summary of success or not in terms of meeting performance objectives. Include summary of equipment used.
    c. Photo documentation of these projects.
    d. GPS coordinates of project locations, if available.

4. Crew leader must have expertise with invasive plant control and provide the following:
    a. Have held Core license for at least five (5) years.
    b. Resume listing five (5) or more years of experience applying pesticides with the company or with another company specializing in vegetation management.

**ITEM 102.3** (Continued)

## SUBMITTALS

No work shall begin without approval of the submittals.

Submittals include the following items:

Invasive Plant Management Strategy (IPMS)

At least thirty (30) days prior to proposed treatment the IPMS shall be submitted for approval by the Engineer and MassDOT Landscape Architect. All chemicals, methods and work done under this item shall be consistent with the IPMS. The IPMS shall be as described under Item 102.33.

Herbicide Use Report

Within two (2) weeks after each application, the Contractor shall provide to the Engineer and the MassDOT Landscape Architect a completed and signed MassDOT Herbicide Use Report.

Photo Documentation

Digital photos with date and time of herbicide application work, showing start time and completion time, are required and must be submitted for measurement of payment upon request.

## MATERIALS

All proposed herbicides shall be as approved in the IPMS. Herbicides shall be labeled for the method of treatment and shall meet all federal, state and local regulation requirements. Application rates will depend on herbicide proposed and shall be per the manufacturer's label for specific application.

## METHODS

All methods used shall be as approved in the IPMS which shall be determined during the Initial Site Walk as described under Item 102.33 Invasive Plant Management Strategy.

The Contractor shall be responsible for marking delineated areas and plants to be preserved, removed, or otherwise treated. Fencing or other materials needed for marking and delineating protected areas shall be incidental to this item.

The Contractor shall notify the Engineer a minimum of 3 days prior to date of expected herbicide application. Applicators shall notify the Engineer upon arriving on-site and upon leaving the site.

Herbicide Applications

All herbicide application shall conform to Massachusetts Pesticide Laws and Regulations per the Massachusetts Department of Agricultural Resources (MDAR) Pesticide Bureau.

**ITEM 102.3** (Continued)

Mixing, applying and/or disposing of herbicides shall always be in accordance with instructions on their labels and all applicable federal, state, and local regulations. Mixing shall not occur within sensitive areas, wetlands, or buffer zones.

Contractor shall not spray 2 hours prior to precipitation, during rain, or during windy conditions. The Contractor shall be responsible for monitoring weather conditions and adjusting the work schedule as appropriate for the herbicide and application method to be used.

Targeted vegetation shall be identified and marked prior to treatment. Plants treated by foliar spray, injection or glove application or other methods that leave standing vegetation, as opposed to cut-stump application, shall remain clearly marked for identification through the contract period.

Desirable vegetation shall be protected from both spray and other physical damage.

Contractor is responsible for any damage to vegetation not designated for removal or treatment. Vegetation damaged shall be restored. Cost of replacement plants and/or restoration shall be borne by the Contractor.

Contractor shall ensure that the public does not enter a work area while herbicide application or spraying is underway.

Disposal Of Invasive Plant Material

All material to be cleared shall become the property of the Contractor. The satisfactory disposal of all cleared plant material (seeds, roots, woody vegetation, associated soils, etc.) shall be the Contractor's responsibility.

The Contractor shall take measures to prevent viable plant material from leading to further infestations (seeds, roots, woody material, etc.) while stockpiled, in transit, or at final disposal locations. All precautions shall be taken to avoid contamination of natural landscapes with invasive plants or invasive plant material.

Chipping, shredding, or on-site burning of plant material must be approved by the Engineer and included in the IMPS.

For plant material taken to an incinerating facility per the IPMS, a receipt from that facility shall be submitted to the Engineer as proof of disposal.

Where feasible, it is preferable to dispose of plants on-site or to bury them on-site with on-going monitoring for re-sprouting. Disposal locations and methods must be approved and included in the IPMS. Site work such as grading and seeding to stabilize and restore disposal area shall be incidental to this item.

The Contractor shall be responsible for treating or otherwise managing areas of re-growth due to improper disposal. Treatment shall be at the Contractor's expense.

**ITEM 102.3** (Continued)

Follow-Up Treatment

Plants and areas shall be re-treated as necessary and as appropriate to the time of year. Treatment shall be for the duration of the contract and per the IPMS.

## MEASURE OF SUCCESS

The expectation is a minimum of 85-95 percent control achieved after the first treatment, depending on plants targeted and extent of population, and based on the expectations laid out in the IPMS. The expectation for the contract duration is 95-100% eradication by the end of the treatment period, unless otherwise specified in the IPMS.

## METHOD OF MEASUREMENT

Item 102.3 will be measured for payment by the Hour of verified crew time spent on the project doing herbicide application as and where specified herein and in the IPMS. A crew shall be defined as a minimum of two licensed applicators each equipped with (at minimum) back-pack sprayer and mist blower. The crew shall also have a properly equipped spray truck with hoses and a tank with sufficient capacity for a full day of work.

## BASIS OF PAYMENT

Item 102.3 will be paid at the contract unit price per Hour, which price shall include all labor, materials, equipment, tools, and all incidentals required to complete the work.

Payment will be based upon verified time spent on the project doing herbicide application as and where specified in the IPMS and upon receipt and approval of submittals. Payment will not include travel time to and from the Contractor's place of business and nor time for investigative field trips.

If there is only one applicator, hourly payment shall be adjusted to 50 percent of the unit price.

The Invasive Plant Management Strategy will be paid for under Item 102.33.

## ITEM 102.33 INVASIVE PLANT MANAGEMENT STRATEGY HOUR

This item consists of providing an Invasive Plant Management Strategy (IPMS) for the control of invasive plants currently existing on the project site and/or as directed and shall be coordinated with Item 102.3 Herbicide Treatment of Invasive Plants. Unless otherwise approved, the IPMS shall be submitted in the form of the MassDOT Invasive Plant Management Strategy Report Form.

The IPMS shall be submitted for review and approval by the MassDOT Landscape Design Section or their representative, and the IPMS shall be implemented on-site.

The Invasive Plant Management Strategy Report Form is available online at https://www.mass.gov/lists/landscape-design-and-roadside-maintenance under Invasive Plant Management.

Herbicide treatment for invasive plants shall be as described under Item 102.3 Herbicide Treatment of Invasive Plants and shall be compensated per that Item.

Work under this item shall be coordinated with work and schedule for Selective Clearing, Clearing and Grubbing, Mowing, Tree Removal, Planting, and Wetland Mitigation as relevant to the project.

Individual attending the site walk and determining the Invasive Plant Management Strategy must demonstrate expertise with vegetation management and invasive plant control and submit qualifications as described below.

### QUALIFICATIONS

Individual shall be from the same company as that providing services for Item 102.3 Herbicide Treatment of Invasive Plants and shall submit the following, if not submitted under Item 102.3:

- Submit copy of current Core license.
- Submit a resume listing five (5) or more years of experience managing invasive plants with a company specializing in vegetation management.
- References shall be submitted if requested.

### SUBMITTALS

Task Summary & Reports

For measurement of payment, the contractor shall submit the total sum and a breakdown of hours for the tasks performed. At a minimum, the tasks shall include the Initial Site Walk, submittal of an approved IPMS, and if requested to accommodate project or site changes, a Follow-up Site Inspection and accompanying IPMS Amendment.

Interim Site Monitoring Reports and/or a Final Report shall be submitted if requested by the MassDOT Landscape Design contact. The MassDOT Landscape Design contact must be notified to attend the site inspection walk when an Interim or Final Report has been requested.

**ITEM 102.33** (Continued)

Invasive Plant Management Strategy (IPMS)

At least thirty (30) days prior to construction activities and/or any proposed treatment, the contractor shall submit the IPMS for approval by the Engineer and MassDOT Landscape Architect. All chemicals and methods proposed shall be consistent with applicable Massachusetts Wetlands Protection Act Order of Conditions.

The IPMS shall be completed in coordination with the Prime Contractor and the Engineer and shall include the following as appropriate and applicable to the project and to the IPMS Report Form questions and Guidance:

**I. Project Information**
- a. Company writing the IPMS and performing the herbicide application.
- b. Date of site walk
- c. Attendees at site walk
- d. Expected end date of contract and expected last treatment (month/season)

**II. Brief Description of Conditions**
- a. Provide a free-hand sketch on construction plans or aerial image showing species, location, and as relevant, show or note extent of population as relevant to Strategy (i.e., population extends off ROW preventing eradication, small population and eradication deemed feasible within contract schedule, etc.).

**III. Coordination with Roadway Contractor regarding other work**
- a. Tree Work: Note coordination to be implemented with tree removal, clearing, and clearing and grubbing as applicable to the project.
- b. Wetland Mitigation - Include management proposed for wetland mitigation areas in the IPMS, if and as required.
- c. Planting: If there will be planting in areas proposed for treatment, propose treatment and schedule to avoid herbicide damage to plants.
- d. Mowing: If coordination is required with state mowers, note need in IPMS.

**IV. Soil Management**
- a. Provide specifics on how soil with invasive plant roots (in particular) or seeds will be handled (i.e., separate stockpiles, plant material will be buried on-site, re-used on-site, disposed off-site and if so, where?).
- b. Show stockpile locations on plan and include treatment schedule.
- c. Note measures that will be implemented to avoid spread through equipment, including how and where equipment will be cleaned.

**V. Invasive Plant Treatment & Management**
- a. Proposed chemical and methods of treatment for each species or area.
- b. Time of treatment based on target plant species.
- c. Submit product label including application methods and rates (entire MSDS information need not be submitted if available online).
- d. Proposed performance metrics or measure of treatment success if different from that specified under Item 102.3.
- e. Method for disposing invasive plant material. This includes material that may result in spread (i.e., seeds, roots) and material that has been treated and/or is not viable (foliage, dead wood, etc.). Methods may include grinding in place, stockpiling and treating, and incinerating offsite.
- f. Expected follow-up treatment for duration of contract.

**ITEM 102.33** (Continued)

**VI. Monitoring Schedule** if requested by MassDOT.

Note: The IPMS is critical for identifying pre-construction conditions as well as strategies for minimizing import or spread of invasive plants. Failure to provide an approved IPMS may jeopardize this item, in which case, the contractor will be responsible for management of invasive plants found on-site at no cost to the contract.

Photo Documentation

Digital photos of site conditions, typical species, and extent of infestation must be provided with the IPMS and with any follow-up monitoring or reporting. Photos of follow-up monitoring and reporting must be date and time stamped for acceptance.

**METHODS**

Initial Site Walk

Prior to any construction activities and soil disturbance, the Contractor shall walk the site with the Engineer and the MassDOT Landscape Architect to determine the IPMS. During the site walk the Contractor shall identify limits of work and, as necessary, mark locations of areas designated for treatment and individual plants targeted for treatment or removal. The Contractor shall be responsible for marking delineated areas and plants to be preserved, removed, or otherwise treated. Fencing or other materials needed for marking and delineating protected areas shall be incidental to this item.

IPMS Follow-up Amendment

The IPMS may be amended to address additional concerns or adjust to conditions if required by the MassDOT Landscape Architect. The amended IPMS shall be submitted to the Engineer and MassDOT Landscape Architect for approval at least fourteen (14) days prior to any proposed treatment.

Interim Site Monitoring Inspection Reports

If required by the MassDOT Landscape Architect and Engineer, Interim Site Monitoring and an accompanying report shall be conducted. Interim Reports must include time and date stamped photos showing treated locations and species.

Final Inspection

A final inspection and report documenting the status of the invasive control may be required for regulatory purposes or for instances where control will be continued by others. The report shall include photo documentation of pre-construction (existing) and post-treatment conditions, notations on a plan or aerial image of area treated, summary of treatment performed, and control achieved. Final reports submittal must include time and date stamped photos.

**ITEM 102.33** (Continued)

## METHOD OF MEASUREMENT

Item 102.33 will be measured for payment by the Hour. The basis for measurement shall be per the completion of tasks as approved under the Task Summary submittal and acceptance of submittals and photos described above.

## BASIS OF PAYMENT

Item 102.33 will be paid at the contract unit price per Hour, which price shall include all labor, materials, equipment, tools, and all incidentals required to complete the work. Payment shall not include travel time to and from the Contractor's place of business.

## 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.

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.

**ITEM 102.521** (Continued)

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 114.1** **DEMOLITION OF SUPERSTRUCTURE NO. T-01-024(3LY)** **LUMP SUM**

The work to be done under this item shall conform to the relevant provisions of Subsections 112 and 140 of the Standard Specifications and the following:

The work shall include furnishing all material, labor, equipment, and tools necessary to perform the demolition, removal, and disposal of the existing concrete superstructure of Bridge No. T-01-024, as designated on the Contract Plans, and approved by the Engineer. This includes, but is not limited to the existing concrete beams, curbing, wearing surface, and bridge railing.

The Contractor is to ensure that concrete, reinforcing steel and other demolition materials will be prevented from falling into the River below. Temporary Protective shielding to be used in conjunction with this demolition is specified and paid for separately under Item 994.01. Additionally, work shall not commence until the Floating Turbidity Barrier is in place and approved by the Engineer. All materials, equipment, labor, etc. to accomplish this task shall be considered as incidental to Item 697.3. Any material that falls into such areas shall be removed immediately by the Contractor by whatever means are necessary, and at the Contractor's expense.

Substructure demolition shall be performed under Item 127.1 Reinforced Concrete Excavation, Item 140. Bridge Excavation, and Item 144 Class B Rock Excavation, and shall conform to the relevant provisions of Subsections 112, 120 and 140 of the Standard Specifications.

All materials removed in this demolition shall become the property of the Contractor and shall be recycled, reused, or legally disposed of in accordance with all applicable Local, State, and Federal requirements. Removal of these substructure elements in their entirety shall be included in the Contract Unit Price bid for this Item regardless of actual materials encountered. **No additional compensation will be made for this work. The Contractor shall make his/her bid for this Item accordingly.**

The Contractor shall be required to remove any debris generated from construction from the site immediately. The Contractor shall be responsible for dust control as a result of the demolition operations.

The Contractor shall be responsible for protecting from any damage, any existing utilities that pass over, under and/or are attached to the bridge.

Prior to commencing work on this Item, the Contractor shall submit his proposed method of demolition including equipment, tools, devices, etc. to the Engineer for approval. The demolition procedure and any necessary calculations and drawings shall bear the stamp of a Professional Engineer Registered in the Commonwealth of Massachusetts certifying that all existing structural members are suitably braced and supported throughout the demolition process. Work shall not commence until the Engineer has given written approval of the method of demolition proposed.

**ITEM 114.1** (Continued)

The Contractor shall also submit the crane capacity, location, radii of movement, etc. to the Engineer for approval for all stages of construction. The submittal shall include calculations of all loads, including all factors of safety, and selection of crane and lifting hardware and shall be stamped by a Professional Engineer Registered in the Commonwealth of Massachusetts.

**BASIS OF PAYMENT**

Item 114.1 will be paid for at the Contract Lump Sum price, which price shall include demolition, removal, and disposal of the existing concrete superstructure; all labor, tools, equipment, materials, and all incidental costs required to complete the work.

The contractor will make his own investigation of the structure to be demolished. No increase will be made to the bid price due to the nature of the materials involved in the demolition. Miscellaneous removals and disposals that are not specifically listed for payment under another item shall be incidental to this Item.

## ITEM 127.1 REINFORCED CONCRETE EXCAVATION CUBIC YARD

The work under this Item shall conform to the relevant provisions of Subsections 112 and 120 of the Standard Specifications and the following:

Work under this Item shall include the excavation and disposal off-site of the existing bridge substructure reinforced concrete elements, that includes the existing bridge seats, wingwall caps, approach slabs, and any other reinforced concrete as determined by the Engineer, that remains after demolition of the superstructure.

Excavation of materials other than the existing substructure concrete, or other reinforced concrete as determined by the Engineer, shall be performed under Item 140. Bridge Excavation or Item 144. Class B Rock Excavation. The classification of excavated material shall be determined in the field by the Engineer.

## METHOD OF MEASUREMENT

Item 127.1 will be measured for payment by the Cubic Yard of reinforced concrete excavated and disposed to the limits shown on the plans and as approved by the Engineer.

## BASIS OF PAYMENT

Item 127.1 will be paid for at the Contract unit price per Cubic Yard, which price shall include excavation, disposal, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

**ITEM 140. BRIDGE EXCAVATION CUBIC YARD**

The work to be done under this item shall conform to the relevant provisions of Subsection 140 of the Standard Specifications and the following:

Included under this item is the excavation required within the Excavation Support System shown on the plans for the installation of the footings, retaining walls, wingwalls, and abutments, "in the dry".

The borings note that the ground water level at the time, was well above the bottom of existing footing, and proposed pile supported footings, so the Contractor shall be prepared to control ground water levels.

Control of Water is paid for under a separate item, Item 991.1, Control of Water – Structure No. T-01-024.

The Excavation Support System will be paid for separately under Item, Item 953.3. See also Item 953.3 for additional information related to Bridge Excavation.

## CONSTRUCTION METHODS

The Contractor is advised that the effectiveness of the water control method used will vary based on the field conditions and the time at which the actual excavation work is being performed. The Engineer has the right to order the Contractor to stop all excavation operations when in his/her judgment the Contractor's water control operations are failing to produce adequate results or are posing a threat to the environment.

## METHOD OF MEASUREMENT

Item 140. will be measured for payment according to Subsection 140.80 of the Standard Specifications.

## BASIS OF PAYMENT

Item 140. will be paid for according to Subsection 140.81 of the Standard Specifications.

## 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.

**ITEM 180.03** (Continued)

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).

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|---|---|---|
| **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 201.5 CATCH BASIN - MUNICIPAL STANDARD EACH**
**ITEM 202.01 MANHOLE - MUNICIPAL STANDARD EACH**

The work under these Items shall conform to the relevant provisions of Subsection 201 of the Standard Specifications, the requirements of the City of Taunton DPW, and the following:

Work under these Items consists of furnishing and installing drainage catch basins and manholes that meet the requirements of the municipality.

## MATERIALS

Drainage manholes and catch basins shall be precast units of the materials and dimensions shown on the plans.

All catch basins shall have four (4) foot sumps and traps or hoods at the outlet.

## CONSTRUCTION METHODS

Drainage structures shall be installed per Subsection 201.

## METHOD OF MEASUREMENT

Items 201.5 and 202.01 will be measured for payment by the Each respective catch basin and manhole furnished and installed, complete in place, regardless of structure depth, as accepted by the Engineer.

Frames and grates or covers will paid for under Item 222.3

## BASIS OF PAYMENT

Items 201.5 and 202.01 will be paid for at the respective Contract unit prices per Each, which prices shall include furnishing, installation, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

**ITEM 222.3 FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD EACH**

The work under this Item shall conform to the relevant provisions of Subsection 201 of the Standard Specifications, the City of Taunton DPW, and the following:

Work under this item consists of furnishing and installing frames and grates (or covers) for the construction of drainage structures that meet the requirements of the municipality.

## MATERIALS

Iron castings shall meet the requirements of Materials Section M8.03.0 and shall be listed on the QCML.

Catch basin grates shall have the appropriate opening pattern based on the proposed gutter slope for the proposed structure locations as shown on the plans.

## METHOD OF MEASUREMENT

Item 222.3 will be measured for payment by the Each frame and grate (or cover) municipal standard, furnished and installed, complete in place, as accepted by the Engineer.

## BASIS OF PAYMENT

Item 222.3 will be paid for at the Contract unit price per Each, which price shall include furnishing, installation, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

**ITEM 303.041 4 INCH CEMENT LINED DUCTILE IRON PIPE (RESTRAINED JOINT) FOOT**

The work under this item shall conform to the relevant provisions of Section 300 of the Standard Specifications, and the following:

The work under this Item shall consist of furnishing and installing of cement lined ductile iron sewer pipe (restrained joint), including performing all necessary excavation, laying, jointing, backfilling, and leakage tests on all completed sewer lines; all in accordance with the details shown on the Contract Drawings, as specified in these Specifications and as directed by the Engineer.

Fittings and other appurtenances will be furnished and installed separately as part of the work, and included for measurement and payment, under ITEM 309. DUCTILE IRON FITTINGS FOR WATER PIPE.

## MATERIALS

Cement lined ductile iron pipe and ductile iron fittings and appurtenances shall be in accordance with the City of Taunton Sanitary Sewer Requirements (included as Document A00892).

All ductile iron pipe to be installed shall be Restrained joint pipe.

## CONSTRUCTION METHODS

Installation and testing of all sewer system components shall be in accordance with the City of Taunton Sanitary Sewer Requirements or the MassDOT Standard Specifications, whichever is more stringent, as determined by the Engineer.

## METHOD OF MEASUREMENT

Item 303.041 will be measured for payment by the Foot of 4 inch cement lined ductile iron pipe (restrained joint) furnished and installed, complete in place.

The quantity of pipe to be measured will be the length in feet measured along the centerline of the pipe line as laid, or to the centerline of connections as appropriate. Reducers shall be classed as of the larger size. No deductions will be made for the space occupied by valves or fittings.

**ITEM 303.041** (Continued)

## BASIS OF PAYMENT

Item 303.041 will be paid for at Contract unit price per FOOT, which price shall include furnishing all materials, labor, tools, and equipment required for installing the sewer pipe line including trench and earth excavation; sawcutting and removal of existing pavement as required; all temporary sheeting, shoring or bracing; all pumping, dewatering, and backfilling operations including gravel borrow pipe bedding and trench zone backfill; the cutting of pipes; the furnishing of jointing materials; furnishing, laying and jointing of all pipes; connecting new pipes to existing pipes; and for all other pipe line work and appurtenances, except that for which a definite payment item is included herein.

The unit price stated for this item shall also be considered full compensation for making all pressure and leakage tests, including the furnishing of all labor, equipment, tools apparatus and materials for performing these tests.

| | | |
|---|---|---|
| **ITEM 303.121** | **12 INCH CEMENT LINED DUCTILE IRON PIPE (RESTRAINED JOINT)** | **FOOT** |
| **ITEM 309.** | **DUCTILE IRON FITTINGS FOR WATER PIPE** | **POUND** |
| **ITEM 350.12** | **12 INCH GATE AND GATE BOX** | **EACH** |

The work under these Items shall conform to the relevant provisions of Section 300 of the Standard Specifications, and the following:

The work under Items 303.121 and 350.12 shall consist of furnishing and installing water supply system components including ductile iron water pipe (restrained joint), including performing all necessary excavation, laying, jointing, backfilling, leakage tests, and disinfecting all completed water lines; all in accordance with the details shown on the Contract Drawings, as specified in these Specifications and as directed by the Engineer.

Fittings and other appurtenances will be furnished and installed separately as part of the work, and included for measurement and payment, under ITEM 309. DUCTILE IRON FITTINGS FOR WATER PIPE.

## MATERIALS

Ductile iron pipe, ductile iron fittings, and gate valves and gate boxes, and appurtenances shall be in accordance with the City of Taunton Water System Installation and Materials specifications (included as Document A00891).

All ductile iron pipe to be installed shall be Restrained joint pipe.

## CONSTRUCTION METHODS

Installation and testing of all water system components shall be in accordance with the City of Taunton Water System specifications or the MassDOT Standard Specifications, whichever is more stringent, as determined by the Engineer.

## METHOD OF MEASUREMENT

Item 303.121 will be measured for payment by the Foot of 12 inch cement lined ductile iron pipe (restrained joint) furnished and installed, complete in place, as approved by the Engineer.

The quantity of pipe to be measured will be the length in feet measured along the centerline of the pipe line as laid, or to the centerline of connections as appropriate. Reducers shall be classed as of the larger size. No deductions will be made for the space occupied by valves or fittings.

Item 309. will be measured for payment according to Subsection 301.80 of the Standard Specifications.

Item 350.12 will be measured for payment by the Each 12 inch gate and gate box furnished and installed, including concrete collars, complete in place, as approved by the Engineer.

**ITEMS 303.121 through 350.12** (Continued)

## BASIS OF PAYMENT

Item 303.121 will be paid for at Contract unit price per FOOT and shall be full compensation for furnishing all materials, labor, tools, and equipment required for installing the water pipe lines including trench and earth excavation; sawcutting and removal of existing pavement as required; all temporary sheeting, shoring or bracing; all pumping, dewatering, and backfilling operations including gravel borrow pipe bedding and trench zone backfill; the cutting of pipes; the furnishing of jointing materials; furnishing, laying and jointing of all pipes; connecting new pipes to existing pipes; and for all other pipe line work and appurtenances, except that for which a definite payment item is included herein.

The unit price bid for Item 303.121 shall be full compensation for furnishing all chemicals and water, furnishing and installing 3/4-inch connections for disinfection, and all other materials, labor, tools and equipment and for all work and expense involved in thoroughly disinfecting the interior of the entire length of new water mains.

The unit price for Item 303.121 shall also cover all costs for necessary tests to show that no bacteria indicative of human or animal contamination are present in the said water mains, including delivery of the water samples to the laboratory; the furnishing of all labor, tools and equipment and all work and expense of replacing materials damaged by the Contractor in handling, or found to be defective after being installed.

The unit price stated for Item 303.121 shall also be considered full compensation for making all pressure and leakage tests, including the furnishing of all labor, equipment, tools apparatus and materials for performing these tests.

Item 309. will be paid for according to Subsection 301.81 of the Standard Specifications.

Item 350.12 will be paid for at the Contract unit price per Each, which price shall include furnishing, installation, all labor, materials, tools, equipment, and all incidental costs required to complete the work.

**ITEM 373.041 4 INCH SEWER PIPE INSULATION FOOT**
**ITEM 373.12 12 INCH WATER PIPE INSULATION FOOT**

The work under this Item shall conform to the relevant provisions of Subsection 301 of the Standard Specifications and the following:

The work to be performed under this Item includes furnishing and installing pipe insulation and protective jackets for water and sewer pipes as shown on the plans and as directed by the Engineer.

Pipe insulation for water and sewer piping shall be XPS Extruded Polystyrene.

All pipe insulation installed on this project shall be wrapped in a waterproof stainless-steel jacket. Other jacket materials will not be accepted.

## METHOD OF MEASUREMENT

Items 373.041 and 373.12 will be measured for payment by the Foot of sewer and water pipe insulation furnished and installed, complete in place.

## BASIS OF PAYMENT

Items 373.041 and 373.12 will be paid for by the respective Contract unit prices per Foot, which prices shall include furnishing, installation, stainless steel pipe jackets, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

## ITEM 402.13 PAVEMENT MILLING MULCH FOR SHOULDERS FOOT

The work under this Item shall conform to the relevant provisions of Subsection 769 of the Standard Specifications and the following:

Work under this item shall include furnishing and placing a geotextile and 4 inches of pavement millings on road shoulder areas where guardrail is not being installed and other locations as directed by the Engineer.

### METHOD OF MEASUREMENT

Item 402.13 will be measured for payment according to the provisions of Subsection 769.80.

### BASIS OF PAYMENT

Item 402.13 will be paid for according to the provisions of Subsection 769.81.

**ITEM 470. HOT MIX ASPHALT BERM TON**

The work under this Item shall conform to the relevant provisions of Subsection 470 of the Standard Specifications and the following:

Work under this item shall include furnishing and placing a hot mix asphalt berm in accordance with the specifications and in close conformity to the lines, grades and details shown on the plans or established and accepted by the Engineer.

## METHOD OF MEASUREMENT

Item 470. will be measured for payment by the Ton of hot mix asphalt berm furnished and placed, complete in place, and accepted by the Engineer.

## BASIS OF PAYMENT

Item 470. will be paid for at the Contract unit price per Ton, which price shall include furnishing, placement, surface preparation of the underlying surface, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

Furnishing and installation of the pavement on which the berm is to be placed will be paid for separately under their respective items.

## ITEM 482.31 SAWING & SEALING JOINTS IN ASPHALT PAVEMENT AT BRIDGES FOOT

The work to be done under this Item consists of making a sealed kerf across the full width of the finished asphalt pavement at bridge abutments where called for on the Plans. The shape, width, and depth of the kerf shall be as shown on the Plans.

Prior to the start of the asphalt pavement operation, the Contractor shall place a mark on each curb or barrier on either side of the paved roadway. These marks shall be aligned with the actual end of the bridge deck and shall be placed so that they will not be covered or otherwise obscured by the asphalt pavement.

After the completion of the paving operation, the Contractor shall snap a straight chalk line on the pavement between these two marks. The Contractor shall then saw cut the pavement along this line to the depth, width and shape as shown on the Plans. The equipment shall be approved by the Engineer prior to commencing work.

After completing the saw cutting, the Contractor shall clean the saw groove of any dust and debris with an oil free air blast. If the groove was wet sawn, the groove shall be cleaned with a water blast to remove any remaining slurry and debris, vacuumed with a Wet-or-Dry vacuum to remove any standing water, and then dried with an air blast from a Hot-Air-Lance.

Once the groove is clean and dry, the Contractor shall fill it completely with a Hot Applied Crack Sealer meeting the requirements of M3.05.2 in accordance with the manufacturer's application instructions and restrictions regarding ambient and material temperatures. The crack sealer shall be thoroughly cured prior to opening the road to traffic. To reduce tackiness, only boiler slag aggregate (black beauty) shall be scattered over the sealer when required by the Engineer. Conventional sand shall not be used for this purpose.

### METHOD OF MEASUREMENT

Item 482.31 will be measured for payment by the Foot, of the actual number of feet of kerf sawed and sealed in the asphalt pavement surface, complete in place.

### BASIS OF PAYMENT

Item 482.31 will be paid for at the Contract unit price per Foot, which price shall include all labor, materials, equipment, and all incidental costs required to complete the work.

## ITEM 657. TEMPORARY FENCE FOOT

The work under this Item shall conform to the relevant provisions of Subsection 644 of the Standard Specifications, and the following:

The work to be performed under this Item shall include the furnishing, installation, maintenance, and removal of temporary chain link fence and/or gates as specified herein and shown on the drawings.

## MATERIALS

Fence fabric shall be two inch (2") galvanized steel mesh that meets the requirements of M08.09.0.

Temporary fence may be provided as individual fence sections or as continuous fence fabric with temporary posts.

A. Temporary fence provided in sections shall be capable of being individually supported. When installed, sections shall be six (6) feet in height and shall be between eight (8) and ten (10) feet in length. Individual sections shall be provided with a method of connecting together adjacent sections to form a continuous barrier and shall have a maximum gap of 4" from the bottom of the fence fabric to the ground surface.

   Fence supports shall be capable of supporting adjacent sections of fence with a maximum gap of one (1) inch between sections.

B. Temporary fence provided as continuous fence fabric with temporary posts shall meet the applicable requirements of Section 644 of the Standard Specifications for 72" Chain Link Fence, (Spring Tension Wire).

C. Temporary chain link fence gates and gate posts up to a maximum width of six feet (6') shall be single gates. Gates over six feet wide shall be double gates. All gates provided shall be provided with a means to secure the gate in the closed position with a lock. Provide keys for all locks used to the resident engineer and the City of Taunton representative for the duration of the project.

## CONSTRUCTION METHODS

Temporary fence and /or gates shall be installed at the locations indicated on the plans or as directed.

## METHOD OF MEASUREMENT

Item 657. will be measured for payment by the Foot of temporary fence furnished, installed, maintained, and removed.

**ITEM 657.** (Continued)

## BASIS OF PAYMENT

Item 657. will be paid for at the Contract unit price per Foot, which price shall include furnishing, installation, maintenance, final removal, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

Compensation for work to adjust, relocate or remove and reset the temporary fence will not be paid separately but will be considered incidental to the cost of this item.

**ITEM 670.1 FENCE REMOVED AND DISPOSED FOOT**

The work under this Item shall conform to the relevant provisions of Subsection 665 of the Standard Specifications, and the following:

The work under this Item shall include removing and disposing existing fences as specified herein and shown on the drawings.

## CONSTRUCTION METHODS

Existing fence fabric, rails and posts shall be carefully removed to limit damage to surrounding areas and legally disposed outside of the project in accordance with all applicable state and local laws.

Post holes shall be backfilled with local soil materials and finished with four inches (4”) of loam borrow and seeded to match the surrounding lawn.

## METHOD OF MEASUREMENT

Item 670.1 will be measured for payment by the Foot of fence removed and disposed, as approved by the Engineer.

Existing fence to be removed will be measured along the top of fence between the outside faces of the end posts or along the top rail, whichever is greater, as determined by the Engineer.

## BASIS OF PAYMENT

Item 670.1 will be paid for at the Contract unit price per Foot, which price shall include removal, disposal, backfilling, loam borrow, seeding of post holes, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

## ITEM 697.3 FLOATING TURBIDITY BARRIER FOOT

Work under this item includes the furnishing, installing, maintaining and removal of temporary floating turbidity barrier (FTB) as specified herein and shown on the drawings. Regular inspection of the barrier and removal and disposal of accumulated sediment is also included in this item.

## SUBMITTALS

Prior to start of work, the Contractor shall submit to the Engineer, copies of manufacturer's data for all materials to be used in the floating turbidity barrier and recommended procedures for installation, maintenance and removal.

Warranty
Provide copies of the manufacturer's warranty for the floating turbidity barrier.

## MATERIALS

The floating turbidity barrier shall be designed to prevent particulate materials from leaving the immediate area of construction in the water. The FTB shall be a continuous barrier within the limits indicated and shall be designed to operate in both standing water and low water flow conditions. The barrier shall extend from the water surface to the bottom of the waterbody in the indicated locations. Height of barrier shall be calculated based on a water surface elevation of ordinary high water.

The FTB and floatation materials shall be high visibility in color. Barrier material, flotation devices and bottom weighting system shall all be from the same manufacturer and shall be of a type appropriate for the application.

Sufficient flotation and bottom weighting shall be provided to maintain the proper function of the FTB. The FTB shall also be able to be anchored in place as needed to prevent excessive movement or system failure due to water flow during storm conditions.

## CONSTRUCTION

General
The floating turbidity barrier shall be installed according to the manufacturer's listed procedures and recommendations or as directed. Turbidity Barrier shall be installed as indicated on the Drawings and prior to the start of excavation and filling area. The FTB shall be installed prior to other work in water occurring. Care shall be taken not to disturb or displace surface material or other particulate matter prior to, or during, the installation of the FTB.

Maintenance
The FTB shall be inspected daily to verify proper operation during active construction in or near the water and also following any rain event where over ½" of rainfall occurs. Any displacement of the FTB shall be corrected and any damage to the FTB shall be repaired prior to work in the water resuming.

**ITEM 697.3** (Continued)

Removal

Erosion and Turbidity control devices shall be maintained until all disturbed earth has been paved or vegetated, or interim work is completed at which time they shall be removed upon approval of the Engineer. Care shall be taken not to allow any accumulated sediments to become suspended in the water column during the removal process. Accumulated sediments shall be removed and disposed and any sediment that becomes suspended in the water column shall be allowed to settle prior to removal of the FTB.

## METHOD OF MEASUREMENT

Item 697.3 will be measured for payment by the Foot of floating turbidity barrier furnished, installed, maintained, and removed, regardless of the depth of the barrier.

## BASIS OF PAYMENT

Item 697.3 will be paid for at the Contract unit price per Foot, which price shall include, furnishing, installation, maintenance, regular inspection, removal and disposal of accumulated sediment, final removal of the barrier, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

Following installation of the floating turbidity barrier, 75% of the contract value will be paid. The balance will be paid following removal of all accumulated sediments and removal of the FTB.

**ITEM 698.3 GEOTEXTILE FABRIC FOR SEPARATION SQUARE YARD**

The work performed under this item shall consist of furnishing and installing geotextile fabric between existing ground and newly placed materials to inhibit transport of the new materials shown on the Plans or as directed by the Engineer.

## MATERIAL

The geotextile fabric shall conform to the requirements of AASHTO M 288 for fabric used for separation. Geotextiles shall be Class 1 fabrics and listed on the MassDOT Qualified Construction Materials List (QCML).

## CONSTRUCTION

The Construction/Installation Guidelines, Appendix of AASHTO M 288, and the following shall be followed.

Atmospheric exposure of the geotextile fabric to the elements following lay-down shall be a maximum of 14 days. If laid under water, the covering crushed stone shall be placed on the same day as the geotextile.

For seams, which are sewn in the field, the Contractor shall provide at least a 5-foot length of sewn seam for sampling by the Engineer before the geotextile is installed. The seams sewn for sampling shall be sewn using the same equipment and procedures as will be used for the production seams. If seams are sewn in both the machine and cross-machine direction, samples of seams from both directions shall be provided. The seam assembly description shall be submitted by the Contractor along with the sample of the seam. This description shall include the seam type, stitch type, sewing thread, and stitch density.

The geotextile shall be placed in intimate contact with the soils without wrinkles or folds, and it shall be anchored on a smooth-graded surface approved by the Engineer. The geotextile shall be placed so that the machine direction is horizontal and runs along the prepared surface. Adjacent geotextile sheets shall be made continuous by either sewing or overlapping. Overlapped seams at roll ends shall be a minimum of 2 feet except if placed under water. In such instances, the overlap shall be a minimum of 3 feet. Overlaps of adjacent rolls shall be a minimum of 2 feet in all instances.

Care shall be taken during installation so as to avoid damage to the geotextile as a result of the installation process. Should the geotextile be damaged during installation, a geotextile patch shall be placed over the damaged area extending 3 feet beyond the limits of the damage.

Placement of material on the fabric shall take place so as to avoid stretching and subsequent tearing of the geotextile. No stone material shall be dropped from a height exceeding 3 feet.

Field monitoring shall be performed to verify that the material placement does not damage the geotextile. Any geotextile damage during this placement shall be replaced as directed by the Engineer, at the Contractor's expense.

**ITEM 698.3** (Continued)

## METHOD OF MEASUREMENT

Item 698.3 will be measured for payment by the Square Yard of geotextile fabric for separation furnished and installed, complete in place. There shall be no additional payment for overlaps or material needed for patches. The area of geotextile folded over at the toe of the slope will be included in the quantity measurement.

## BASIS OF PAYMENT

Item 698.3 will be paid for at the Contract unit price per Square Yard, which price shall include furnishing, installation, all labor, materials, equipment and all incidental costs required to complete the work.

Crushed stone will be paid for under Item 156.

**ITEM 698.4 GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL SQUARE YARD**

The work performed under this item shall consist of furnishing and installing geotextile fabric in conjunction with the slope protection as shown on the Plans or as required by the Engineer.

The geotextile fabric shall conform to the requirements of AASHTO M 288 for fabric used for permanent erosion control. Geotextiles shall be Class 1 fabrics and listed on the MassDOT Qualified Construction Materials List (QCML).

The geotextile fabric shall be installed per the manufacturer's instructions and AASHTO M-288, whichever is more stringent.

Atmospheric exposure of the geotextile fabric to the elements following lay-down shall be a maximum of 14 days. If laid under water, the covering crushed stone shall be placed on the same day as the geotextile.

For seams, which are sewn in the field, the Contractor shall provide at least a 5-foot length of sewn seam for sampling by the Engineer before the geotextile is installed. The seams sewn for sampling shall be sewn using the same equipment and procedures as will be used for the production seams. If seams are sewn in both the machine and cross-machine direction, samples of seams from both directions shall be provided. The seam assembly description shall be submitted by the Contractor along with the sample of the seam. This description shall include the seam type, stitch type, sewing thread, and stitch density.

The geotextile shall be placed in intimate contact with the soils without wrinkles or folds, and it shall be anchored on a smooth-graded surface approved by the Engineer. The geotextile shall be placed in such a manner that placement of the overlaying materials will not excessively stretch so as to tear the geotextile. Geotextile fabric that becomes torn or damaged shall be replaced as required by the Engineer, at the Contractor's expense.

The geotextile shall be placed so that the machine direction is horizontal and runs along the slope. Adjacent geotextile sheets shall be made continuous by either sewing or overlapping. Overlapped seams at roll ends shall be a minimum of 2 feet except if placed under water. In such instances, the overlap shall be a minimum of 3 feet. Overlaps of adjacent rolls shall be a minimum of 2 feet in all instances.

Care shall be taken during installation so as to avoid damage to the geotextile as a result of the installation process. Should the geotextile be damaged during installation, a geotextile patch shall be placed over the damaged area extending 3 feet beyond the limits of the damage.

The armoring system placement shall begin at the toe of the slope and proceed up the slope. Placement shall take place so as to avoid stretching and subsequent tearing of the geotextile. No stone material shall be dropped from a height exceeding 3 feet.

Field monitoring shall be performed to verify that the armoring system placement does not damage the geotextile. Any geotextile damage during this placement shall be replaced as required by the Engineer, at the Contractor's expense.

**ITEM 698.4** (Continued)

## METHOD OF MEASUREMENT

Item 698.4 will be measured for payment by the Square Yard of geotextile fabric for permanent erosion control furnished and installed, complete in place. There shall be no additional payment for area used for repairs, seams or overlaps.

## BASIS OF PAYMENT

Item 698.4 will be paid for at the Contract unit price per Square Yard, which price shall include furnishing, installation, preparing the surface upon which the fabric is placed, incidental cost for the areas of geotextile used for repairs, seams or overlaps, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

Crushed stone will be paid for under Item 156.

**ITEM 710.6 TOWN LINE BOUND EACH**

The work under this Item shall conform to the relevant provisions of Subsection 710 of the Standard Specifications and the following:

The work shall consist of furnishing and installing precast, reinforced concrete bounds at the locations shown on the plans or as required by the Engineer. Bounds shall meet the requirements of the City of Taunton and shall be in accordance with the plans and these special provisions.

## METHOD OF MEASUREMENT

Item 710.6 will be measured for payment by the Each town line bound furnished and installed, complete in place.

## BASIS OF PAYMENT

Item 710.6 will be paid for at the Contract unit price per Each, which price shall include, furnishing, installation, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

Any damage to the bounds as a result of the Contractor's operations shall be repaired or replaced as determined by the Engineer, at no additional compensation.

## 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:

Three 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<br>Latest Adobe Acrobat Professional with all security updates<br>Latest Autodesk AutoCAD LT<br>Antivirus software with all current security updates maintained through the life of the contract. |
| Monitors: | Two 27" LED with Full HD resolution.<br>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.

**METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

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 755.35 INLAND WETLAND REPLICATION AREA LUMP SUM

The work under this Item shall conform to the relevant provisions of Subsections 120, 770, 771 of the Standard Specifications and the following:

Work under this item shall include furnishing material and the construction and maintenance of inland wetland replication areas as shown on the drawings and as required by the Engineer. Inland Wetland Replication Area shall hereafter be referred to as Replication Area. All work shall be in coordination with an approved Wetland Specialist as specified under that item.

Wetland Restoration work shall be as specified and compensated under that item. Construction of tidal wetlands shall be as specified under the appropriate item for tidal wetland mitigation.

The Replication Area shall be constructed prior to wetland impacts unless otherwise approved by the Engineer, specified herein, or specified in permit conditions and approvals. Construction schedule shall be appropriate to planting and seeding season (see below). Changes to this schedule will require written approval from the Engineer.

### DESCRIPTION OF WORK

Construction of the Replication Area shall be completed as shown on the drawings at the following location(s):

Area at Station: 16+10, Right Area = 700 sf.

Replication Area shall be constructed to meet the requirements of all associated permits and certifications, including relevant performance standards of the Massachusetts Wetlands Protection Act (MGL C. 131, s40), Section 401 Water Quality Certification, and Section 404, - U.S. Army Corps of Engineers Permit.

The Contractor is responsible for protection and preservation of natural areas adjacent to the Replication Area both within and outside the project limits and for the duration of the Contract; including but not limited to damage to soils or vegetation due to erosion, sedimentation, compaction, trampling, vehicles, storage of materials, or other negligence shall be repaired to the satisfaction of the Engineer and at the Contractor's expense.

The Wetland Specialist overseeing the Wetland Replication construction work shall not be from the same company as that which is performing planting, seeding, or participating in any aspect of the Wetland Replication construction.

### SUBMITTALS - DOCUMENTS

Request for Conditional Acceptance: As specified below, a letter requesting Conditional Acceptance of the work and the site conditions shall be submitted to the Engineer.

Request for Final Acceptance: As specified below, a letter requesting Final Acceptance of the work and the site conditions shall be submitted to the Engineer.

**ITEM 755.35** (Continued)

Monitoring Reports: Reports shall be submitted to the Engineer as specified below. Reports shall be compensated under Item 755.75 and 755.76.

## SUBMITTALS - MATERIAL

### Soil and Amendments

No soil, compost, or other soil amendment imported to the work site shall contain seeds, roots, stems, or other viable parts of invasive plants or other noxious plants.

At least sixty (60) days prior to installation and prior to ordering, the Contractor shall submit for approval sources of soil, compost, and amendments. Submittal shall include the supplier and location of the source. Off-site sources shall be identified and available for inspection by the Wetland Specialist prior to transport of material to the site to verify that they are likely to be free of invasive plant species, including all viable plant parts.

Samples of tested and approved wetland soil and soil amendments for soil texture, organic carbon content or other routine soil analysis parameters (e.g., pH, Cation Exchange Capacity, Percent Base Saturation) and Soil Organic Matter Analysis will be required if requested by the Engineer. The grab samples shall be collected by the Contractor or Wetland Specialist from multiple representative locations in the wetland topsoil mix following the "Umass Soil and Plant Tissue Testing Laboratory Sampling and Collection Protocols" (or equivalent certification paperwork provided by the soil supplier). The lab analysis shall be provided to the Engineer along with written certification from the Contractor or Wetland Specialist that the wetland topsoil was collected per the referenced protocol and meets the desired specification. The analysis and written certification of same shall be provided to the Engineer prior to placing the wetland topsoil in the Replication Area.

### Seed Mix

Certificate of Materials from the supplier shall be submitted 30 days prior to seeding and must be approved prior to ordering materials. Seed species listed on the certificate shall include ecotype region (i.e., *Asclepias incarnata*, PA Ecotype).

Seed tag from the bag of seed used shall be submitted to the Engineer at the time of seeding. Seed tag shall include ecotype region and species, guaranteed percentages of purity, weed content and germination of the seed, and the net weight. Seed tag shall match the Certificate of Materials, include the name of the supplier, and date material was sent.

Bill of lading or notarized Certificate of Compliance from the Supplier serving as proof of purchase shall be submitted if requested by the Engineer. Document shall include date of sale, quantity, lot number, and address of Supplier. This shall match the seed tag. Notary shall not work for either the contractor or seed supplier.

**Other Material:** Submittals shall be per the respective item.

**ITEM 755.35** (Continued)

## MATERIALS

**Sediment Control Barrier and Erosion Prevention Measures**
Sediment control barriers shall be per Item 767.121.

Erosion prevention measures for disturbed areas adjacent to the Replication Area shall include but not necessarily be limited to compost blankets, jute mesh, seeding, and/or combinations thereof as approved by the Engineer.

Sediment controls and erosion prevention devices and measures shall be compensated under the respective items.

**Wetland Soil**

Soil appropriate for the Replication Area may be either hydric soil excavated from the impacted wetland, a manufactured mix of compost and on-site borrow, or a combination thereof, as approved by the Engineer.

Hydric soil from the impacted wetland area may be spread on the surface of the constructed Replication Area as an inoculant or can be placed in a bulk fashion in a roughly 1:1 ratio of area and depth. Soil shall be handled such that the original soil structure is preserved and shall not be compacted, screened, or otherwise processed.

Hydric soil from the impacted wetland that is infested with invasive plant species identified on the Massachusetts Invasive Plant Advisory Group (MIPAG) shall not be used in the Replication Area unless approved by the Wetland Specialist and Engineer. To the extent possible, infested soil shall be disposed of within the project limits in an upland area outside of regulated areas and as approved by the Invasive Plant Management Strategy item (if in the contract) or by the Engineer.

A manufactured mix suitable for wetlands shall consist of on-site borrow from the proposed Replication Area (if approved by the Wetland Specialist and Engineer) thoroughly mixed with compost to achieve a target organic carbon content of 10-12% (up to 21% percent organic matter) by dry weight. The organic material used for mixing shall be well or partially decomposed. Clean leaf compost is the preferred soil amendment to achieve these standards though other materials may be used if approved by the Wetland Specialist and Engineer. Note that “clean” refers both to a negligible amount (<1%) of physical contaminants such as plastic and to the lack of chemical contaminants that might pose a hazard to plants or animals. Off-site borrow may be used for mixing if approved in advance by the Engineer.

No soil or soil amendment shall be brought on site without approval of the material source by the Wetland Specialist and the Engineer. Soils used in the replacement area shall be free of rocks greater than 4 inches in diameter.

**ITEM 755.35** (Continued)

**Seed Mix**

Seeding shall conform to the Standard Specifications Section M6, ROADSIDE DEVELOPMENT MATERIALS.

Seed mix shall be as specified in Section 765.555.

Fertilizers shall not be used.

**Water**

The Contractor shall provide water and all equipment required at no extra cost. Water shall be suitable for irrigation and free from ingredients harmful to plants and wildlife. Water from the adjacent water bodies or waterways shall not be utilized. It is the Contractor's responsibility to correct injury or damage due to the lack of water, too much water, or use of contaminated water.

**Mulch/Compost Blanket for Seeding**

Hydromulch shall be per the manufacturer's recommendations and shall be wood fiber or straw mulch only. Mulch shall be incidental to seeding.

Compost Blanket may be used in lieu of mulch for seeding. Compost Blanket shall meet the material and submittal requirements of that Item and shall be applied as specified below. Compost Blanket shall be compensated under that item.

**CONSTRUCTION METHODS & SEQUENCE**

**Site Protection Measures**

Minimizing Damage

The Contractor shall plan and execute operations in a manner minimizing the amount of excavated and exposed fill or other foreign materials that could be washed or otherwise carried into Replication Area and nearby resource areas.

Construction of and access to the Replication Area shall minimize damage to existing vegetation and soils as specified herein. Damage to soils or vegetation shall be repaired to the satisfaction of the Engineer and at the Contractor's expense. If required for soil remediation, tilling and the addition of compost shall be at the Contractor's expense.

**ITEM 755.35** (Continued)

Wetland topsoil shall be deposited and graded in the Replication Area in a manner that minimizes travel and subsequent compaction of the subgrade (including any specified pit and mound topography) to the extent practicable, including use of track mounted excavators as appropriate. Should soils be compacted, they shall be loosened by a method such as disking, spring-tooth harrowing and/or rototilling. The Contractor shall use boards, timber or composite mats, or other approved materials as necessary, to protect existing and/or new wetlands from compaction due to heavy foot traffic or if equipment is required to travel over wetland soil. All labor and materials required for protection and preservation of site shall be incidental to this item.

Stockpiling of Soil

Stockpiling of soil, including hydric soil for replication, shall be at least 100 feet from the edge of the bordering and isolated vegetated wetlands and inland banks, unless approved otherwise by the Engineer. Stockpiled soils shall be securely stabilized and contained. Any areas of exposed soil or stockpiles within and adjacent to the Replication Area that will remain inactive for more than 7 calendar days shall be sown with a mix of rapid germinating annual grasses (e.g., annual rye) covered with a layer of straw mulch applied at a rate of 90 pounds per 1,000 square feet. As necessary, the mulch shall be anchored with a tacking coat (non-tar) applied by a hydro seeder or other method recommended by the Wetland Specialist in consultation with the Engineer. In the event that there is excess borrow, it shall be disposed of under Excavation, Item 120.1.

Sediment Barriers

***Placement:*** Sediment barriers shall be installed along the downslope perimeter of the Replication Area beginning and ending in the surrounding upland so that no excavated material or disturbed soil can enter adjacent wetlands or waters. Where construction work is immediately upgradient of the wetland, barriers shall be located so as to protect the Replication Area until slopes are stabilized. Sediment barriers shall be in place and approved by the Engineer prior to excavation work. No work shall take place outside the barriers.

***Maintenance:*** The Contractor shall ensure that all sediment barriers function as intended and at all times per the specifications of those respective items.

Existing Trees to Remain

***Tree protection*** shall be per the relevant specifications and as shown on the plans or as required by the Engineer. To protect root systems of existing trees to remain, the limits of the Replication Area may be adjusted, but, the total area of replication required by the permits shall not be reduced. Access route may be adjusted as required.

***Trees to be retained as snags*** (upright dead or dying trees left for wildlife habitat) within or adjacent to the Replication Area shall be as shown on the plans or as directed by the Wetland Specialist or Landscape Architect during the initial site walk. Trees to remain as snags shall be clearly marked prior to clearing. Trees that pose a potential fall hazard (i.e., are near a roadway) should have limbs and trunk cut such that the tree does not pose a fall hazard.

**ITEM 755.35** (Continued)

***Coarse woody debris*** in the form of cut trees, stumps, logs, and brush shall be incorporated as shown on the plans or as directed by the Wetland Specialist or Landscape Architect. On site material shall be selected and marked by the Wetland Specialist, retained on the project site, and placed as specified below under Placement of Coarse Woody Debris.

All trees, stumps, or brush not specified to remain shall be removed and shall not be stockpiled in the wetland resource areas while awaiting disposal.

Work shall be coordinated with Clearing or Tree Removal Item and compensated under that Item.

**Pre-Wetland Construction Site Walk**

***Delineating the Replication Area and Access Route.*** The Contractor shall stake out the Replication Area boundaries and the intended access route and set grade stakes for approval by the Wetland Specialist and Engineer. Following staking and demarcation of areas, the Engineer and Wetland Specialist shall approve or modify as necessary the limits of work, the access route, final location and configuration of replication, grade stake elevations, proposed location of sediment barriers, and review proposed construction methods.

As part of the delineation and approval process, the Wetland Specialist shall mark trees to be converted to snags, select course woody debris to be retained for re-use, and select rocks or other elements to be used for habitat features.

***Invasive Plants:*** As part of the initial site walk, the wetland to be impacted and the proposed replication site shall be inspected for the presence of invasive plants. If invasive plants are found they shall be addressed as described herein under Invasive Plants.

**Soil Work**

Final grades in the Replication Area shall meet the target elevations as shown on the Plans or as adjusted by the Wetland Specialist to achieve the desired hydrology and micro-habitat. If adjustments are required, a Request for Information (RFI) shall be submitted to the Engineer for approval. Adjustments shall be documented and included in the As-Built plans (if required) and/or other applicable required documents.

Excavation & Grading

When required by permits, the Wetland Specialist shall notify MADEP and the ACOE (as applicable) at least 72 hours prior to excavation.

Soil in the proposed wetland areas that must be removed for grades to conform to the proposed elevations shall be stripped and disposed of, or, if suitable for reuse, be stockpiled in an approved location. Stockpiled soils shall be kept wet and not allowed to dry out. Procedures for maintaining appropriate moisture levels shall be documented by the Wetland Specialist and provided to the Engineer and the Contractor.

**ITEM 755.35** (Continued)

Replication area shall be excavated as shown on the drawings. Where replication area is adjacent to existing reference wetland, finish grade of replication shall generally match existing grades and micro-topography, notwithstanding any deviations that are necessary to achieve the desired hydrology and habitat in the Replication Area.

Prior to placement of backfill, scarify subgrade to a depth of 4 to 6 inches.

Placement of Wetland Soil

Following excavation, scarification, and grading of sub-grade, and after the sub-grade elevations are approved by the Wetland Specialist, suitable soil previously removed or an evenly mixed organic/mineral soil created on-site shall be spread to the design depth and thickness over the proposed wetland areas as shown on the plans and as directed by the Wetland Specialist.

Vehicles used to transport soil from offsite shall be washed or cleaned with air pressure to prevent exotic or invasive seeds or root fragments from contaminating the Replication Area.

Final Grading

The finished grade of the Replication Area shall be at an elevation that will provide an unrestricted hydrologic connection between the Replication Area and adjacent resource areas. The hydrologic connection should be in keeping with restoring the intended function of the replacement wetland relative to the impacted reference wetland. The Contractor shall verify that this elevation is not at a level that could negatively alter the hydrology of an adjacent wetland. Microtopography in the form of hummocks, pits and mounds shall be as shown on the plans or as adjusted by the Wetland Specialist. Final elevations and grading of wetland soil shall be approved by the Wetland Specialist and the Engineer.

To avoid compaction once soil has been placed, no heavy equipment shall travel across placed soil and no work shall occur in wet or moist soil. Soil that is compacted due to construction activities shall be replaced with soil as specified herein and at the Contractor's expense.

**Restoring Vegetation**

Placement of Coarse Woody Material

If specified within this Contract or if directed by the Wetland Specialist or Landscape Architect during the initial site walk, woody debris shall be placed in the Replication Area and/or adjacent upland buffer. Material shall be placed as shown on the plans or as directed following placement of wetland soil and prior to application of compost and/or seed. Woody material shall cover a minimum of 5-20 percent of the Replication Area, depending on whether it is a meadow or woodland wetland and how much wood is available from construction clearing. Where trees are cut for construction purposes, logs of a minimum length of 8 feet must comprise a minimum of 50% of the woody material left on site. Brush shall be included along with logs and stumps as directed. Woody material shall be placed in a deliberate and naturalistic manner.

**ITEM 755.35** (Continued)

Seeding

Following placement of wetland soil, the Replication Area shall be seeded using one of the following methods:

- Broadcast by hand or with a hand-held spreader followed by application of straw mulch. If necessary, seed shall be lightly raked to insure good seed-to-soil contact.
- Hydro-seeded with hydro mulch per the Standard Specifications and per the manufacturer's directions.
- Hand broadcast seed with Compost Blanket pneumatically applied at the same time to ensure light cover of soil topdressing over seed.

If spring conditions are drier than usual, supplemental watering may be required. If sowing during the summer months, supplemental watering will likely be required until germination.

If required, seeding limits for different seed mixes shall be determined by the Wetland Specialist.

**Plant Establishment and Invasive Management**

*Seeding* that fails to become established according to the conditions of acceptance below shall be over-seeded as required by the Engineer. Washouts and channels shall be repaired and stabilized prior to overseeding. Excessive weed growth shall be pulled out by the roots or, with approval from the Engineer, cut prior to over-seeding. Soil repair and weed control are incidental to this item.

*Invasive Plants:* Corrective measures shall be taken to remove or treat invasive plant species in the Replication Areas. Invasive plants shall include those listed as invasive by Massachusetts Invasive Plant Advisory Group (MIPAG) and the US Army Corp of Engineer's New England District's Compensatory Mitigation Guidance

If chemical treatment of invasive plants is necessary, the strategy for treatment shall be as determined under Item 102.3 Invasive Plant Management Strategy. That strategy shall be coordinated with the Wetland Specialist and all applicable permits and permitting agencies. Chemical application under 102.33 Invasive Plant Management On-site shall be compensated under that item and shall be for the duration of the contract only.

**Conditional Acceptance of Work**

Conditional Acceptance shall indicate approval of the wetland construction work and agreement that work has been done according to plan or modified as approved.

Upon completion of construction, the Contractor shall submit a Request for Conditional Acceptance that includes a brief narrative from the Wetland Specialist demonstrating that the wetland replication construction work was done according to plans (or how modified) and meets required permit conditions. The narrative shall include, photo-documentation of pre-construction conditions as well as soil work, planting, and seeding. Seed tags shall be submitted as part of the Request for Conditional Acceptance.

**ITEM 755.35** (Continued)

Upon receipt of a Request for Conditional Acceptance, the Engineer, the Wetland Specialist, and regulatory representative (if required) shall assess the Replication Area and surrounding areas. At a minimum, the following conditions shall be included in the narrative and reviewed as part of the on-site assessment of whether:

- The final finished target elevations have been met and maintained relative to the approved plans and reference wetland. Areas that are too high or too low should be identified along with suggested corrective measures.
- Hydrology meets performance standards.
- Specified seed mix has been seeded. If inspected 30 or more days after seeding, seeded species in the wetland and adjacent upland shall show signs of good germination and healthy growth.
- Planted woody and/or herbaceous species meet specifications and are establishing well.
- Soils are stabilized and there is no sediment in the wetland and no channeling of slopes.
- There are no invasive plants visible in the replication area.

Upon approval that the work meets the above conditions, MassDOT will issue a letter of Conditional Acceptance. If the Wetland Replication work is not approved, MassDOT will issue a rejection letter requiring corrective actions. The Wetland Specialist shall recommend corrective actions. Work not approved shall be addressed by the Contractor at no extra cost.

Wetland Specialist shall be compensated under Item 755.75.

Erosion of adjacent slopes or the flow of sediments into the wetland between Conditional and Final Acceptance shall be immediately addressed by the Contractor.

**Final Acceptance of Work**

Following one full growing season, the Contractor shall submit a Request for Final Acceptance. Submittal shall include a brief narrative of conditions. Upon receiving the Request, the Engineer, Contractor, Wetland Specialist and regulatory representative (if required) shall assess the Replication Area. Final Acceptance will initiate the start of the Wetland Monitoring Period.

The following conditions shall be inspected and approved for acceptance and payment.

- Hydrology is functioning as intended.
- The desired seeded species are establishing well and cover at least 95 percent of the Replication Area, excluding areas of open water areas or planned bare soil.
- No sediments have entered the wetland.
- Adjacent slopes are stabilized with desirable vegetation.
- All planted species (if included) are living and establishing well.
- There are no visible invasive plants.
- Silt fence and non-biodegradable sediment barrier materials have been removed.

**ITEM 755.35** (Continued)

If the mitigation work does not meet the above condition and is not approved, MassDOT will issue a rejection letter requiring corrective action. The Wetland Specialist shall recommend corrective actions. Work not approved will be addressed by the Contractor at no extra cost.

Wetland Specialist shall be compensated under Item 755.75.

**Monitoring Reports for Regulatory Compliance**

Post wetland construction Monitoring Reports shall be completed and submitted by the Wetland Specialist as specified and compensated under Item 755.76 Wetland Monitoring Reports.

Generally, the following conditions shall be met upon each inspection:

- Hydrology is functioning as intended.
- The desired seeded species are establishing well and cover 95 percent of the area, excluding areas of open water areas or planned bare soil.
- No sediments have entered into wetland.
- Adjacent slopes are stabilized with desirable vegetation.
- All planted species (if included) are living and establishing well.
- There are no visible invasive plants.

If, at the end of the required monitoring period, the requirements have not been met and success of the wetland replication area has not been achieved as determined by the Monitoring Reports, the Contractor shall provide corrective measures. All costs associated with corrective measures and plant replacement shall be incidental to this item with no additional compensation.

**METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

Item 755.35 will be paid for at the Contract unit price per Lump Sum, which price shall include all labor, materials, equipment, submittals, maintenance, all required soil, site preparation, grading, wetland seeding, mulching, watering, as-built plans, Requests for Conditional Approval and Final Acceptance, and all incidental costs necessary to complete the work as required.

Payment shall be as follows:

- 60% upon Conditional Acceptance.
- 20% after all permit construction requirements have been met and approved.
- 20% upon Final Acceptance.

Excavation will be paid under Item 120.1
Sediment Control Barrier will be paid under Item 767.121
Wetland Specialist will be paid under Item 755.75
Wetland Monitoring Reports for follow-up monitoring will be paid under Item 755.76

**ITEM 755.45 WETLAND RESTORATION SQUARE YARD**

The work under this item shall conform to the relevant provisions of Subsections 120, 751, 765, 767, and 771 of the Standard Specifications and the following:

The work under this item shall include all labor and furnishing of materials to complete the work specified herein to protect and restore existing inland wetland areas that will be temporarily impacted as shown on the drawings and as required by the Engineer.

Inland Wetland Replication work shall be as specified and compensated under that item. Tidal wetland mitigation shall be as specified under the appropriate item for tidal wetlands.

Restoration Area shall be constructed to meet the requirements of all associated permits and certifications, including relevant performance standards of the Massachusetts Wetlands Protection Act (MGL C. 131, s40), Section 401 Water Quality Certification, and Section 404, U.S. Army Corps of Engineers General Permit.

All work shall be in coordination with an approved Wetland Specialist. Wetland Specialist qualifications and requirements shall be per Item 755.75, Wetland Specialist.

## ASSOCIATED ITEMS AND MATERIALS

**Compost** shall be in accordance with Subsection 751 and M1.06.0 Organic Soil Additives of the Standard Specifications. Compost shall not contain seeds, roots, stems, or other viable parts of invasive plants or other noxious plants. Off-site sources shall be identified and available for inspection prior to transport of material to the site to verify that they are likely to be free of invasive plant species, including all viable plant parts.

**Seed Mix**

Required submittals include:

- Certificate of Materials from the supplier shall be submitted and approved 30 days prior to ordering seed. Seed species listed on the certificate shall include ecotype region (i.e., *Asclepias incarnata*, PA Ecotype).

- Seed tag from the bag of seed used shall be submitted to the Engineer at the time of seeding. Seed tag shall include ecotype region and species, guaranteed percentages of purity, weed content and germination of the seed, and the net weight. Seed tag shall match the Certificate of Materials, include the name of the supplier, and date material was sent.

- Bill of lading or a notarized Certificate of Compliance from the Supplier serving as proof of purchase shall be submitted if requested by the Engineer. Document shall include date of sale, quantity, lot number, and address of Supplier. This shall match the seed tag. Notary shall not work for either the contractor or seed supplier.

Seed mix shall be as specified in Section 765.555.

**ITEM 755.45** (Continued)

**Fertilizers** shall not be used.

**Straw mulch or hydromulch** shall be per Section M6 of the Standard Specifications.

**Water**

The Contractor shall provide water and all equipment required at no extra cost. Water shall be suitable for irrigation and free from ingredients harmful to plants and wildlife. Water from the adjacent water bodies or waterways shall not be utilized. It is the Contractor's responsibility to correct injury or damage due to the lack of water, too much water, or use of contaminated water.

## CONSTRUCTION METHODS & SEQUENCE

### Site Protection Prior to Impacts

Prior to any land work, as part of the initial site-walk, the Wetland Specialist shall photo-document the site and provide a summary report of existing conditions as outlined under Item 755.75 Wetland Specialist.

Where and as required vegetation shall be cut flush and area surveyed to establish pre-construction elevations.

### Restoration Upon Completion of Roadway Construction Work

Sediment Barriers

If required for sediment control during Restoration work, sediment barriers shall be installed along the downslope perimeter of the Restoration Area beginning and ending in the surrounding upland so that no disturbed soil can enter adjacent wetlands or waters. Sediment barriers shall be in place and approved by the Engineer prior to any soil disturbance. No work shall take place outside the barriers.

Removal of Fill and Grading

If required, fill and temporary separation fabric or mats shall be removed and disposed of as specified under the respective items.

If required, grades shall be restored to pre-construction elevations as shown in the baseline survey or as required by the Engineer and Wetland Specialist to restore hydrologic functions. Final elevations shall be approved by the Engineer prior to soil preparation and seeding. Grading shall be incidental to this item.

Following approval of grading to elevations required, soil shall be prepared and seeded as follows.

**ITEM 755.45** (Continued)

Soil Scarification
Compacted soil shall be scarified with equipment approved by the Engineer. Upon approval of soil scarification, the area shall be seeded with mulch as specified below. Seeding shall immediately follow soil preparation.

Seeding with Mulch
Upon approval of prepared soil, area shall be seeded. Seeding shall be hand broadcast with straw mulch applied per the Standard Specifications and per the manufacturer's directions. Hydromulch shall be straw or wood fiber only and shall be per the manufacturer's recommendations.

Seed tags shall be submitted at time of seeding.

**SEED ESTABLISHMENT**

*Seeding* that fails to establish according to the conditions of acceptance below shall be over-seeded as required by the Engineer. Washouts and channels shall be repaired and stabilized prior to overseeding. Excessive weed growth shall be pulled out by the roots or, with approval from the Engineer, cut prior to over-seeding. Soil repair and weed control are incidental to this item.

**CONDITIONAL ACCEPTANCE OF WORK**

Conditional Acceptance shall indicate approval of the wetland restoration work and agreement that work has been done according to plan or modified as approved.

Upon completion of construction, the Contractor shall submit a Request for Conditional Acceptance that includes a brief narrative from the Wetland Specialist (if applicable to project) demonstrating that the wetland restoration work was done according to plans (or how modified) and meets required permit conditions (if applicable). The narrative shall include, photo-documentation of pre-construction conditions as well as soil work, planting, and seeding. Seed tags shall be submitted as part of the Request for Conditional Acceptance.

Upon receipt of a Request for Conditional Acceptance, the Engineer, the Wetland Specialist, and regulatory representative (if required) shall assess the Restoration Area and the surrounding areas. At a minimum, the following conditions shall be included in the narrative and reviewed as part of the on-site assessment of whether:

- The target elevations have been restored per the survey or adjusted per the Engineer. Areas that are too high or too low should be identified along with suggested corrective measures.
- Soil compaction has been mitigated.
- Soils are stabilized and there is no sediment in the wetland and no channeling of slopes.
- Hydrology meets performance standards and has been adequately restored.
- Specified seed mix has been seeded and seeded species in the wetland and adjacent upland show signs of good germination and healthy growth.
- Planted woody and herbaceous species (if included) meet specifications and are establishing well.

**ITEM 755.45** (Continued)

- There are no invasive plants visible in the restored wetland area.
- Silt fence and non-biodegradable sediment barrier materials have been removed.

Upon approval that the work meets the above conditions, MassDOT will issue a letter of Conditional Acceptance. If the Wetland Restoration work is not approved, MassDOT will issue a rejection letter requiring corrective actions. Work not approved shall be addressed by the Contractor at no extra cost.

Erosion of adjacent slopes or the flow of sediments into the wetland between Conditional and Final Acceptance shall be immediately addressed by the Contractor.

**FINAL ACCEPTANCE OF WORK**

Following one full growing season, the Contractor shall submit a Request for Final Acceptance. Submittal shall include a brief narrative of conditions. Upon receiving the Request, the Engineer, Wetland Specialist and regulatory representative (if required) shall assess the Restoration Area. Final Acceptance will initiate the start of the Monitoring Period (if required).

The following conditions shall be inspected and approved for acceptance and payment:

- Hydrology is functioning as intended.
- The desired seeded species are establishing well and cover 100 percent of the restoration area, excluding areas of open water, large boulders or planned bare soil.
- No sediments have entered the wetland.
- Adjacent slopes are stabilized with desirable vegetation.
- Planted woody and herbaceous species (if included) meet specifications and are establishing well.
- There are no visible invasive plants.

If the restoration work is not approved, MassDOT will issue a rejection letter requiring corrective action. All costs associated with corrective measures and plant replacement shall be incidental to this item with no additional compensation. Work not approved shall be addressed by the Contractor at no extra cost.

**ITEM 755.45** (Continued)

## MONITORING REPORTS FOR REGULATORY COMPLIANCE

Post wetland construction Monitoring Reports shall be completed and submitted by the Wetland Specialist as specified and compensated under Item 755.76 Wetland Monitoring Reports.

Generally, the following conditions shall be met upon each inspection:

- Hydrology is functioning as intended, relative to the preexisting condition of the restored wetland.
- Seeded species are establishing well and cover 100 percent of the area, excluding areas of open water areas or planned bare soil.
- No sediments have entered into wetland.
- Adjacent slopes are stabilized with desirable vegetation.
- All planted species (if included) are living and establishing well.
- There are no visible invasive plants.

If, at the end of the required monitoring period, the requirements have not been met and success of the wetland replication area has not been achieved as determined by the Monitoring Reports, the Contractor shall provide corrective measures. All costs associated with corrective measures and plant replacement shall be incidental to this item with no additional compensation.

## METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 755.45 will be paid for at the Contract unit price per Square Yard, which price shall include all labor, materials, compost and amendments, seed, mulch, equipment, submittals, maintenance, grading, and incidental costs necessary to complete the work as required.

Payment shall be as follows:

- 50% upon completion of soil preparation and seeding
- 25% upon Conditional Acceptance
- 25% upon Final Acceptance or approval of the Engineer

Excavation will be paid under Item 120.1.
Sediment Control Barrier will be paid under Item 767.121
Wetland Specialist will be paid under Item 755.75
Wetland Monitoring Reports for follow-up monitoring will be paid under Item 755.76

## ITEM 755.75 WETLAND SPECIALIST HOUR

Work under this Item shall be for services of a Wetland Scientist, Wetland Ecologist, Restoration Ecologist, or other professional with similar qualifications hereafter referred to as the "Wetland Specialist."

"Wetland Mitigation" shall be used herein for applicable wetland work. For this project, applicable wetland work is for: Item 755.35 Inland Wetland Replication Area.

The Wetland Specialist shall demonstrate knowledge and expertise to coordinate and oversee all work associated with the Wetland Mitigation as defined herein, as shown on the Plans, as required by permits, and as specified under the relevant Wetland Mitigation items.

Regulatory monitoring reports following Final Acceptance of the Wetland Mitigation shall be per Item 755.76, Wetland Monitoring Reports.

For all onsite work, the Wetland Specialist shall sign in and sign out with the Engineer.

The Wetland Specialist shall not be from the same company as the company responsible for planting, seeding, and/or maintaining the wetland.

## QUALIFICATIONS

The Wetland Specialist shall have a minimum of five (5) years of experience with construction and monitoring of wetland mitigation areas similar in size, type, and complexity to the Contract mitigation. When required by permits, at least ten (10) years of experience may be required. The Wetland Specialist shall be thoroughly versed in the Commonwealth of Massachusetts Wetlands Protection Act (MGL C.131, s.40), U.S. Army Corps of Engineers New England District Compensatory Mitigation Guidance, and all other relevant regulations of the Massachusetts Department of Environmental Protection and the U.S. Army Corps of Engineers New England District.

## SUBMITTALS - QUALIFICATION

Within sixty (60) days following the Notice to Proceed, the Contractor shall provide proof of qualifications for the Wetland Specialist to the Engineer for approval. Submittals shall include, but not be limited to, the following:

- Resume of the individual on-site implementing the Wetland Specialist work. If the Wetland Specialist changes over the course of the project, the new individual shall submit resume and qualifications for approval 30 days prior to doing any work on-site.
- Resume of any personnel working on-site in place of the Wetland Specialist. Individual shall be approved prior to work on-site.
- Narrative describing the company, its expertise, technical qualifications and experience with wetland construction.
- At least three (3) references from prior work of a similar nature completed in the last five (5) years and by the individuals who will perform the work. Provide contact information for each reference including address, phone number and email.

**ITEM 755.75** (Continued)

- A summary of each reference project including nature of the work, project size, dates, and period of construction and monitoring, methodologies used, and summary of success (or not) in terms of meeting performance objectives. Summary shall include a minimum of one before and one after photo for each project.

## SUBMITTALS – DOCUMENTATION AND REPORTS

Wetland Construction Oversight

Wetland Specialist shall provide documentation of pre-existing conditions and wetland construction as specified below and as part of fulfilling the Scope of Work described below. Documentation shall include photos that are clear and legible. Photos are incidental to this item.

- ***Site Walk Prior to Disturbance and Construction of Wetlands:*** Provide brief assessment with photos, including documentation of the existing wetlands to be impacted (both permanent and temporary), proposed wetland replication area, and reference/model wetland areas (typically an adjacent undisturbed wetland or the existing wetland to be impacted). Photos of existing wetlands that will be temporarily impacted shall include a view from at least 3 angles.
- ***Excavation and Grading:*** Documentation shall include minimum of two photos of the excavated wetland and two photos after final grading prior to planting and seeding. For restoration areas, photos shall show soil preparation (i.e, tilling and grading), if applicable.
- ***Approval of Subgrades****:* The Wetland Specialist shall inspect the sub-grade of the Replication Area to ensure that proper hydrology is likely to be established and shall provide the Engineer with written confirmation and photographs upon completion of subgrade excavation work. Written confirmation shall include recommended field adjustments, based on field observations, to achieve the desired hydrology and designed wetland system.
- ***Seeding:*** Provide assessment and photos of vegetation upon completion of seeding work.

Wetland construction documentation and reports shall be submitted with Request for Conditional Acceptance and for the Water Quality Certifications, and other regulatory permits as required.

Requests for Acceptance of Work & Regulatory Compliance

The Wetland Specialist shall submit the following documents if and as specified herein and under Item the relevant Wetland Mitigation items:

- Request for Conditional Acceptance.
- Request for Certificate of Compliance (Partial or Full) when applicable.
- Request for Final Acceptance.

**ITEM 755.75** (Continued)

## SCOPE OF WORK

In the event of discrepancies with the applicable permits, the Wetland Specialist shall submit a Request for Information (RFI) to the Engineer.

General

The Wetland Specialist shall be responsible for the following:

- Review and have a comprehensive knowledge of the environmental permits relevant to the specific mitigation work being done so as to ensure compliance throughout the duration of the contract.
- Identify and inform the Contractor and Engineer of unique site conditions which may require adjustments to the schedule, design, or construction methods. For example, wildlife nesting, illegal dumping, or rare species.
- Identify and inform the Contractor and Engineer of any sediment or erosion control problems observed within mitigation areas.
- Advise so as to avoid impacts to adjacent areas and regulated wetland resources.
- Participate in necessary meetings as required by permits and when requested by the Engineer.

Inspections & Construction Oversight

The Wetland Specialist shall be responsible for, but not limited to, the following:

- Pre-Construction Site Walk
    - Following surveying, flagging, and staking of all relevant boundaries and elevations by the Contractor, the Wetland Specialist shall walk the site with the Engineer and the Contractor to review existing and proposed conditions, recommend changes if necessary, and approve the following: location and boundaries of the Mitigation Area, target elevations and grades, location of tree protection associated with the Mitigation Area, and final layout and limits of clearing for access route.
    - Select and mark snags, logs, and woody material to be retained for placement in the Wetland Mitigation, as appropriate.
    - Note invasive plants in and adjacent to Wetland Mitigation.
    - Provide summary report if and as specified under Wetland Mitigation items.
- Excavation, Soil Placement, Grading for Replication Areas
    - Approve excavated depth and grading for appropriate wetland hydrology, subsoil preparation, and finished grade of placed wetland soil.
    - Adjust grades as required and approve microtopography. If grades need to be adjusted, submit an RFI to the Engineer.
    - If requested by the Engineer, the Wetland Specialist shall inspect stockpiled wetland soil for moisture content and signs of undesirable weeds.
- Soil Protection and Restoration Measures for Restoration Areas
    - Review and approve methods of soil protection and restoration if required.
    - Confirm decompaction will adequately restore appropriate wetland hydrology. If decompaction measures need to be adjusted, submit an RFI to the Engineer.

**ITEM 755.75** (Continued)

- Re-vegetation of Mitigation Area
    - Placement of woody material to be re-used.
    - Verify seed used complies with specifications and site conditions, determine limits for wetland seeding based on elevations, approve seeding and mulching methods, and collect seed tags to submit with Request for Conditional Acceptance.
    - Review planting methods (if applicable) prior to installation and oversee layout of wetland plants.

Conditional Acceptance

Upon completion of construction of the wetland, as part of the Request for Conditional Acceptance, the Wetland Specialist shall provide a brief narrative demonstrating that the wetland construction work was done according to plans (or how modified) and meets the conditions required for acceptance as specified under the Wetland Mitigation items. Submittal shall include a report and photo documentation of pre-construction conditions, construction work, seeding, planting, and other work as specified under the Wetland Mitigation items. Photos of completed Wetland Restoration areas shall include the same views as the pre-construction reference photos.

Upon receipt of a Request for Conditional Acceptance, the Engineer, the Wetland Specialist and regulatory representative (if required) shall assess the Wetland Mitigation and surrounding area to ensure that it meets the conditions specified under the Wetland Mitigation items.

Upon approval, MassDOT will issue a letter of Conditional Acceptance. If the Wetland Mitigation work is not approved, MassDOT will issue a rejection letter requiring corrective action. The Wetland Specialist shall recommend corrective actions.

Request for Certificate of Compliance

If required, a Request for Certificate of Compliance shall be prepared and submitted to the Engineer immediately following Conditional Acceptance. Request shall be as specified under the relevant Wetland Mitigation items.

Request for Final Acceptance

Following one full growing season, the Wetland Specialist shall provide a brief narrative of the status of the Wetland Mitigation to be submitted with the Request for Final Acceptance.

Upon receipt of the Request, the Engineer, the Wetland Specialist and regulatory representative (if required) shall assess the Wetland Mitigation and surrounding area to ensure that it meets the conditions specified under the relevant Wetland Mitigation items.

If the Wetland Mitigation is not approved, MassDOT will issue a rejection letter requiring corrective action. The Wetland Specialist shall recommend corrective actions.

**ITEM 755.75** (Continued)

## METHOD OF MEASUREMENT

Item 755.75 Wetland Specialist shall be measured per hour for on-site service provided by the Wetland Specialist.

Work shall include all inspections, photos, submittals, and associated tasks for construction and restoration oversight, narratives for Conditional and Final Acceptance, Request for Certificate of Compliance (Partial or Full) if required, documentation required for permits, and all other work specified above. Payment shall not include travel time or time spent off-site on reports. Decimal Pay Limits will be 0.25 hours.

## BASIS OF PAYMENT

Item 755.75 Wetland Specialist shall be paid at the Contractor bid price for each hour, or fraction thereof, spent on-site to perform the work as described above. Reports and photo documentation are required for payment.

Post wetland construction reports shall be per Item 755.76, Wetland Monitoring Reports.

## ITEM 755.76 WETLAND MONITORING REPORTS LUMP SUM

Work under this item shall be for the submittal of Wetland Monitoring Reports following the completion of wetland construction and shall include all inspections, photos, and other work required to complete those reports as specified herein.

"Wetland Mitigation" shall be used herein for applicable wetland work, whether Wetland Replication (creation of a new wetland) and/or Wetland Restoration (restoration after temporary impacts).

The Contractor shall retain the services of a Wetland Scientist, Wetland Ecologist, Restoration Ecologist, or other professional with similar qualifications, hereafter referred to as the "Wetland Specialist," to complete the Wetland Monitoring reports. Wetland Specialist shall meet requirements specified under Item 755.75 Wetland Specialist.

All on-site Wetland Specialist services required to complete the construction and revegetation of the wetland replication, including preparation and submission of monitoring reports during construction, shall be per Item 755.75 Wetland Specialist.

## SCOPE OF WORK

Post-Construction Wetland Monitoring Reports

Final Acceptance of the wetland construction work as specified under item 755.35 shall initiate the beginning of the Monitoring Period.

Inspections and reports shall be performed to ensure compliance with mitigation requirements defined under the relevant Wetland Mitigation items and with all applicable environmental permits. Monitoring reports shall cover the following:

- Identification of all plant species present
- Percent cover for each plant species and overall percent surface area cover by indigenous wetland plant species for replication area and upland
- Description of the viability, health, and vigor of installed plants as well as volunteer plant species within the replication areas
- Description of remedial measures taken to ensure criteria are met
- Depth to apparent water table and/or depth of surface inundation, both as measured from the soil surface and data loggers, as appropriate.
- A conclusion regarding the success of the wetland mitigation area relative to the performance standards at 310 CMR 10.55(4)(b) (unless varied), the design plans, and performance criteria established by MADEP in the variance conditions (when applicable), and the reference wetland.
- Recommendation for a corrective plan of action if needed.

**ITEM 755.76** (Continued)

Reports shall be submitted to the Engineer as a digital copy in Portable Document Format (PDF) unless otherwise requested. Hard copies shall be provided as requested by the Engineer. All reports shall be marked with the applicable permit numbers and identifying information as required in the permits. Reports shall include photo documentation of the wetland/s being monitored and shall include a minimum of 3 views from different orientations. Views shall be labeled.

Spring Reports, when required, shall be submitted to the Engineer by July 1 for dispersal to the appropriate permitting agencies.

End of Year / Annual Reports (which may serve as the Fall Report) shall be based on inspections that occur prior to October 15th. Reports shall be submitted to the Engineer no later than January 15th of the following year.

Monitoring Reports shall be as follows for 2 years:

- *Water Quality Certificate: 1 End of Year / Annual Report*
- *Section 404 Permit: 1 End of Year / Annual Report*

## METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 755.76 Wetland Monitoring Reports and associated inspections shall be at the Contract unit price per Lump Sum and shall include all labor, materials, equipment, and all incidental costs required to complete the work. Lump Sum will be paid in equal installments of the Lump Sum divided by the number of reports submitted. Payment shall be upon submittal and acceptance of each report, based on the following schedule:

- Year 1 = 1 Report
- Year 2 = 1 Report

## 756.1 CONSTRUCTION PERIOD POLLUTION PREVENTION AND EROSION AND SEDIMENTATION CONTROL PLAN LUMP SUM

The work under this item shall consist of the preparation and implementation of a Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan (CP/PP) as required by a regulatory agency. This Item is applicable to projects that are not subject to the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) required by the National Pollutant Discharge Elimination System (NPDES) and applicable Construction General Permit (CGP) issued by the U.S. Environmental Protection Agency (EPA).

The work under this item shall also include the preparation, submission and implementation of a Flood Contingency Plan. The plan shall address the potential need for the temporary relocation of construction and auxiliary equipment situated within the 1% annual chance of flooding zone to designated upland locations above the Base Flood Elevation during flood events. The Flood Contingency Plan shall address any additional MassDEP-required information requirements, as applicable. The Flood Contingency Plan shall be submitted to the Engineer for review and approval at the same time as the CP/PP.

The CP/PP, at a minimum, shall include the following:

- Project & Site Description
- Project Site Contact Information
    - This shall include the phone number for the Contractor Site Superintendent, Project Manager and CP/PP Inspector(s).
- Qualifications of the CP/PP Inspector and documentation of qualifications
    - At a minimum, relevant personnel responsible for erosion and sedimentation control inspections shall have completed the EPA's construction inspection training course and obtained a certificate confirming completion of the training module, or have completed a third-party stormwater course which covers the minimum topics listed in Part 6.3.b of the CGP.
- Reference to and information to address permit Special Conditions relevant to the CP/PP contents
    - Section 401: Water Quality Certificate
    - Section 404: Clean Water Act
- Construction Sequencing/Phasing
- Erosion Prevention, Sediment Control, and Best Management Practices (BMP s) to be implemented
- Maintenance measures and intended timeline to address maintenance and corrective actions for implemented Erosion Prevention Measures, Sediment Control Devices, and BMPs
- Anticipated inspection schedule and sample inspection report form
    - Use the EPA's Site Inspection Report Template found on the EPA's website.

**ITEM 756.1** (Continued)

- Site Plans
    - This shall depict, at minimum, the project limits, locations of construction phase erosion prevention measures, construction phase sedimentation control measures, limits of disturbance, staging and laydown areas, proposed dewatering locations and proposed stockpile locations. Depict existing jurisdictional wetland resource areas, drainage conveyances and stormwater treatment features.

The Contractor shall prepare the CP/PP, and update/revise as needed upon changes in site conditions, relevant project personnel, construction phase controls, schedule changes, revised work, regulations, and construction methodologies. The Contractor shall submit the CP/PP to the Engineer for approval at least thirty (30) days prior to prior to commencement of any project related activity that disturbs land, including clearing and grubbing. Submission of the CP/PP to a regulatory agency for review and approval may also be required by a Special Condition associated with a permit issued under the Wetlands Protection Act, or Section 401of the Clean Water Act and their implementing Regulations. It is the responsibility of the Contractor to ensure the CP/PP is submitted to reviewers in a timely manner to support the construction schedule.

It is the responsibility of the Contractor to comply with the conditions of any state Wetlands Protection Act Order, Water Quality Certification, Army Corps of Engineers Section 404 Permit and other environmental permits applicable to the project, and to include in the CP/PP the methods and means necessary to comply with applicable conditions of said permits.

Inspection frequency shall be at least once every seven (7) days and within 24 hours of a storm event that produces 0.56 inches or more of rain within a 24-hour period. The inspections shall be performed by an individual that meets the qualifications specified in the permits and proof of the inspector's qualifications shall be included as an Appendix in the CP/PP. CP/PP inspection reports shall be completed and distributed to the Resident Engineer within 24-hours of each inspection. Special conditions associated with permits may also require submittal of reports to regulators at a certain frequency. Reports shall be maintained throughout the duration of the project. In addition, if the Engineer determines at any time that the inspector's performance is inadequate, the Contractor shall provide an alternate inspector.

The Contractor is responsible for preparation of the CP/PP, inspections, and associated reports. The Standard Specifications require adequate erosion and sedimentation control for the duration of the Contract. All control measures must be properly selected, installed, and maintained in accordance with manufacturer specifications, good engineering practices, and MassDOT standard specifications and special provisions. Contractor must maintain all control measures and other protective measures in effective operating conditions in accordance with the additional Special Provisions herein. If periodic inspections or other information indicates a control has been used inappropriately or is no longer adequate, it is the responsibility of the Contractor to replace or modify the control for site conditions at no additional cost to the Department.

**ITEM 756.1** (Continued)

## BASIS OF PAYMENT

Item 756.1 will be paid for at the Contract Lump Sum price, which price shall include CP/PP and Flood Contingency Plan preparation and implementation, required revisions, revisions/addenda during construction, inspections, reports, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

Work under this item shall include acceptable completion of the CP/PP, Flood Contingency Plan, site inspections, and revisions/amendments required during construction. In addition, any erosion prevention or sediment control measures beyond those specified in bid items that are selected by the Contractor to facilitate and/or address the Contractor's schedule, methods and execution of the work shall be considered incidental to this item.

Payment of thirty (30) % of the contract price shall be made upon acceptance of the CP/PP and Flood Contingency Plan. Payment of forty (40) % of the contract price shall be made in equal installments over the expected duration of stormwater pollution prevention measures. Payment of the final thirty (30) % of the contract price shall be paid when final stabilization has been achieved (minimum of 75% total cover of disturbed vegetated areas with perennial ground cover).

**ITEM 765.442 SEEDING – ROADSIDE RIVERBANK – PART SHADE MIX POUND**

**ITEM 765.555 SEEDING – WETLAND MIX – PART SHADE 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.

**ITEMS 765.442 and 765.555** (Continued)

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

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.

**ITEMS 765.442 and 765.555** (Continued)

**Roadside Riverbank**

| | Botanical Name | Common Name | % PLS By Weight |
|---|---|---|---|
| Grass | | | |
| | Elymus virginicus | Virginia Wild Rye | 25.00% |
| | Elymus canadensis | Canada Wild Rye | 20.00% |
| | Schizachyrium scoparium 'Albany Pine' | Little Bluestem 'Albany Pine' | 20.00% |
| | Festuca rubra | Creeping Red Fescue | 12.00% |
| | Dichanthelium clandestinum 'Tioga' | Deertongue grass 'Tioga' | 8.00% |
| | Agrostis perennans | Upland Bentgrass | 6.00% |
| | Carex vulpinoidea | Fox Sedge | 2.00% |
| | Juncus tenuis | Path Rush | 2.00% |
| | Juncus effusus | Soft Rush | 0.10% |
| | | | 95.10% |
| Herb/Forb | | | |
| | Penstemon digitalis | Beard-tongue | 2.00% |
| | Aster novae-angliae | New England Aster | 1.00% |
| | Solidago caesia | Woodland Goldenrod | 0.50% |
| | Aster cordifolius | Blue Wood Aster | 0.50% |
| | Eupatorium maculatum | Joe-pye Weed | 0.30% |
| | Geum canadense | White Avens | 0.30% |
| | Solidago rigida | Rigid Goldenrod | 0.20% |
| | Rudbeckia hirta | Black-eyed Susan | 0.10% |
| | | | 4.90% |
| | | | 100.00% |

**ITEMS 765.442 and 765.555** (Continued)

**Wetland Mix**

| | Botanical Name | Common Name | % PLS By Weight |
|---|---|---|---|
| Grass | | | |
| | Poa palustris | Fowl Bluegrass | 25.00% |
| | Elymus riparius | Riverbank Wild Rye | 19.00% |
| | Carex lurida | Shallow Sedge | 17.00% |
| | Carex vulpinoidea | Fox Sedge | 10.00% |
| | Cinna arundinacea | Sweet Woodreed | 5.00% |
| | Sparganium eurycarpum | Giant Bur Reed Eco PA | 4.00% |
| | Carex scoparia | Broom sedge | 4.00% |
| | Carex lupulina | Hop Sedge | 4.00% |
| | Scirpus polyphyllus | Many Leaved Bulrush | 3.00% |
| | Juncus effusus | Soft Rush | 2.50% |
| | Carex intumescens | Bladder Sedge | 2.00% |
| | Sparganium americanum | Burrweed | 2.00% |
| | Scirpus cyperinus | Woolgrass | 1.00% |
| | Carex crinita | Fringed Sedge | 1.00% |
| | Juncus tenuis | Path Rush | 0.50% |
| | | | 100.00% |

**Application Rate**

Apply these mixes at 20 lbs/acre PLS. In addition, apply 30 pounds of cover crop (grain oats or grain rye) as appropriate to the season.

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).

**ITEMS 765.442 and 765.555** (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.*

**ITEMS 765.442 and 765.555** (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):

**ITEMS 765.442 and 765.555** (Continued)

## METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Items 765.442 and 765.555 will be measured for payment by the pound of Pure Live Seed delivered and complete in place.

Items765.442 and 765.555 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 735.635 Native Seeding and Establishment.

## ITEM 765.635 NATIVE SEEDING AND ESTABLISHMENT SQUARE YARD

The work under this Item 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.

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.

**ITEM 765.635** (Continued)

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.

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.

**ITEM 765.635** (Continued)

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.

## 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 7$^{th}$ and August 1$^{st}$, unless directed otherwise by the MassDOT Landscape Architect and the Engineer.

**ITEM 765.635** (Continued)

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.

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.

**ITEM 765.635** (Continued)

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.

**ITEM 765.635** (Continued)

## 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.

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 801.44 4 INCH ELECTRICAL CONDUIT - TYPE NM (4 BANK) FOOT**
**ITEM 801.54 5 INCH ELECTRICAL CONDUIT - TYPE NM (4 BANK) FOOT**
**ITEM 804.5 5 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC (UL) FOOT**

The work to be done under these Items shall conform to the relevant provisions of Subsection 801 of the Standard Specifications, and the following:

The work to be performed under these Items shall include furnishing and installing four-inch (4") or five-inch (5") diameter non-metallic conduits either single duct or in banks of conduits of the number shown, concrete encased at the locations shown on the plans or as directed by the Engineer.

A representative from each utility company shall be present during the installation of the conduits that will later contain their respective facilities.

## MATERIALS

A. Conduits
PVC conduits shall be Schedule 40.

B. Concrete
Concrete encasement shall be 2,500 psi, 3/8 inch, 520 cement concrete.

C. Handholes
Utility Handholes shall be per the details shown on the plans.

D. Warning Tape
Warning tape shall be six-inch wide, detectable tape of the colors indicated on the plans

## CONSTRUCTION METHODS

Utility duct banks shall be installed at the locations and in in accordance with the details shown on the plans.

Utility handholes shall be installed at the locations shown on the plans or as directed by the utility company representative.

For all conduits encased in concrete, use plastic spacers to maintain conduit spacing.

All trench excavation activities shall comply with all appropriate OSHA standards.

Install warning tape of the colors called out on the plans above the concrete encasement as shown.

Conduits shall be blown clean using compressed air. Run mandrel thru each conduit to confirm viable pathway.

**ITEMS 801.44 through 804.5** (Continued)

Woven polyester mule tape with minimum strength of 2500 lb. tensile strength to be installed within each conduit.

## METHOD OF MEASUREMENT

Items 801.44, 801.54, and 804.5 will be measured for payment by the Foot of respective electrical conduit furnished and installed, complete in place and accepted by the Engineer.

Measurement for conduits will be taken between the respective end terminals along the center line of the conduit or conduit bank.

## BASIS OF PAYMENT

Items 801.44, 801.54, and 804.5 will be paid for at the Contract unit price per Foot, which price shall include furnishing and installing all conduits, mule tape, spacers, couplings, expansion fittings, elbows, bends, caps, sleeves, clamps, hangers, reducers, tees, jointing compound, sealing compound, cement concrete, gravel, backfilling of the trenches, chipping or sawing of pavement, bedding or hanging of conduit, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

Coordination with the respective utility companies is considered incidental to this item and will not be paid separately.

**ITEM 805.44 4 INCH ELECTRICAL CONDUIT TYPE NM - FIBERGLASS (UL) (4 BANK) FOOT**

**ITEM 805.54 5 INCH ELECTRICAL CONDUIT TYPE NM - FIBERGLASS (UL) (4 BANK) FOOT**

The work to be done under these Items shall be in accordance with the relevant provisions of Subsection 801 of the Standard Specifications, and the following:

The work to be performed under these Items shall include furnishing and installing four-inch (4") and/or five-inch (5") diameter fiberglass conduits in a bank of conduits on the proposed bridge structure in accordance with the plans and details or as directed by the Engineer.

## REFERENCES

When a standard or other referenced document referred to in this specification is superseded by an approved revision, the revision shall apply.

1. American U-Tel specification (attached as Document A00893) - 4" Conduits
2. Taunton Municipal Light Plant (TMLP) specifications (attached as Document A00896) – 5" Conduit

## LISTING

The conduit shall be listed by UL, Underwriters Laboratories, to the UL 2515 Above Ground standard. All conduit shipped shall contain UL labels.

## QUALITY ASSURANCE PROGRAM

Manufacturer shall have a current Certificate, issued by an independent and accredited company, of compliance with an ISO 9001:2008 Quality Management System.

## ENVIRONMENTAL

Manufacturer shall have a current Certificate, issued by an independent and accredited company, of compliance with an ISO 14001: Environmental Management Systems and Performance.

## MATERIALS

Fiberglass conduit shall be filament wound Reinforced Thermosetting Resin Conduit (RTRC), manufactured using the single circuit filament winding process. Multi circuit windings are not allowed. The conduit shall have a nominal winding angle of 54.75 degrees. Winding mandrels shall be straight and true so as to produce a non-tapered conduit. Tapering is allowed at the belled end.

The resin system shall be epoxy based, with no fillers, using an anhydride curing agent. The fiberglass shall consist of continuous E-glass Grade "A" roving. All additives for increasing flame spread and lowering smoke density shall be halogen free, i.e. not contain chlorine or bromine.

**ITEMS 805.44 and 805.54** (Continued)

Carbon black shall be used as ultra violet inhibitor to protect the conduit and fittings during storage and exposure to the outdoors. Conduit, elbows and other fittings shall be black in color.

The internal conduit and elbow walls shall be smooth and all fibers embedded in the epoxy. Conduit shall be free from delamination, foreign inclusions and other defects.

Fiberglass conduit fittings, elbows, and accessories shall be manufactured using the same materials and processes as the conduit.

All elbows shall meet the nominal radius + or – 2 o. The wall thickness shall meet tolerance as shown below and the "Out of Rounds" as shown in NEMA TC 14.

All elbows shall have either straight ends or deep socket PVC couplings. All conduits and elbows shall be durably and legibly marked in accordance to NEMA TC 14. In addition, the following information shall be included:

- NEMA TC 14
- UL 2515 AG (Above Ground)
- Manufacturer and Reseller (if the conduit was modified or bent other than by the manufacturer)
- Date of Manufacturing of conduit and elbows. Elbows shall be marked with the angle and radius.
- All conduit, elbows and fittings shall be manufactured in the U.S.A. and marked as such.

CONDUIT SUPPORT SYSTEM

Provide the necessary components to attach and support the conduits on the new bridge superstructure. The components shall be as shown on the drawings and as recommended by the manufacturer. The support system components shall be supplied by the same manufacturer as the conduit to the greatest extent possible.

## CONSTRUCTION METHODS

CONDUITS

Conduits shall be installed on the support system on the bridge in the configuration shown on the drawings or as directed by the Engineer. Conduits shall be continuous unless one or more expansion joints are recommended by the manufacturer.

Fiberglass conduits installed on a bridge shall extend through the backwalls at each end of the bridge. Transitions to other conduit materials shall occur outside of the bridge structure.

FITTINGS AND ACCESSORIES

**ITEMS 805.44 and 805.54** (Continued)

Bends, sleeves and other fittings shall be installed in the locations shown on the plans or as directed by the Engineer in accordance with the manufacturer's recommendations.

The Contractor shall review the proposed installation with the manufacturer to determine the need for expansion joints and lock rings. If needed, they shall be installed at the location recommended by the manufacturer.

JOINING METHODS

Interference/Adhesive Joint - The conduit shall be supplied with an integrally wound tapered bell and machine tapered spigot to be used with an adhesive - which shall be supplied by the manufacturer of the conduit. The strength of the joint shall meet or exceed the conduit tensile strength when tested in accordance with ASTM D 2105. The joint shall have a minimum pullout force of 1500 lbf per section 5.8 of UL 2515 and NEMA TC-14. The joint shall be concrete tight and water-tight when tested in accordance with ASTM D2105.

Interference/Gasketed Joint - The conduit shall be supplied with an EPDM O-ring gasket in the tapered bell end and a machine tapered spigot to provide a non-adhesive, water-tight and concrete tight mechanical joint capable of withstanding a minimum pullout force of 500 lbf when tested in accordance with ASTM D2105.

CONDUIT SUPPORT SYSTEM

The contractor shall install the conduit support system components at the locations shown on the drawings and as recommended by the manufacturer.

## METHOD OF MEASUREMENT

Items 805.44 and 805.54 will be measured for payment by the Foot of electrical conduit furnished and installed, complete in place and accepted by the Engineer.

Accessories and components of the conduit support system, including expansion joints, lock rings, fittings, and bends shall not be measured separately but will be considered incidental to the cost of the conduit.

## BASIS OF PAYMENT

Items 805.44 and 805.54 will be paid for at the respective Contract unit prices per Foot, which prices shall include, furnishing, installation, expansion joints, lock rings, conduit accessories, conduit support system, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

| | | |
|---|---|---|
| **ITEM 806.4** | **4 INCH ELECTRICAL CONDUIT TYPE RM – GALVANIZED STEEL** | **FOOT** |
| **ITEM 806.5** | **5 INCH ELECTRICAL CONDUIT TYPE RM – GALVANIZED STEEL** | **FOOT** |

The work to be done under these Items shall conform to the relevant provisions of Subsection 801 of the Standard Specifications and the following:

The work to be performed under these Items shall include furnishing and installing four-inch (4”) and five-inch (5”) diameter rigid galvanized steel conduits on the proposed structure in accordance with the plans and details or as directed by the Engineer.

## METHOD OF MEASUREMENT

Single conduits, including bends and fittings, shall be measured by the foot between end terminals along the centerline of the conduit as actually installed, complete in place and accepted.

Items 806.4 and 806.5 will be measured for payment by the Foot of electrical conduit furnished and installed, complete in place and accepted by the Engineer.

Measurement shall be taken between end terminals along the centerline of the conduit, including bends and fittings.

## BASIS OF PAYMENT

Items 806.4 and 806.5 will be paid for at the respective Contract unit prices per Foot, which prices shall include furnishing and installing all conduits, couplings, expansion fittings, elbows, bends, caps, sleeves, clamps, reducers, tees, jointing compound, sealing compound, cement concrete if required, excavation, backfilling, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

The attachment system for temporary mounting of conduits on a structure will not be paid separately but will be incidental to the cost of the conduit.

## ITEM 811.28 COMMUNICATIONS HANDHOLE EACH

The work under this Item shall conform to the relevant provisions of Subsection 801 of the Standard Specifications and the following:

The work to be performed under this Item shall include furnishing and installing handholes for connection of communications infrastructure in accordance with the utility company requirements and as detailed on the Contract Plans.

### MATERIALS

Handhole materials and dimensions shall be as detailed on the plans or equal approved by the Engineer.

### CONSTRUCTION METHODS

Each handhole will be installed at the location and grade noted or as directed by the engineer in accordance with the utility company standards. Handholes shall be set on a minimum of six inches (6") of gravel borrow bedding.

A representative of the utility company whose facilities will occupy the handhole shall be present during the installation.

### METHOD OF MEASUREMENT

Item 811.28 will be measured for payment by the Each communications handhole furnished and installed, complete in place and accepted by the Engineer.

### BASIS OF PAYMENT

Item 811.28 will be paid for at the Contract unit price per Each, which price shall include furnishing, installation including the precast handhole with cover, excavation, bedding, backfilling, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

## ITEM 811.91 ELECTRIC VAULT EACH

The work under this item shall conform to the relevant provisions of Subsection 820 of the Standard Specifications and the following:

The work to be performed under this Item shall include furnishing and installing precast concrete vaults with access frames and covers in accordance with Taunton Municipal Light Plant (TMLP) requirements and as detailed on the Contract Plans.

## MATERIALS

A. Electric vaults shall be reinforced concrete of the dimensions shown on the drawings or as required by TMLP. Vaults shall be capable of supporting an HS-20 load.

B. Cast iron frames and covers shall be provided with the vault structure. Each cover shall read ELECTRIC and shall be sized to fit the vault opening.

## CONSTRUCTION METHODS

Each vault will be installed at the location and grade noted or as directed by the engineer in accordance with the utility company standards.

Vaults will be set on a minimum of twelve inches (12”) of gravel borrow bedding.

Install vault frames to final grade at initial installation. Check elevation of frame and adjust to final grade prior to final paving as needed.

A representative of the electric company shall be present during the installation of these items.

## METHOD OF MEASUREMENT

Item 811.91 will be measured for payment by the Each electric vault furnished and installed, complete in place and accepted by the Engineer.

## BASIS OF PAYMENT

Item 811.91 will be paid for at the Contract unit price per Each, which price shall include furnishing, installation including the vault, cast iron frame and cover, excavation, bedding, backfilling, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

Adjustment of frame to final grade, if required, shall not be paid separately but will be considered incidental to Item 811.91.

## ITEM 812.091 STREET LIGHT FOUNDATION PRECAST EACH

The work under this Item shall conform to the relevant provisions of Subsection 820 of the Standard Specifications and the following:

The work to be performed under this Item shall include furnishing and installing precast street light foundations in accordance with Taunton Municipal Light Plant (TMLP) requirements and as detailed on the Contract Plans.

### MATERIALS

A. Street light foundations shall be of the materials and dimensions as shown on the plans or equal approved by the Engineer.

B. Concrete shall have a minimum compressive strength of 5000 psi after 28 days.

C. Anchor bolts and bolt template shall be supplied by TMLP. Embedded conduits shall be supplied by the contractor.

### CONSTRUCTION METHODS

Each foundation shall be installed at the location and grade noted or as directed by the engineer in accordance with TMLP standards.

Each foundation shall be set on a minimum of six inches (6”) of gravel borrow bedding.

A representative of the electric company shall be present during the installation of these items.

### METHOD OF MEASUREMENT

Item 812.091 will be measured for payment by the Each street light foundation furnished and installed, complete in place and accepted by the Engineer.

### BASIS OF PAYMENT

Item 812.091 will be paid for at the Contract unit price per Each, which price shall include furnishing, installation including the foundation, excavation, bedding, backfilling, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

## ITEM 859.1 REFLECTORIZED DRUMS WITH SEQUENTIAL DAY FLASHING WARNING LIGHTS

The work under this Item shall conform the relevant provisions of Subsection 850 of the Standard Specifications and the following:

Work under this item consists of furnishing, installing, maintaining in proper operating conditions, and removing reflectorized drums, and any necessary ballast, equipped with sequential flashing warning lights.

### MATERIALS

Reflectorized drums shall be listed on the MassDOT Qualified Traffic Control Equipment List. Reflective sheeting on drums shall meet or exceed ASTM D4956 Type VIII. All drums shall be maintained in a satisfactory manner including the removal of oils, dirt, and debris that may cause reduced retroreflectivity.

The Contractor shall use one of the following sequential flashing warning light systems unless otherwise approved by the Engineer:

1. Empco-Lite LWCSD.
2. pi-Lit® Sequential Barricade-Style Lamp; or
3. Unipart Dorman SynchroGUIDE.

Sequential flashing warning lights shall be secured to reflectorized drums per the light manufacturer's specifications.

### CONSTRUCTION METHODS

The first ten (10) drums in any merging or shifting taper as designated in the Temporary Traffic Control Plan shall be equipped with sequential flashing warning lights. These lights shall be operating, at a minimum, between dusk and dawn when the taper is deployed.

The successive flashing of the sequential warning lights shall occur from the upstream end of the merging or shifting taper to the downstream end of the taper in order to identify the desired vehicle path. Each warning light in the sequence shall be flashed at a rate of not less than 55, nor more than 75 times per minute.

Warning lights shall be powered off when drums are not deployed in a taper.

### METHOD OF MEASUREMENT

A group of ten (10) reflectorized drums with sequential flashing warning lights is considered one (1) unit and will be measured by the day. Each period of up to 24 hours during which this unit is in use will be measured as one day regardless of the number of times that the drums are positioned, repositioned, removed, or returned to service.

### BASIS OF PAYMENT

Reflectorized Drums with Sequential Flashing Warning Lights will be paid for at the contract unit price per day, which shall include full compensation for furnishing, positioning, repositioning, and removing the group of ten (10) drums as directed by the Engineer.

## ITEM 874.8 TRAFFIC SIGN REMOVED AND DISPOSED EACH

The work under this item shall conform to the relevant provisions of Subsections 828 and 840 of the Standard Specifications, and the following:

The work to be performed under this Item shall include removing and disposing of traffic signs and associated sign posts. All work shall be as detailed on the Contract Plans or as directed by the Engineer.

## CONSTRUCTION METHODS

Signs indicated to be disposed shall be stockpiled for review by the Engineer. Signs not identified to be retained by the Owner and all existing sign posts shall become the property of the Contractor and shall be legally disposed of outside of the project limits.

## METHOD OF MEASUREMENT

Item 874.8 will be measured for payment by the Each traffic sign removed and disposed, as accepted by the Engineer.

## BASIS OF PAYMENT

Item 874.8 will be paid for at the Contract unit price per Each, which price shall include, removal, disposal of signs and sign posts, temporary stockpiling for review by the Engineer, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

**ITEM 944.124 STEEL PILE SPLICE HP 12 X 84 EACH**

The work under this item shall be in accordance with the relevant provisions of Subsection 940 of the Standard Specifications, the Plans and the following:

The pile lengths for this project are anticipated to be larger than the minimum length required for a steel pile splice, however welded field splices may not be mandatory based on Subsection 940 of the Standard Specifications. This item is intended to accommodate welded field splices should actual pile driving conditions require them.

## METHOD OF MEASUREMENT

Item 944.124 will be measured for payment by the Each steel pile splice HP 12x84, complete in place.

## BASIS OF PAYMENT

Item 944.124 will be paid for at the Contract unit price per Each which price shall include, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

**ITEM 950.32 TEMPORARY EARTH SUPPORT SYSTEM LUMP SUM**

The work under this Item shall conform to the relevant provisions of Subsections 140 and 950 of the Standard Specifications, and the following:

The work to be performed under this Item shall include designing, furnishing, installing, maintaining and removal of the eastern (upstream) and channel separation temporary excavation support systems as required for the construction of the channel.

The work under this item applies to all temporary earth support systems located within the channel that are to be removed. All other earth support systems, including but not limited to the western (downstream) channel excavation support system will be paid for under a separate Item, Item 953.3 - Excavation Support System.

Refer to Item 953.3 and the Plans for further information.

**SUBMITTALS**

The Contractor shall be responsible for the design of the temporary earth support system. The Contractor shall submit for approval the drawings and calculations of the proposed temporary earth support system, stamped by a Professional Engineer registered in the Commonwealth of Massachusetts. Such Engineer must be familiar with the MassDOT Standard Specification, those of the American Association of State Highway and Transportation Officials (AASHTO), the work, and be experienced in this technical field. The design shall include all anticipated soil lateral pressures, hydrostatic forces, traffic & construction equipment surcharge forces, and other construction loads anticipated. All submitted sheets must be stamped by the supervising licensed engineer.

The temporary earth support system shall be designed in accordance with AASHTO following allowable stress (service load) methods. The design shall include consideration of all loads on the excavation support system and provide for construction of the proposed structure while maintaining public safety and protecting the completed work (and all third-party property) from damage caused by the Contractor's operations.

All material used for the temporary earth support system, whether new or used, shall be sound, and free from strength impairing defects. Steel sheeting (if used) shall conform to the relevant provisions of Section 950 and M8.05.4 of the Standard Specifications. Piles (if used) shall conform to the relevant provisions of Section 940.

Timber lagging (if used) shall be southern yellow pine, mixed hardwood or equivalent to Grade 2 or better, having $F_b$ = 1,500 psi minimum. Install lagging tightly against the soil to minimize loss of ground. If necessary, install the lagging one board at a time as required to minimize loss of ground in any local areas having unstable (raveling) soil conditions. Immediately backfill and compact the lagging tightly with gravel backfill as required so that any voids that develop behind the lagging are filled.

No element of the temporary earth support system shall be spliced unless approved by the Engineer.

**ITEM 950.32** (Continued)

The Contractor shall be fully responsible for the satisfactory construction and maintenance of the temporary earth support system at all times. Any work done which in the performance of incidental construction is not acceptable for the intended purpose shall be either repaired or removed and reconstructed by the Contractor at no additional cost to the Commonwealth.

Supporting soil shall be defined as all soil directly below the footing contained within a series of planes that originate at the perimeter of the bottom of the footing and project down and away from the footing at an angle of 45 degrees from the horizontal.

Temporary components of the temporary earth support system shall be removed from the project site when no longer required unless otherwise directed by the Engineer.

## BASIS OF PAYMENT

Item 950.32 will be paid for at the Contract Lump Sum price, which price shall include, designing, furnishing, installation, maintenance, removal, excavation, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

**ITEM 953.3 EXCAVATION SUPPORT SYSTEM SQUARE YARD**

The work under this Item shall conform to the relevant provisions of Subsections 140 and 950 of the Standard Specifications and the following:

The Contractor shall furnish, install, maintain and cut-off (where approved by the Engineer) an excavation support system as required based upon the actual site conditions, during the demolition of the existing abutments and the construction of the proposed abutment foundations. The excavation support system shall be designed by the Contractor. The excavation support system shall be designed to be of sufficient size and strength to meet the requirements of latest AASHTO Guide Design Specifications for Bridge Temporary Works.

The Excavation Support System shall be required for the support of the excavated soil faces and for protecting the proposed excavated areas from flooding from the adjacent Snake River. The excavated areas within the support system will be used for construction of the new retaining walls, wingwalls, abutments, and channel material "in-the-dry".

The Excavation Support System is also required to support, temporarily, the utility lines shown in Stage 3 of the bridge plans.

The system shall be installed and maintained during construction to prevent inflows from the river at the 10-year design flood elevation as shown on the bridge plans, except for the system in western portion of the channel which has a higher elevation indicated on the plans. The system shall then be cut to the final elevations shown on the plans.

All materials used for the support systems, with the exception of material required to be left in place as shown on the plans, shall remain the property of the Contractor.

The Contractor shall review the boring information, the geotechnical and hydraulic reports prior to developing plans and details for the support system design.

Excavation Support System shall meet the following requirements:

1. The Contractor is responsible for selecting, designing, furnishing, installing and maintaining the support system with utility support attachments.

2. The support systems shall be designed to safely withstand all loads it may be subjected to while in place and during all phases of construction. If the system is to be subjected to surcharge loads from cranes, a minimum 600 psf surcharge load shall be used. The allowable design stresses shall be in accordance with the 2020 AASHTO LRFD, Ninth Edition, Bridge Design Specifications. The designer, in designing the system, shall assume that the bottom of excavation may be lowered by 2 feet. This lowering may be due to over-excavation or removal of unsuitable materials.

3. All materials used for the support systems shall be sound and free from strength impairing defects as determined by the Engineer.

**ITEM 953.3** (Continued)

Plans and calculations for the Excavation Support System, including the utility support details, shall be developed by the Contractor, prepared and stamped by a Professional Engineer of the appropriate discipline registered in the Commonwealth of Massachusetts and submitted to the Engineer for review and approval prior to the start of installation.

Excavation Support System will be left in place and cut to the elevations shown on the plans.

## METHOD OF MEASUREMENT

Item 953.3 will be measured for payment by the Square Yard of excavation support system furnished, installed, and maintained, complete in place and approved by the Engineer.

## BASIS OF PAYMENT

Item 953.3 will be paid for at the Contract unit price per Square Yard, which price shall include furnishing, installation, maintenance, designing, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

**ITEM 960. STRUCTURAL STEEL POUND**

The work under this Item shall conform to the relevant provisions of Subsection 960 of the Standard Specifications and the following:

The work to be performed under this Item shall include furnishing, installation, and final removal of the temporary beam.

A temporary beam is required for the temporary utility location that requires support over the channel shown in the Sequence of Construction, Stage 3 of the Bridge Plans.

Prior to moving the utilities, the Contractor shall submit the design of the beam to the Engineer for approval. The submittal shall include drawing details of the beam, the support systems and connections for the beam, and the details of securing the utilities to the beam support system. These drawings shall be accompanied by design calculations. Both shall be certified by a Professional Engineer registered in the Commonwealth of Massachusetts. These plans shall depict the proposed materials and methods of installing and removing the system. The Contractor will take ownership of the materials installed and removed under this Item.

**METHOD OF MEASUREMENT**

Item 960. Will be measured for payment by the Pound of structural steel, including miscellaneous fasteners and connections, furnished and installed, complete in place.

**BASIS OF PAYMENT**

Item 960. Will be paid for at the Contract unit price per Pound, which price shall include furnishing, installation, design of temporary beam, final removal of temporary beam, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

**ITEM 983.521 STREAMBED/BANK RESTORATION CUBIC YARD**

The work under this Item shall conform to the relevant provisions of Subsections 150 and 983 of the Standard Specifications and the following:

Work under this item shall consist of removing, stockpiling and replacing natural streambed material over the proposed Riprap and crushed stone under the bridge. The intent of this item is to replicate the function and appearance of the existing natural streambed for aquatic organisms and wildlife passage over the Riprap to provide fisheries and wildlife habitat enhancement as part of the reconstruction of Bridge No. T-01-024 (C5H).

The Contractor shall coordinate with his/her sub-contractors to ensure all required equipment is available on-site to complete the work in this manner. The streambed restoration is required to comply with environmental permits issued for the project.

MassDOT Environmental Services will provide a Fluvial Geomorphologist (Geomorphologist) to provide review of the final design and on-site assistance during streambed restoration construction to ensure the restoration is constructed as required by these Special Provisions and in accordance with permit requirements.

At least 30 days prior to the commencement of construction, the Contractor shall coordinate with David Paulson (MassDOT Wildlife Unit Supervisor, (508) 389-6366 / david.j.paulson@state.ma.us) to set up an initial (virtual or in person) meeting with MassDOT's Geomorphologist, Contractor, and Resident Engineer. At this meeting, the Geomorphologist will provide an overview of the restoration work. The Contractor should be prepared to discuss the anticipated means, methods, and schedule.

Process Approval:

In lieu of a mockup, the Contractor shall schedule an additional onsite meeting to discuss the streambed restoration with the Geomorphologist and respective parties from MassDOT. The Geomorphologist shall be onsite during initial streambed restoration. The Contractor shall provide the Geomorphologist adequate access to observe, direct, and inspect the channel restoration work throughout the duration of the removal, stockpile, and reinstallation of the existing streambed material.

**MATERIAL**

The top 12 inches of streambed material excavated from the existing streambed shall be removed and stockpiled to facilitate reinstallation and replication of the natural streambed. The excavated streambed material below the top one (1) foot shall be stockpiled and reused to fill the voids in the proposed riprap placed below the top streambed restoration layer.

In the event that the excavated material is not suitable or there is not enough available suitable material, additional streambed restoration material shall be locally sourced that matches the composition of the existing native river bed.

**ITEM 983.521** (Continued)

Supplemental streambed material shall be comprised of two primary components.

1. Stone 4 inches and under shall meet the following gradation:

| Sieve Opening | % Passing (by Mass) |
|---|---|
| 4” | 95 |
| 2” | 55 – 65 |
| ¾” | 30 – 45 |
| #4 | 0 – 5 |

2. Stone 6 inches to 2.5 feet in diameter:

| Stone Size | % Passing (by Mass) |
|---|---|
| 2.0’ | 80 |
| 1.5’ | 25 |
| 0.5’ | 0 |

The streambed/bank stone for the two components shall be native cobbles and boulders similar in shape and size of the streambed/bank stone adjacent to the work area. Partially angular rock is preferred over round, and shall be able to lock together to prevent movement during high flows. Crushed Stone will not be acceptable for any of the components. Any stone excavated from the existing streambed can be stockpiled and reused for streambed restoration, provided the excavated stone is characteristic of the existing stream material upstream and downstream of the work area, or meets the above criteria. Stockpiling for reuse shall be considered incidental to this Item.

The streambed material shall be approved by the Resident Engineer and Geomorphologist prior to use.

**CONSTRUCTION**

Stockpiled Material

Install stockpiled material as described below.

Supplemental Material

Components One and Two shall be pre-blended outside the project area at a volume ratio of 30% and 70% respectively. The pre-blending shall be done in a way that will prevent the mass from being contaminated by work-place soils.

**ITEM 983.521** (Continued)

Installation

The streambed material shall be placed over the areas of the proposed Riprap and Crushed Stone, as shown on the plans. Fill voids by shaking stone with the teeth of an excavator bucket, hand tamping with metal tamping rods, and by spraying water to settle fines between large stones. Plate compactors shall not be used. The purpose of filling the voids is to prevent subsurface flow where surface water disappears into large voids between the stone fill below the channel bed surface during low flow conditions. The final streambed shape and appearance shall be finalized in the field as directed by the Geomorphologist.

Reinstallation of the stockpiled streambed material shall be placed on top of the riprap to restore streambed habitat and fish passage. The streambed materials shall be installed during normal low water conditions behind cofferdams in accordance with the environmental permits.

The placement of streambed/bank material under this item shall not begin until the Engineer approves the placement of Riprap and Crushed Stone.

Completion

Once all material has been placed in the stream channel and approved by the Geomorphologist and Resident Engineer, the Contractor shall remove the cofferdams in such a way as to slowly wet the stream to minimize the initial sediment pulse. Every attempt shall be made to minimize the downstream movement of sediment.

The final streambed shall maintain the general configuration of the existing streambed bedform and there shall be minimal subsurface flow upon final inspection by the Resident Engineer and Geomorphologist. The project must be passable by fish and other aquatic organisms following construction.

The streambed restoration to be measured for payment will be the complete and accepted work for restoration of the streambed within the limits shown on the Plans as approved by the Resident Engineer and Geomorphologist.

## METHOD OF MEASUREMENT

Item 983.521 will be measured for payment by the Cubic Yard of streambed/bank restoration, removed, stockpiled, and replaced, complete in place and accepted by the Engineer.

## BASIS OF PAYMENT

Item 983.521 will be paid for at the Contract unit price per Cubic Yard, which price shall include removal, stockpiling, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

The Geomorphologist will be provided by MassDOT at no cost to the Contractor.

## ITEM 991.1 CONTROL OF WATER – STRUCTURE NO. T-01-024 (C5H) LUMP SUM

The work to be done under this Item shall conform to the relevant provisions of Subsection 140 of the Standard Specifications, and the following:

The work to be performed under this Item shall include work required for the control of water for the reconstruction of the proposed bridge in the dry as shown on the plans, and as required by the Engineer, and as specified herein.

All structural concrete shall be placed in the dry.

Included under this item is any control of water required within the Excavation Support System and Temporary Earth Support System shown on the plans, to complete the required bridge excavation, and construct the new footings, wingwalls, retaining walls, abutments, and placement of the channel material "in the dry."

Control of water is for excavation performed within the Excavation Support System and Temporary Earth Support System limits shown on the plans. The Excavation Support System will be paid for under a separate Item, Item 953.3. See also Item 953.3 for additional information relevant to control of water. Temporary Earth Support System will be paid for under a separate Item, Item 950.32.

Also included as part of the work under this Item is any control of water that may be needed to remove cobbles and boulders prior to installing the excavation support system. See Notes under Excavation Support System, sheet 2 of the bridge plans.

As part of the work under this Item, it is the responsibility of the Contractor to determine the need and extent of sedimentation basins, dewatering techniques, and sedimentation controls needed to control water and sediment at the site.

Prior to executing the excavation operations, the Contractor shall submit within thirty (30) days of Notice to Proceed, a Water Control Plan to the Engineer for approval. The submittal shall include complete working drawings of his proposed dewatering system with supporting data as necessary to the Engineer for approval. These drawings shall be accompanied by design calculations. Both shall be certified by a Professional Engineer registered in the Commonwealth of Massachusetts. These plans shall depict the proposed materials and methods of removing and controlling water for bridge excavation, construction of the new footings, retaining walls, wingwalls, and abutments, and installation of rip-rap erosion protection. These plans shall be in conformance with the Plans and these Specifications. The Contractor shall install all erosion control measures and turbidity barriers prior to proceeding with the approved water control plans. The materials and methods not specifically mentioned under this Item shall comply with the standard specifications where applicable.

The Contractor shall make his own evaluation of existing conditions and water flow, and of the effects of his proposed temporary works and construction methods. The Contractor shall provide in his design, all loads and construction conditions necessary to permit construction of the specified structure while maintaining safety and protecting completed work, and all third party property from damage resulting from his operations.

**ITEM 991.1** (Continued)

Maximum screen sizes on the inlet side of all pumps shall not exceed ½ in (12.7 mm).

Measures to control the discharge of pollutants into water resource areas shall include, but not be limited to the following:

- Rigorous management of construction operations involving potentially hazardous materials, such as, refueling and maintenance of construction equipment.
- Formulation of contingency plans to control accidental spillage from potentially hazardous materials.
- Placement of construction staging areas outside of the buffer zones on relatively flat ground.
- Scheduling of work within the resource areas to avoid periods of high flood (e.g., spring floods) and inclement weather.
- The method of dewatering shall be chosen by the Contractor and approved by the Engineer. The collected water shall be pumped to a settling basin/tank where sediment (silt, fines, solids, etc.) will be allowed to settle out. Water will then be routed to a discharge area enclosed by erosion controls. At no time shall said discharge be directly released into adjacent resource areas.

When there is visible turbidity within the river caused by the construction, the polluting activity will cease until adequate controls can be installed to protect the river.

Sufficient operating and stand-by pumps and equipment shall be available to dewater and keep the work areas dry during the construction period. Utility costs, and connections shall be arranged and paid for by the Contractor.

Maintenance of Temporary Control of Water and Erosion Controls

1. Throughout the dewatering operations, control devices shall be inspected regularly by the Contractor and properly maintained. Sufficient surplus materials and equipment shall be available on site to carry out any repair work that may be required.

2. Inspection of the dewatering operations shall take place a minimum of two times daily. Repair of damages shall take place immediately. Basin outlets are to be cleaned daily. Debris shall be removed immediately. Remove sediments from the settling basin/tank when deposits reach 8 inches below the outlet invert. Dispose of sediments at a location approved by the Engineer.

3. The Contractor shall inspect erosion controls that surround the outlet daily and shall immediately replace any that are damage. Placement of the basin/tank shall be determined in the field based upon site conditions in a location approved by the Engineer.

**ITEM 991.1** (Continued)

Removal of Temporary Facilities

1. The Contractor shall be responsible for complete and proper diversion of water during all stages of this project and shall repair, at no additional expense, any damage to the foundations, structures, or any other part of the work caused by floods, high water, or failure of any part of the diversion of protective works for any cause whatsoever.
2. Contractor shall remove and legally dispose all of all collected sediment.

Protection of Environment

1. Provide and maintain ditches of adequate size to collect rainfall and groundwater seepage which may enter the excavations. Divert the water sumps, so that it can be drained or pumped out of the excavations and into the settling basin/tank, as approved. An approved method of controlling erosion, such as an erosion control blanket, stone, etc., shall be used at the outlet of the settling basin/tank.
2. All water which has been polluted by materials such as oil, grease, cement and concrete, paints or chemicals used by the Contractor's operation shall be disposed of in an approved manner and in accordance with all applicable permits and local, state, and federal regulations.

The Contractor is advised that the work to be performed under this item shall be in conformance with the applicable provisions of the MassDOT Standard Specifications as well as the following environmental permitting sections as referenced in these Special Provisions:

- DEP - WATER QUALITY CERTIFICATE
- ARMY CORPS OF ENGINEERS PERMIT

All work (including all labor, tools, equipment, materials, maintenance and fees) required in order to conform to the MassDOT Standard Specifications and the above environmental permitting sections, if not included separately under other items, shall be considered incidental to Item 991.1, and no additional compensation shall be made to the Contractor. Also included shall be all necessary additional permits that may be required in performing the work under this item.

The Contractor shall provide any necessary temporary filtering fabrics, silt fencing, sedimentation/retention basins and/or other effective procedures or structures together with all labor, materials, and equipment necessary for controlling water in the Excavation Support System. Such work shall be subject to the approval of the Engineer, but such approval will not relieve the Contractor of the responsibility for the adequacy of construction, maintenance, operation and safety of the water control system.

**ITEM 991.1** (Continued)

## BASIS OF PAYMENT

Item 991.1 will be paid for at the Contract Lump Sum Price, which price shall include furnishing, installation, and maintenance required for dewatering associated with the bridge work, temporary water control devices, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

Payment will be due upon completion of the work as approved and accepted by the Engineer. If the Contractor desires any partial payment during the progress of the work, the Contractor shall submit a proposed schedule of payment for approval of the Engineer prior to starting any work under this item.

**ITEM 994.01 TEMPORARY PROTECTIVE SHIELDING LUMP SUM**
**BRIDGE NO. T-01-024 (3LY)**

Work under this item shall consist of designing, furnishing, fabricating, erecting, maintaining, and subsequent removal of temporary underside and deck side protective shielding. The design shall be performed by a Professional Engineer registered in the Commonwealth of Massachusetts. Temporary deck underside and side protective shielding shall be utilized to provide for the protection of the Brook beneath the bridge from falling debris during the demolition of the superstructure. Protective shielding shall be placed beneath the existing superstructure prior to demolition of the superstructure.

The Contractor shall submit at the pre-construction meeting shop drawings, working drawings, and associated design calculations, stamped by a Professional Engineer registered in the Commonwealth of Massachusetts, of all proposed shielding to the Engineer for approval prior to installation. The drawings shall include all details of all connections, brackets, and fasteners. The protective shielding shall be designed to support all construction and dead loads safely, and to be sealed tightly at all joints. At the discretion of the Contractor, and as required by the Contractor's design, deck underside and side protective shielding may be constructed from timber, steel, aluminum or demolition fabrics. The shielding shall be placed in a manner as to prevent it from being blown out by the wind. If, in the opinion of the Engineer, the shielding is not secure, then the Contractor shall remove it and install it to the satisfaction of the Engineer at no additional cost to the State.

All shielding shall meet the following minimum requirements:

1. Protective shielding shall not be installed until the Engineer's review has been completed. No portion of the bridge deck shall be removed until the Protective Shielding is in place and complete.

2. The shielding shall extend a sufficient distance beyond the deck limits and have walls sufficient to contain any debris. The shielding shall extend the full length of the bridge span. The Contractor may use the existing abutments as supports for the protective shielding. All spaces along the perimeter of the shielding and at the seams shall be sealed to prevent dust and debris from escaping and falling into the River below.

3. Shielding shall be designed to safely withstand all loads it would be subjected to during construction. The design shall be in accordance with the 2020 AASHTO, Ninth Edition, LRFD Bridge Design Specifications. The design shall also include a complete description of the equipment and construction methods proposed for the deck removal and the maximum size of deck area excavated. The shielding shall also be designed to withstand impact loads from the maximum size of concrete decking should it fall during removal.

4. The shielding shall be maintained and remain in place until the superstructure is completely removed. Shielding shall be removed only upon approval of the Engineer.

All materials used in the shielding systems, shall become the property of the Contractor and shall be properly removed from the site at the completion of the project.

**ITEM 994.01** (Continued)

## BASIS OF PAYMENT

Item 994.01 will be paid for at the Contract Lump Sum price, which price shall include designing, furnishing, fabrication, erecting, maintenance, final removal of temporary protective shielding, all labor, tools, equipment, materials, and all incidental costs required to complete the work.

Payment of 75% of the Lump Sum Bid Price of these Items will be made upon complete installation to the satisfaction and approval of the Engineer. The remaining 25% of the Lump Sum Price Bid of this Item will be paid following proper removal and appropriate disposal of the shielding.

**ITEM 995.01 BRIDGE STRUCTURE, BRIDGE NO. T-01-024(C5H) LUMP SUM**

The work under this Item shall conform to the applicable provisions of Subsections 901 and 995 of the Standard Specifications and the specific requirements stipulated below for component parts of the subject Item. For those component parts where no specific requirement is stipulated, the Standard Specifications shall apply, except for payment.

Work under this Item shall include all materials, equipment and labor needed for the following: Construct CIP footings, retaining walls, wingwalls, and abutments. Install highway transitions, precast beams and bearings, cast end diaphragms and closure pours, curtain walls, safety curbs, sidewalk, and install bridge rail.

The work does not include any items listed separately in the proposal. Payment for materials shown on the Plans as being part of this bridge structure or which may be incidental to the construction and are not specifically included for payment under another Item shall be considered incidental to the work performed under this Item and shall be included in the unit price of the component of which they are a part.

All cast-in-place concrete shall be 5000 psi, 3/4 in., 685 HP Cement Concrete.

The work under these headings shall conform to the relevant provisions of Subsection 901 and the relevant provisions of Materials Section M4 of the Standard Specifications and the following:

The labor and materials associated with the following items shall be considered as included in the unit price per cubic yard of concrete, as stated by the Contractor and as approved by the Engineer in the respective “Basis for Partial Payments”: all preformed filler, joint sealer, materials complete in place at construction joints, membrane waterproofing, weep holes with stone at ends, all piping and drains, all other work considered as incidental to the work involved in furnishing and placing the concrete to the lines and grades on the plans and all other work not covered in the schedule of basis for Partial Payments or for which payment is not provided elsewhere in the Contract. Also included is the delivery of precast elements to the job site, installation of the precast units to the lines and grades on the plans and all other work not covered in the schedule of basis for Partial Payments or for which payment is not provided elsewhere in the Contract.

**ITEM 995.01** (Continued)

## PRESTRESSED CONCRETE NEXT 36D BEAMS

### A. General.

The work under this Heading consists of fabricating, transporting and installing Prestressed Concrete NEXT 36D Beams, and includes all necessary labor, materials, and equipment to complete the work as shown on the Plans. The Precast, Prestressed, and Prefabricated Concrete Elements shall meet the requirements of Section M4: Cement Concrete and Related Materials.

## MATERIALS

### A. Materials.

Materials shall conform to M4.09.1 and the following:

| | |
|---|---|
| Non-Shrink Grout Products | M4.04.5 |
| Prestressing Strands | AASHTO M 203 |
| Welded Steel Wire Fabric | M8.01.2 |
| Mechanical Reinforcing Bar Splicer | M8.01.9 |
| Strand Chuck | M8.15.0 |
| Lifting Devices | PCI MNL-116 |

#### 1. Reinforcement and Prestressing Strands.

The size and grade of steel reinforcement and prestressing strands shall be as indicated on the plans. All reinforcing steel shall be epoxy coated, Grade 60. All prestressing strands shall be uncoated.

#### 2. Threaded Inserts

Threaded inserts are permissible in Prestressed Concrete Beams for installing formwork, utility supports, or deck drains. Threaded inserts shall be hot dip galvanized or made of stainless steel and shall not come in contact with the reinforcing steel. The number of threaded inserts installed for the Contractor's convenience shall be kept to a minimum.

## CONSTRUCTION METHODS – PLANT FABRICATION

### A. Pre-Production Meeting.

The Contractor shall notify the MassDOT Research and Materials Section to determine if a pre-production meeting will be required to review the specification, shop drawings, curing plan, schedule, and discuss any specific requirements. The meeting shall be held prior to scheduling a MassDOT Inspector (refer to M4.09.4 *Department Acceptance*), and at least seven (7) days prior to the scheduled casting of any Prestressed Concrete Beam or control section. The Contractor shall schedule the meeting, which shall include representatives of the Fabricator and MassDOT.

**ITEM 995.01** (Continued)

**B. Reinforcement.**

The reinforcing bars shall be installed in accordance with Subsection 901.35 of the Standard Specifications, including tolerances for cover and horizontal spacing of bars. Components of mechanical reinforcing bar splicers shall be set with the tolerances shown on the plans. The reinforcing bars and mechanical reinforcing bar splicers shall be assembled into a rigid cage that will maintain its shape in the form and which will not allow individual reinforcing bars to move during the placement of concrete. This cage shall be secured in the form so that the clearances to all faces of the concrete, as shown on the plans, shall be maintained.

**C. Placing and Tensioning Strands.**

Placing and tensioning strands shall be in accordance with PCI MNL-116. The location of all prestressing strands shall be as indicated on the plans.

**D. Tolerances.**

Fabrication shall comply with tolerances specified on the plans. Tolerances for steel reinforcement placement shall be in accordance with Subsection 901.35. In the absence of specifications on the plans, tolerances shall comply with the latest version of the PCI MNL 135, Precast Tolerance Manual.

**E. Forms.**

Concrete shall be cast in rigidly constructed forms, which will maintain the Prestressed Concrete Beams within specified tolerances to the shapes, lines and dimensions shown on the approved fabrication drawings. Forms shall be constructed from flat, smooth, non-absorbent material and shall be sufficiently tight to prevent the leakage of the plastic concrete. When wood forms are used, all faces in contact with the concrete shall be laminated or coated with a non-absorbent material. All worn or damaged forms, which cause irregularities on the concrete surface or damage to the concrete during form removal, shall be repaired or replaced before being reused. If threaded inserts are cast into the elements for support of formwork, the inserts shall be recessed a minimum of 1 inch and shall be plugged after use with a grout of the same color as that of the precast cement concrete.

## CONSTRUCTION METHODS – FIELD CONSTRUCTION

**A. General.**

All of the Contractor's field personnel involved in the erection and assembly of the Prestressed Concrete Beams shall have knowledge of and follow the approved Erection Procedure and Quality Control Plan for Prestressed Concrete Beam Assembly.

Prior to installation, the following documentation shall be reviewed and confirmed by the MassDOT Resident Engineer or designee:

(a) QC Compressive Strength Test Report Forms attaining Design Strength, $f'_c$ for the Prestressed Concrete Beam's representative sublot.
(b) Certificate of Compliance generated by the Fabricator as described under the Fabricator Quality Control section.
(c) QC Inspection Reports signed by the Quality Control Manager.

Field construction staff shall verify that the Resident Engineer has accepted all Prestressed Concrete Beams prior to installation.

**ITEM 995.01** (Continued)

**B. Erection Procedure and Quality Control Plan for Prestressed Concrete Beam Assembly.**

Prior to the erection, the Contractor shall submit an Erection Procedure and a Quality Control Plan for Prestressed Concrete Beam Assembly for approval by the Engineer. This submittal shall include computations and drawings for the transport, hoisting, erection and handling of the Prestressed Concrete Beams. The Erection Procedure and Quality Control Plan for Prestressed Concrete Beam Assembly shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts
with working knowledge of the Contractor's equipment, approved shop drawings, and materials to build the bridge. The Erection Procedure and Quality Control Plan for Prestressed Concrete Beam Assembly shall, at a minimum, include the following:

**1. Erection Procedure**

The Erection Procedure shall be prepared to conform to the requirements of 960.61, Design, Fabrication and Erection and the applicable sections in Chapter 8 of the PCI Design Handbook (eighth edition) for handling, erection, and bracing requirements. At a minimum, the Erection Procedure shall provide:

(a) Steel reinforcing details, and location and details of lifting devices
(b) Minimum concrete compressive strength for handling the Prestressed Concrete Beams.
(c) Concrete stresses during handling, transport, and erection.
(d) Crane capacities, pick radii, sling geometry, and lifting hardware.
(e) Verification that the equipment can handle all pick loads and weights with the required factor of safety.
(f) Evaluation of construction sequence and evaluation of any geometric conflicts in the lifting of the Prestressed Concrete Beams and setting them on the abutments and piers.
(g) Design of crane supports including verification of subgrade for support.
(h) Location and design of all temporary bracing that will be required during erection.

**2. Quality Control Plan for Prestressed Concrete Beam Assembly**

The Quality Control Plan for Prestressed Concrete Beam Assembly is a document prepared and submitted by the Contractor prior to the start of work which requires the Contractor to identify and detail the sequence of construction in accordance with the project schedule and which clearly identifies all stages of field construction. The assembly procedures for the Prestressed Concrete Beams shall be submitted in PDF format on 24"x36" sheets. This document will be treated as a Construction Procedure and will be reviewed by both the Designer and the District Construction Office.

At a minimum, the Quality Control Plan for Prestressed Concrete Beam Assembly shall include the following:

(a) Listing of the equipment, materials, and personnel including their assigned responsibilities that will be used to erect and assemble the Prestressed Concrete Beams on site.
(b) Documentation of all preparatory work necessary for moving personnel, equipment, supplies, and incidentals to the project site before beginning work.
(c) Detailed schedule showing the sequence of operations that the Contractor will follow to complete the field construction from setting working points and working lines to the casting of closure pours and the curing of the closure pour concrete, as described below and as called for on the plans.

**ITEM 995.01** (Continued)

(d) Contractor's means for ensuring that the Prestressed Concrete Beam shall align to the roadway profile and cross slope and means for adjusting the final deck slab elevation.
(e) Timeline and descriptions of Quality Control activities to be followed throughout the field construction operations including methods and procedures for controlling tolerance limits both horizontally and vertically.

**C. Survey and Layout.**

Working points, working lines, and benchmark elevations shall be established prior to placement of all elements. The Contractor is responsible for field survey as necessary to complete the work. MassDOT reserves the right to perform additional independent survey. If discrepancies are found, the Contractor may be required to verify previous survey data.

**D. Prestressed NEXT 36D Beams.**

**1. Beam Layout and Erection.**

Prestressed concrete beams shall be installed to the line and grade shown on the plans in accordance with the Contractor's approved Erection Procedure and Assembly Plan.

Immediately prior to erecting the beams, the surfaces of the closure pours shall be cleaned at the job site of all dust, dirt, and carbonation using a high-pressure water blast. In addition, the surfaces of closure pours shall be wetted so that the surfaces shall have a Saturated Surface Dry (SSD) condition for at least 24 hours prior to the placement of the closure pour concrete.

As the beams are being erected, the Contractor shall monitor the width of the closure pours and the out-to-out width of the beams top flanges so that, after all beams are erected, the actual overall width of the bridge deck shall not deviate from the dimension shown on the plans beyond a tolerance of +0 inches and -1 inches. In order to achieve this, the Contractor may vary the width of the closure pours within the tolerances specified on the plans.

**2. Closure Pour Concrete Placement.**

Prior to placing the closure pour concrete, the abutments shall be prepared for the placement of the closure pour concrete as called for on the plans.

The surfaces of the closure pours shall be free of materials such as paint, oil, curing compound, bond breaker, dirt etc. that will inhibit bonding. The surfaces of the closure pours shall be hydro-blasted with equipment that can remove asphaltic material, oils, dirt, rubber, curing compounds, paint carbonation, laitance, and other potentially detrimental materials, which may interfere with the bonding of the closure pour concrete and precast concrete.

The exposed reinforcing steel shall be protected from damage during the cleaning of the surfaces of the closure pours. Damaged epoxy coating of steel reinforcement shall be repaired, and the reinforcing steel shall be cleaned as directed by the Engineer.

The Contractor shall cut the lifting devices off below the top of the beam, and the recesses shall be filled with mortar (M4.04.5). The Contractor shall also remove projections and fill all depressions in the tops of the beams with mortar (M4.04.5).

After the formwork has been removed, all threaded inserts that have been cast into the beams for support of the formwork shall be plugged with a grout of the same color as that of the precast concrete.

**ITEM 995.01** (Continued)

## PRECAST HIGHWAY GUARDRAIL TRANSITIONS

### A. General.

The work under this Heading consists of fabricating, transporting and installing Precast Highway Guardrail Transitions and includes all necessary labor, materials, and equipment to complete the work as shown on the Plans. The Precast Concrete Bridge Elements shall meet the requirements of Section M4: Cement Concrete and Related Materials.

## MATERIALS

### A. Materials.

Materials shall conform to M4.09.1 and the following:

| | |
|---|---|
| Non-Shrink Grout Products | M4.04.5 |
| Controlled Low-Strength Material – Structural Non-Excavatable | M4.08.0 |
| Welded Steel Wire Fabric | M8.01.2 |
| Mechanical Reinforcing Bar Splicer | M8.01.9 |
| Lifting Devices | PCI MNL-116 |
| Corrugated Metal Pipe | AASHTO M 36 |

### B. Vertical Adjustment Assembly.

Vertical Adjustment Assembly details and material requirements shall be as shown on the plans. Alternate devices may be used provided that they are adjustable and can support the anticipated loads. The design of the leveling devices, with necessary calculations, shall be submitted to the Engineer of Record for approval.

### C. Threaded Inserts.

Threaded inserts are permissible to facilitate forming the keyway pours. Threaded inserts shall be hot dip galvanized or made of stainless steel. The number of threaded inserts shall be minimized, and the inserts shall not come in contact with the reinforcing steel.

### D. Corrugated Metal Pipe.

Corrugated Metal Pipe to be used for forming voids as specified on the plans shall be fabricated from steel and shall have a protective metallic coating of zinc (galvanizing).

## CONSTRUCTION METHODS – PLANT FABRICATION

### A. Pre-Production Meeting.

The Contractor shall notify the MassDOT Research and Materials Section to determine if a pre-production meeting will be required to review the specification, shop drawings, curing plan, schedule, and discuss any specific requirements. The meeting shall be held prior to scheduling a MassDOT Inspector (refer to M4.09.4 *Department Acceptance*), and at least seven (7) days prior to the scheduled casting of any Precast Concrete Bridge Element or control section. The Contractor shall schedule the meeting, which shall include representatives of the Fabricator and MassDOT.

**ITEM 995.01** (Continued)

**B. Reinforcement.**

The reinforcing bars shall be installed in accordance with Subsection 901.35, including tolerances for cover and horizontal spacing of bars. Components of mechanical reinforcing bar splicers shall be set with the tolerances shown on the plans. The reinforcing bars and mechanical reinforcing bar splicers shall be assembled into a rigid cage that will maintain its shape in the form and which will not allow individual reinforcing bars to move during the placement of concrete. This cage shall be secured in the form so that the clearances to all faces of the concrete, as shown on the plans, shall be maintained.

Where reinforcing bars are to protrude from one Precast Concrete Bridge Element in order to mate with reinforcing bar splicers in a second precast concrete element, the fabricator shall set the reinforcing bars and the reinforcing bar splicers with a template in order to ensure proper fit up within the tolerances specified on the plans.

**C. Tolerances.**

Fabrication shall comply with tolerances specified on the plans. Tolerances for steel reinforcement placement shall be in accordance with Subsection 901.35. In the absence of specifications on the plans, tolerances shall comply with the latest version of the PCI MNL 135, Precast Tolerance Manual.

**D. Forms.**

Concrete shall be cast in rigidly constructed forms, which will maintain the Precast Concrete Bridge Elements within specified tolerances to the shapes, lines and dimensions shown on the approved fabrication drawings. Forms shall be constructed from flat, smooth, non-absorbent material and shall be sufficiently tight to prevent the leakage of the plastic concrete. When wood forms are used, all faces in contact with the concrete shall be laminated or coated with a non-absorbent material. All worn or damaged forms, which cause irregularities on the concrete surface or damage to the concrete during form removal, shall be repaired or replaced before being reused. If threaded inserts are cast into the elements for support of formwork, the inserts shall be recessed a minimum of 1 inch and shall be plugged after use with a grout of the same color as that of the precast cement concrete.

## CONSTRUCTION METHODS – FIELD CONSTRUCTION

**A. General.**

All of the Contractor's field personnel involved in the erection and assembly of the Precast Concrete Bridge Elements shall have knowledge of and follow the approved Erection Procedure.

Prior to installation, the following documentation shall be reviewed and confirmed by the MassDOT Resident Engineer or designee:

(a) QC Compressive Strength Test Report Forms attaining Design Strength, f'c for the Precast Concrete Bridge Element's representative sublot.
(b) Certificate of Compliance generated by the Fabricator as described under the Fabricator Quality Control section.
(c) QC Inspection Reports signed by the Quality Control Manager.

Field construction staff shall verify that the Resident Engineer has accepted all Precast Concrete Bridge Elements prior to installation.

**ITEM 995.01** (Continued)

**B. Erection Procedure**

Prior to the erection, the Contractor shall submit an Erection Procedure for approval by the Engineer. This submittal shall include computations and drawings for the transport, hoisting, erection and handling of the Precast Concrete Bridge Elements. The Erection Procedure shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts with working knowledge of the Contractor's equipment, approved shop drawings, and materials to build the bridge. The Erection Procedure shall, at a minimum, include the following:

**1. Erection Procedure**

The Erection Procedure shall be prepared to conform to the requirements of 960.61, Design, Fabrication and Erection and the applicable sections in Chapter 8 of the PCI Design Handbook (eighth edition) for handling, erection, and bracing requirements. At a minimum, the Erection Procedure shall provide:

(a) Minimum concrete compressive strength for handling the Precast Concrete Bridge Elements.
(b) Concrete stresses during handling, transport, and erection.
(c) Crane capacities, pick radii, sling geometry, and lifting hardware.
(d) Verification that the equipment can handle all pick loads and weights with the required factor of safety.
(e) Evaluation of construction sequence and evaluation of any geometric conflicts in the lifting of the Precast Concrete Bridge Elements and setting them as shown on the plans.
(f) Design of crane supports including verification of subgrade for support.
(g) Location and design of all temporary bracing that will be required during erection.

Non-shrink grout and concrete materials, approved by the Engineer, shall be placed as shown on the plans. Fill joints, keyways, and voids, in strict accordance with the specifications and manufacturer's recommendations and instructions.

For footings, approach slabs and highway guardrail transitions, once these Precast Concrete Bridge Elements have been set to the correct horizontal and vertical alignment, the void between them and the supporting soil shall be filled with Controlled Low-Strength Material – Structural Non-Excavatable to the limits as shown on the plans. Add additional grout ports in the footings to facilitate the bedding process if required.

Except in approach slabs, joints shall be filled flush to the top with non-shrink grout, and any vertical misalignment between adjacent elements shall be feathered out on a slope of 1 to 12.

Curing of grout or concrete shall be performed in strict accordance with the specifications and manufacturer's recommendations. Filling shall not be completed in cold weather when either the ambient temperature or the precast member's temperature is below the manufacturer's recommendation. No localized heating of either the precast members or of the air surrounding the element will be permitted in an attempt to reach application temperatures.

If the joints or voids are not filled within five days after the Precast Bridge Elements are erected, the Contractor shall cover and protect the openings from weather and debris until they are filled.

**C. Survey and Layout.**

Working points, working lines, and benchmark elevations shall be established prior to placement of all elements. The Contractor is responsible for field survey as necessary to complete the work. MassDOT reserves the right to perform additional independent survey. If discrepancies are found, the Contractor may be required to verify previous survey data.

**ITEM 995.01** (Continued)

**D. Preparation of Closure Pours and Grouted Keyways.**

Immediately prior to erecting the Precast Concrete Bridge Elements, the closure pours and grouted keyways shall be cleaned at the job site of all dust, dirt, carbonation, laitance, and other potentially detrimental materials which may interfere with the bonding of the closure pour concrete or grout and precast concrete using a high-pressure water blast. Any exposed reinforcing steel in the precast concrete shall be protected from damage during the cleaning of the keyways. Damaged epoxy coating of steel reinforcement shall be repaired, and the reinforcing steel shall be cleaned as directed by the Engineer. The surfaces of the closure pours and grouted keyways shall be wetted so that the surfaces shall have a Saturated Surface Dry (SSD) condition for at least 24 hours prior to the placement of the closure pour concrete.

**E. Erection.**

The elements shall be placed in the sequence and according to the methods outlined in the Erection Procedure. As the erection proceeds, the Contractor shall constantly monitor the assembly to ensure that the precast concrete bridge element is within proper horizontal and vertical location and tolerances prior to releasing it from the crane and setting the next unit. The Contractor may use shims to maintain proper setting tolerances.

The concrete elements shall be lifted only by the lifting devices, and the utmost care shall be taken to prevent distortion of the elements during handling, transportation or storage.

This approval will be contingent on the Contractor demonstrating by calculations, prepared by a Professional Engineer registered in Massachusetts, that the elements will not be damaged by the non-vertical lifting force and by documentation that the capacity of the lifting devices is adequate for the non-vertical lifting force.

After all Precast Concrete Bridge Elements have been placed, the actual overall dimensions of the structure both horizontal and vertical, as laid out shall not deviate from the nominal dimensions shown on the plans beyond a tolerance of +0 inches and -1 inches. Once the layout of Precast Concrete Bridge Elements has been accepted by the Engineer, the Contractor shall cut all lifting devices off below the surfaces of the elements.

**F. Filling of Blockouts for Lifting Devices and Threaded inserts.**

If the blockouts in the Precast Concrete Bridge Elements where the lifting devices were located will be exposed and visible after assembly is complete, the Contractor shall fill these blockouts with Mortar (M4.04.5).

After the formwork has been removed, all threaded inserts that have been cast into the precast concrete bridge deck for support of the formwork shall be filled with a grout of the same color as that of the precast concrete.

**ITEM 995.01** (Continued)

## HOT DIP GALVANIZED COATING FOR NEW STRUCTURAL STEEL

### A. GENERAL

Fabricated steel shall be either galvanized or galvanized and coated as indicated on the plans. All fabrication shall be completed prior to surface preparation and the application of any coating.

The faying surfaces of all field bolted connections shall be coated based on the design of the connection. Class B connections shall be masked prior to galvanizing to allow for application of an approved class B slip coefficient primer. After galvanizing the masked surface will be cleaned in accordance with SSPC-SP11 and coated with the approved zinc rich primer. A galvanized connection will result in a faying surface meeting a class C slip coefficient.

When grinding, drilling or any other operation produces steel turnings, filings, shavings, etc. the contractor shall completely clean all areas of all accumulation prior to the end of the work shift.

Locations of field applied studs shall require masking or removal of galvanizing and paint prior to welding.

The Engineer shall provisionally accept the shop coated items before shipment to the jobsite but final acceptance of the coating system will occur after erection of the coated items, and after all required repairs and coating application has been completed.

The contractor shall be responsible for failure and damage of all applied coating. Failures include but are not limited to, visible corrosion, blistering, checking, cracking, or delamination (peeling) and loss of gloss and color of the coating system. Damage includes but is not limited to damage from installation or from external agents, such as scraping, vandalism, debris impacts, and collisions. The extent and method of repair must be approved by the Engineer.

### B. GALVANIZING

The following shall be hot dipped galvanized in accordance with Section M7 of these Specifications:

1. Members identified on the contract documents.
2. Diaphragms, cross frames, utility supports and bottom lateral bracing elements that are composed of non-weathering steels or weathering steels designated to be coated.
3. All sole plates and masonry plates (except sole plates for sliding elastomeric bearings).

Galvanized members requiring shop fabrication and assembly shall be cut, welded, and/or drilled prior to galvanizing. Bearing members to be milled shall be galvanized prior to milling. A thin layer of a rust inhibitor shall be applied to the milled surface. Material to be painted shall not be quenched after galvanizing.

Damaged galvanized surfaces shall be repaired in accordance with ASTM A780 “Repair of Hot Dip Galvanizing” section 4.2.2 Paints Containing Zinc Dust “High Zinc Dust Content”. The paint shall be applied to achieve a minimum dry film thickness of 3 mils and not more than 5 mils. Repair paint shall meet M7.04.11 and application shall be in accordance with the manufacturer’s recommendations.

**ITEM 995.01** (Continued)

**BASIS FOR PARTIAL PAYMENTS**

Within ten (10) days after Notice to Proceed, the Contractor shall submit, in duplicate, for the approval of the Engineer, a schedule of unit prices for the major components of the bridge structure as listed below. The bridge structure Lump Sum breakdown quantities provided below are estimated and not guaranteed. The total of all partial payments to the Contractor shall equal the Lump Sum contract price regardless of the accuracy of the quantities furnished by the Engineer for the individual bridge components. The cost of labor and materials for any Item not listed but required to complete the work for Bridge No. T-01-024 shall be considered incidental to Item 995.01 and no further compensation will be allowed.

BREAKDOWN OF ITEM 995.01
BRIDGE STRUCTURE, BRIDGE NO. T-01-024 (C5H)

| SUB-ITEM NO. | ITEM DESCRIPTION | QTY | UNIT | PRICE AMOUNT |
|---|---|---|---|---|
| 629.6 | PRECAST HIGHWAY GUARDRAIL TRANSITION | 4 | EA | |
| 904.3 | 5000 PSI, ¾", 685 HP CEMENT CONCRETE | 1050 | CY | |
| 910. | STEEL REINFORCEMENT FOR STRUCTURES | 2200 | LB | |
| 910.1 | STEEL REINFORCEMENT FOR STRUCTURES – EPOXY COATED | 128,000 | LB | |
| 922. | LAMINATED ELASTOMERIC BEARING PAD WITHOUT ANCHOR BOLTS | 16 | EA | |
| 931.16 | NEXT 36D PRECAST BEAM | 170 | LF | |
| 960.1 | STRUCTURAL STEEL – COATED STEEL | 3250 | LB | |
| 965. | MEMBRANE WATERPROOFING FOR BRIDGE DECKS | 1240 | SF | |
| 970. | DAMP PROOFING | 4850 | SF | |
| 975.1 | METAL BRIDGE RAILING (3 RAIL), STEEL (TYPE S3-TL4) | 536 | LF | |

TOTAL LUMP SUM FOR ITEM 995.01 =

The above schedule applies only to Bridge Structure, Bridge No. T-01-024 (C5H). Payment for similar materials and construction at locations other than at this bridge structure shall not be included under this Item.

**END OF DOCUMENT**
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DOCUMENT A00802

# DETAIL SHEETS

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THE COMMONWEALH OF MASSACHUSETTS
MassDOT - HIGHWAY DIVISION
TEN PARK PLAZA, BOSTON, MA

**– PRELIMINARY ESTIMATE OF QUANTITIES – DETAIL SHEETS –**

CITY/TOWN: Taunton
STA. 10+40 to 18+80

TYPE OF PROJECT: Bridge / Roadway Reconstruction

YEAR: Federal Fiscal Year 2025
ROAD: Scadding Street
CLASS: Urban Local
DATE: 06/01/2025

| | | | |
|---|---|---|---|
| Unclassified Excavation | 1,483 CY | Gravel Borrow | 1,275 CY |
| Special Borrow | 430 CY | Gravel Borrow for Backfilling | |
| Ordinary Borrow | 573 CY | Structures and Pipes | 1,056 CY |

## PAVEMENT NOTES

**FULL DEPTH CONSTRUCTION** **AREA = 2017 SY**

1-1/2” SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5)
2-1/2” SUPERPAVE INTERMEDIATE COURSE 19.0 (SIC – 19.0)
12” GRAVEL BORROW TYPE “B”

**PAVEMENT MILLING AND OVERLAY** **AREA = 198 SY**

1-1/2” PAVEMENT MICRO MILLING
1-1/2” SUPERPAVE SURFACE COURSE 9.5 (SSC - 9.5)

**HOT MIX ASPHALT DRIVEWAY** **AREA = 28 SY**

1-1/2” HOT MIX ASPHALT SURFACE COURSE
2-1/2” HOT MIX ASPHALT BINDER COURSE
8” GRAVEL BORROW TYPE “B”

**CONCRETE SIDEWALK** **AREA = 410 SY**

4” CEMENT CONCRETE 400PSI, ¾”, 610 (AIR ENTRAINED)
8” GRAVEL BORROW TYPE “B”

**BRIDGE PAVEMENT** **AREA = 130 SY**

1-1/2" SUPERPAVE BRIDGE COURSE 9.5 POLYMER (SSC-B-9.5-P)
1-1/2" SUPERPAVE BRIDGE PROTECTIVE COURSE POLYMER (SPC-B-9.5-P)
SPRAY APPLIED MEMBRANE WATERPROOFING

**TACK COAT:**

ASPHALT EMULSION FOR TACK COAT SHALL BE APPLIED AT THE RATE OF 0.07 - 0.09 GAL/S.Y. ON MILLED SURFACES AND 0.06 – 0.08 GAL/S.Y. ON NEW OR SMOOTH PAVEMENT SURFACES.

TACK COAT SHALL BE APPLIED BETWEEN EACH LAYER OF HOT MIX ASPHALT INCLUDING BASE AND INTERMEDIATE LAYERS PRIOR TO THE INSTALLATION OF THE SUBSEQUENT COURSE.

**ITEM 102.521 TREE AND PLANT PROTECTION FENCE**

To be used for the protection of trees, shrubs, and root systems to provide for their survival during construction.

| Station | Offset |
|---|---|
| 10+99 | RT |
| 11+25 | RT |
| 15+93 | RT |

**ITEM 141. CLASS A TRENCH EXCAVATION**

To be used for excavation and as directed by the Engineer.

| Station | Offset |
|---|---|
| 11+50 | LT |

**ITEM 151. GRAVEL BORROW**

To be used as sub-base material as shown in the plans.

| Station | Offset |
|---|---|
| 15+30 | RT |
| 17+90 | RT |
| 10+60 | LT |

**ITEM 170. FINE GRADING AND COMPACTING – SUBGRADE AREA**

To be used for final grading of all proposed roadways and sidewalks.

| From Station | To Station | Offset |
|---|---|---|
| 11+00 | 13+02 | |
| 11+00 | 11+28 | RT |
| 13+43 | 16+40 | |
| 15+00 | 16+40 | RT |
| 16+40 | 18+50 | |
| 16+40 | 18+57 | RT |
| 17+94 | 18+50 | LT |

**ITEM 201.5 CATCH BASIN – MUNICIPAL STANDARD**

To be used in the drainage system. See the utility plans.

| Station | Offset |
|---|---|
| 11+48 | LT, RT |
| 11+69 | LT, RT |
| 15+62 | LT, RT |
| 15+85 | LT, RT |

**ITEM 202.01 MANHOLE – MUNICIPAL STANDARD**

To be used in the drainage system. See the utility plans.

| Station | Offset |
|---|---|
| 11+32 | CTR |
| 11+54 | CTR |
| 11+61 | CTR |
| 15+70 | CTR |
| 15+95 | CTR |
| 16+10 | RT |

**ITEM 220. DRAINAGE STRUCTURE ADJUSTED**

To be used to bring drainage system castings to grade. See the utility plans.

| Station | Offset |
|---|---|
| 11+32 | CTR |
| 11+48 | LT, RT |
| 11+54 | CTR |
| 11+61 | CTR |
| 11+69 | LT, RT |
| 15+62 | LT, RT |
| 15+70 | CTR |
| 15+85 | LT, RT |
| 15+95 | CTR |
| 16+10 | RT |

**ITEM 222.3 FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD**

To be used in the drainage system. See the utility plans.

| Station | Offset |
|---|---|
| 11+32 | CTR |
| 11+48 | LT, RT |
| 11+54 | CTR |
| 11+61 | CTR |
| 11+69 | LT, RT |
| 15+62 | LT, RT |
| 15+70 | CTR |
| 15+85 | LT, RT |
| 15+95 | CTR |
| 16+10 | RT |

**ITEM 224.10 10 INCH HOOD**

To be used for the furnishing of new hoods as shown in the plans.

| Station | Offset |
|---|---|
| 11+48 | LT, RT |
| 11+69 | LT, RT |
| 15+62 | LT, RT |
| 15+85 | LT, RT |

**ITEM 238.10 10 INCH DUCTILE IRON PIPE**

| From Station | To Station | Offset |
|---|---|---|
| 11+44 | 11+48 | LT |
| 11+44 | 11+48 | RT |
| 11+61 | 11+69 | RT |
| 11+61 | 11+69 | LT |
| 15+62 | 15+70 | LT |
| 15+62 | 15+70 | RT |
| 15+70 | 15+85 | LT |
| 15+70 | 15+85 | RT |

**ITEM 238.12 12 INCH DUCTILE IRON PIPE**

To be used in the drainage system. See the utility plans.

| From Station | To Station |
|---|---|
| 11+32 | 11+53 |

**ITEM 242.12 12 INCH REINFORCED CONCRETE PIPE FLARED END**

To be used in the drainage system. See the utility plans.

| Station | Offset |
|---|---|
| 15+85 | RT |

**ITEM 244.12 12 INCH REINFORCED CONCRETE PIPE CLASS V**

To be used in the drainage system. See the utility plans.

| From Station | To Station |
|---|---|
| 11+32 | 11+44 |
| 11+44 | 11+61 |
| 15+70 | 15+94 |
| 15+70 | 16+10 |
| 15+90 | 16+10 |

**ITEM 258. STONE FOR PIPE ENDS**

To be used in at the drainage outlets as a velocity check. See the utility plans.

| Station | Offset |
|---|---|
| 11+53 | LT |
| 15+80 | RT |

**ITEM 303.041 4 INCH CEMENT LINED DUCTILE IRON PIPE (RESTRAINED JOINT)**

To be used for future sewer force main. See the utility plans.

| From Station | To Station |
|---|---|
| 11+05 | 18+40 |

**ITEM 303.121 12 INCH CEMENT LINED DUCTILE IRON PIPE (RESTRAINED JOINT)**

To be used for future water main. See the utility plans.

| From Station | To Station |
|---|---|
| 11+05 | 18+40 |

**ITEM 350.12 12 INCH GATE AND GATE BOX**

To be used in the water supply system. See the utility plans.

| Station |
|---|
| 11+05 |
| 18+40 |

**ITEM 367.04 4 INCH CAST IRON PLUG**

To be used with the utility piping. See the utility plans.

| Station |
|---|
| 11+05 |
| 18+40 |

**ITEM 367.12 12 INCH CAST IRON PLUG**

To be used with the utility piping. See the utility plans.

| Station |
|---|
| 11+05 |
| 18+40 |

**ITEM 373.041 4 INCH SEWER PIPE INSULATION**

To be used with the utility piping on the new bridge. See the utility plans.

| From Station | To Station |
|---|---|
| 13+03 | 13+44 |

**ITEM 373.12 12 INCH WATER PIPE INSULATION**

To be used with the utility piping on the new bridge. See the utility plans.

| From Station | To Station |
|---|---|
| 13+03 | 13+44 |

**ITEM 402.13 PAVEMENT MILLING MULCH FOR SHOULDERS**

To be used installed as ground treatment behind HMA berms and other areas noted on the plans to a depth of 4 inches. Does not include milling mulch below guardrail.

| From Station | To Station | Offset |
|---|---|---|
| 15+00 | 15+10 | RT |
| 15+40 | 15+50 | RT |
| 16+60 | 17+70 | RT |
| 17+94 | 18+50 | RT |
| 17+96 | 18+57 | RT |

**ITEM 415.3 PAVEMENT MICRO MILLING**

For removal of existing pavement by micro milling to a depth of 1 ½ inches.

| From Station | To Station |
|---|---|
| 10+40 | 11+00 |
| 18+50 | 18+80 |

**ITEM 443. WATER FOR ROADWAY DUST CONTROL**

To be used in areas of full depth roadway construction.

| From Station | To Station |
|---|---|
| 11+00 | 13+02 |
| 11+00 | 11+28 |
| 13+43 | 16+40 |
| 15+00 | 16+40 |
| 16+40 | 18+50 |
| 16+40 | 18+57 |
| 17+94 | 18+50 |

**ITEM 450.22 SUPERPAVE SURFACE COURSE – 9.5 (SSC- 9.5)**

To be used within the full depth roadway construction areas.

| From Station | To Station |
|---|---|
| 11+00 | 13+03 |
| 13+44 | 16+40 |
| 16+40 | 18+50 |
| 10+40 | 11+00 |
| 18+50 | 18+80 |

**ITEM 450.32 SUPERPAVE INTERMEDIATE COURSE – 19.0 (SIC-19.0)**

To be used within the full depth roadway construction areas.

| From Station | To Station |
|---|---|
| 11+00 | 13+03 |
| 11+00 | 11+28 |
| 13+43 | 16+40 |
| 15+00 | 16+40 |
| 16+40 | 18+50 |
| 16+40 | 18+50 |
| 17+94 | 18+50 |

**ITEM 451. HMA FOR PATCHING**

To be used to permanent patching of HMA surfaces found to be distressed or damaged in the course of the work.

| Station |
|---|
| 10+50 |
| 18+65 |

**ITEM 453. HMA JOINT ADHESIVE**

To be used for sealing open joints proposed between existing and new pavements, and along longitudinal joints.

| End Joints | Longitudinal Joint |
|---|---|
| 10+40 | 10+40 to 18+80 |
| 18+80 | |

**ITEM 470. HOT MIX ASPHALT BERM**

To be used for placing asphaltic material as berm as shown on the construction plans or as directed by the Engineer.

| From Station | To Station | Offset |
|---|---|---|
| 14+98 | 17+71 | RT |
| 17+97 | 18+57 | RT |
| 17+94 | 18+50 | LT |

**ITEM 482.3 SAWCUTTING ASPHALT PAVEMENT**

To be used for the sawing of asphalt pavement as shown in the plans.

| Station |
|---|
| 10+50 |
| 18+60 |

**ITEM 505. GRANITE CURB TYPE VA5 - STRAIGHT**

Roadway edge treatment for use in the following locations.

| From Station | To Station | Offset |
|---|---|---|
| 12+03 | 12+20 | LT |
| 12+08 | 12+20 | RT |
| 14+98 | 15+15 | LT |

**ITEM 506. GRANITE CURB TYPE VB – STRAIGHT**

Roadway edge treatment for use in the following locations.

| From Station | To Station | Offset |
|---|---|---|
| 10+75 | 11+97 | LT |
| 11+34 | 12+02 | RT |
| 15+21 | 17+83 | LT |

**ITEM 509. GRANITE TRANSITION CURB FOR PEDESTRIAN CURB RAMPS - STRAIGHT**

Roadway edge treatment for use in the following locations.

| Station | Offset |
|---|---|
| 10+75 | LT |
| 11+40 | RT |
| 11+97 | LT |
| 12+02 | RT |
| 15+15 | LT |
| 17+83 | LT |

**ITEM 514. GRANITE CURB INLET - STRAIGHT**

Roadway edge treatment for use in conjunction with the drainage system in the following locations.

| Station | Offset |
|---|---|
| 11+48 | LT, RT |
| 11+69 | LT, RT |
| 15+62 | LT |
| 15+85 | LT |

**ITEM 620.12 GUARDRAIL, TL-2 (SINGLE FACED)**

For use in the following locations.

| From Station | To Station | Offset |
|---|---|---|
| 11+65 | 11+90 | LT |
| 11+34 | 11+90 | RT |
| 15+29 | 18+04 | LT |

**ITEM 627.1 TRAILING ANCHORAGE**

For use in the following locations.

| Station | Offset |
|---|---|
| 11+55 | LT |

**ITEM 627.82 GUARDRAIL TANGENT END TREATMENT, TL-2**

For use in the following locations.

| Station | Offset |
|---|---|
| 11+08 | RT |
| 18+04 | LT |

**ITEM 628.24 TRANSITION TO BRIDGE RAIL**

For use in the following locations.

| Station | Offset |
|---|---|
| 11+90 | LT |
| 11+90 | RT |
| 14+95 | LT |

**ITEM 630.2 HIGHWAY GUARD REMOVED AND DISCARDED**

For use in the following locations.

| From Station | To Station | Offset |
|---|---|---|
| 11+21 | 17+95 | LT |
| 11+15 | 15+10 | RT |

**ITEM 669. FENCE REMOVED AND STACKED**

To be used for stockpiling existing fence for the temporary utility installation as shown in the construction plans.

| From Station | To Station | Offset |
|---|---|---|
| 17+35 | 17+67 | RT |

**ITEM 670.1 FENCE REMOVED AND DISPOSED**

To be used for railing as shown in the construction plans.

| From Station | To Station | Offset |
|---|---|---|
| 17+67 | 18+52 | LT |

## ITEM 698.3 GEOTEXTILE FABRIC FOR SEPARATION

To be used under the permanent embankment materials as shown on the construction plans and the bridge plans.

| From Station | To Station | Offset |
|---|---|---|
| 11+83 | 12+36 | LT |
| 11+65 | 12+36 | RT |

## ITEM 701. CEMENT CONCRETE SIDEWALK

To be used for permanent sidewalks as shown on the construction plans.

| From Station | To Station |
|---|---|
| 10+81.5 | 13+03 |
| 13+44 | 17+92 |

## ITEM 701.2 CEMENT CONCRETE PEDESTRIAN CURB RAMP

To be used for permanent sidewalks as shown on the construction plans.

| From Station | To Station |
|---|---|
| 10+70 | 10+81.5 |
| 17+82.5 | 17+94 |

## ITEM 702. HOT MIX ASPHALT SIDEWALK OR DRIVEWAY

To be used for the construction of permanent and temporary driveways and sidewalks as shown on the construction plans.

| Station | Offset |
|---|---|
| 17+90 | RT |
| 10+63 | LT |

**ITEM 710.6 TOWN LINE BOUND**

To be used to mark corners of the proposed street lines in upland areas as shown in the construction plans.

| Station | Offset |
|---|---|
| 10+23.75 | LT |
| 10+23.75 | LT |
| 11+31.42 | LT |
| 12+03.17 | RT |
| 12+14.25 | LT |
| 12+14.44 | LT |
| 12+15.44 | RT |
| 12+15.64 | RT |
| 15+04.17 | LT |
| 15+05.35 | RT |
| 17+50.60 | RT |
| 18+58.27 | RT |

**ITEM 715. RURAL MAILBOX REMOVED AND RESET**

To be used for the removal and resetting of existing residential mailboxes as shown on the construction plans.

| Station | Offset |
|---|---|
| 18+00 | RT |

**ITEM 765. SEEDING**

To be used for seeding of disturbed lawn areas within the project limits.

| From Station | To Station | Offset |
|---|---|---|
| 10+25 | 11+28 | LT |
| 10+55 | 11+28 | RT |
| 17+35 | 18+52 | RT |

**ITEM 765.442 SEEDING - ROADSIDE RIVERBANK – PART SHADE MIX**

To be used for furnishing and installing seed mixes for use on disturbed non-lawn areas and slopes within the project limits.

| From Station | To Station | Offset |
|---|---|---|
| 11+28 | 12+30 | LT |
| 11+28 | 12+30 | LT |
| 17+35 | 18+52 | RT |

## ITEM 765.555 SEEDING – WETLAND MIX – PART SHADE MIX

To be used for furnishing and installing seed mixes for use in the wetland mitigation area.

| Station | Offset |
|---|---|
| 16+00 | RT |

## ITEM 765.635 NATIVE SEEDING AND ESTABLISHMENT

To be used for installing and maintaining seed mixes for use on disturbed non-lawn areas, slopes and the wetland mitigation area within the project limits.

| From Station | To Station | Offset |
|---|---|---|
| 11+28 | 12+30 | LT |
| 11+28 | 12+30 | LT |
| 16+00 | | RT |
| 17+35 | 18+52 | RT |

## ITEM 767.121 SEDIMENT CONTROL BARRIER

To be used for sediment and erosion control as shown in the construction plans.

| From Station | To Station | Offset |
|---|---|---|
| 15+45 | 17+74 | RT |
| 17+95 | 18+60 | RT |
| 10+50 | 11+66 | RT |
| 17+43 | 18+85 | LT |
| 10+34 | 11+90 | LT |

## ITEM 769. PAVEMENT MILLING MULCH UNDER GUARD RAIL

To be used as ground treatment below proposed guardrail.

| From Station | To Station | Offset |
|---|---|---|
| 11+45 | 12+20 | LT |
| 11+00 | 12+20 | RT |
| 15+00 | 18+37 | LT |

**ITEM 801.44 4 INCH ELECTRICAL CONDUIT - TYPE NM (4 BANK)**

To be used as shown on the utility plans.

| From Station | To Station |
|---|---|
| 10+90 | 17+70 |

**ITEM 801.54 5 INCH ELECTRICAL CONDUIT - TYPE NM (4 BANK)**

To be used as shown on the utility plans.

| From Station | To Station |
|---|---|
| 10+55 | 18+05 |

**ITEM 804.2 2 INCH ELECTRICAL CONDUIT TYPE NM – PLASTIC (UL)**

To be used as shown on the utility plans.

| From Station | To Station |
|---|---|
| 14+95 | 17+35 |

**ITEM 804.4 4 INCH ELECTRICAL CONDUIT TYPE NM – PLASTIC - (UL)**

To be used as shown on the utility plans.

| From Station | To Station |
|---|---|
| 10+60 | 12+25 |
| 14+95 | 17+75 |
| 17+96 | 18+50 |

**ITEM 804.5 5 INCH ELECTRICAL CONDUIT TYPE NM – PLASTIC (UL)**

To be used as shown on the utility plans.

| From Station | To Station |
|---|---|
| 10+60 | 12+25 |
| 14+95 | 17+75 |
| 17+96 | 18+50 |

**ITEM 805.44 4 INCH ELECTRICAL CONDUIT TYPE NM (FIBERGLASS) (UL) (4 BANK)**

To be used on the new bridge as shown on the utility plans.

| From Station | To Station |
|---|---|
| 13+00 | 13+45 |

**ITEM 805.54 5 INCH ELECTRICAL CONDUIT TYPE NM (FIBERGLASS) (UL) (4 BANK)**

To be used on the new bridge as shown on the utility plans.

| From Station | To Station |
|---|---|
| 13+00 | 13+45 |

**ITEM 806.2 2 INCH ELECTRICAL CONDUIT TYPE RM – GALVANIZED STEEL**

To be used on the new bridge as shown on the utility plans.

| From Station | To Station |
|---|---|
| 13+00 | 13+45 |

**ITEM 806.4 4 INCH ELECTRICAL CONDUIT TYPE RM – GALVANIZED STEEL**

To be used as shown on the utility plans.

| From Station | To Station | Offset |
|---|---|---|
| 10+50 | | LT - RT |
| 12+25 | 14+95 | RT |
| 18+65 | | LT - RT |

**ITEM 806.5 5 INCH ELECTRICAL CONDUIT TYPE RM – GALVANIZED STEEL**

To be used as shown on the utility plans.

| From Station | To Station | Offset |
|---|---|---|
| 10+50 | | LT - RT |
| 12+25 | 14+95 | RT |
| 18+65 | | LT - RT |

**ITEM 811.28 COMMUNICATIONS HANDHOLE**

To be used as shown on the construction plans.

| Station | Offset |
|---|---|
| 14+27 | LT |

**ITEM 811.72 JUNCTION BOX 18 X 12 X 10 INCHES**

To be used as shown on the construction plans.

| Station | Offset |
|---|---|
| 14+98 | LT |

**ITEM 811.91 ELECTRIC VAULT**

To be used as shown in the utility plans.

| Station | Offset |
|---|---|
| 11+00 | LT |
| 17+73 | LT |

**ITEM 812.091 STREET LIGHT FOUNDATION PRECAST**

To be used as shown in the construction plans.

| Station | Offset |
|---|---|
| 16+10 | LT |

**ITEM 866.106 6 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)**

To be used to delineate the roadway as shown on the signing and striping plan.

| From Station | To Station | Offset |
|---|---|---|
| 11+00 | 17+35 | RT |
| 11+00 | 18+25 | LT |

**ITEM 867.106 6 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC)**

To be used to delineate the roadway as shown on the signing and striping plan.

| From Station | To Station |
|---|---|
| 10+40 | 18+80 |

**ITEM 874.8 TRAFFIC SIGN REMOVED AND DISPOSED**

To be used for the removing and disposing of signs as shown in the sign and pavement markings plan.

| Station | Offset |
|---|---|
| 10+80 | RT |
| 17+33 (2 units) | RT |
| 18+30 | LT |

DOCUMENT A00808

# PROJECT UTILITY COORDINATION FORM

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# Project Utilities Coordination (PUC) Form

CONTACTS AND GENERAL UTILITY INFORMATION

| 1/4/2024 |
|---|
| Revision Date: |

| City/Town: | Project File #: | PUC Completed by: | Utility Pole Set: | | |
|---|---|---|---|---|---|
| Taunton | 608616 | | Verizon | | |
| **Route/Street:** | **Resident Engineer:** | **Mass DOT PM:** | **Scheduled Ad Date:** | **Total Poles Relocated:** | 1/4/2024 |
| Scadding Street | | Caitlin Marshall | 11/30/2024 | 5 | PRINTED |

| Consultant: | Contact: | Office # | Cell # | Email |
|---|---|---|---|---|
| Dewberry Engineers | Adam Zysk | (617) 531-0817 | | azysk@dewberry.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 |
| TMLP | Joe Fernandes | | | | x | | 100% | | | | x | x | | x | x |
| Verizon | Evan McSorley | | | | x | | 50% | | | | x | x | | x | x |
| Comcast | Wendy Brown | | | | x | | 50% | | | | x | x | | x | x |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | |

**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 City of Taunton . The information provided is the best available information prior to project advertisement.*

Proposal No. 608616-131225

| Is 'enabling' (prep) work, by the Contractor, necessary prior to the start of the first series of utility relocations: | Yes | No |
|---|---|---|
| | x | |

| Has any of the Utility work been identified to work concurrently | Yes | No |
|---|---|---|
| | | x |

1/4/2024
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<br>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<br>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) |
| Stage : 1 | | | > Contractor to notify Utilies 30 days prior to the start of any work.<br>>Contractor to have survey layout completed to determine proper electric infrastructure locations.<br>>Contractor to have any and all obstructions pertaining to the relocation of the electric utilities removed. (i.e. walls, structures, tree trimming/removal, fences, etc.) | | | | | | | |
| | | | **Overhead** | | | | | | | |
| Task: 1 | | | ***Verizon*** | | | | | | | |
| | | U | Verizon - Set (5) new jointly owned poles. | 3 | x | | | x | | |
| | | | | | | | | | | |
| | | | | **3** | | | | | | |
| Task: 1 | | | ***TMLP*** | | | | | | | |
| | | U | TMLP - Minor/Incidental tree trimming to make room for installation of new overhead lines. | 1 | x | | | x | | |
| | | U | TMLP - Installing overhead lines and equipment on new poles. | 6 | x | | | x | | |
| | | U | TMLP - Transfering/Installing overhead lines, transformers, and equipment to new poles. | 1 | x | | | x | | |
| | | U | TMLP - Switch out overhead 15kv lines crossing bridge area. | 1 | x | | | x | | |
| | | U | TMLP - Removal of replaced overhead electric lines and equipment. | 2 | x | | | x | | |
| | | | | | | | | | | |
| | | | **Sub-Total** | **17** | | | | | | |
| Task: 2 | | | ***Comcast*** | | | | | | | |
| | | **U** | **Comcast - Transfer OHW's to temprorary conduit provided by MassDOT Contractor. | 5 | **x** | | | **x** | | |
| | | **U** | Comcast - | | **x** | | | **x** | | |
| | | **U** | Comcast - | | **x** | | | **x** | | |
| | | **U** | Comcast - | | **x** | | | **x** | | |
| | | **U** | Comcast - | | **x** | | | **x** | | |
| | | | | | | | | | | |
| | | | **Sub-Total** | **5** | | | | | | |
| Task: 3 | | | ***Verizon*** | | | | | | | |
| | | U | Verizon - Place allnew anchors, strand, & guying. | 2 | x | | | x | | |
| | | U | Verizon - Make transfers as needed. | 1 | x | | | x | | |
| | | U | Verizon - Place temp fiber cable and new fiber terminals. | 4 | x | | | x | | |
| | | U | Verizon - Join new cables and terminals and trim out old plant. | 11 | x | | | x | | |
| | | U | Verizon - Remove all old plant. | 5 | x | | | x | | |
| | | U | Verizon - Remove poles. | 5 | x | | | x | | |
| | | | | | | | | | | |
| | | | **Sub-Total** | **28** | | | | | | |
| Task: 4 | | | ***TMLP*** | | | | | | | |
| | | U | TMLP - Removal of replaced overhead electric lines and equipment. | 2 | x | | | x | | |
| | | | | | | | | | | |
| | | | | **2** | | | | | | |

Proposal No. 608616-131225

| | RESPONSIBLE PARTY | | DESCRIPTION - Utility Relocation Phases, Tasks and Activities | Estimated Duration (Work Days) by Utilities (Lead time not included) | Concurrent / Exclusive Utility Work<br>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<br>Should an AR be considered for the Contractor ? | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Exclusive Utility on site | Concurrent Utilities | Contractor Off-Site | Contractor Concurrent | | |
| | C = Contractor | U = Utility Co. | | | Utility working with no other Utilities in vicinity | Utility working with other Utilities on site | No Contractor physical construction operations on-site (while Utility is | Contractor and Utility are working on-site - but NOT in the same vicinity | Potential Access Restraint (Yes/No) | Reason/Note (optional) |
| Stage 2 | | | >Contractor to notify Utilites 30 days prior to the start of any work.<br>>Contractor to supply and install underground infrastructure across bridge for overhead relocations.<br>>Contractor to install new lighting conduit along the bridge prior to TMLP commencing work to install proposed street lights. | | | | | | | |
| | | | **Underground** | | | | | | | |
| Task: 1 | | | ***TMLP*** | | | | | | | |
| | | u | TMLP - Installing underground primary cables and equipment from manholes to new riser poles. | 3 | x | | | x | | |
| | | u | TMLP - Splice primary underground cables. | 2 | x | | | x | | |
| | | u | TMLP - Test underground primary cables, energize, and switch primary electric overhead and underground lines into normal operation. | 1 | x | | | x | | |
| | | u | TMLP - Installing underground street light cables from risers to handholes. | 2 | x | | | x | | |
| | | u | TMLP - Installing underground street lights, street light wiring and making electric connections to underground street lights. | 4 | x | | | x | | |
| | | | | | | | | | | |
| | | | **Sub-Total** | **12** | | | | | | |
| Task: 2 | | | ***Comcast*** | | | | | | | |
| | | u | Comcast - Proofing conduit and installing new fiber and coax cable (new conduit to be installed by Mass DOT). | 2 | x | | | x | | |
| | | u | Comcast - Activating new coax cable. | 1 | x | | | x | | |
| | | u | Comcast - Activating new fiber. | 2 | x | | | x | | |
| | | u | Comcast - Wrecking out old areial cable. | 1 | x | | | x | | |
| | | | | | | | | | | |
| | | | **Sub-Total** | **6** | | | | | | |
| Task: 3 | | | ***Verizon*** | | | | | | | |
| | | u | Verizon - CWI to review conduit placed by MassDOT. | 4 | x | | | x | | |
| | | u | Verizon - Place new permanent fiber cable. | 5 | x | | | x | | |
| | | u | Verizon - Join new cables and terminals and trim out temporary plant. | 7 | x | | | x | | |
| | | u | Verizon - Remove temporary plant. | 2 | x | | | x | | |
| | | | | | | | | | | |
| | | | **Sub-Total** | **18** | | | | | | |

**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 however, typically has 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. |
| 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. |
| 9 | ** Assumed Durations NOT provided by the Utility. |

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DOCUMENT A00810

# MassDOT Herbicide Use Report

Proposal No. 608616-131225

# MassDOT Herbicide Use Report

**Date Submitted:**

*Use multiple sheets for multiple application techniques or sites as needed.*

**Contractor Performing Work:**

**Project or Contract No:**

**Town/s:**

**Associated Route:**

**Project Description:**

**MDAR ALERT*:**

**Treatment Description:**

**Area Treated (as applicable)**

**Acres:** **Sq Yds:** **Miles:**

**Weeds Targeted:**

**Gallons Formula Used:**

**Application Method:**

**Date/Time Began:**

**Date/Time End:**

**Product Used:**

| | | |
|---|---|---|
| Name: _____ | Name: _____ | Name: _____ |
| EPA Reg. No: _____ | EPA Reg. No: _____ | EPA Reg. No: _____ |
| % Active Ingredient | % Active Ingredient | % Active Ingredient |
| Dry: _____ | Dry: _____ | Dry: _____ |
| Liquid: _____ | Liquid: _____ | Liquid: _____ |
| Formulation (dilution rate): _____ | Formulation (dilution rate): _____ | Formulation (dilution rate): _____ |

**Additional products used (surfactants, etc.) or other information:**

**Applicators:** **License Numbers:**

* Please note:
EDRR Species (MAM, Hogweed, Pepperweed, Kudzu, etc.)
Tree of Heaven 1) stands of >20 trees; 2) >5 trees near nursery, landscape company, or highway rest area where trucks stop

*Upon completion, please submit form to MassDOT District Engineer and Landscape Design Section in Boston office.*

07/18/2018

DOCUMENT A00811

# WATERING LOG
# for
# MassDOT Plantings

# Watering Log for MassDOT Plantings

**Project Description:**

**Contract No:**

**Project No:**

**Plant Locations/s: (Attach planting plan/s as necessary)**

**Notes:**

| | **Separate logs shall be kept to track areas or plants with different watering schedules. Trees shall receive a minimum of 10 gallons with each watering and shrubs a minimum of 5 gallons. Provide note that if watering is not performed as scheduled due to rain. Record date of rainfall and amount.** | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Watered | | | | | | | | | | | | | |
| Landscape Contractor Initial | | | | | | | | | | | | | |
| Prime Contractor Initial | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Date Watered | | | | | | | | | | | | | |
| Landscape Contractor Initial | | | | | | | | | | | | | |
| Prime Contractor Initial | | | | | | | | | | | | | |

Each week, following watering, Log shall be submitted to the MassDOT Engineer.
6/15/2018

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: TAUNTON Project File Number: 608616

Contract Number: 131225

Project Description: Bridge Replacement, T-01-024, Scadding Street over Snake River

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 A00830

# ARMY CORPS OF ENGINEERS

# Permit Application

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Regulatory Division
Transportation & Utility Section

Courtney Walker
MassDOT - Highway Division
10 Park Plaza
Boston, MA 02116
Via Email: courtney.l.walker@dot.state.ma.us

Dear Ms. Walker:

This letter is in response to the application you submitted to the New England District, Regulatory Division on April 3, 2024, for a Department of the Army permit verification. This project has been assigned the file number NAE-2024-00894. This file number should be referenced in all correspondence with this office.

The proposed work includes the replacement of the bridge conveying Scadding Street over the Snake River in Taunton, Massachusetts.

We have completed our initial review of the application and have determined that it is incomplete. The information listed below is necessary to have a complete application. Please provide this information in **one consolidated response within 30 days (May 23, 2024) of the date of this correspondence.** If you do not respond within the 30-day timeframe, the request will be administratively withdrawn. Closure of your file will not preclude you from re-opening the file at a later date, upon our receipt of the requested information.

1. The Wetland Determination Data Forms indicate that there are vegetated wetlands located between flags 1-3 and 19-21. The plans should be revised to clearly depict these wetland areas and differentiate them from open water areas below the Ordinary High Water (OHW) mark. Any impacts within wetland areas should be depicted using different colors/hatching than impacts below OHW, and the impacts recalculated accordingly.

2. Based on the photographs provided, along with aerial photographs, there may be areas of vegetated shallows (permanently inundated areas that under normal circumstances support rooted aquatic vegetation) within the project area. Vegetated shallows are considered Special Aquatic Sites (SAS) under the Corps 404(b)(1) guidelines. Any areas of vegetated shallows within the work area must be delineated on the plans, and any impacts within them quantified. The Massachusetts General Permits have a limit on permanent impacts to

freshwater vegetated shallows of 1,000 square feet. Above this threshold an Individual Permit is required.

3. There appear to be areas of grading below OHW at all four bridge quadrants that are not depicted as impact areas. Please clarify why these areas were not considered permanent impacts. Are there any discharges of fill in these locations? The Corps typically considers raising the bottom elevation or redepositing material by mechanical grading to result in a permanent discharge of fill.

4. Please provide an estimate of the area of waters of the U.S. that will be permanently lost as a result of the project. This would include any areas of stream/pond/wetlands that will be converted to upland/road, but not those areas below the bridge being excavated and backfilled with rip-rap overtopped with natural material that will remain waters of the U.S. This information is necessary for us to determine if mitigation is required.

Please note, we cannot process your application further until the additional information requested is received. You are cautioned that commencement of the proposed work in waters of the United States subject to U.S. Army Corps of Engineers' jurisdiction prior to DA authorization would constitute a violation of Federal laws and subject you to possible enforcement action.

If you have any questions concerning this correspondence, please contact Daniel Vasconcelos, Project Manager of the Regulatory Division at 978-318-8653, or by email at daniel.b.vasconcelos@usace.army.mil. Please take a moment to complete our customer satisfaction survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Sincerely,

Daniel Vasconcelos

Daniel B. Vasconcelos, PWS
Project Manager/Environmental Scientist

cc:
Kylie Abouzeid, MassDOT – Highway Division (via kylie.a.abouzeid@dot.state.ma.us)
Heidi Davis, MassDEP (via heidi.davis@mass.gov)
Tyler Lewis, MassDEP (via tyler.lewis@mass.gov)
Ryan Hale, MassDEP (via ryan.hale@mass.gov)

COMPREHENSIVE
ENVIRONMENTAL
INCORPORATED

41 Main Street
Bolton, MA 01740
508.281.5160

November 12, 2024

Daniel B. Vasconcelos, PWS
Project Manager
USACE
New England District Office
696 Virginia Road
Concord, MA 01742-2751

RE: NAE-2024-00894
Response to Comments (RTC)

AT: Scadding Street Bridge Replacement (Bridge No. T-01-024)
Lake Sabbatia
Taunton, MA

Dear Mr. Vasconcelos:

We have reviewed your letter dated April 23, 2024 presenting the results of USACE's review of the above-referenced application. We offer the following responses (following each of your comments which are shown *in italics* and numbered below).

1. *The Wetland Determination Data Forms indicate that there are vegetated wetlands located between flags 1-3 and 19-21. The plans should be revised to clearly depict these wetland areas and differentiate them from open water areas below the Ordinary High Water (OHW) mark. Any impacts within wetland areas should be depicted using different colors/hatching than impacts below OHW, and the impacts recalculated accordingly.*

   Attached please find the updated Plan Sheet 5 of 8 in pdf format entitled "1.0 Permitting Plan Scadding_Sheet 5" showing the corrected distinction between BVW and bank at the areas noted as requested.

The change in impacts is presented in the following table:

| Resource Area | Original Submission (April 2024) | Latest Submission (June 2024) |
|---|---|---|
| Bordering Vegetated Wetlands (Temporary) | 0 SF | 626 SF |
| Bordering Vegetated Wetlands (Permanent) | 0 SF | 106 SF |
| Bordering Vegetated Wetlands (Total Proposed Alteration) | 0 SF | 732 SF |
| Waters of the U.S. (Temporary) | 15,823 SF | 12,557 SF |
| Waters of the U.S. (Permanent)= A | 9,107 SF | 11,849 SF |
| Waters of the U.S. (Total Proposed Alteration) | 24,930 SF | 24,606 SF |
| Waters of the U.S. Gained from "Cutting" = B | 2,460 SF | 2,460 SF |
| Waters of the U.S. Net Loss A-B | N/A | 9,389 SF |
| Linear Bank (Temporary) | 117 LF | 53 LF |
| Linear Bank (Permanent) | 959 LF | 976 LF |
| Linear Bank (Proposed Alteration) | 1,076 LF | 1,029 LF |
| Dredge Area | 3,800 SF | 3,800 SF |
| Dredge Volume | 215 CY | 215 CY |
| New Development (Impervious) | N/A | 7,020 SF |
| Re-Development (Impervious) | N/A | 12,600 SF |
| Vegetated Shallows (Temporary) | N/A | 7,221 SF |
| Vegetated Shallows (Permanent) | N/A | 4,109 SF |
| Vegetated Shallows (Total Proposed Alteration) | N/A | 11,330 SF |

Please note that we are proposing approximately 275 square feet of bordering vegetated wetland (BVW) replication to mitigate the 106 square feet of BVW permanent impact. This will be discussed in a response to comments to MassDEP's 401 Water Quality

Certification letter dated July 3, 2024 which you were cc'd.

Please note that once the proposed replication area is vetted with MassDEP, plans will be updated to reflect the area and will be provided to you.

2. *Based on the photographs provided, along with aerial photographs, there may be areas of vegetated shallows (permanently inundated areas that under normal circumstances support rooted aquatic vegetation) within the project area. Vegetated shallows are considered Special Aquatic Sites (SAS) under the Corps 404(b)(1) guidelines. Any areas of vegetated shallows within the work area must be delineated on the plans, and any impacts within them quantified. The Massachusetts General Permits have a limit on permanent impacts to freshwater vegetated shallows of 1,000 square feet. Above this threshold an Individual Permit is required.*

   A SAS study was performed on May 29, 2024. Please see attached pdf entitled "2.0 Aquatic Vegetation Survey". The project will result in loss of greater than 1,000 square feet of vegetated shallows and we are in the process of preparing an Individual Permit application (IP). We understand that through the IP application LEDPA (Least Environmentally Damaging Practicable Alternative) needs to be demonstrated in an alternatives analysis. Please note that the base plan in the SAS study report was completed and issued in June 2024 and does not reflect minor CAD edits made recently to address item #1 above which does not impact SAS.

3. *There appear to be areas of grading below OHW at all four bridge quadrants that are not depicted as impact areas. Please clarify why these areas were not considered permanent impacts. Are there any discharges of fill in these locations? The Corps typically considers raising the bottom elevation or redepositing material by mechanical grading to result in a permanent discharge of fill.*

   Attached please find an updated set of plans in pdf format entitled "1.0 Permitting Plan Scadding_Sheet 5" showing the revised impact areas at the four quadrants. There is no fill outside the sheet piling in lands under water of the U.S. The area between the proposed face of sheet piling and the approximate location of the turbidity curtain are now shown as temporary impacts. No fill is placed between the "BOS" (bottom of slope) magenta colored line and the black, dashed turbidity curtain.

4. *Please provide an estimate of the area of waters of the U.S. that will be permanently lost as a result of the project. This would include any areas of stream/pond/wetlands that will be converted to upland/road, but not those areas below the bridge being excavated and backfilled with rip-rap overtopped with natural material that will remain waters of the U.S. This information is necessary for us to determine if mitigation is required.*

   The net loss of Waters of the U.S. is approximately 9,389 square feet as shown on Page 5 of 8 of the attached pdf entitled "1.0 Permitting Plan Scadding_Sheet 5"

We are available to discuss these revisions as needed at your convenience. Thank you for your attention to these responses.

Sincerely,

COMPREHENSIVE ENVIRONMENTAL INC.

Matthew Lundsted, PE, CFM
Principal

Ecc: Caitlin Marshall, MassDOT, Project Manager (via caitlin.a.marshall@dot.state.ma.us)
Courtney Walker, MassDOT, Highway Division, Wetlands and Water Resources Coordinator (via courtney.l.walker@dot.state.ma.us)
Kylie Abouzeid, MassDOT, Highway Division, Environmental Analyst (via kylie.a.abouzeid@dot.state.ma.us)
Heidi Davis, MassDEP (via Heidi.davis@mass.gov)
Ryan Hale, MassDEP (via ryan.hale@mass.gov)
Tyler Lewis, MassDEP (via tyler.lewis@mass.gov)
Paul White, Dewberry (via pwhite@dewberry.com)
Adam Zysk, Dewberry (via azysk@dewberry.com)
Bob Hartzel, CEI (via rhartzel@ceiengineers.com)
Kevin Barbara, CEI (via kbarbara@ceiengineers.com)

# 1.0 Permitting Plan Scadding_Sheet 5

BRIDGE NO. T-01-024 (C5H)

**NOTES:**
1. WETLAND FLAG SERIES 1-3 AND 19-21 ARE REPRESENTATIVE OF BORDERING VEGETATED WETLANDS (BVW) BOUNDARIES. ALL OTHER FLAGS REPRESENT BANK DELINEATIONS.

| TEMPORARY IMPACTS | PERMANENT IMPACTS | PROPOSED ALTERATION |
|---|---|---|
| BORDERING VEGETATED WETLAND (626 SF) | BORDERING VEGETATED WETLAND (106 SF) | TOTAL = 732 SF |
| LAND UNDER WATERS OF THE US (12,557 SF) | LAND UNDER WATERS OF THE US (11,849 SF) | TOTAL = 24,406 SF |
| LINEAR BANK (53 LF) | LINEAR BANK (976 LF) | TOTAL = 1,029 LF |

LUW GAINED
LAND UNDER WATERS OF THE US GAINED FROM CUTTING (2,460 SF)

LUW LOST
NET LAND UNDER WATERS OF THE US LOST FROM FILL = 9,389 SF (INCLUDING THE NEW LUW GAINED)

0 20 50 100
SCALE: 1" = 20'
11X17 HALF-SCALE: 1" = 40'

LIMIT OF WORK
END MICROMILLING & OVERLAY
STA. 18+80.00
N 2808087.2692
E 763821.0038

BEGIN MICROMILL & OVERLAY
END FULL DEPTH CONSTRUCTION
STA. 18+50

MATCH LINE
STA. 15+56

BOS

EDGE OF WATER AS LOCATED ON 6/26/2017

WETLAND FLAGS SET AND LOCATED BY CONSERVENSE ENVIRONMENTAL INCORPORATED ON JULY 13TH AND 19TH, 2017. RE-ASSESSED ON JULY 11TH, 2023. FLAGS NOT LOCATED BY NITSCH ENGINEERING.

SNAKE RIVER FLOW

APPROXIMATE LOCA SEPTIC SYSTEM AN AS PER AS-BUILT BY THE TAUNTON I

ORDINARY HIGH WATER LINE (TYP.)

BEGIN FULL DEPTH CONSTRUCTION
END MICROMILL & OVERLAY
STA. 11+00.00

LIMIT OF WORK
BEGIN MICROMILLING & OVERLAY
STA. 10+25.90
N 2807239.2470
E 763807.1412

OFFSET: 9.64 LT
+25.90

N

**PERMITTING PLAN**

**TAUNTON**
**SCADDING STREET**

| STATE | FED. AID PROJ. NO. | # | MA |
|---|---|---|---|
| | SHEET NO. | TOTAL SHEETS | |
| | 5 | 8 | |
| | PROJECT FILE NO. | 608616 | |

# 2.0 Aquatic Vegetation Survey

# (for Scadding Street over Snake River)

COMPREHENSIVE
ENVIRONMENTAL
INCORPORATED

41 Main Street
Bolton, MA 01740
508.281.5160

June 6, 2024

Daniel B. Vasconcelos, PWS
U.S. Army Corps of Engineers, New England District
696 Virginia Road
Concord, MA 01742-2751

**Re: Aquatic Vegetation Survey**
**Scadding Street Bridge, Taunton, MA**
**File # NAE-2024-00894**

Mr. Vasconcelos:

Your letter dated April 23, 2024 for the above-referenced project included the following comment regarding the presence of vegetated shallows within the proposed work area:

> 2. *Based on the photographs provided, along with aerial photographs, there may be areas of vegetated shallows (permanently inundated areas that under normal circumstances support rooted aquatic vegetation) within the project area. Vegetated shallows are considered Special Aquatic Sites (SAS) under the Corps 404(b)(1) guidelines. Any areas of vegetated shallows within the work area must be delineated on the plans, and any impacts within them quantified. The Massachusetts General Permits have a limit on permanent impacts to freshwater vegetated shallows of 1,000 square feet. Above this threshold an Individual Permit is required.*

Comprehensive Environmental Inc. (CEI) conducted an aquatic vegetation survey on May 29, 2024, to confirm the location of vegetated shallows within the proposed work area and provide information on the assemblage of species observed. The findings of this aquatic vegetation survey are summarized below and presented on the attached site plan.

**Aquatic Vegetation Survey Findings**

- Vegetated shallows are defined per 40 CFR § 230.43 as "*permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation, such as turtle grass and eelgrass in estuarine or marine systems as well as a number of freshwater species in rivers and lakes*".
- CEI observed that most of the near-shore area on both sides of the existing Scadding Street bridge meets the above definition, with an assemblage of freshwater submerged and floating-leaf aquatic species present.
    - The observed area of vegetated shallows includes (1) most of the near-shore area of the Snake River that is adjacent to the bridge to the east and (2) most of the near-shore area of Lake Sabbatia that is adjacent to the bridge to the west. The vegetated shallows extend from the water line to well beyond the proposed work area to the east and west.

- As shown on the attached site plan, the area of vegetated shallows has a boundary in the immediate vicinity of the bridge crossing where the Snake River flows into Lake Sabbatia. In this area (including the area under the bridge, a limited zone near the four corners of the bridge span, and the channel thalweg upstream and downstream of the bridge), greater flow velocities and water depth prevent establishment of rooted aquatic vegetation.

- The vegetated shallows were comprised on both sides of the bridge by an assemblage including the species listed in the table below.

**Observed Aquatic Vegetation Species, 05/29/2024**

| Scientific Name | Common Name |
|---|---|
| *Brasenia schreberi* | watershield |
| *Cabomba caroliniana* | fanwort |
| *Ceratophyllum demersum* | coontail |
| *Myriophyllum heterophyllum* | variable milfoil |
| *Nuphar variegatum* | yellow water lily |
| *Nymphaea odorata* | white water lily |
| *Pontederia cordata* | pickerelweed |
| *Potamogeton epihydrus* | ribbon-leaf pondweed |
| *Potamogeton natans* | floating-leaf pondweed |
| *Sagittaria latifolia* | arrowhead |
| *Stuckenia pectinata* | sago pondweed |
| *Sparganium sp.* | bur reed |
| *Trapa natans* | water chestnut |
| *Utricularia vulgaris* | common bladderwort |

- Observed growth densities within the vegetated shallows generally ranged from sparse (0-25% cover) to moderate (25-50% cover) at the time of the survey. It is expected that growth density in much of the area will increase as the growing season continues.

- Representative site photos are provided in Attachment A.

Please contact me at rhartzel@ceiengineers.com or (508) 281-5201 if you have any questions about the information above.

Sincerely,

Robert M. Hartzel, Principal
Comprehensive Environmental, Inc.

**Attachment A:**

**Site Photos, May 29, 2024**

**Photo 1 :** View west towards Scadding Street in area immediately northeast of the bridge.

**Photo 2:** View southeast towards area southeast of the bridge

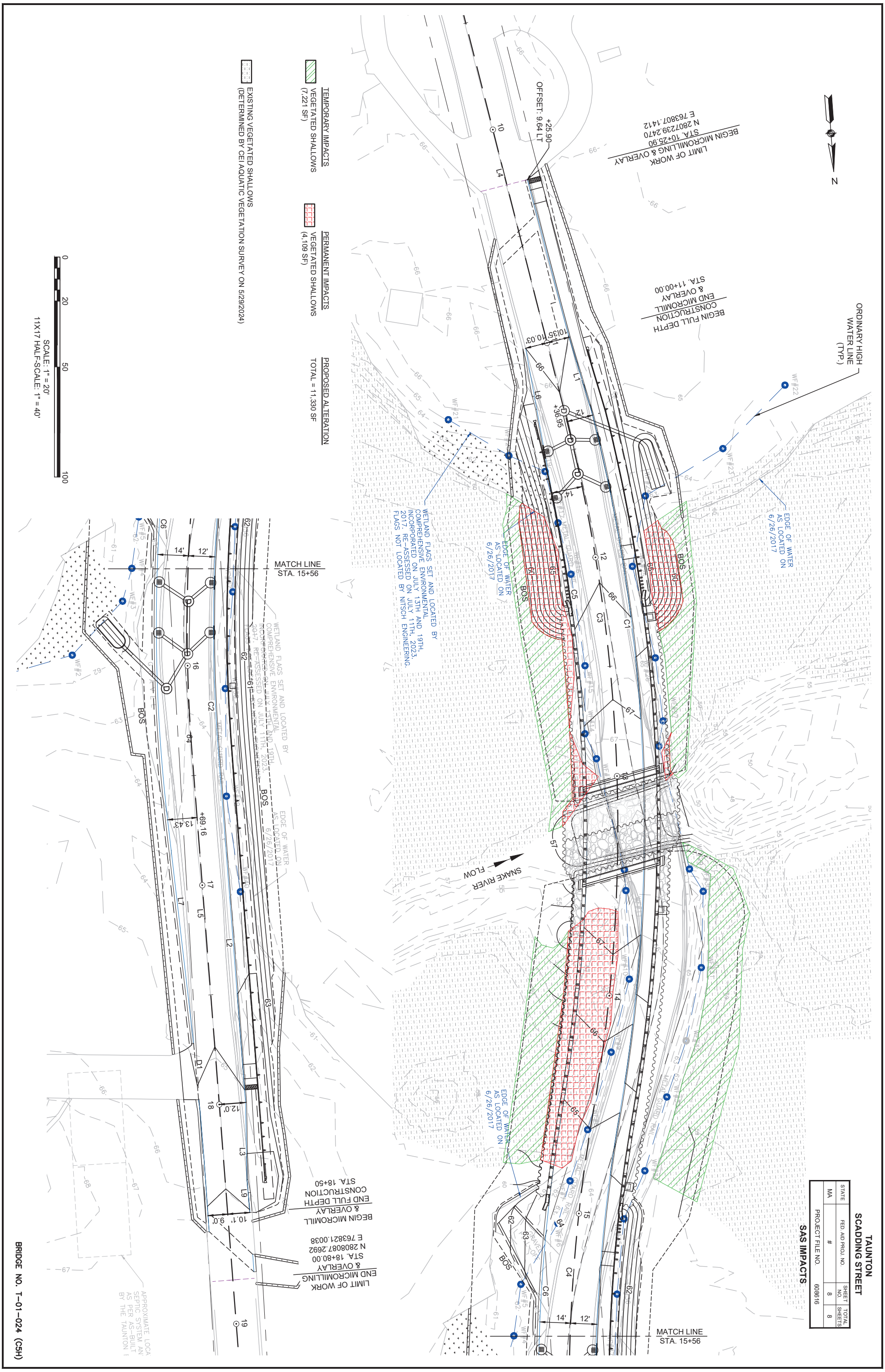
**Photo 3 :** View to the north of the area southwest of the bridge, with sparse growth of submerged plants.

**Photo 4:** View northwest of the area to the northwest of the bridge.

**Photos 5 and 6:** View of areas just east (top photo) and west (bottom photo) of bridge, showing zone near the channel thalweg where vegetated shallows were not observed (*note: pollen on water surface*).

## Attachment B:

## Site Plan (SAS Impacts)


ORDINARY HIGH WATER LINE (TYP.)
LIMIT OF WORK
BEGIN MICROMILLING & OVERLAY
STA. 10+25.90
N 2807239.2470
E 763807.1412
BEGIN FULL DEPTH CONSTRUCTION
END MICROMILL & OVERLAY
STA. 11+00.00
EDGE OF WATER AS LOCATED ON 6/26/2017
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED ON JULY 13TH AND 19TH, 2023. RE-ASSESSED ON JULY 11TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
SNAKE RIVER FLOW
MATCH LINE STA. 15+56
LIMIT OF WORK
END MICROMILLING & OVERLAY
STA. 18+80.00
N 2808087.2692
E 763821.0038
BEGIN MICROMILL & OVERLAY
END FULL DEPTH CONSTRUCTION
STA. 18+50
APPROXIMATE LOCA SEPTIC SYSTEM AN AS PER AS-BUILT BY THE TAUNTON
TEMPORARY IMPACTS
VEGETATED SHALLOWS (7,221 SF)
PERMANENT IMPACTS
VEGETATED SHALLOWS (4,109 SF)
PROPOSED ALTERATION
TOTAL = 11,330 SF
EXISTING VEGETATED SHALLOWS
(DETERMINED BY CEI AQUATIC VEGETATION SURVEY ON 5/29/2024)
SCALE: 1" = 20'
11X17 HALF-SCALE: 1" = 40'
0
20
50
100
N
TAUNTON
SCADDING STREET
SAS IMPACTS
STATE: MA
FED. AID PROJ. NO.: #
PROJECT FILE NO.: 608616
SHEET NO.: 8
TOTAL SHEETS: 8
BRIDGE NO. T-01-024 (C5H)

COMPREHENSIVE
ENVIRONMENTAL
INCORPORATED

41 Main Street
Bolton, MA 01740
508.281.5160

February 14, 2025

Daniel B. Vasconcelos, PWS
Project Manager
USACE
New England District Office
696 Virginia Road
Concord, MA 01742-2751

RE: NAE-2024-00894
Response to Comments (RTC)

AT: Scadding Street Bridge Replacement (Bridge No. T-01-024)
Lake Sabbatia
Taunton, MA

Dear Mr. Vasconcelos:

We offer the following responses to your email of January 3, 2025. Our responses follow each of your comments which are shown *in italics* and numbered below.

1. *In my previous email I had asked if the cofferdams will wrap around the grading areas at the four bridge quadrants. I did not see a response. On the plans the cofferdam symbol appears to end and not encompass the grading areas (see yellow arrows on attached sketch). Will this grading occur outside of the cofferdams in open water?*

   The "grading" at three of the four corners (near bank flag BWF #16, BWF #25 and wetland flag WF#35) is riprap slope protection (clean stone) so the portion below water level will be placed in water behind the turbidity curtain. The grading near the gravel access, flags WF#5 and WF#6 will be graded behind turbidity curtain with the majority of it above the normal water level and Ordinary High Water. Steel sheeting cofferdam is not proposed to extend around these areas.

2. *There remain temporary impacts outside of the cofferdams (see pink arrow on attached sketch for an example). Please clarify/describe the temporary discharges of fill that will occur within these areas.*

   There is no proposed temporary discharge of fill/impacts in the areas between toe of slope grading or cofferdam as indicated in your sketch. That area was shown as a 5' offset from the bottom of slope or cofferdam face intended to act as a buffer to

construction. All temporary impacts at these and similar locations have been removed.

3. *At the southern end of the bridge, there are areas above OHW that are depicted as waterway impacts (orange polygons on attached sketch). It appears these areas should be depicted as wetland impacts. Please update the hatching and impact numbers accordingly. Also, the red line representing linear impacts to OHW extends above OHW (see my orange arrows). This line should be re-drawn to follow the OHW line.*

   Attached please find an updated set of plans in pdf format. Sheet 5 of 10 has been updated based on observations and delineations made by our wetland scientist on January 17, 2025. Most of the original delineations were performed in 2017 so we felt it prudent to confirm the location of wetland, bank and OHW delineations. Please note that the updated plans clarify wetland flags as the original "WF" and bank flags have been annotated with the addition of a "B". Impact areas have been updated accordingly and we now propose 700 square feet of replication as shown on Sheet 9 of 9. Table 1 summarizes these changes.

**Table 1 Impact Summaries**

| Resource Area | Federal Wetlands (sf) | | Waters of the US (sf) | | Ordinary High Water (lf) | |
|---|---|---|---|---|---|---|
| Submission Date | 12/31/24 | 2/14/25 | 12/31/24 | 2/14/25 | 12/31/24 | 2/14/25 |
| Temporary Impacts | 567 | 0 | 5123 | 0 | 48 | 0 |
| Permanent Impacts | 106 | 633 | 13897 | 11379 | 976 | 950 |
| Total | 673 | 633 | 19020 | 11379 | 1024 | 950 |

4. *Please clarify what is causing the permanent impacts in the northwest bridge quadrant (see my blue arrow). This area was previously depicted as a temporary impact. What are the permanent discharges of fill proposed in this location?*

   The permanent impact at the area you have indicated is the dredge of land under waters of the US to remove the existing embankment portion below OHW.

5. *In the northeast quadrant the OHW line and wetland line appear to be the same line (area circled in green). These should be separated to differentiate the OHW mark and limit of wetlands, as was done in the southwest and southeast quadrants.*

   As noted in number 3 above, OHW and wetlands have been separated and additional impacts result in proposing 700 square feet of replication. The replication area (shown on sheet 9 of 9 ) has been updated to reflect this change.

We are available to discuss these revisions as needed at your convenience. Thank you for your attention to these responses.

Sincerely,

COMPREHENSIVE ENVIRONMENTAL INC.

Matthew Lundsted, PE, CFM
Principal

Ecc: Caitlin Marshall, MassDOT, Project Manager (via caitlin.a.marshall@dot.state.ma.us)
Courtney Walker, MassDOT, Highway Division, Wetlands and Water Resources Coordinator (via courtney.l.walker@dot.state.ma.us)
Heidi Davis, MassDEP (via Heidi.davis@mass.gov)
Ryan Hale, MassDEP (via ryan.hale@mass.gov)
Tyler Lewis, MassDEP (via tyler.lewis@mass.gov)
Adam Zysk, Dewberry (via azysk@dewberry.com)
Bob Hartzel, CEI (via rhartzel@ceiengineers.com)
Kevin Barbara, CEI (via kbarbara@ceiengineers.com)

# TAUNTON
# MASSDOT

## SCADDING STREET BRIDGE REPLACEMENT: T-01-024 (C5H)

IN THE CITY/TOWN OF

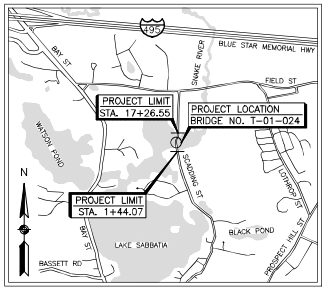
TAUNTON

BRISTOL COUNTY

## PERMITTING PLANS

INDEX OF DRAWINGS

| SHEET | TITLE |
|---|---|
| 1. | KEY PLAN, LOCUS, AND PROFILES |
| 2. | CONSTRUCTION PLAN |
| 3. | ROAD PROFILE |
| 4. | ROAD PROFILE |
| 5. | PERMITTING PLAN |
| 6. | DREDGING AREAS |
| 7. | IMPERVIOUS AREA DEVELOPMENT |
| 8. | SPECIAL AQUATIC SITES (SAS) IMPACTS |
| 9. | WETLAND REPLICATION PLAN |




LOCUS PLAN
SCALE: 1" = 1000'

HYDRAULIC DESIGN DATA

DRAINAGE AREA: 38.7 SQUARE MILES
DESIGN FLOOD DISCHARGE: 1,000 CUBIC FEET PER SECOND
DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 10% (10 YEARS)
DESIGN FLOOD VELOCITY: 1.07 FEET PER SECOND
DESIGN FLOOD ELEVATION: 60.8 FEET, NAVD

BASE (100-YEAR) FLOOD DATA

BASE FLOOD DISCHARGE: 1,840 CUBIC FEET PER SECOND
BASE FLOOD ELEVATION: 63.1 FEET, NAVD

DESIGN AND CHECK SCOUR DATA

SCOUR DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 4% (25 YRS)
DESIGN FLOOD ABUTMENT SCOUR DEPTH: 4.76 FEET
SCOUR CHECK FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 2% (50 YRS)
CHECK FLOOD ABUTMENT SCOUR DEPTH: 5.94 FEET

FLOOD OF RECORD

DISCHARGE: UNKNOWN
FREQUENCY: UNKNOWN
MAXIMUM ELEVATION: UNKNOWN
DATE: UNKNOWN

HISTORY OF ICE FLOES: NONE DOCUMENTED
EVIDENCE OF SCOUR & EROSION: NONE DOCUMENTED

DESIGN:

IN ACCORDANCE WITH THE 2020 AASHTO, NINTH EDITION, LRFD BRIDGE DESIGN SPECIFICATIONS FOR HL-93 LOADING.

SURVEY:

FIELD SURVEY PERFORMED IN JUNE 2017 BY NITSCH ENGINEERING IN ACCORDANCE WITH MASSDOT GUIDELINES.

ISSUED FOR CONSTRUCTION


COMPREHENSIVE ENVIRONMENTAL INC.
41 MAIN STREET
BOLTON, MA 01740

Dewberry
99 SUMMER ST.,
SUITE 700
BOSTON, MA 02110
(617) 695-3400
(617) 695-3310


massDOT Highway Division

PROPOSED BRIDGE REPLACEMENT
TAUNTON
SCADDING SCREET
OVER SNAKE RIVER

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
10 PARK PLAZA BOSTON, MASS

TITLE: _____ CHIEF ENGINEER _____

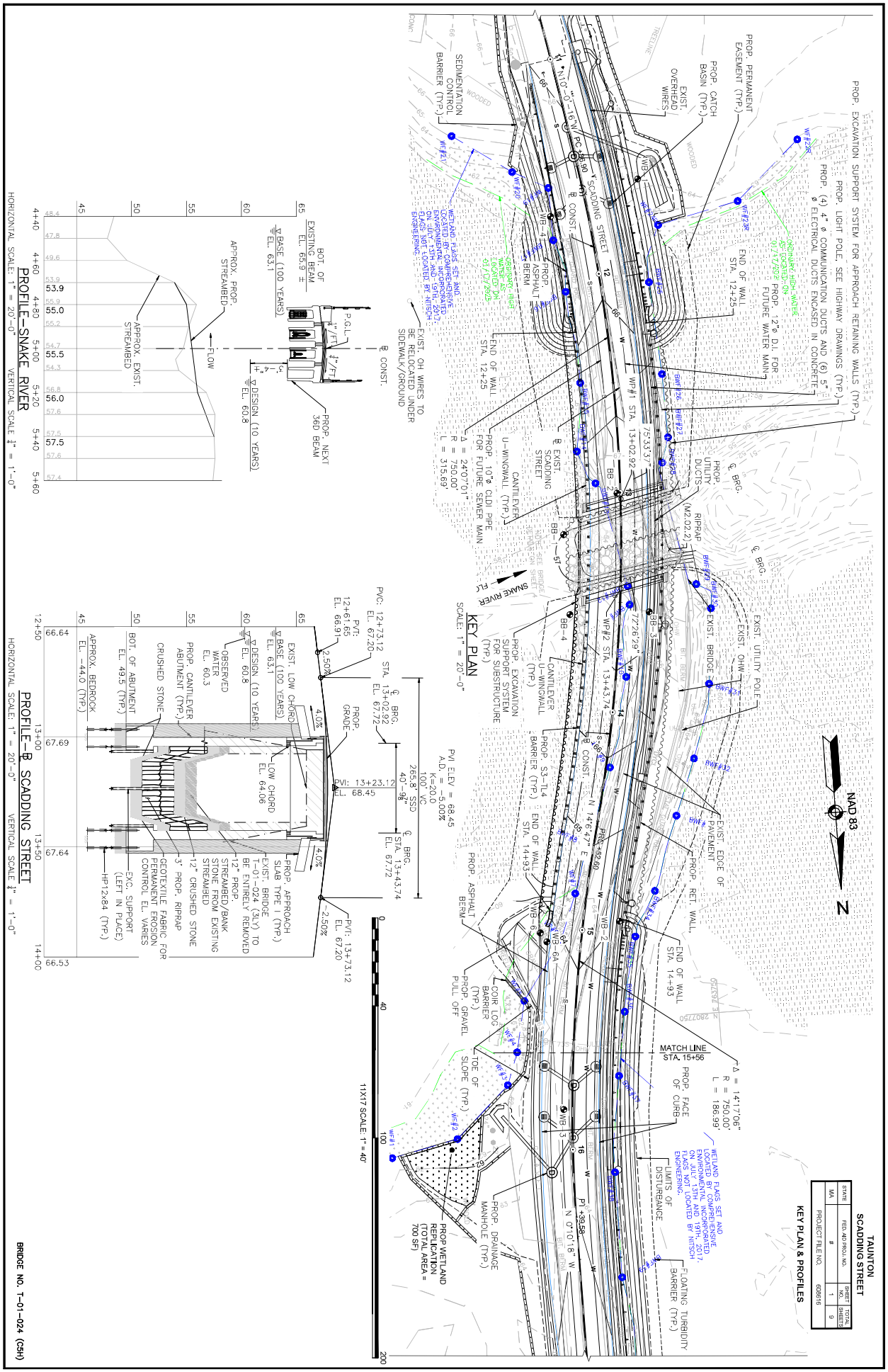
BRIDGE NO. T-01-024 (C5H)

608616_PERMITTING PLANS_REV01.DWG Plotted on 13-Feb-2025 2:41 PM

FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021

Proposal No. 608616-131225

A00830 - 23


KEY PLAN
SCALE: 1" = 20'-0"
PROFILE-SNAKE RIVER
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 1'-0"
PROFILE-℄ SCADDING STREET
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 1'-0"
NAD 83
N
11X17 SCALE: 1" = 40'
TAUNTON
SCADDING STREET
KEY PLAN & PROFILES
PROJECT FILE NO. 608616
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
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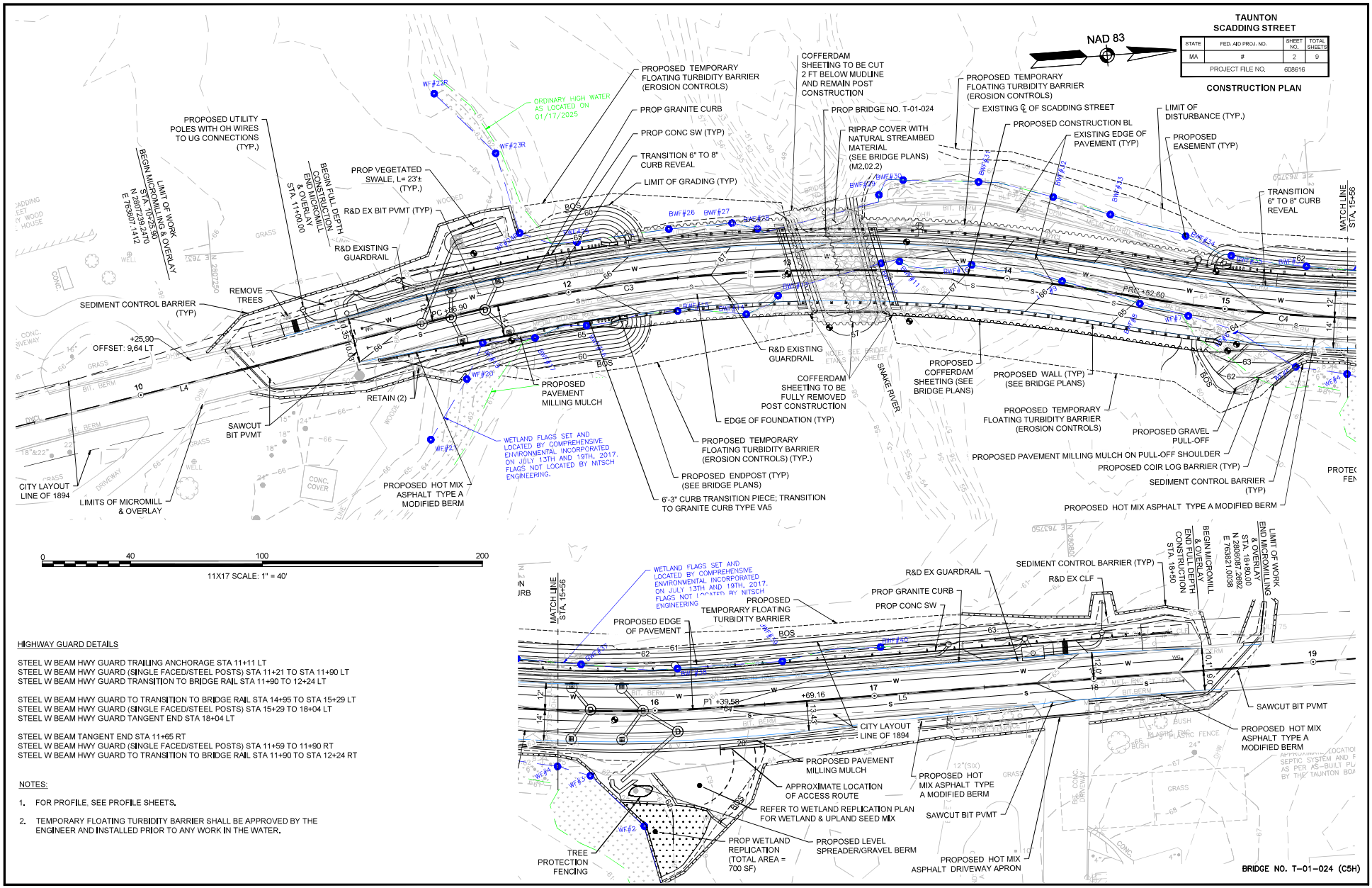
Plotted on 13-Feb-2025 2:42 PM

Proposal No. 608616-131225

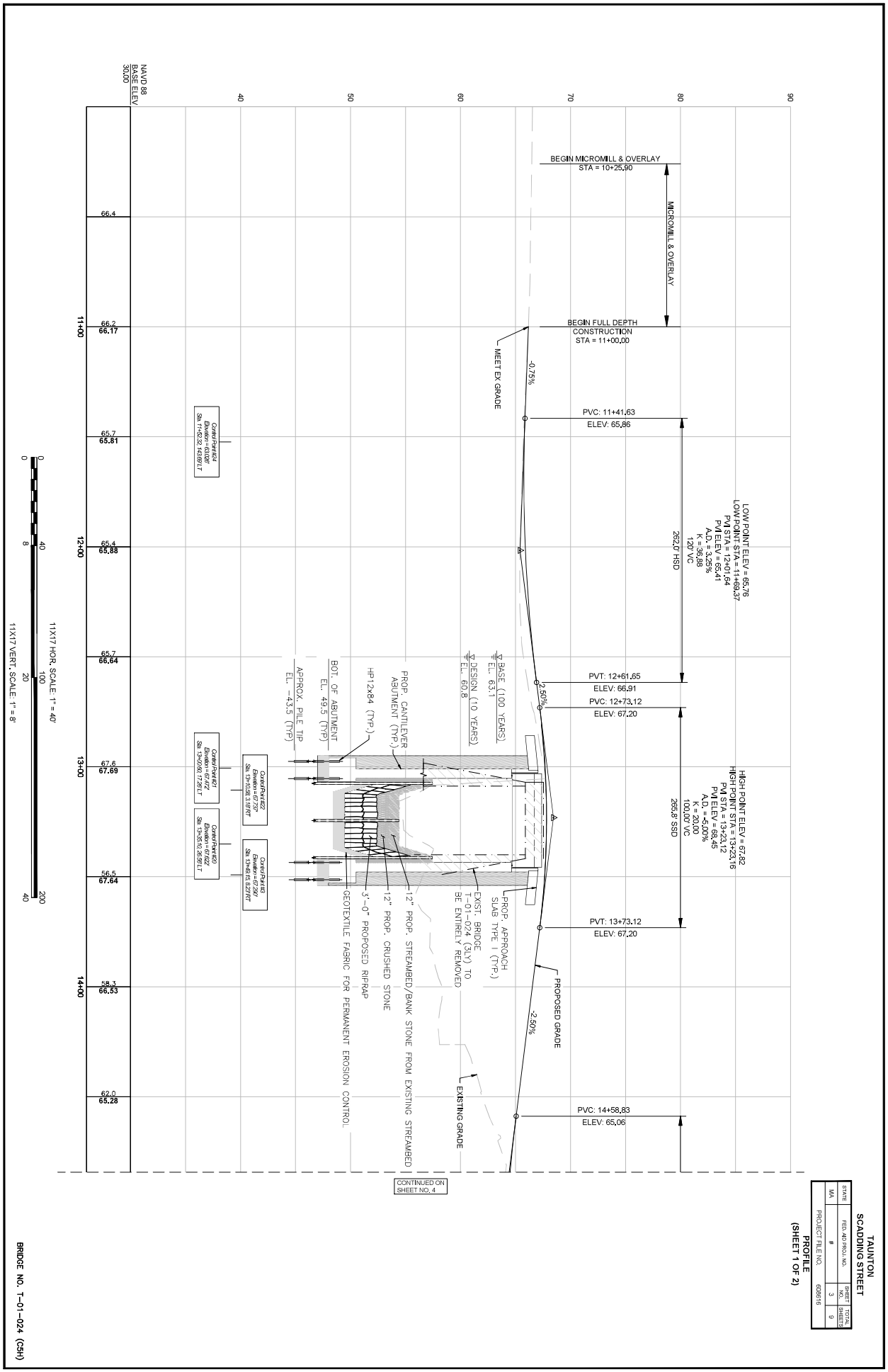
A00830 - 25

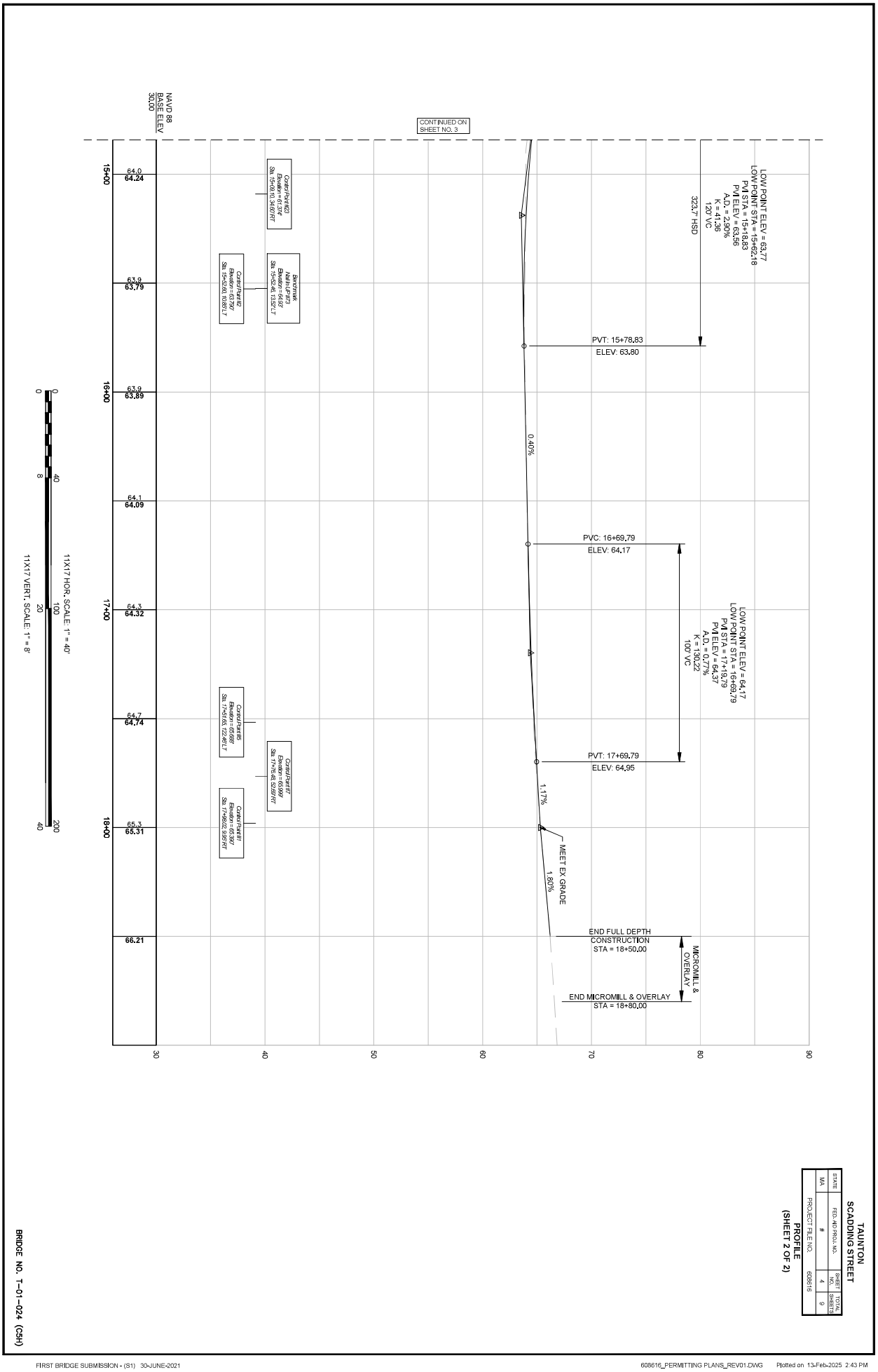


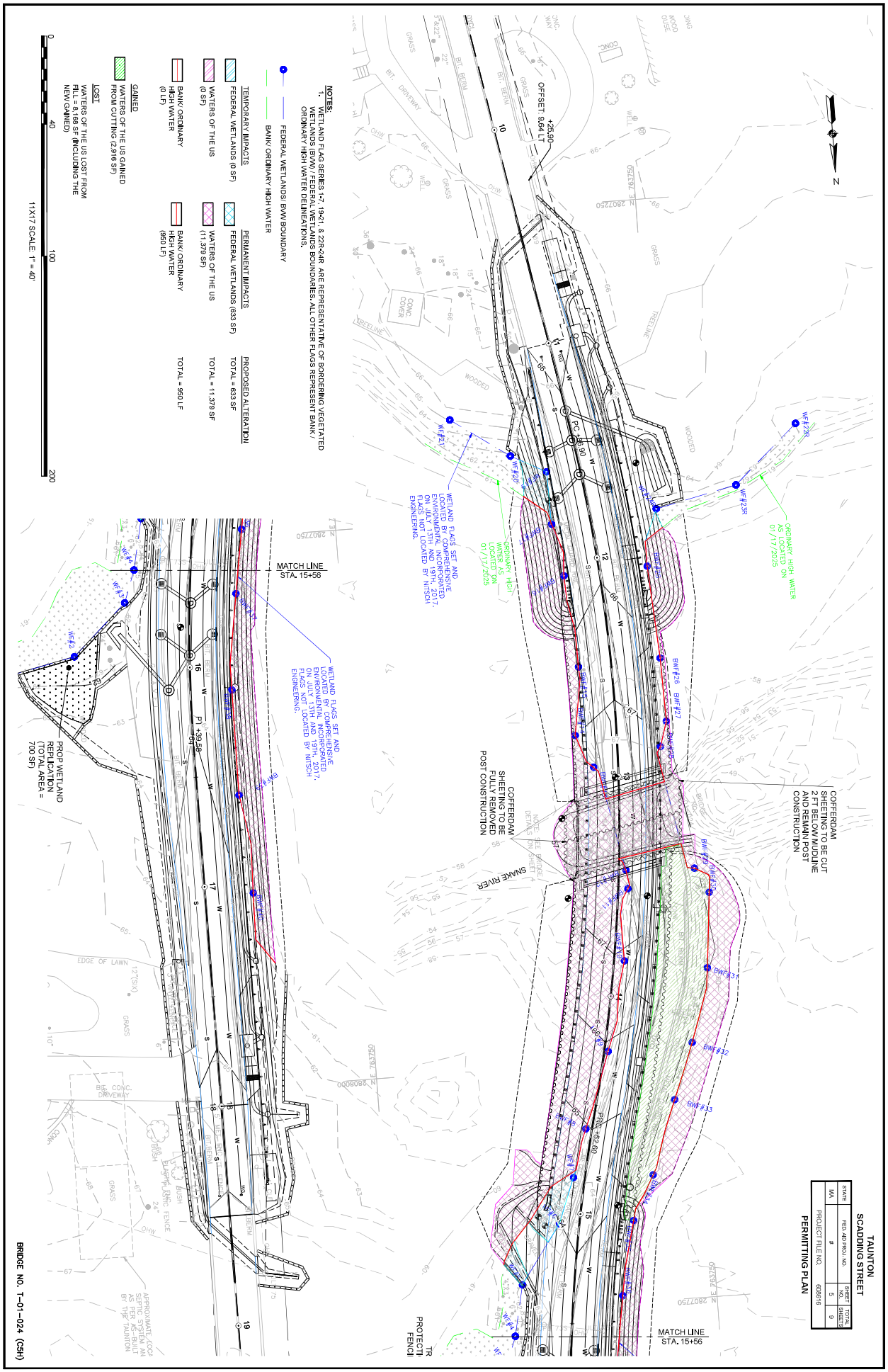

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | # | 2 | 9 |
| PROJECT FILE NO. | 608616 | | |

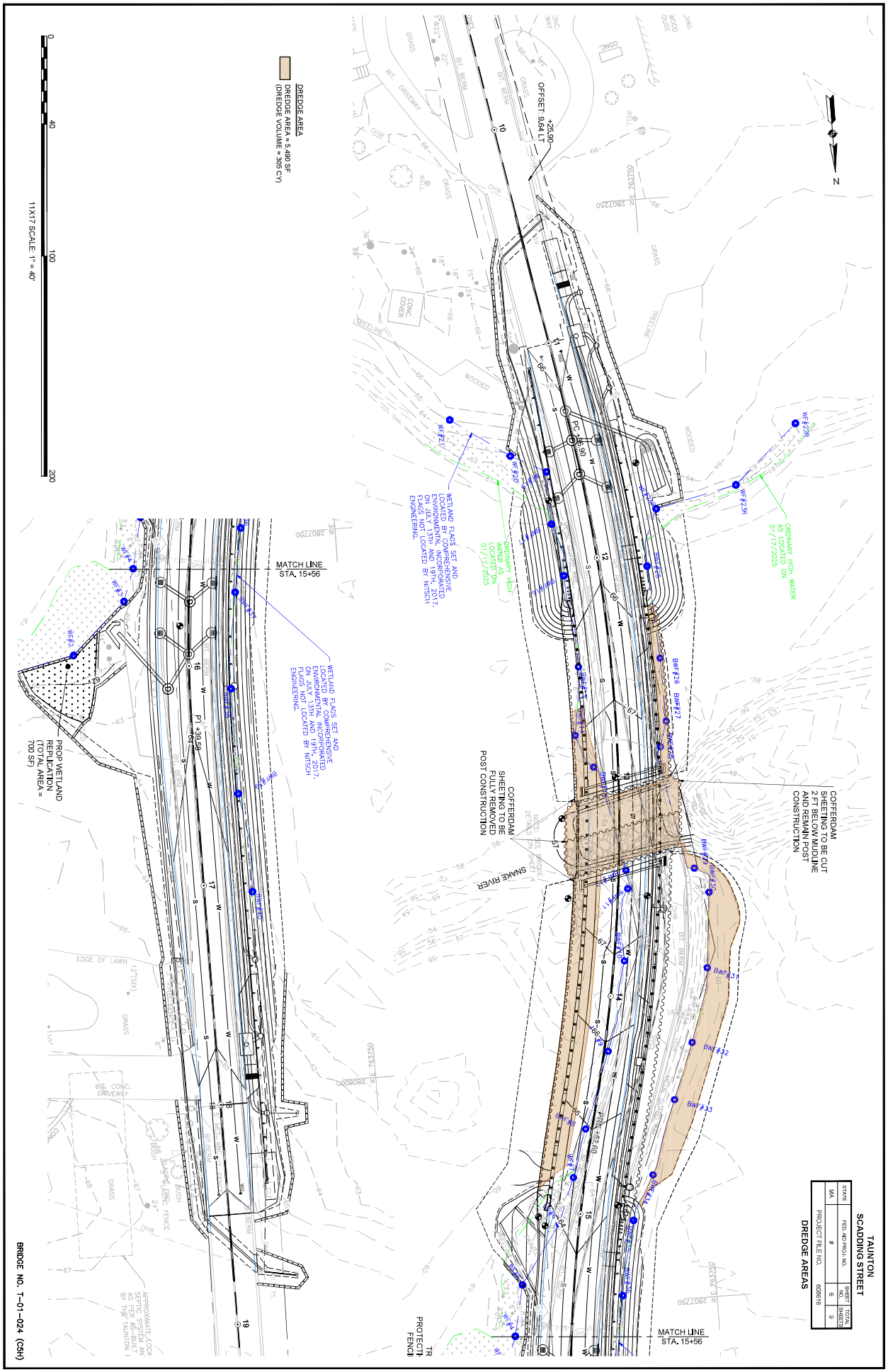
608616_PERMITTING PLANS_REV01.DWG Plotted on 13-Feb-2025 2:42 PM

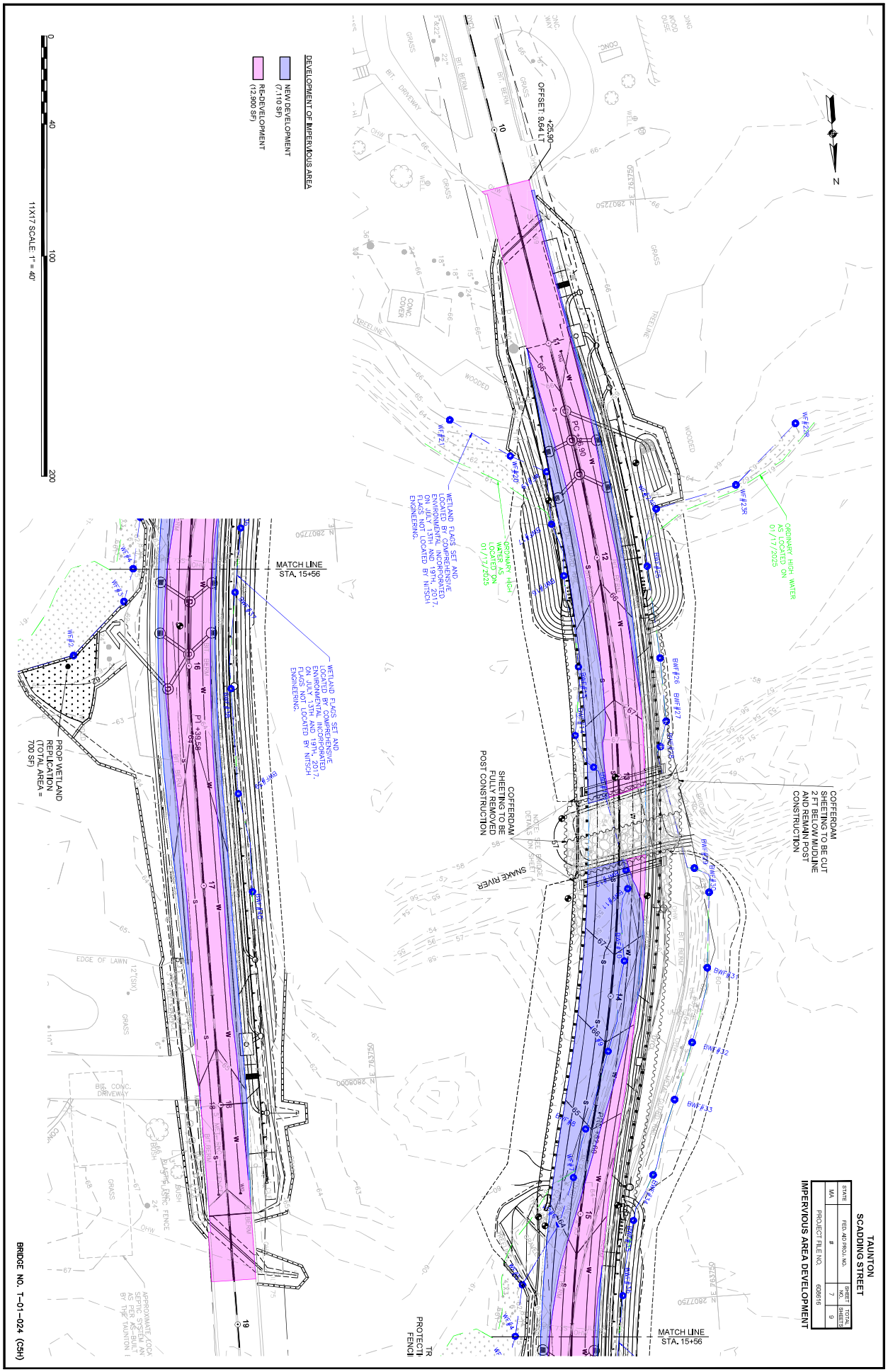
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021

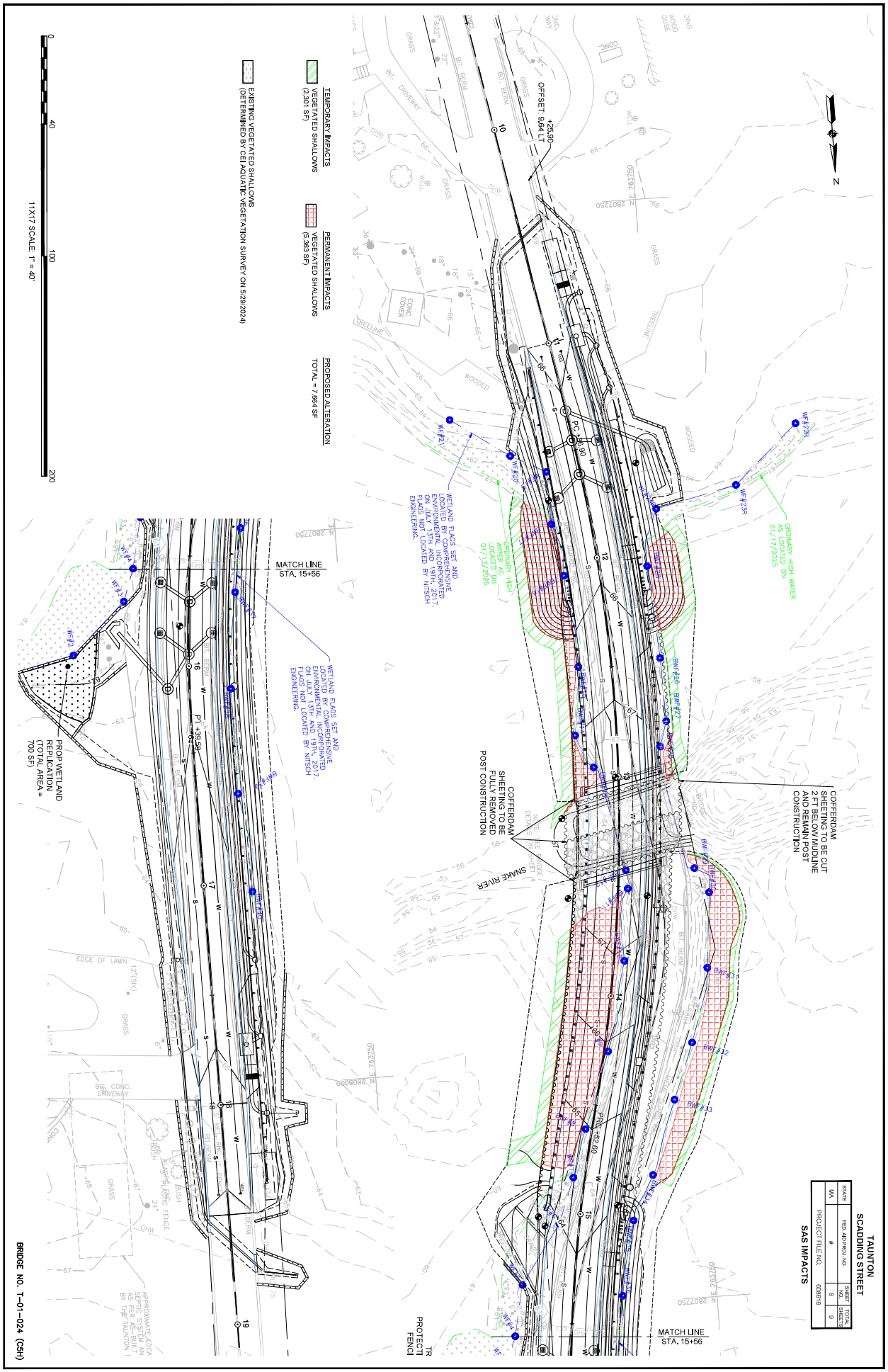

NAVD 88
BASE ELEV
30.00
40
50
60
70
80
90
66.4
66.2
66.17
65.7
65.81
65.4
65.88
65.7
66.64
67.6
67.69
56.5
67.64
58.3
66.53
62.0
65.28
11+00
12+00
13+00
14+00
BEGIN MICROMILL & OVERLAY
STA = 10+25.90
MICROMILL & OVERLAY
BEGIN FULL DEPTH
CONSTRUCTION
STA = 11+00.00
MEET EX GRADE
-0.75%
PVC: 11+41.63
ELEV: 65.86
LOW POINT ELEV = 65.76
LOW POINT STA = 11+69.37
PVI STA = 12+01.64
PVI ELEV = 65.41
A.D. = -3.25%
K = 36.88
120' VC
262.0' HSD
PVT: 12+61.65
ELEV: 66.91
2.50%
PVC: 12+73.12
ELEV: 67.20
HIGH POINT ELEV = 67.82
HIGH POINT STA = 13+23.16
PVI STA = 13+23.12
PVI ELEV = 68.45
A.D. = +5.00%
K = 20.00
100.00' VC
265.8' SSD
PVT: 13+73.12
ELEV: 67.20
PROPOSED GRADE
-2.50%
EXISTING GRADE
PVC: 14+58.83
ELEV: 65.06
BASE (100 YEARS)
EL. 63.1
DESIGN (10 YEARS)
EL. 60.8
PROP. CANTILEVER
ABUTMENT (TYP.)
HP12x84 (TYP.)
BOT. OF ABUTMENT
EL. 49.5 (TYP)
APPROX. PILE TIP
EL. -43.5 (TYP)
PROP. APPROACH
SLAB TYPE I (TYP.)
EXIST. BRIDGE
T-01-024 (3LY) TO
BE ENTIRELY REMOVED
12" PROP. STREAMBED/BANK STONE FROM EXISTING STREAMBED
12" PROP. CRUSHED STONE
3'-0" PROPOSED RIPRAP
GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL
CONTINUED ON
SHEET NO. 4
0
40
8
0
200
40
20
11X17 HOR. SCALE: 1" = 40'
11X17 VERT. SCALE: 1" = 8'
BRIDGE NO. T-01-024 (CSH)
TAUNTON
SCADDING STREET
PROFILE
(SHEET 1 OF 2)
STATE
FED. AID PROJ. NO.
MA
#
PROJECT FILE NO.
608616
SHEET NO.
3
TOTAL SHEETS
9


NAVD 88
BASE ELEV
30.00
CONTINUED ON SHEET NO. 3
LOW POINT ELEV = 63.77
LOW POINT STA = 15+62.18
PVI STA = 15+18.83
PVI ELEV = 63.56
A.D. = 2.90%
K = 41.36
120' VC
323.7' HSD
PVT: 15+78.83
ELEV: 63.80
0.40%
PVC: 16+69.79
ELEV: 64.17
LOW POINT ELEV = 64.17
LOW POINT STA = 16+69.79
PVI STA = 17+19.79
PVI ELEV = 64.37
A.D. = 0.77%
K = 130.22
100' VC
PVT: 17+69.79
ELEV: 64.95
1.17%
MEET EX GRADE
1.80%
END FULL DEPTH
CONSTRUCTION
STA = 18+50.00
MICROMILL &
OVERLAY
END MICROMILL & OVERLAY
STA = 18+80.00
15+00
16+00
17+00
18+00
64.0
64.24
63.9
63.79
63.9
63.89
64.1
64.09
64.3
64.32
64.7
64.74
65.3
65.31
66.21
30
40
50
60
70
80
90
11X17 HOR. SCALE 1" = 40'
11X17 VERT. SCALE 1" = 8'
TAUNTON
SCADDING STREET
PROFILE
(SHEET 2 OF 2)
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
4
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
Plotted on 13-Feb-2025 2:43 PM


NOTES:
1. WETLAND FLAG SERIES 1-7, 19-21, & 22R-24R ARE REPRESENTATIVE OF BORDERING VEGETATED WETLANDS (BVW) FEDERAL WETLANDS BOUNDARIES. ALL OTHER FLAGS REPRESENT BANK / ORDINARY HIGH WATER DELINEATIONS.
FEDERAL WETLANDS/ BVW BOUNDARY
BANK/ ORDINARY HIGH WATER
TEMPORARY IMPACTS
FEDERAL WETLANDS (0 SF)
WATERS OF THE US (0 SF)
BANK/ ORDINARY HIGH WATER (0 LF)
PERMANENT IMPACTS
FEDERAL WETLANDS (633 SF)
WATERS OF THE US (11,379 SF)
BANK/ ORDINARY HIGH WATER (950 LF)
PROPOSED ALTERATION
TOTAL = 633 SF
TOTAL = 11,379 SF
TOTAL = 950 LF
GAINED
WATERS OF THE US GAINED FROM CUTTING (2,916 SF)
LOST
WATERS OF THE US LOST FROM FILL = 8,168 SF (INCLUDING THE NEW GAINED)
0
40
100
200
11X17 SCALE: 1" = 40'
N
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
SNAKE RIVER
TAUNTON
SCADDING STREET
PERMITTING PLAN
STATE
FED. AID PROJ. NO.
MA
#
PROJECT FILE NO.
608616
SHEET NO.
5
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
Plotted on 13-Feb-2025 2:43 PM


DREDGE AREA
DREDGE AREA = 5,490 SF
(DREDGE VOLUME = 305 CY)
0
40
100
200
11X17 SCALE: 1" = 40'
N
MATCH LINE
STA. 15+56
MATCH LINE
STA. 15+56
OFFSET: 9.64 LT
PC
PI
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATERS LOCATED ON 01/17/2025
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
SNAKE RIVER
EDGE OF LAWN
BIT. DRIVEWAY
CONC. DRIVEWAY
TAUNTON
SCADDING STREET
DREDGE AREAS
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
6
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
Plotted on 13-Feb-2025 2:44 PM


DEVELOPMENT OF IMPERVIOUS AREA
NEW DEVELOPMENT (7,110 SF)
RE-DEVELOPMENT (12,305 SF)
0
40
100
200
11X17 SCALE: 1" = 40'
N
OFFSET: 9.64 LT
+25.90
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
SNAKE RIVER
EDGE OF LAWN
BIT. DRIVEWAY
CONC. DRIVEWAY
SEPTIC SYSTEM
TAUNTON SCADDING STREET
IMPERVIOUS AREA DEVELOPMENT
STATE
MA
PROJECT FILE NO.
608616
SHEET NO.
7
SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
Plotted on 13-Feb-2025 2:44 PM


TEMPORARY IMPACTS
VEGETATED SHALLOWS (2,301 SF)
PERMANENT IMPACTS
VEGETATED SHALLOWS (5,363 SF)
PROPOSED ALTERATION
TOTAL = 7,664 SF
EXISTING VEGETATED SHALLOWS (DETERMINED BY CEI AQUATIC VEGETATION SURVEY ON 5/29/2024)
11X17 SCALE: 1" = 40'
0
40
100
200
N
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 13TH AND 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 13TH AND 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
SNAKE RIVER
TAUNTON
SCADDING STREET
SAS IMPACTS
PROJECT FILE NO. 608616
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
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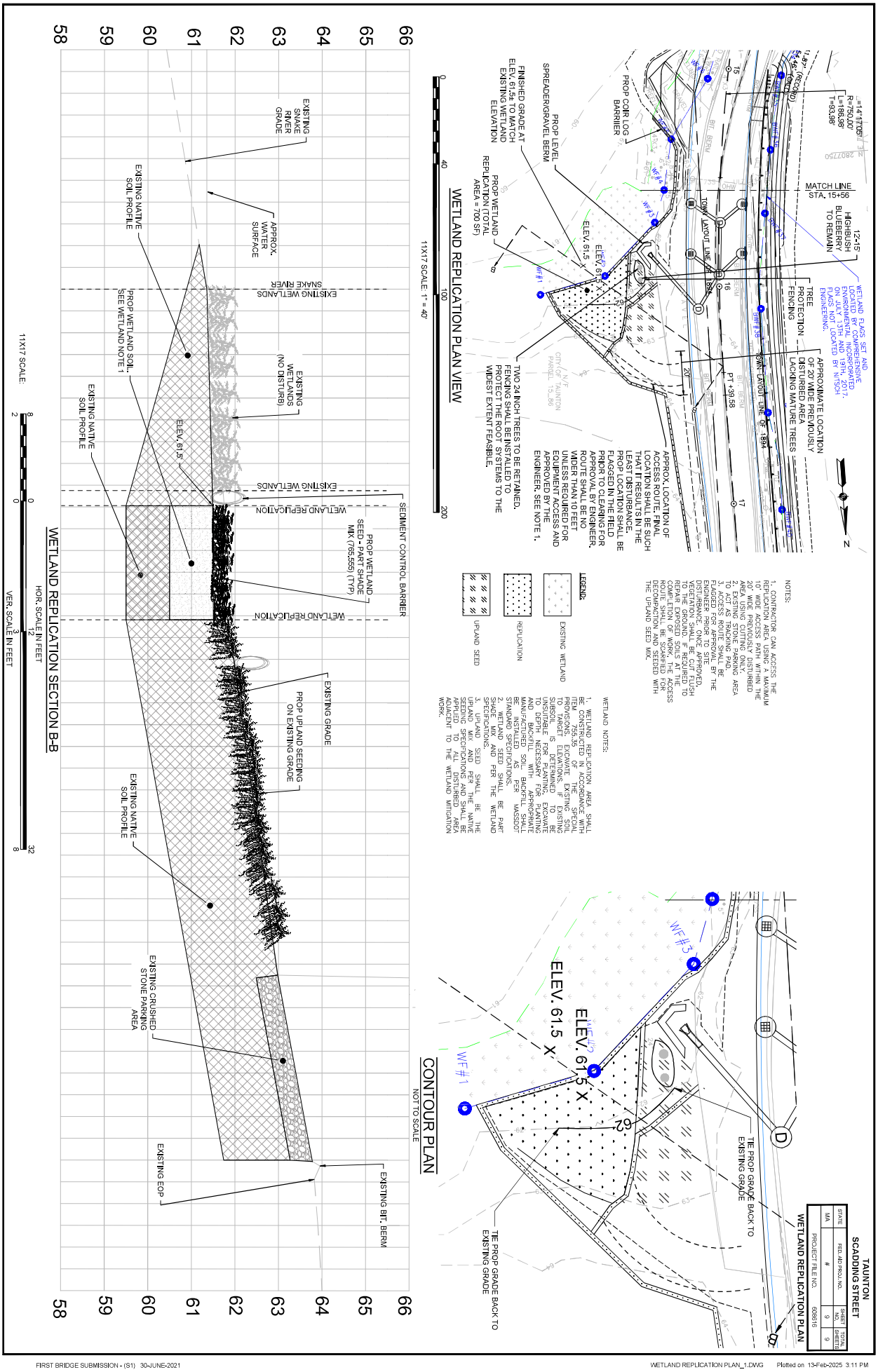

WETLAND REPLICATION PLAN VIEW
11X17 SCALE: 1" = 40'
WETLAND REPLICATION SECTION B-B
HOR. SCALE IN FEET
VER. SCALE IN FEET
CONTOUR PLAN
NOT TO SCALE
NOTES:
WETLAND NOTES:
LEGEND:
EXISTING WETLAND
REPLICATION
UPLAND SEED
MATCH LINE STA. 15+56
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
PROP LEVEL SPREADER/GRAVEL BERM
PROP COIR LOG BARRIER
TREE PROTECTION FENCING
TWO 24 INCH TREES TO BE RETAINED. FENCING SHALL BE INSTALLED TO PROTECT THE ROOT SYSTEMS TO THE WIDEST EXTENT FEASIBLE.
APPROXIMATE LOCATION OF 20' WIDE PREVIOUSLY DISTURBED AREA LACKING MATURE TREES
APPROX. LOCATION OF ACCESS ROUTE. FINAL LOCATION SHALL BE SUCH THAT IT RESULTS IN THE LEAST DISTURBANCE. PROP LOCATION SHALL BE FLAGGED IN THE FIELD PRIOR TO CLEARING FOR APPROVAL BY ENGINEER.
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INC. DISPERSED ON JULY 13TH AND 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
FINISHED GRADE AT ELEV. 61.5± TO MATCH EXISTING WETLAND ELEVATION
EXISTING SNAKE RIVER GRADE
APPROX. WATER SURFACE
EXISTING NATIVE SOIL PROFILE
PROP WETLAND SOIL, SEE WETLAND NOTE 1
EXISTING WETLANDS (NO DISTURB)
ELEV. 61.5
SEDIMENT CONTROL BARRIER
PROP WETLAND SEED + PART SHADE MIX (765.555) (TYP)
EXISTING GRADE
PROP UPLAND SEEDING ON EXISTING GRADE
EXISTING BIT. BERM
EXISTING EOP
EXISTING CRUSHED STONE PARKING AREA
TIE PROP GRADE BACK TO EXISTING GRADE
TAUNTON
SCADDING STREET
WETLAND REPLICATION PLAN
STATE: MA
PROJECT FILE NO. 608616
SHEET NO. 9
TOTAL SHEETS 9
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
WETLAND REPLICATION PLAN_1.DWG
Plotted on 13-Feb-2025 3:11 PM

COMPREHENSIVE
ENVIRONMENTAL
INCORPORATED

41 Main Street
Bolton, MA 01740
508.281.5160

March 5, 2025

Daniel B. Vasconcelos, PWS
Project Manager
USACE
New England District Office
696 Virginia Road
Concord, MA 01742-2751

RE: NAE-2024-00894
Response to Comments (RTC)

AT: Scadding Street Bridge Replacement (Bridge No. T-01-024)
Lake Sabbatia
Taunton, MA

Dear Mr. Vasconcelos:

We offer the following responses to your email of February 24, 2025. Our response follows your comment which is shown *in italics* and numbered below.

1. *Thank you for the responses and revised plans. Following up on #4, the response indicates the permanent impacts depicted in the northwest bridge quadrant are due to dredging to remove the old embankment. Lake Sabbatia is not a Section 10 waterway and as such the Corps does not have jurisdiction over dredging in this location. Our jurisdiction is limited to reviewing discharges of fill pursuant to Section 404 of the CWA.*

   *How will the dredging be performed? Depending on how the work is performed it may not result in any Section 404 discharges of fill. For example, if you will be reaching in and scooping material out using an excavator positioned in uplands, and disposing of the material in uplands, and not redepositing any material back into the water, that would not result in 404 discharges. In that case the impact numbers and plans should be updated to not include this area as an impact on the Corps plans (on sheet 5 as well as 8 depicting the SAS impacts). On the other hand, if you will be moving/repositioning material, such as by grading the area with a bulldozer or similar, then that would typically be considered a 404 discharge.*

   As we discussed during our recent teleconference with you, our thoughts are that the Contractor will excavate the existing embankment down to approximately one foot (1') or so above the water level (to excavate in the dry) and then reach out and dredge from land. The longest reach from the edge of the water to limit of dredge is about 15' horizontally

which should be easy for a larger excavator. Once the in-water work is done the Contractor can remove the rest of the embankment to the below water level either by backing out and excavating as they go and/or by reaching over the retaining walls and final grading the area.

Based on our discussions this activity will not result in discharge to fill in waters of the U.S. so the revised impacts shown on the accompanying plans are as follows:

**Table 1 Impact Summaries**

| Resource Area | Federal Wetlands (sf) | | Waters of the US (sf) | | Ordinary High Water (lf) | | S.A.S. (sf) | |
|---|---|---|---|---|---|---|---|---|
| Submission Date | 12/31/24 | 3/5/25 | 12/31/24 | 3/5/25 | 12/31/24 | 3/5/25 | 12/31/24 | 3/5/25 |
| Temporary Impacts | 567 | 0 | 5123 | 0 | 48 | 0 | 2301 | 3803 |
| Permanent Impacts | 106 | 633 | 13897 | 9741 | 976 | 950 | 5363 | 4053 |
| Total | 673 | 633 | 19020 | 9741 | 1024 | 950 | 7664 | 7856 |

We thank you for your continued attention to our responses.

Sincerely,

COMPREHENSIVE ENVIRONMENTAL INC.

Matthew Lundsted, PE, CFM
Principal

Ecc: Caitlin Marshall, MassDOT, Project Manager (via caitlin.a.marshall@dot.state.ma.us)
Courtney Walker, MassDOT, Highway Division, Wetlands and Water Resources Coordinator (via courtney.l.walker@dot.state.ma.us)
Heidi Davis, MassDEP (via Heidi.davis@mass.gov)
Ryan Hale, MassDEP (via ryan.hale@mass.gov)
Tyler Lewis, MassDEP (via tyler.lewis@mass.gov)
Adam Zysk, Dewberry (via azysk@dewberry.com)
Bob Hartzel, CEI (via rhartzel@ceiengineers.com)
Kevin Barbara, CEI (via kbarbara@ceiengineers.com)

# TAUNTON
# MASSDOT

## SCADDING STREET BRIDGE REPLACEMENT: T-01-024 (C5H)

IN THE CITY/TOWN OF

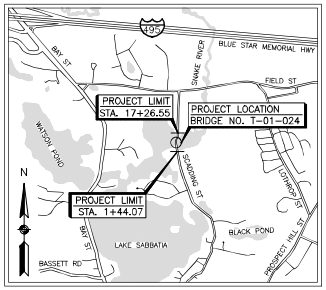
TAUNTON

BRISTOL COUNTY

## PERMITTING PLANS

INDEX OF DRAWINGS

| SHEET | TITLE |
|---|---|
| 1. | KEY PLAN, LOCUS, AND PROFILES |
| 2. | CONSTRUCTION PLAN |
| 3. | ROAD PROFILE |
| 4. | ROAD PROFILE |
| 5. | PERMITTING PLAN |
| 6. | DREDGING AREAS |
| 7. | IMPERVIOUS AREA DEVELOPMENT |
| 8. | SPECIAL AQUATIC SITES (SAS) IMPACTS |
| 9. | WETLAND REPLICATION PLAN |




LOCUS PLAN
SCALE: 1" = 1000'

HYDRAULIC DESIGN DATA

DRAINAGE AREA: 38.7 SQUARE MILES
DESIGN FLOOD DISCHARGE: 1,000 CUBIC FEET PER SECOND
DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 10% (10 YEARS)
DESIGN FLOOD VELOCITY: 1.07 FEET PER SECOND
DESIGN FLOOD ELEVATION: 60.8 FEET, NAVD

BASE (100-YEAR) FLOOD DATA

BASE FLOOD DISCHARGE: 1,840 CUBIC FEET PER SECOND
BASE FLOOD ELEVATION: 63.1 FEET, NAVD

DESIGN AND CHECK SCOUR DATA

SCOUR DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 4% (25 YRS)
DESIGN FLOOD ABUTMENT SCOUR DEPTH: 4.76 FEET
SCOUR CHECK FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 2% (50 YRS)
CHECK FLOOD ABUTMENT SCOUR DEPTH: 5.94 FEET

FLOOD OF RECORD

DISCHARGE: UNKNOWN
FREQUENCY: UNKNOWN
MAXIMUM ELEVATION: UNKNOWN
DATE: UNKNOWN

HISTORY OF ICE FLOES: NONE DOCUMENTED
EVIDENCE OF SCOUR & EROSION: NONE DOCUMENTED

DESIGN:

IN ACCORDANCE WITH THE 2020 AASHTO, NINTH EDITION, LRFD BRIDGE DESIGN SPECIFICATIONS FOR HL-93 LOADING.

SURVEY:

FIELD SURVEY PERFORMED IN JUNE 2017 BY NITSCH ENGINEERING IN ACCORDANCE WITH MASSDOT GUIDELINES.

ISSUED FOR CONSTRUCTION


COMPREHENSIVE ENVIRONMENTAL INC.
41 MAIN STREET
BOLTON, MA 01740

Dewberry
99 SUMMER ST.,
SUITE 700
BOSTON, MA 02110
(617) 695-3400
(617) 695-3310


massDOT Highway Division

PROPOSED BRIDGE REPLACEMENT
TAUNTON
SCADDING SCREET
OVER SNAKE RIVER

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
10 PARK PLAZA BOSTON, MASS

TITLE: _____ CHIEF ENGINEER

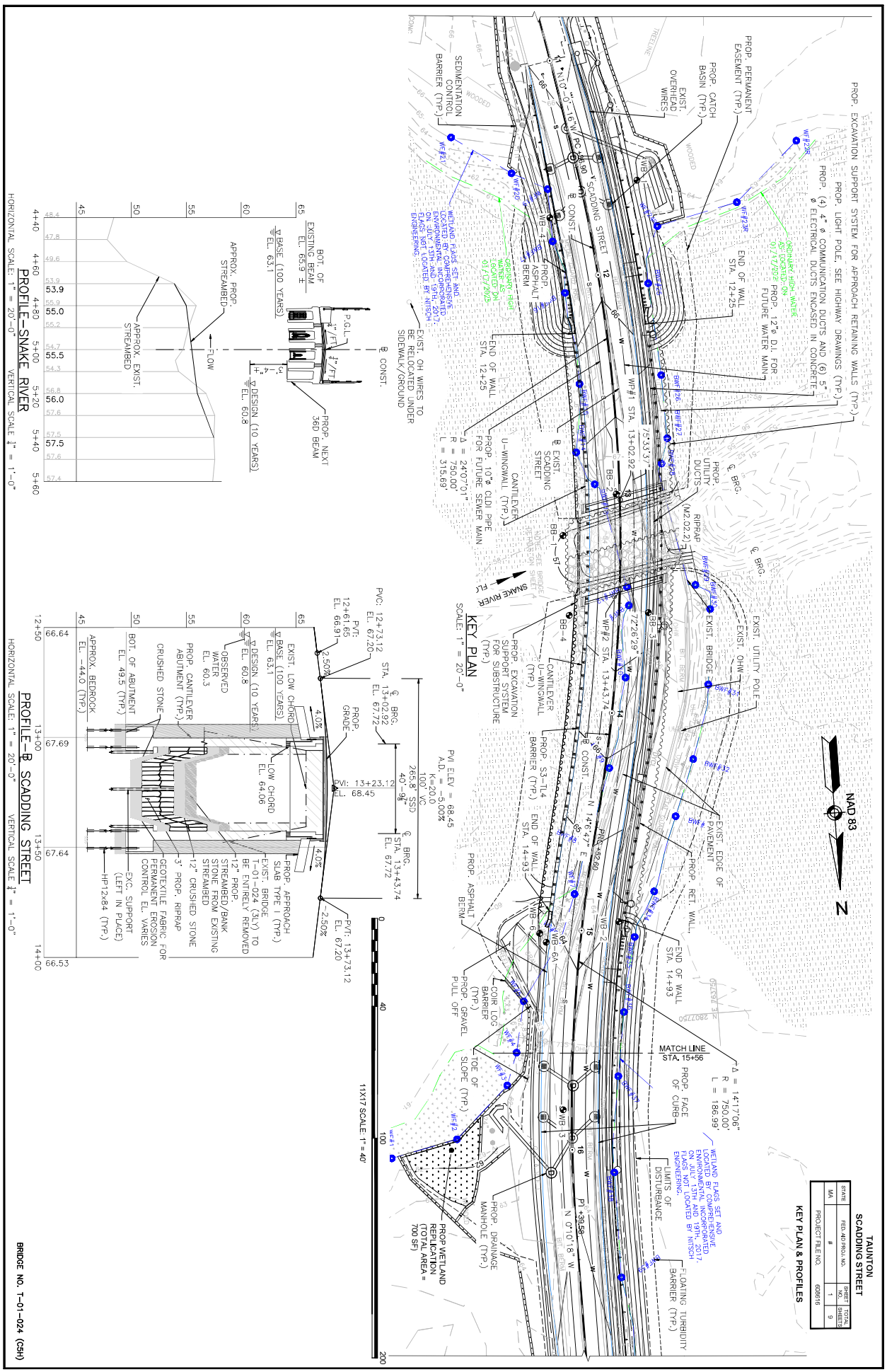
BRIDGE NO. T-01-024 (C5H)

608616_PERMITTING PLANS_REV01.DWG Plotted on 27-Feb-2025 2:28 PM

FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021

Proposal No. 608616-131225

A00830 - 35


KEY PLAN
SCALE: 1" = 20'-0"
NAD 83
N
PROP. EXCAVATION SUPPORT SYSTEM FOR APPROACH RETAINING WALLS (TYP.)
PROP. LIGHT POLE, SEE HIGHWAY DRAWINGS (TYP.)
PROP. (4) 4" ø COMMUNICATION DUCTS AND (6) 5" ø ELECTRICAL DUCTS ENCASED IN CONCRETE
PROP. PERMANENT EASEMENT (TYP.)
PROP. CATCH BASIN (TYP.)
EXIST. OVERHEAD WIRES
SEDIMENTATION CONTROL BARRIER (TYP.)
PROP. 12"ø D.I. FOR FUTURE WATER MAIN
END OF WALL STA. 12+25
PROP. ASPHALT BERM
PROP. UTILITY DUCTS
RIPRAP (M2.02.2)
EXIST. SCADDING STREET
CANTILEVER U-WINGWALL (TYP.)
PROP. 10"ø CLDI PIPE FOR FUTURE SEWER MAIN
Δ = 24°07'01"
R = 750.00'
L = 315.69'
WP#1 STA. 13+02.92
WP#2 STA. 13+43.74
WP#3 STA. 14+93
EXIST. BRIDGE
EXIST. UTILITY POLE
EXIST. OHW
EXIST. EDGE OF PAVEMENT
PROP. RET. WALL
END OF WALL STA. 14+93
PROP. S3-TL4 BARRIER (TYP.)
PROP. EXCAVATION SUPPORT SYSTEM FOR SUBSTRUCTURE (TYP.)
PROP. ASPHALT BERM
PROP. GRAVEL PULL OFF
COIR LOG BARRIER (TYP.)
TOE OF SLOPE (TYP.)
MATCH LINE STA. 15+56
PROP. FACE OF CURB
Δ = 14°17'06"
R = 750.00'
L = 186.99'
PROP. DRAINAGE MANHOLE (TYP.)
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
LIMITS OF DISTURBANCE
FLOATING TURBIDITY BARRIER (TYP.)
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 13TH AND 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 13TH AND 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
WETLAND FLAGS SET AND LOCATED BY NITSCH ENGINEERING ON 01/07/2025
SNAKE RIVER FLY
PROFILE-SNAKE RIVER
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 1'-0"
BOT. OF EXISTING BERM EL. 63.9 ±
BASE (100 YEARS) EL. 63.1
DESIGN (10 YEARS) EL. 60.8
APPROX. PROP. STREAMBED
APPROX. EXIST. STREAMBED
FLOW
P.G.L.
PROP. NEXT 36D BEAM
EXIST. OH WIRES TO BE RELOCATED UNDER SIDEWALK/GROUND
PROFILE-℄ SCADDING STREET
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 1'-0"
PVC: 12+73.12 EL. 67.20
P.V.T.: 12+61.65 EL. 66.91
EXIST. LOW CHORD
BASE (100 YEARS) EL. 63.1
DESIGN (10 YEARS) EL. 60.8
OBSERVED WATER EL. 60.3
PROP. CANTILEVER ABUTMENT (TYP.)
CRUSHED STONE
BOT. OF ABUTMENT EL. 49.5 (TYP.)
APPROX. BEDROCK EL. ~44.0 (TYP.)
LOW CHORD EL. 64.06
PROP. APPROACH SLAB TYPE I (TYP.)
EXIST. BRIDGE T-01-024 (3Ly) TO BE ENTIRELY REMOVED
12" PROP. STREAMBED/BANK STONE FROM EXISTING STREAMBED
12" CRUSHED STONE
3" PROP. RIPRAP
GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL EL. VARIES
EXC. SUPPORT (LEFT IN PLACE)
HP12x84 (TYP.)
PROP. GRADE
4.0%
2.50%
-2.50%
℄ BRG. STA. 13+02.92 EL. 67.72
PVI ELEV = 68.45 A.D. K=20.0 -5.00%
265.8' SSD
100' VC
40'-9⅜"
℄ BRG. STA. 13+43.74 EL. 67.72
PVI: 13+23.12 EL. 68.45
PVT: 13+73.12 EL. 67.20
11X17 SCALE: 1" = 40'
0
40
100
200
TAUNTON
SCADDING STREET
KEY PLAN & PROFILES
EXAMINED
MA
FED. AID PROJ. NO.
#
SHEET NO.
1
TOTAL SHEETS
9
PROJECT FILE NO.
608616
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
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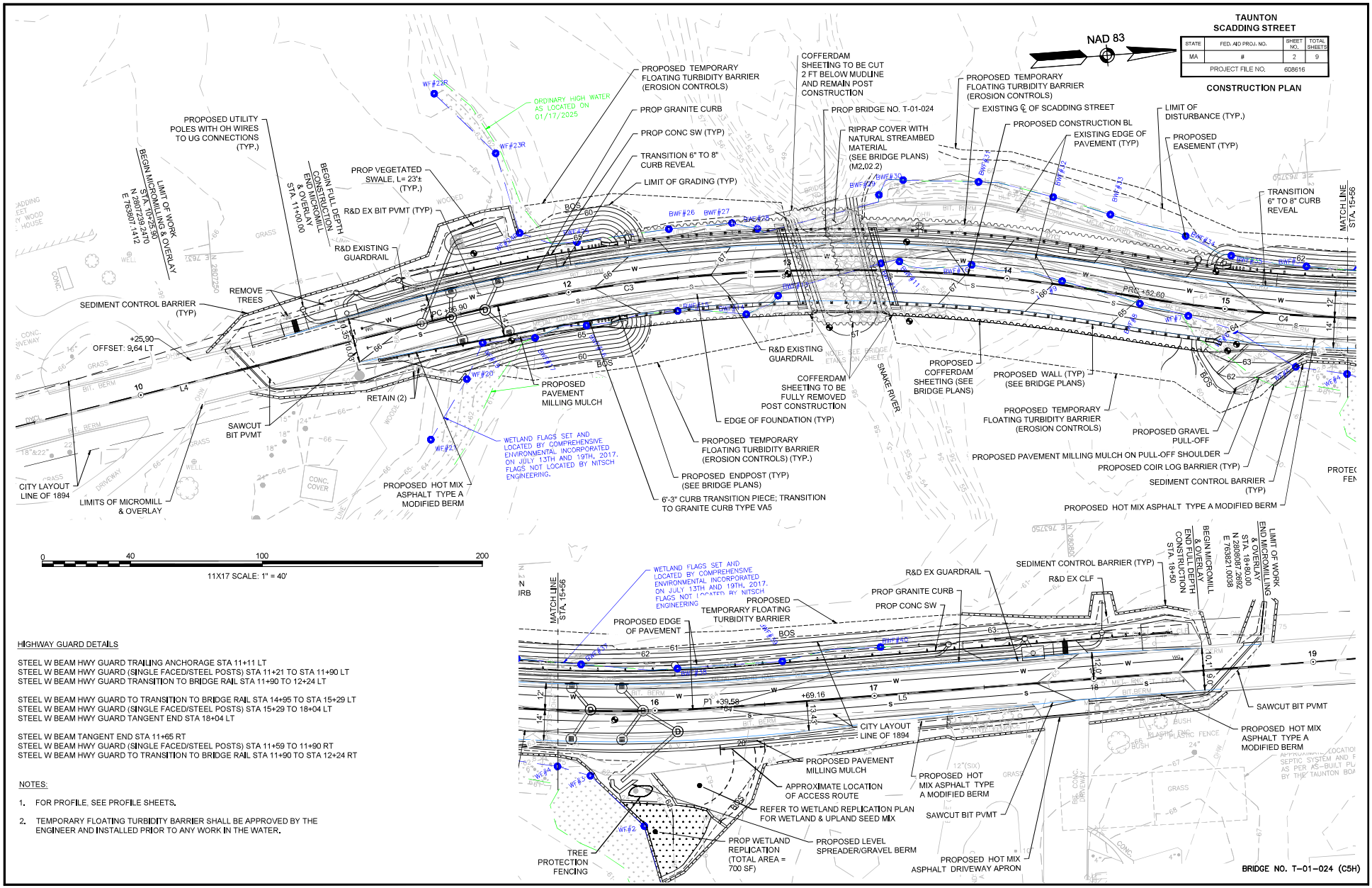



HIGHWAY GUARD DETAILS

STEEL W BEAM HWY GUARD TRAILING ANCHORAGE STA 11+11 LT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 11+21 TO STA 11+90 LT
STEEL W BEAM HWY GUARD TRANSITION TO BRIDGE RAIL STA 11+90 TO 12+24 LT

STEEL W BEAM HWY GUARD TO TRANSITION TO BRIDGE RAIL STA 14+95 TO STA 15+29 LT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 15+29 TO 18+04 LT
STEEL W BEAM HWY GUARD TANGENT END STA 18+04 LT

STEEL W BEAM TANGENT END STA 11+65 RT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 11+59 TO 11+90 RT
STEEL W BEAM HWY GUARD TO TRANSITION TO BRIDGE RAIL STA 11+90 TO STA 12+24 RT

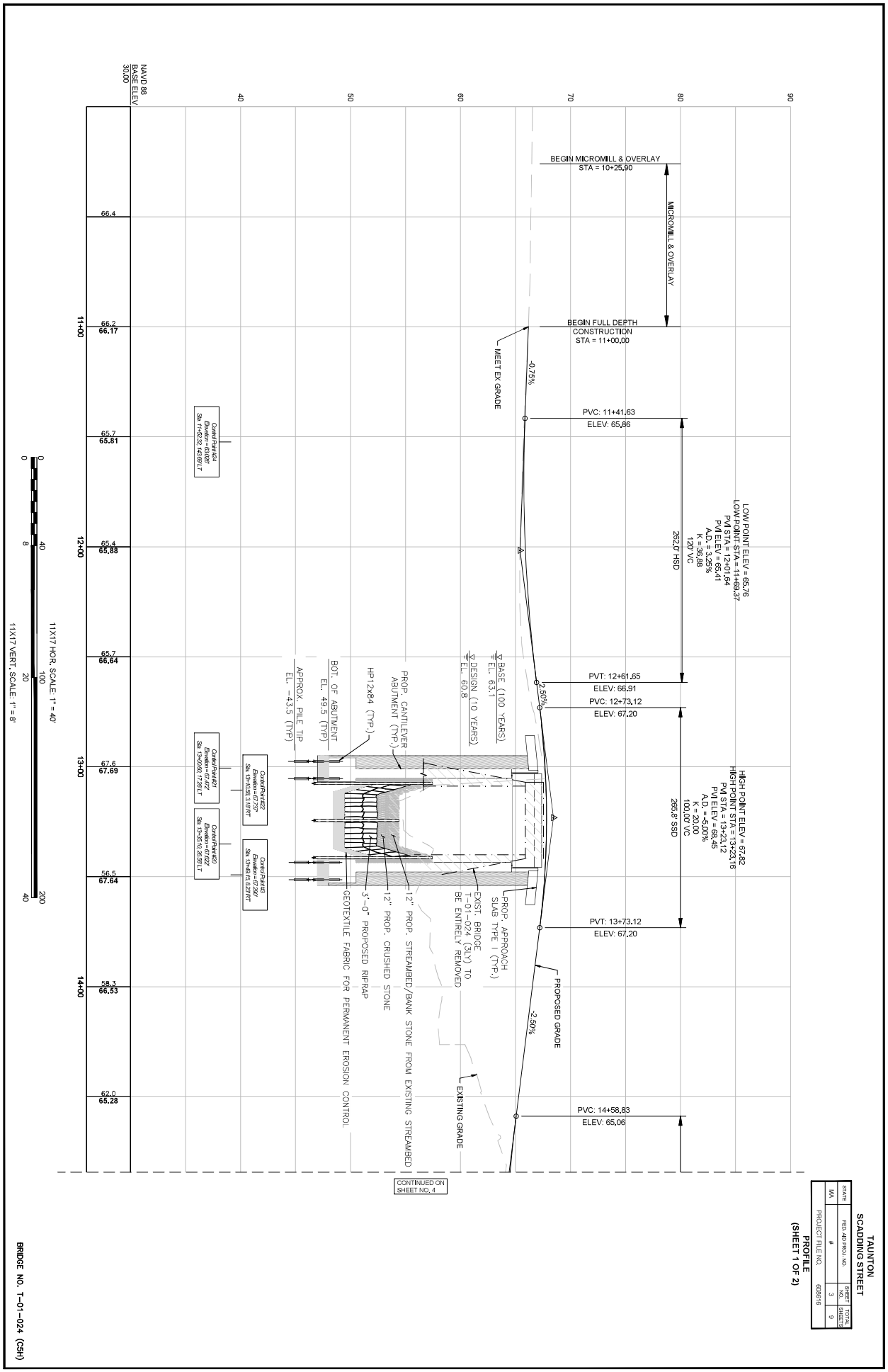
NOTES:

1. FOR PROFILE, SEE PROFILE SHEETS.
2. TEMPORARY FLOATING TURBIDITY BARRIER SHALL BE APPROVED BY THE ENGINEER AND INSTALLED PRIOR TO ANY WORK IN THE WATER.

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | # | 2 | 9 |
| PROJECT FILE NO. | 608616 | | |

608616_PERMITTING PLANS_REV01.DWG Plotted on 27-Feb-2025 2:29 PM

FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021


NAVD 88
BASE ELEV.
30.00
40
50
60
70
80
90
66.4
66.2
66.17
65.7
65.81
65.4
65.88
65.7
66.64
67.6
67.69
56.5
67.64
58.3
66.53
62.0
65.28
11+00
12+00
13+00
14+00
BEGIN MICROMILL & OVERLAY
STA = 10+25.90
MICROMILL & OVERLAY
BEGIN FULL DEPTH
CONSTRUCTION
STA = 11+00.00
MEET EX GRADE
-0.75%
PVC: 11+41.63
ELEV: 65.86
LOW POINT ELEV = 65.76
LOW POINT STA = 11+69.37
PVI STA = 12+01.64
PVI ELEV = 65.41
A.D. = -3.25%
K = 36.88
120' VC
262.0' HSD
PVT: 12+61.65
ELEV: 66.91
2.50%
PVC: 12+73.12
ELEV: 67.20
HIGH POINT ELEV = 67.82
HIGH POINT STA = 13+23.16
PVI STA = 13+23.12
PVI ELEV = 68.45
A.D. = +5.00%
K = 20.00
100.00' VC
265.8' SSD
PVT: 13+73.12
ELEV: 67.20
PROPOSED GRADE
-2.50%
EXISTING GRADE
PVC: 14+58.83
ELEV: 65.06
BASE (100 YEARS)
EL. 63.1
DESIGN (10 YEARS)
EL. 60.8
PROP. CANTILEVER
ABUTMENT (TYP.)
HP12x84 (TYP.)
BOT. OF ABUTMENT
EL. 49.5 (TYP)
APPROX. PILE TIP
EL. -43.5 (TYP)
PROP. APPROACH
SLAB TYPE I (TYP.)
EXIST. BRIDGE
T-01-024 (3LY) TO
BE ENTIRELY REMOVED
12" PROP. STREAMBED/BANK STONE FROM EXISTING STREAMBED
12" PROP. CRUSHED STONE
3'-0" PROPOSED RIPRAP
GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL
CONTINUED ON
SHEET NO. 4
0
40
8
0
200
40
20
100
11X17 HOR. SCALE: 1" = 40'
11X17 VERT. SCALE: 1" = 8'
BRIDGE NO. T-01-024 (CSH)
TAUNTON
SCADDING STREET
PROFILE
(SHEET 1 OF 2)
STATE
FED. AID PROJ. NO.
MA
#
PROJECT FILE NO.
608616
SHEET NO.
3
TOTAL SHEETS
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FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
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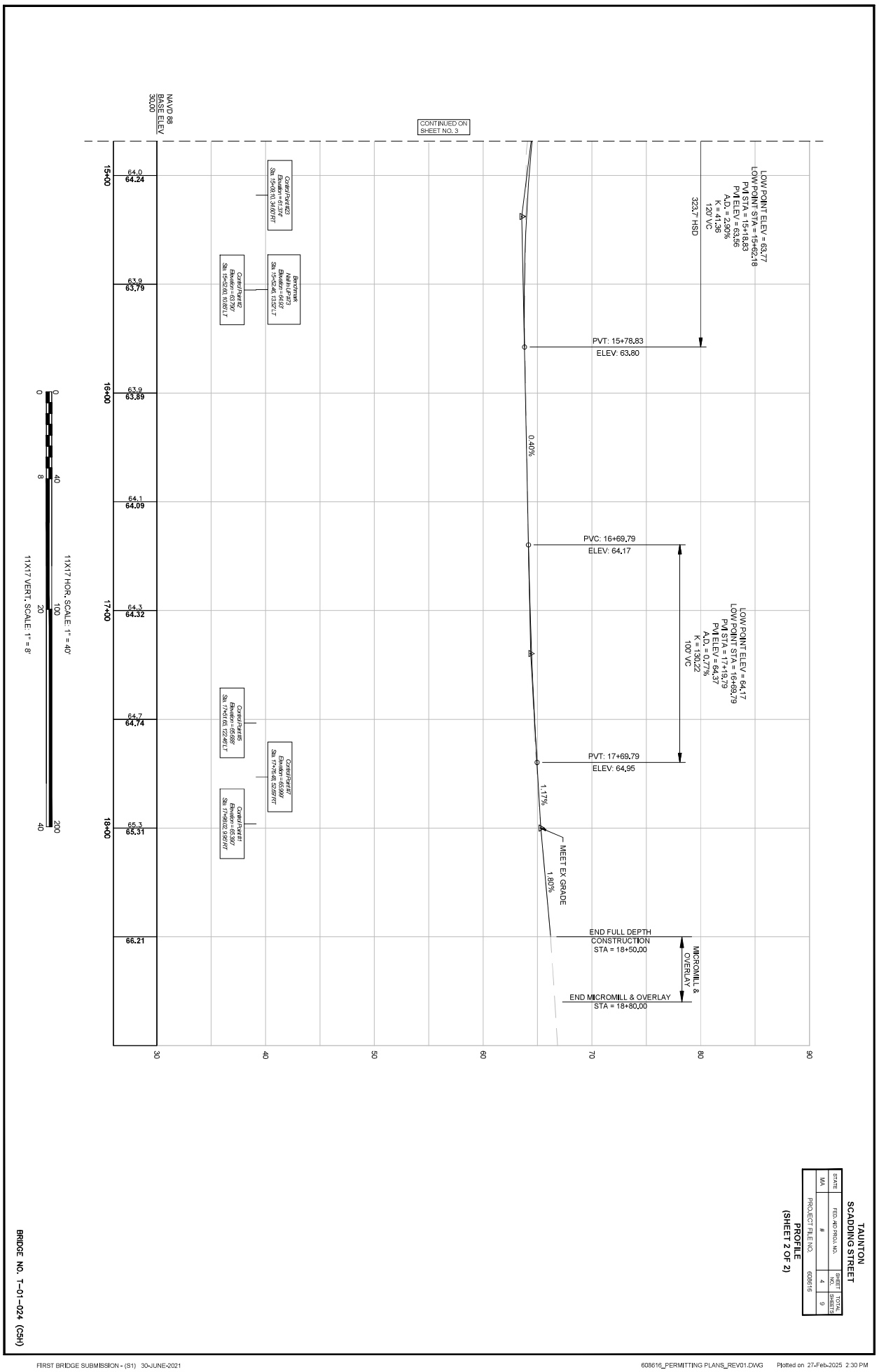



TAUNTON
SCADDING STREET
PROFILE
(SHEET 2 OF 2)

| STATE | | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | # | 4 | 9 |
| PROJECT FILE NO. | FED. AID PROJ. NO. | | |
| 608616 | | | |

BRIDGE NO. T-01-024 (C5H)

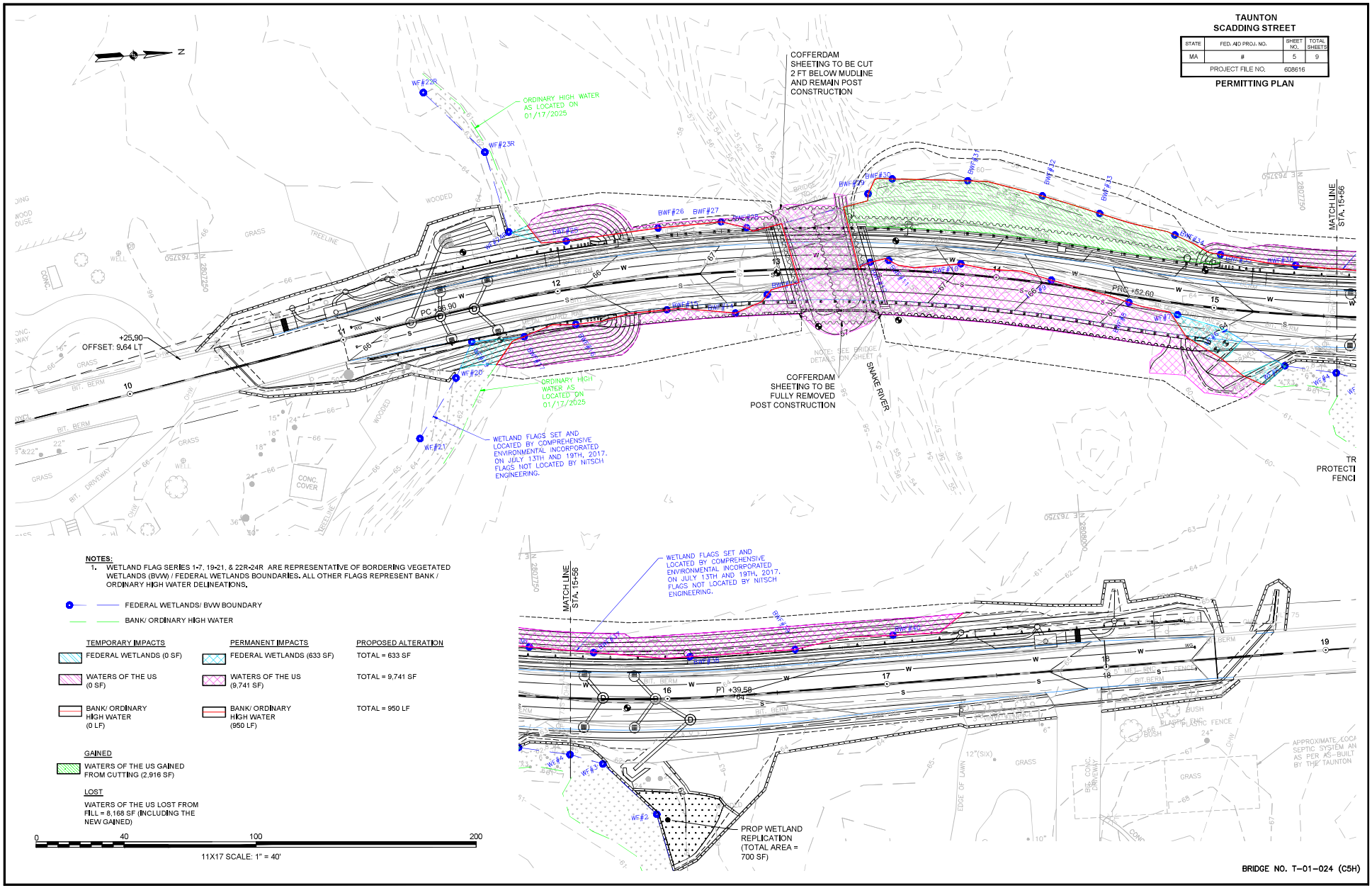
Proposal No. 608616-131225

A00830 - 40

**TAUNTON**
**SCADDING STREET**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | # | 5 | 9 |
| PROJECT FILE NO. | 608616 | | |

**PERMITTING PLAN**




**NOTES:**

1. WETLAND FLAG SERIES 1-7, 19-21, & 22R-24R ARE REPRESENTATIVE OF BORDERING VEGETATED WETLANDS (BVW) / FEDERAL WETLANDS BOUNDARIES. ALL OTHER FLAGS REPRESENT BANK / ORDINARY HIGH WATER DELINEATIONS.

FEDERAL WETLANDS/ BVW BOUNDARY

BANK/ ORDINARY HIGH WATER

| TEMPORARY IMPACTS | PERMANENT IMPACTS | PROPOSED ALTERATION |
|---|---|---|
| FEDERAL WETLANDS (0 SF) | FEDERAL WETLANDS (633 SF) | TOTAL = 633 SF |
| WATERS OF THE US (0 SF) | WATERS OF THE US (9,741 SF) | TOTAL = 9,741 SF |
| BANK/ ORDINARY HIGH WATER (0 LF) | BANK/ ORDINARY HIGH WATER (950 LF) | TOTAL = 950 LF |

GAINED

WATERS OF THE US GAINED FROM CUTTING (2,916 SF)

LOST

WATERS OF THE US LOST FROM FILL = 8,168 SF (INCLUDING THE NEW GAINED)

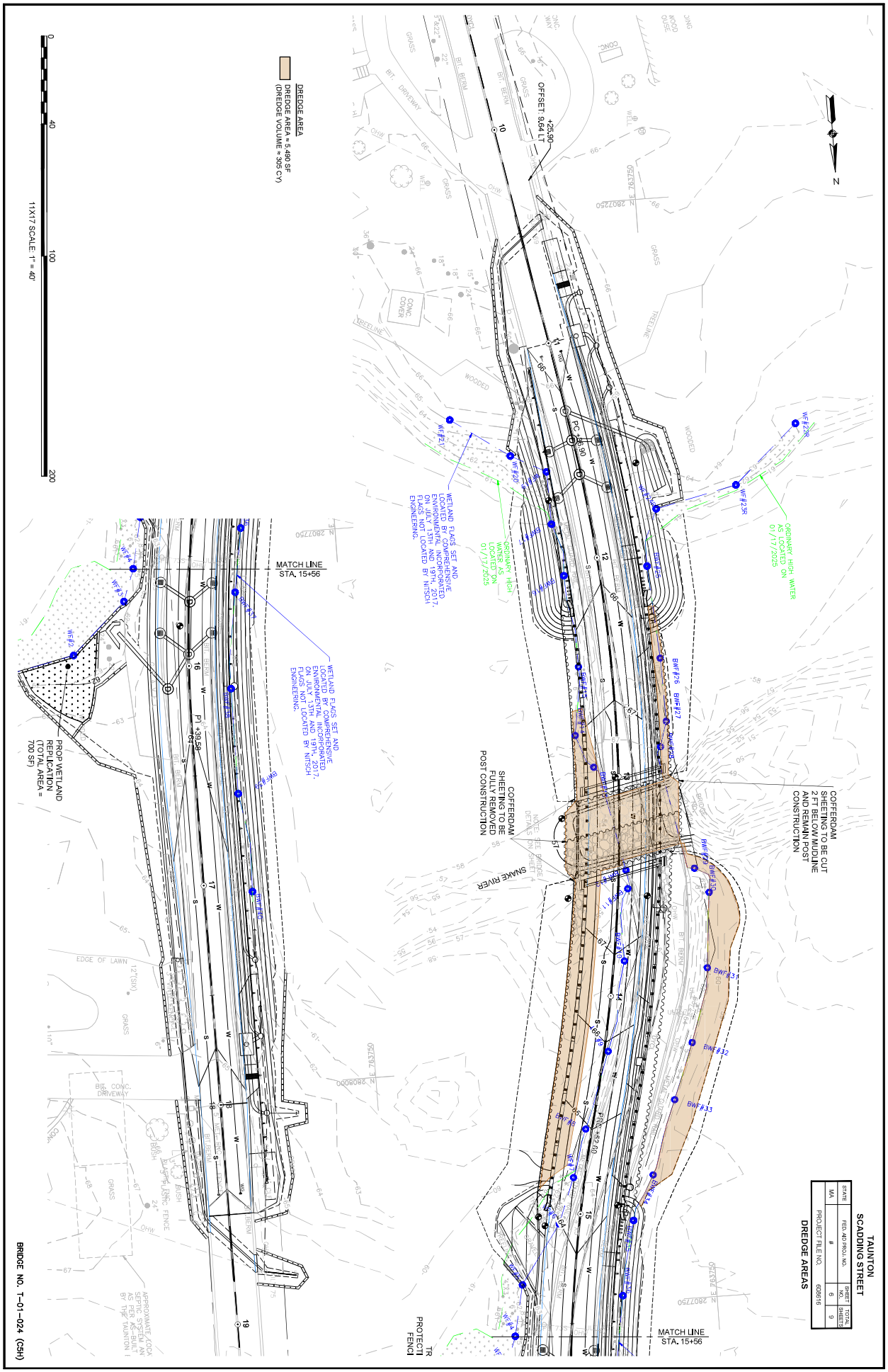
0 40 100 200

11X17 SCALE: 1" = 40'

**BRIDGE NO. T-01-024 (C5H)**

608616_PERMITTING PLANS_REV01.DWG Plotted on 27-Feb-2025 2:31 PM

FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021


DREDGE AREA
DREDGE AREA = 5,490 SF
(DREDGE VOLUME = 305 CY)
0
40
100
200
11X17 SCALE: 1" = 40'
N
OFFSET: 9.64' LT
MATCH LINE
STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATERS LOCATED ON 01/17/2025
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
SNAKE RIVER
EDGE OF LAWN
BIT. DRIVEWAY
CONC. DRIVEWAY
TR PROTECT FENCI
TAUNTON
SCADDING STREET
DREDGE AREAS
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
6
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
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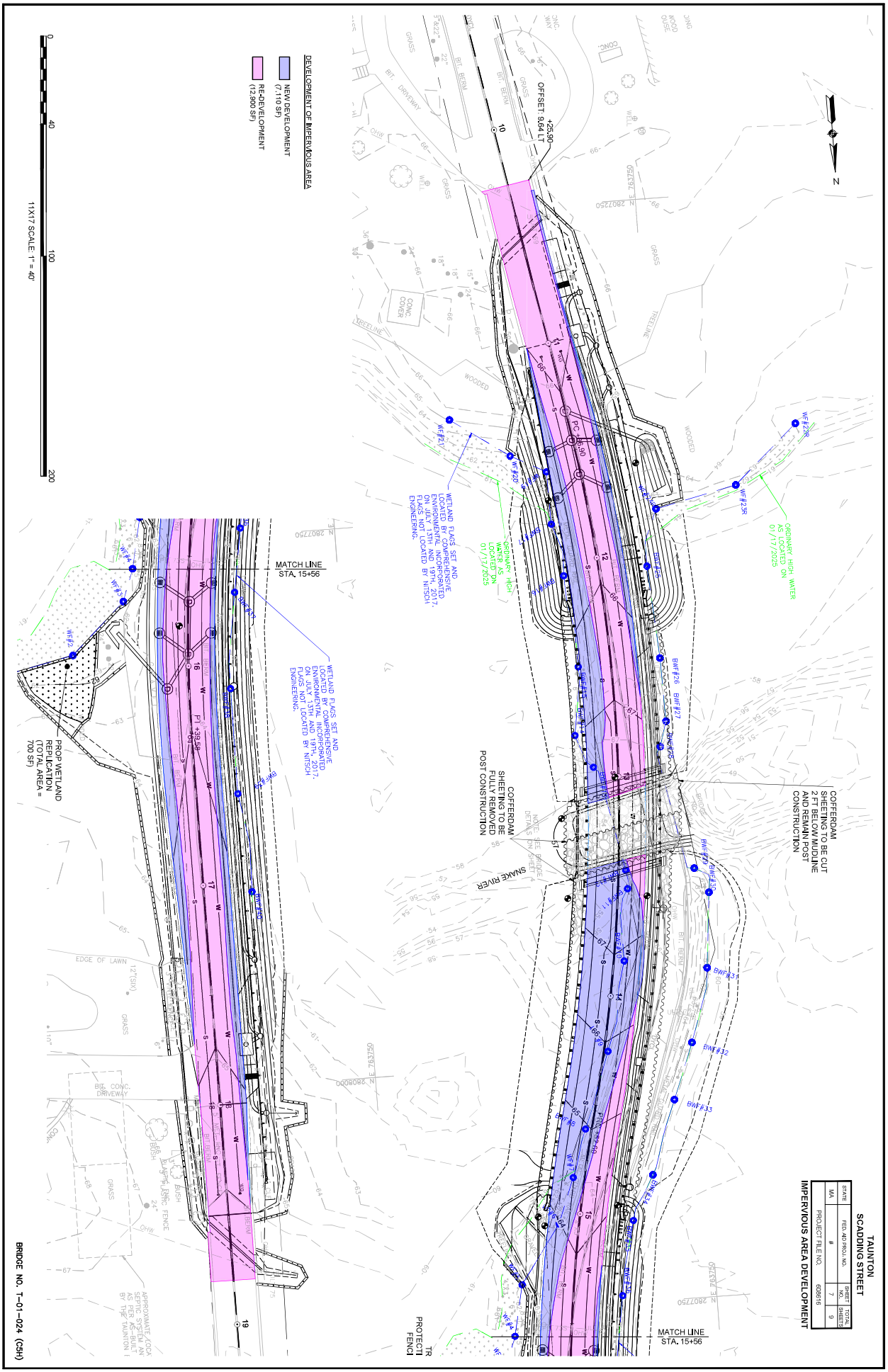
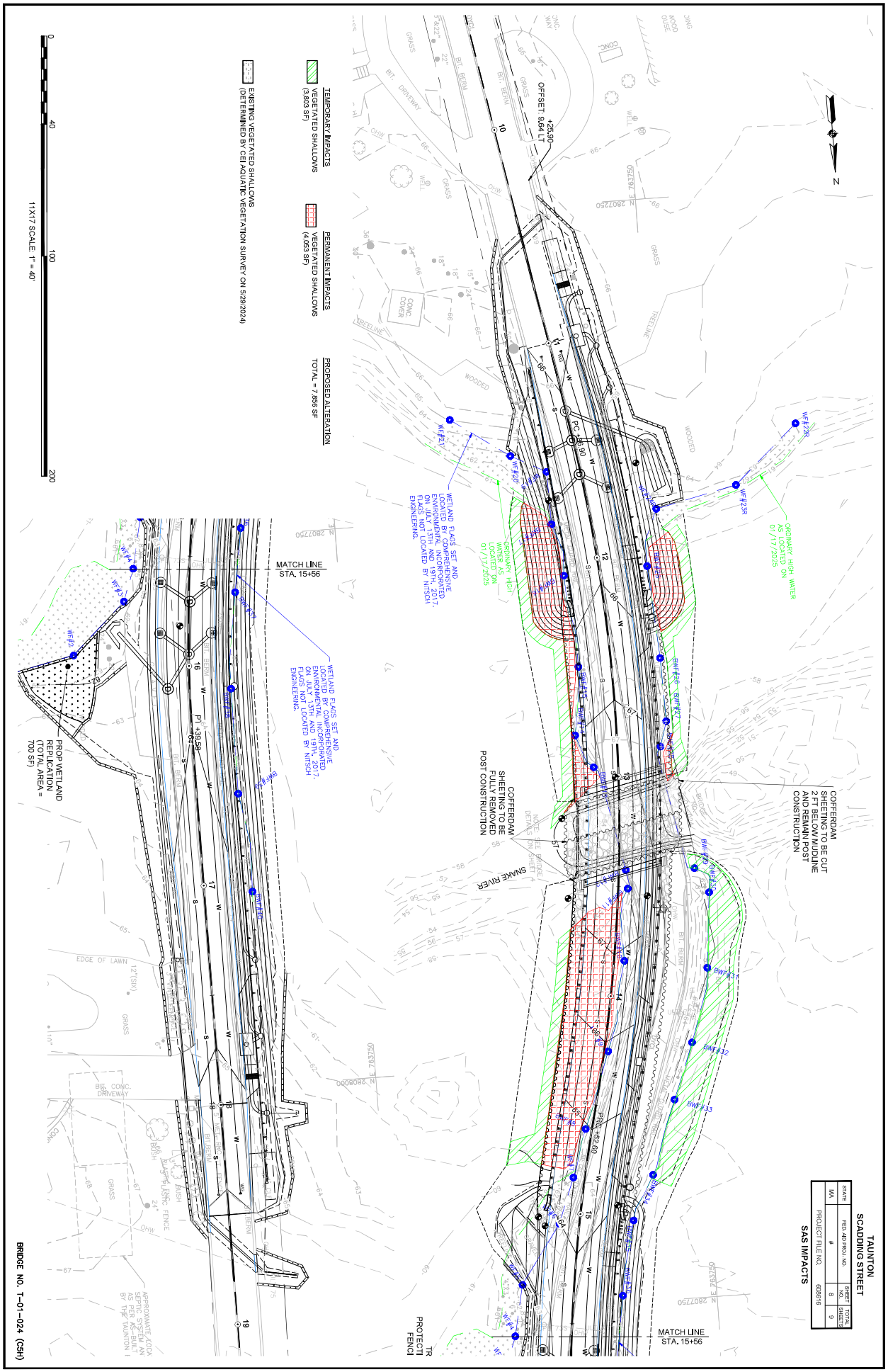
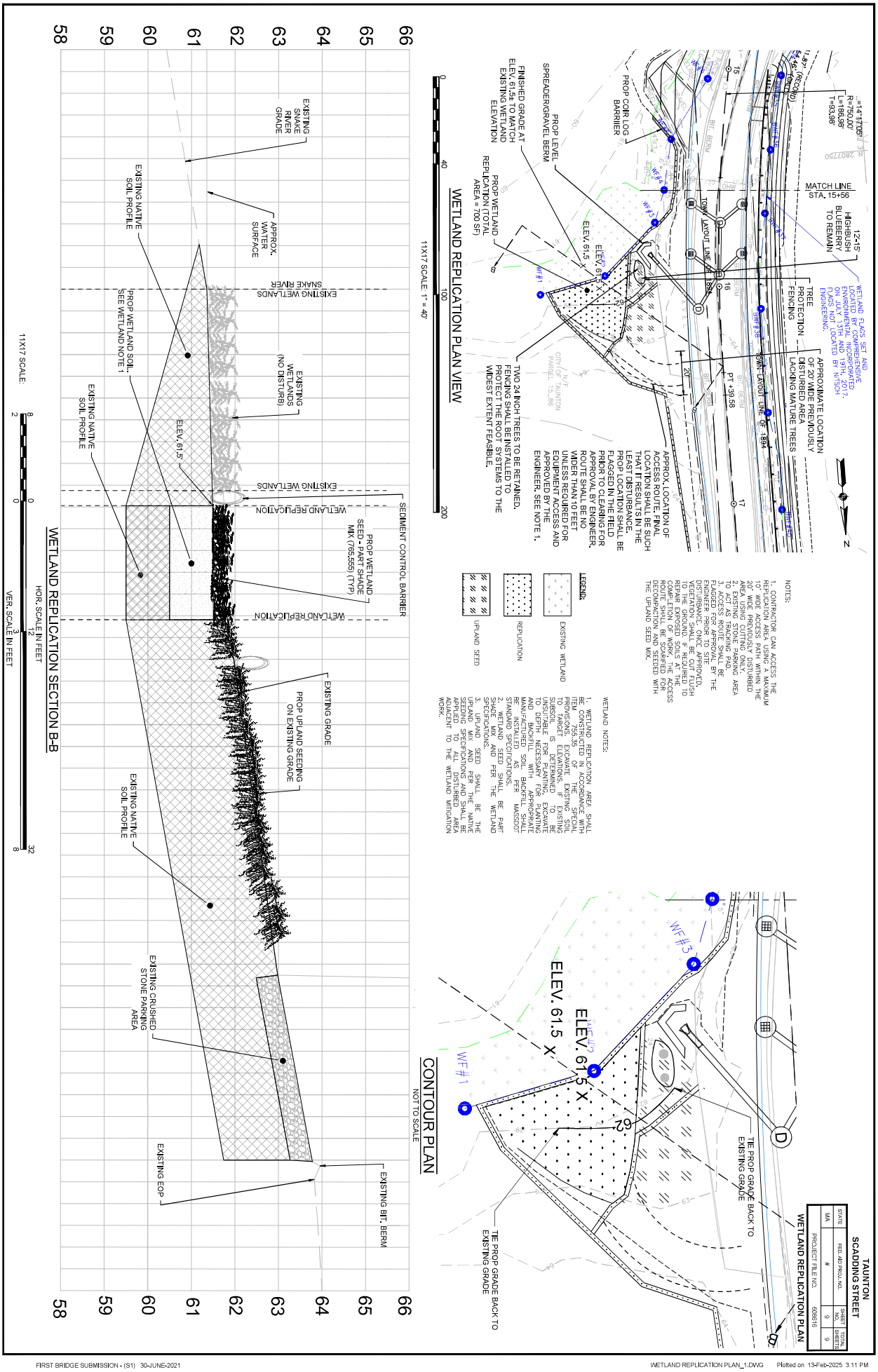
Plotted on 27-Feb-2025 2:32 PM


DEVELOPMENT OF IMPERVIOUS AREA
NEW DEVELOPMENT (7,110 SF)
RE-DEVELOPMENT (12,305 SF)
0
40
100
200
11X17 SCALE: 1" = 40'
N
OFFSET: 9.64 LT
+25.90
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
SNAKE RIVER
EDGE OF LAWN
BIT. DRIVEWAY
CONC. DRIVEWAY
SEPTIC SYSTEM
TAUNTON
SCADDING STREET
IMPERVIOUS AREA DEVELOPMENT
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
7
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
Plotted on 27-Feb-2025 2:33 PM


TEMPORARY IMPACTS
VEGETATED SHALLOWS (3,803 SF)
PERMANENT IMPACTS
VEGETATED SHALLOWS (4,053 SF)
PROPOSED ALTERATION
TOTAL = 7,856 SF
EXISTING VEGETATED SHALLOWS (DETERMINED BY CEI AQUATIC VEGETATION SURVEY ON 5/29/2024)
0
40
100
200
11X17 SCALE: 1" = 40'
N
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
SNAKE RIVER
EDGE OF LAWN
BIT. DRIVEWAY
CONC. DRIVEWAY
TAUNTON
SCADDING STREET
SAS IMPACTS
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
8
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
Plotted on 27-Feb-2025 2:33 PM


WETLAND REPLICATION PLAN VIEW
11X17 SCALE: 1" = 40'
WETLAND REPLICATION SECTION B-B
HOR. SCALE IN FEET
VER. SCALE IN FEET
CONTOUR PLAN
NOT TO SCALE
WETLAND REPLICATION PLAN
TAUNTON
SCADDING STREET
EXISTING SNAKE RIVER GRADE
EXISTING NATIVE SOIL PROFILE
APPROX. WATER SURFACE
EXISTING WETLANDS
PROP WETLAND SOIL, SEE WETLAND NOTE 1
EXISTING WETLANDS (NO DISTURB)
ELEV. 61.5
SEDIMENT CONTROL BARRIER
PROP WETLAND SEED + PART SHADE MIX (765.555) (TYP)
EXISTING GRADE
PROP UPLAND SEEDING ON EXISTING GRADE
EXISTING CRUSHED STONE PARKING AREA
EXISTING EOP
EXISTING BIT. BERM
TIE PROP GRADE BACK TO EXISTING GRADE
PROP COIR LOG BARRIER
PROP LEVEL SPREADER/GRAVEL BERM
FINISHED GRADE AT ELEV. 61.5± TO MATCH EXISTING WETLAND ELEVATION
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
TREE PROTECTION FENCING
APPROXIMATE LOCATION OF 20' WIDE PREVIOUSLY DISTURBED AREA LACKING MATURE TREES
APPROX. LOCATION OF ACCESS ROUTE. FINAL LOCATION SHALL BE SUCH THAT IT RESULTS IN THE LEAST DISTURBANCE. PROP LOCATION SHALL BE FLAGGED IN THE FIELD PRIOR TO CLEARING FOR APPROVAL BY ENGINEER.
TWO 24 INCH TREES TO BE RETAINED. FENCING SHALL BE INSTALLED TO PROTECT THE ROOT SYSTEMS TO THE WIDEST EXTENT FEASIBLE.
MATCH LINE STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INC. DEPICTED ON SURVEY BY NITSCH ENGINEERING. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
TOWN LAYOUT LINE OF SCADDING
PT +39.58
NOTES:
1. CONTRACTOR CAN ACCESS THE REPLICATION AREA USING A MAXIMUM 10' WIDE ACCESS PATH WITHIN THE 20' WIDE PREVIOUSLY DISTURBED AREA USING CUTTING ONLY.
2. EXISTING STONE PARKING AREA TO ACT AS TRACKING PAD.
3. ACCESS ROUTE SHALL BE FLAGGED FOR APPROVAL BY THE ENGINEER PRIOR TO SITE DISTURBANCE. ONCE APPROVED, VEGETATION SHALL BE CUT TO THE GROUND. IF REQUIRED TO REPAIR EXPOSED SOILS AT THE COMPLETION OF WORK, ACCESS ROUTE SHALL BE RIPPED FOR DECOMPACTION AND SEEDED WITH THE UPLAND SEED MIX.
LEGEND:
EXISTING WETLAND
REPLICATION
UPLAND SEED
WETLAND NOTES:
1. WETLAND REPLICATION AREA SHALL BE CONSTRUCTED IN ACCORDANCE WITH PROVISIONS. EXCAVATE EXISTING SOIL TO TARGET ELEVATIONS. IF EXISTING UNSUITABLE SOILS ARE ENCOUNTERED TO DEPTH NECESSARY FOR PLANTING AND BACKFILL WITH APPROPRIATE MANUFACTURED SOIL BACKFILL MATERIAL INSTALLED AS PER MASSDOT STANDARD SPECIFICATIONS.
2. WETLAND SEED SHALL BE PART OF SPECIFICATIONS AND PER THE WETLAND
3. UPLAND SEED SHALL BE THE UPLAND MIX AND PER THE NATIVE SEEDING SPECIFICATIONS AND SHALL BE APPLIED TO ALL DISTURBED AREAS ADJACENT TO THE WETLAND MITIGATION WORK.
WF#1
WF#2
WF#3
ELEV. 61.5 X
62
63
64
D
TIE PROP GRADE BACK TO EXISTING GRADE
TIE PROP GRADE BACK TO EXISTING GRADE
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
9
TOTAL SHEETS
9

U.S. Army Corps of Engineers (USACE)

# APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

For use of this form, see 33 CFR 325. The proponent agency is CECW-COR.

*Form Approved - OMB No. 0710-0003 Expires: 2027-03-31*

The public reporting burden for this collection of information, OMB Control Number 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR APPLICATION TO THE ABOVE EMAIL.

## PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

**(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)**

| 1. APPLICATION NO. | 2. FIELD OFFICE CODE | 3. DATE RECEIVED | 4. DATE APPLICATION COMPLETE |
|---|---|---|---|
| | | | |

***(ITEMS BELOW TO BE FILLED BY APPLICANT)***

| 5. APPLICANT'S NAME | 8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) |
|---|---|
| First - Courtney Middle - Last - Walker | First - Matthew Middle - Last - Lundsted |
| Company - MassDOT, Highway Division | Company - Comprehensive Environmental Inc. |
| E-mail Address - courtney.l.walker@dot.state.ma.us | E-mail Address - mlundsted@ceiengineers.com |
| **6. APPLICANT'S ADDRESS:** | **9. AGENT'S ADDRESS:** |
| Address- 10 Park Plaza, Room 7360 | Address- 41 Main Street |
| City - Boston State - MA Zip - 02216 Country - USA | City - Bolton State - MA Zip - 01740 Country - USA |
| **7. APPLICANT'S PHONE NOs. w/AREA CODE** | **10. AGENTS PHONE NOs. w/AREA CODE** |
| a. Residence b. Business 857-262-0757 c. Fax | a. Residence b. Business 8007252550 c. Fax |

**STATEMENT OF AUTHORIZATION**

11. I hereby authorize, Matt Lundsted to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

Courtney Walker Digitally signed by Courtney Walker Date: 2024.12.17 14:20:37 -05'00' — 2024-12-17

SIGNATURE OF APPLICANT — DATE

**NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY**

12. PROJECT NAME OR TITLE (see instructions)
Scadding Street over Snake River - Bridge Number: T-01-024 (C5H)

| 13. NAME OF WATERBODY, IF KNOWN (if applicable) | 14. PROJECT STREET ADDRESS (if applicable) |
|---|---|
| Snake River | Address Scadding Street |
| 15. LOCATION OF PROJECT | City - Taunton State- MA Zip- 02780 |
| Latitude: °N 41.951389 Longitude: °W -71.104472 | |

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID 15-86-0 Municipality Taunton

Section - Township - Range -

17. DIRECTIONS TO THE SITE

From I495 Exit 25 take Bay Street south to either Field Street to access the north end of Scadding Street or Scadding Street itself further south.

18. Nature of Activity (Description of project, include all features)

The project involves the replacement of the existing bridge over the Snake River (impounded to form Lake Sabbatia) along Scadding Street in Taunton, MA. Work for this project will include removal of the existing superstructure and substructure, construction of new concrete substructure (span opening increased), integral abutments, integral concrete beam/deck units, installation of concrete wingwalls, placement of scour protection, replacement of existing natural stream bed materials, and realignment / widening of the existing roadway. The project will include dredging of river bed material (some will be reused within proposed bridge) and existing embankment.

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

The purpose of this project is to replace the existing bridge crossing over the Snake River along Scadding Street. The existing bridge is structurally deficient and in need of replacement due to the following: The exposed concrete of the superstructure is spalling and cracked, the bridge rail is rusting, the embankments adjacent to the abutments and wingwalls are beginning to erode, there is minor scour along the abutments, and the existing crossing is hydraulically insufficient.

**USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED**

20. Reason(s) for Discharge

Dredging of river bed material and existing embankment will occur to install the proposed larger span bridge, retaining wall, and widened/ realigned roadway. Erosion controls will be installed including floating turbidity barriers encompassing the work.

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

| Type<br>Amount in Cubic Yards | Type<br>Amount in Cubic Yards | Type<br>Amount in Cubic Yards |
|---|---|---|
| River bed material (Sand, Gravel, and Silt)<br>215 CY | | |

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres Temp. Impacts to WOTUS = 0.12 Ac., Temp. Impacts to OHW = 48 LF, Temp. Impacts to Vegetated Shallows = 0.05 Ac.

or

Linear Feet Perm. Impacts to WOTUS = 0.32 Ac., Perm. Impacts to OHW = 976 LF, Perm. Impacts to Vegetated Shallows = 0.12 Ac.

23. Description of Avoidance, Minimization, and Compensation (see instructions)

Although 0.32 acres (13,897 square feet) of land under waters of the US (WOTUS) will be filled due to the new roadway alignment, approximately 2,460 square feet of new land under waters of the US (excavated existing embankment) will be gained from this new roadway alignment. It should also be noted that even though 215 cubic yards of river bed material is to be dredged, 69 cubic yards of material is to be re-installed as natural river-bed substrate following completion of the proposed bridge and road. Attachment C includes a LEDPA for the preferred alternative.

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- Manuel Pacheco III - 260 Scadding Street

City - Taunton State - MA Zip - 02780

b. Address- Cory Reynolds - 257 Scadding Street

City - Taunton State - MA Zip - 02780

c. Address- Michael & Michele Cornaglia - 255 Scadding Street

City - Taunton State - MA Zip - 02780

d. Address- City of Taunton - Scadding Street

City - Taunton State - MA Zip - 02780

e. Address- Michael & Ellen Russell - 300 Scadding Street

City - Taunton State - MA Zip - 02780

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

| AGENCY | TYPE APPROVAL* | IDENTIFICATION NUMBER | DATE APPLIED | DATE APPROVED | DATE DENIED |
|---|---|---|---|---|---|
| MA DEP | Water Quality Cert | 24-WW26-0036-APP | 2023/10/23 | | |
| | | | | | |
| | | | | | |
| | | | | | |

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

Courtney Walker Digitally signed by Courtney Walker Date: 2024.12.17 14:21:07 -05'00' — 2024-12-17

SIGNATURE OF APPLICANT — DATE

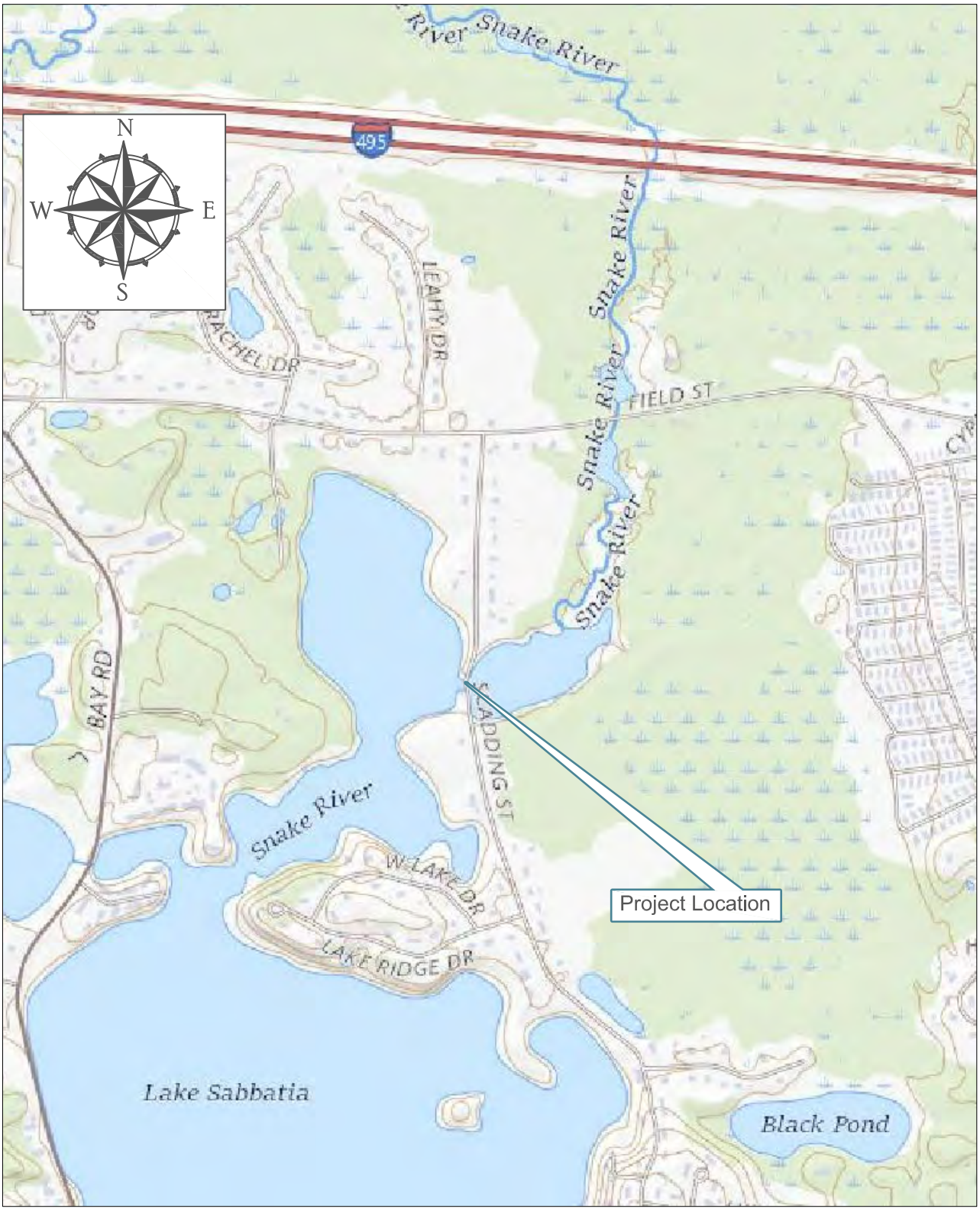
Matthew Lundsted Digitally signed by Matthew Lundsted DN: C=US, E=mlundsted@cwaengineers.com, O=Comprehensive Environmental Inc, OU=Consultant, CN=Matthew Lundsted Date: 2024.12.30 15:05:01-05'00' — 12/17/2024

SIGNATURE OF AGENT — DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

# Attachment A
# Project Locus - USGS




## GENERAL NOTES

1. Locus map based on USGS 7.5x7.5 Grid US Topo Map of Taunton, MA from the USGS map webstore: http://www.store.usgs.gov
2. Locus map is not to scale

USGS Locus Map
SCADDING STREET - BRIDGE REPLACEMENT PROJECT
TAUNTON, MA

COMPREHENSIVE ENVIRONMENTAL INCORPORATED
41 MAIN STREET
BOLTON, MA 01740

# Attachment B
# Project Plans

# TAUNTON
# MASSDOT

## SCADDING STREET BRIDGE REPLACEMENT: T-01-024 (C5H)

IN THE CITY/TOWN OF

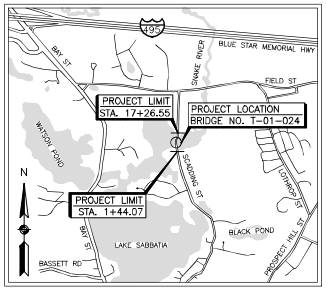
TAUNTON

BRISTOL COUNTY

## PERMITTING PLANS

INDEX OF DRAWINGS

| SHEET | TITLE |
|---|---|
| 1. | KEY PLAN, LOCUS, AND PROFILES |
| 2. | CONSTRUCTION PLAN |
| 3. | ROAD PROFILE |
| 4. | ROAD PROFILE |
| 5. | PERMITTING PLAN |
| 6. | DREDGING AREAS |
| 7. | IMPERVIOUS AREA DEVELOPMENT |
| 8. | SPECIAL AQUATIC SITES (SAS) IMPACTS |
| 9. | WETLAND REPLICATION PLAN |




LOCUS PLAN
SCALE: 1" = 1000'

HYDRAULIC DESIGN DATA

DRAINAGE AREA: 38.7 SQUARE MILES
DESIGN FLOOD DISCHARGE: 1,000 CUBIC FEET PER SECOND
DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 10% (10 YEARS)
DESIGN FLOOD VELOCITY: 1.07 FEET PER SECOND
DESIGN FLOOD ELEVATION: 60.8 FEET, NAVD

BASE (100-YEAR) FLOOD DATA

BASE FLOOD DISCHARGE: 1,840 CUBIC FEET PER SECOND
BASE FLOOD ELEVATION: 63.1 FEET, NAVD

DESIGN AND CHECK SCOUR DATA

SCOUR DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 4% (25 YRS)
DESIGN FLOOD ABUTMENT SCOUR DEPTH: 4.76 FEET
SCOUR CHECK FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 2% (50 YRS)
CHECK FLOOD ABUTMENT SCOUR DEPTH: 5.94 FEET

FLOOD OF RECORD

DISCHARGE: UNKNOWN
FREQUENCY: UNKNOWN
MAXIMUM ELEVATION: UNKNOWN
DATE: UNKNOWN

HISTORY OF ICE FLOES: NONE DOCUMENTED
EVIDENCE OF SCOUR & EROSION: NONE DOCUMENTED

DESIGN:

IN ACCORDANCE WITH THE 2020 AASHTO, NINTH EDITION, LRFD BRIDGE DESIGN SPECIFICATIONS FOR HL-93 LOADING.

SURVEY:

FIELD SURVEY PERFORMED IN JUNE 2017 BY NITSCH ENGINEERING IN ACCORDANCE WITH MASSDOT GUIDELINES.

ISSUED FOR CONSTRUCTION


COMPREHENSIVE ENVIRONMENTAL INC.
41 MAIN STREET
BOLTON, MA 01740

Dewberry
99 SUMMER ST.,
SUITE 700
BOSTON, MA 02110
(617) 695-3400
(617) 695-3310


massDOT Highway Division

PROPOSED BRIDGE REPLACEMENT
TAUNTON
SCADDING SCREET
OVER SNAKE RIVER

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
10 PARK PLAZA BOSTON, MASS

TITLE: _____ CHIEF ENGINEER

BRIDGE NO. T-01-024 (C5H)

608616_PERMITTING PLANS.DWG Plotted on 17-Dec-2024 8:24 AM

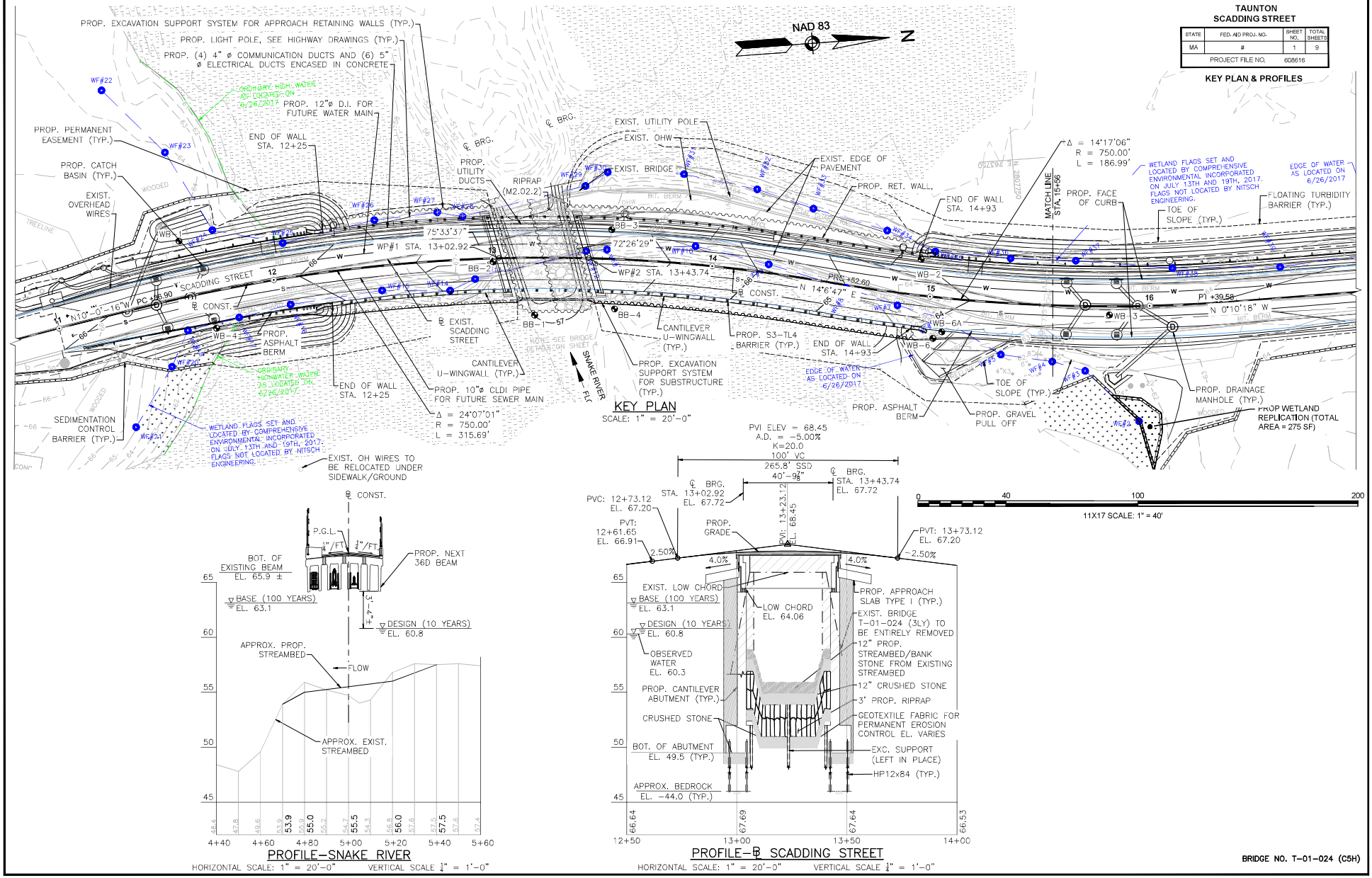
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021

Proposal No. 608616-131225

A00830 - 51

Proposal No. 608616-131225

A00830 - 52

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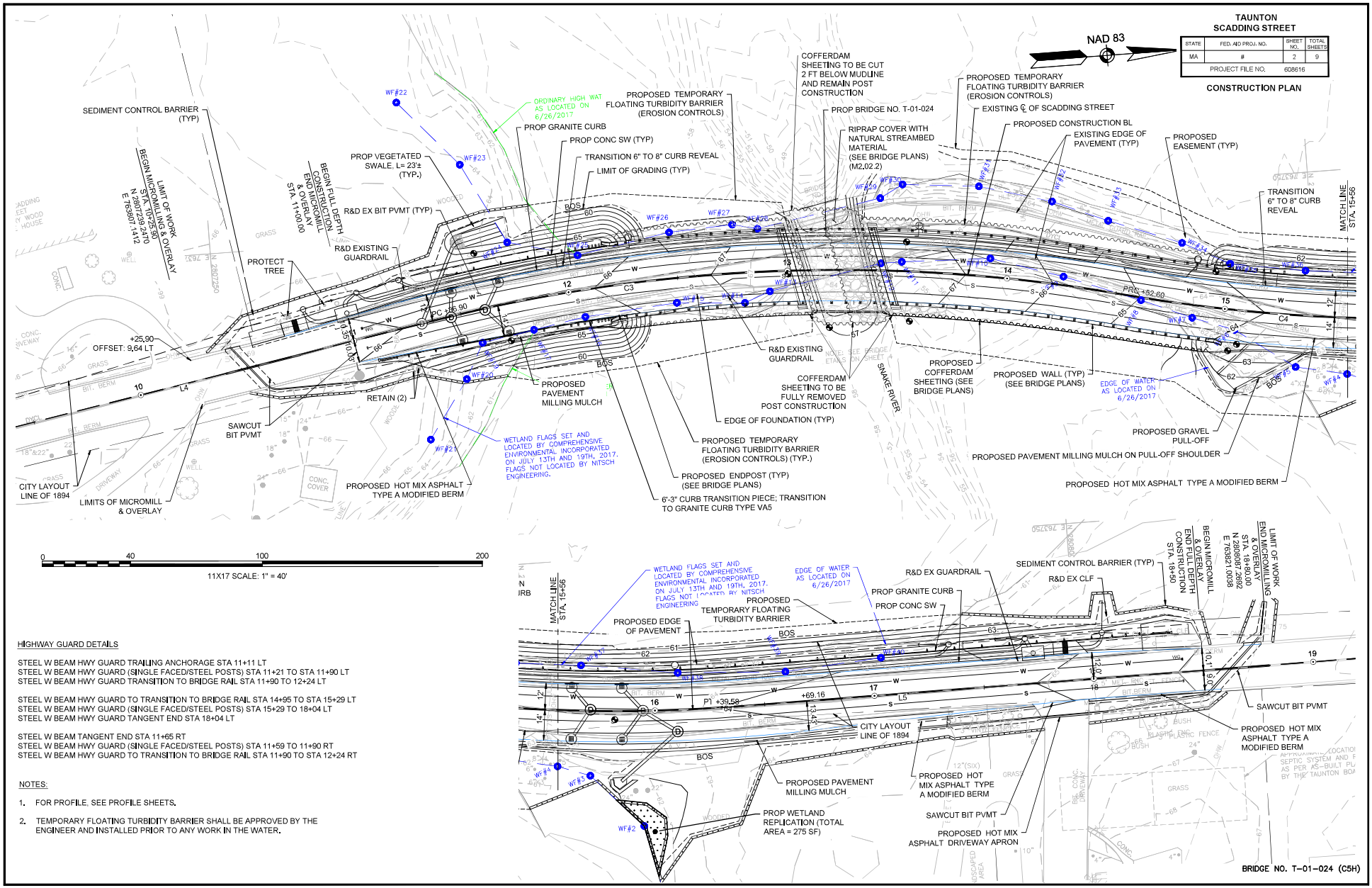
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021




| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | # | 2 | 9 |
| PROJECT FILE NO. | 608616 | | |

HIGHWAY GUARD DETAILS

STEEL W BEAM HWY GUARD TRAILING ANCHORAGE STA 11+11 LT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 11+21 TO STA 11+90 LT
STEEL W BEAM HWY GUARD TRANSITION TO BRIDGE RAIL STA 11+90 TO 12+24 LT

STEEL W BEAM HWY GUARD TO TRANSITION TO BRIDGE RAIL STA 14+95 TO STA 15+29 LT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 15+29 TO 18+04 LT
STEEL W BEAM HWY GUARD TANGENT END STA 18+04 LT

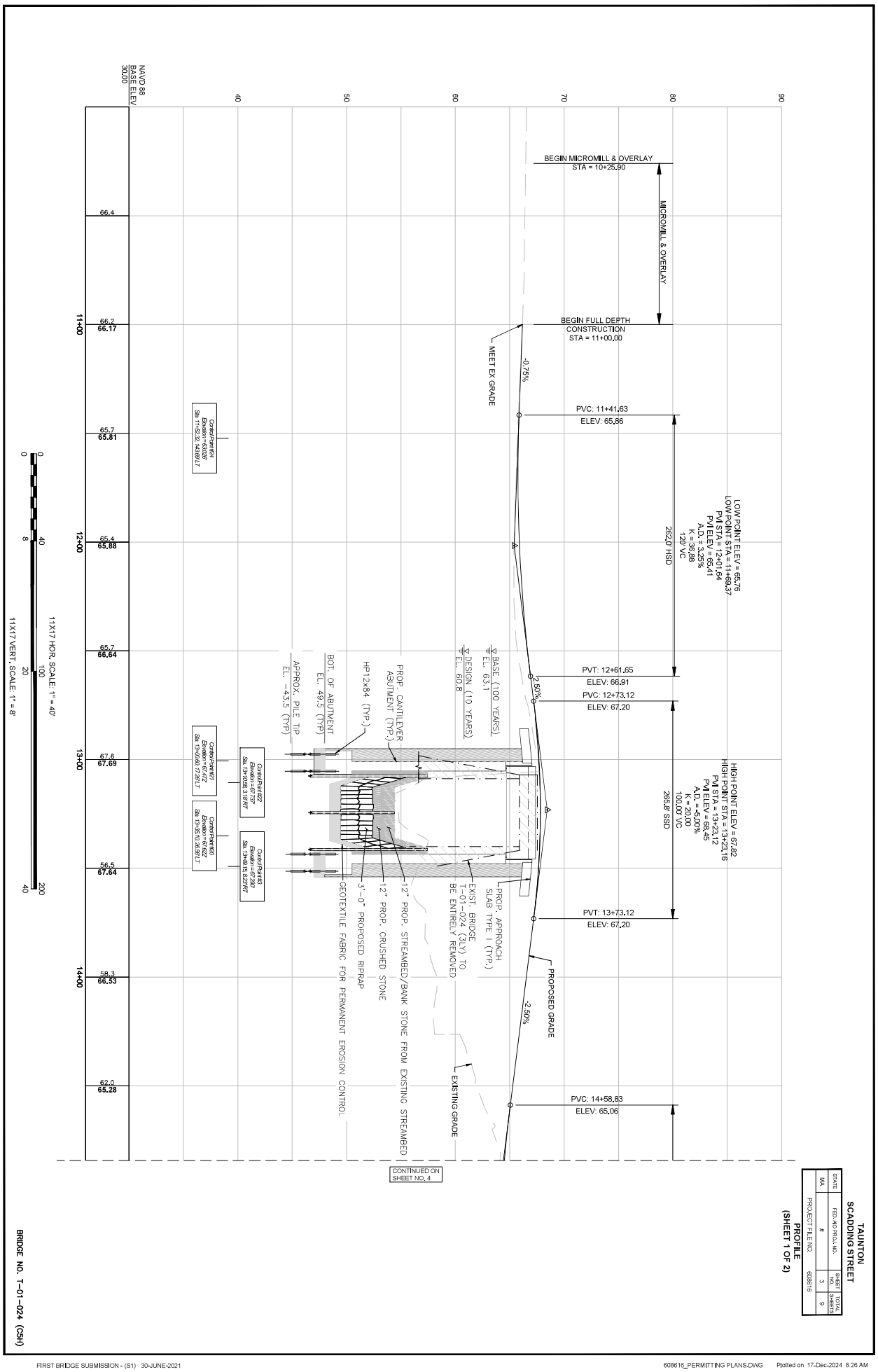
STEEL W BEAM TANGENT END STA 11+65 RT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 11+59 TO 11+90 RT
STEEL W BEAM HWY GUARD TO TRANSITION TO BRIDGE RAIL STA 11+90 TO STA 12+24 RT

NOTES:

1. FOR PROFILE, SEE PROFILE SHEETS.
2. TEMPORARY FLOATING TURBIDITY BARRIER SHALL BE APPROVED BY THE ENGINEER AND INSTALLED PRIOR TO ANY WORK IN THE WATER.

608616_PERMITTING PLANS.DWG Plotted on 17-Dec-2024 8:26 AM

FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021


NAVD 88
BASE ELEV.
30.00
40
50
60
70
80
90
66.4
66.2
66.17
65.7
65.81
65.4
65.88
65.7
66.64
67.6
67.69
56.5
67.64
58.3
66.53
62.0
65.28
11+00
12+00
13+00
14+00
BEGIN MICROMILL & OVERLAY
STA = 10+25.90
MICROMILL & OVERLAY
BEGIN FULL DEPTH
CONSTRUCTION
STA = 11+00.00
MEET EX GRADE
-0.75%
PVC: 11+41.63
ELEV: 65.86
LOW POINT ELEV = 65.76
LOW POINT STA = 11+69.37
PVI STA = 12+01.64
PVI ELEV = 65.41
A.D. = -3.25%
K = 36.88
120' VC
262.0' HSD
PVT: 12+61.65
ELEV: 66.91
2.50%
PVC: 12+73.12
ELEV: 67.20
HIGH POINT ELEV = 67.82
HIGH POINT STA = 13+23.16
PVI STA = 13+23.12
PVI ELEV = 68.45
A.D. = +5.00%
K = 20.00
100.00' VC
265.8' SSD
PVT: 13+73.12
ELEV: 67.20
PROPOSED GRADE
-2.50%
EXISTING GRADE
PVC: 14+58.83
ELEV: 65.06
BASE (100 YEARS)
EL. 63.1
DESIGN (10 YEARS)
EL. 60.8
PROP. CANTILEVER
ABUTMENT (TYP.)
HP12x84 (TYP.)
BOT. OF ABUTMENT
EL. 49.5 (TYP)
APPROX. PILE TIP
EL. -43.5 (TYP)
PROP. APPROACH
SLAB TYPE I (TYP.)
EXIST. BRIDGE
T-01-024 (3LY) TO
BE ENTIRELY REMOVED
12" PROP. STREAMBED/BANK STONE FROM EXISTING STREAMBED
12" PROP. CRUSHED STONE
3'-0" PROPOSED RIPRAP
GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL
CONTINUED ON
SHEET NO. 4
0
40
8
0
11X17 HOR. SCALE: 1" = 40'
100
200
20
40
11X17 VERT. SCALE: 1" = 8'
BRIDGE NO. T-01-024 (CSH)
TAUNTON
SCADDING STREET
PROFILE
(SHEET 1 OF 2)
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
3
TOTAL SHEETS
9
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
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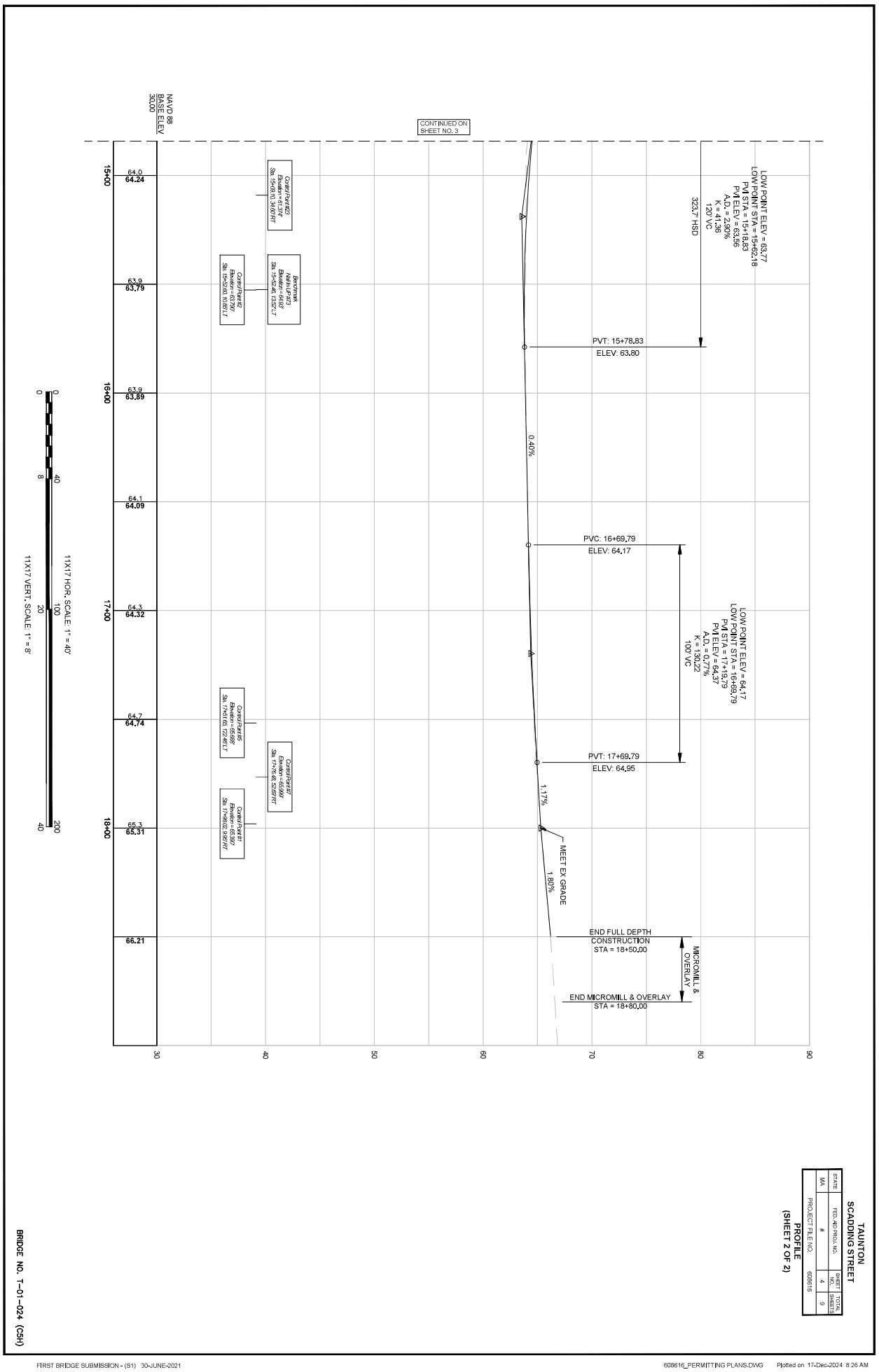


TAUNTON
SCADDING STREET
PROFILE
(SHEET 2 OF 2)

| STATE | | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | # | 4 | 9 |
| PROJECT FILE NO. | FED. AID PROJ. NO. | | |
| 608616 | | | |

BRIDGE NO. T-01-024 (C5H)

FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021

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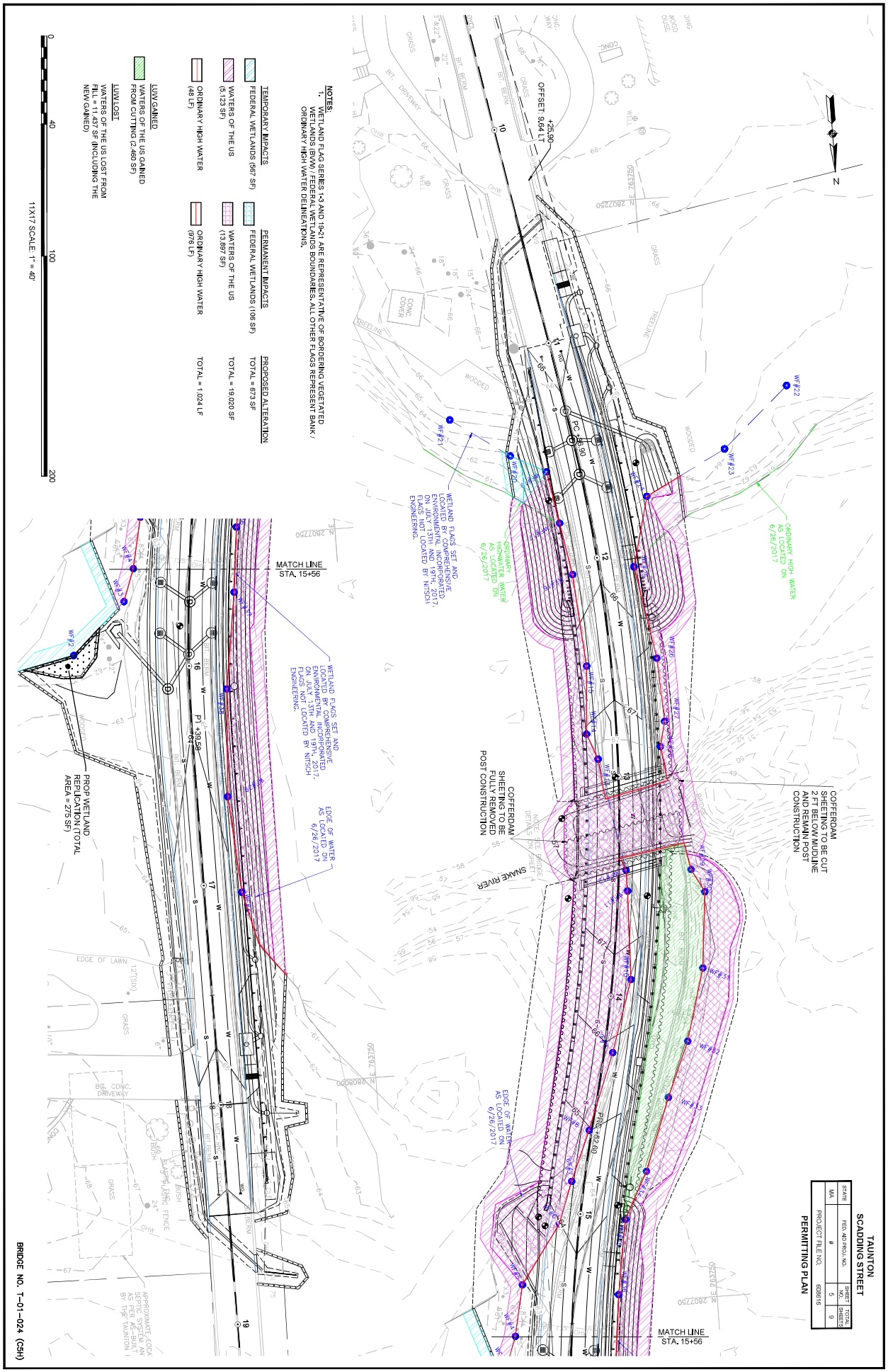
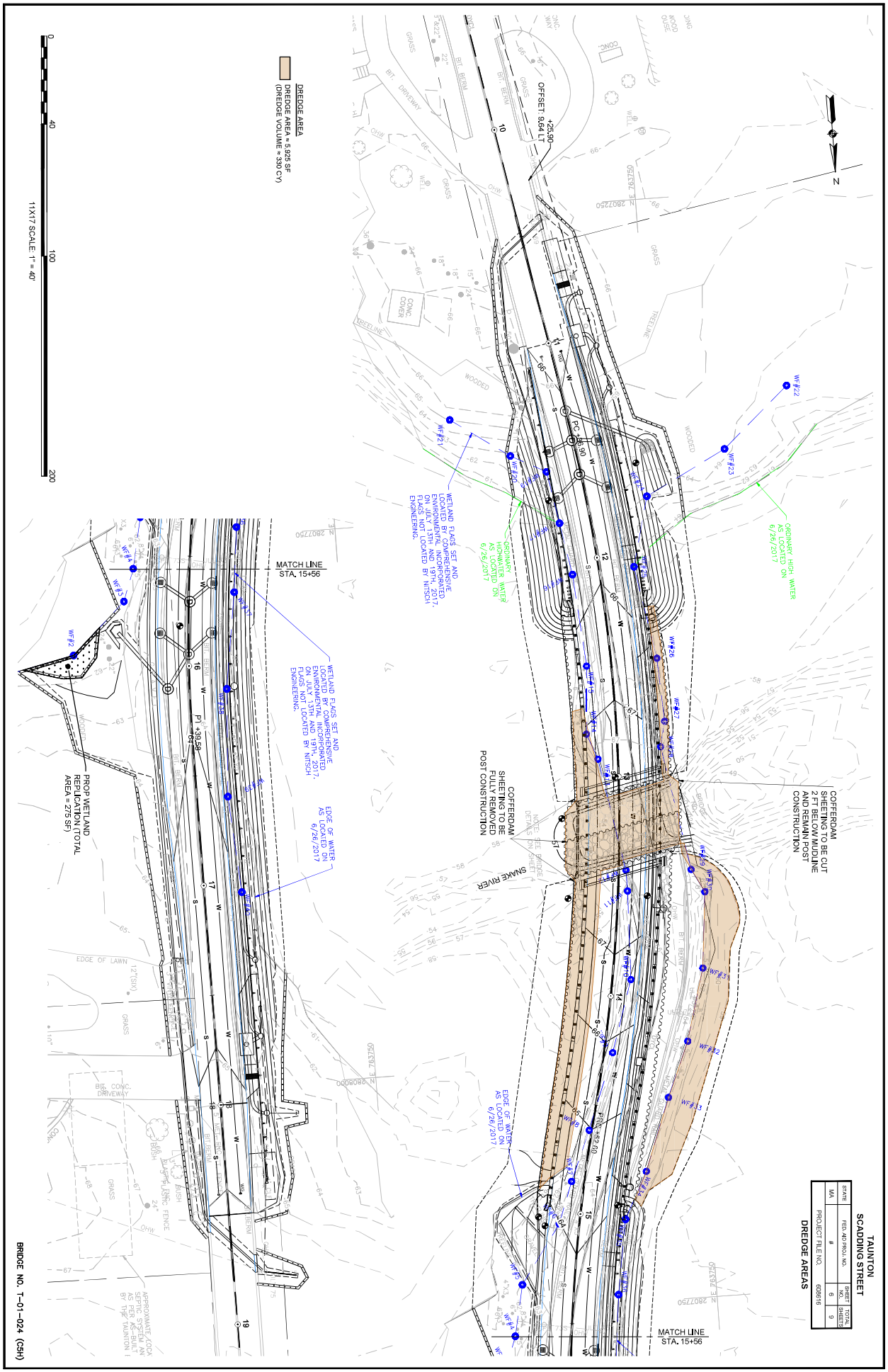

NOTES:
1. WETLAND FLAG SERIES 1-9 AND 1021 ARE REPRESENTATIVE OF BORDERING VEGETATED WETLANDS (BVW) FEDERAL WETLANDS BOUNDARIES. ALL OTHER FLAGS REPRESENT BANK / ORDINARY HIGH WATER DELINEATIONS.
TEMPORARY IMPACTS
FEDERAL WETLANDS (567 SF)
WATERS OF THE US (5,123 SF)
ORDINARY HIGH WATER (48 LF)
PERMANENT IMPACTS
FEDERAL WETLANDS (106 SF)
WATERS OF THE US (13,387 SF)
ORDINARY HIGH WATER (878 LF)
PROPOSED ALTERATION
TOTAL = 673 SF
TOTAL = 19,020 SF
TOTAL = 1,024 LF
LUW GAINED
WATERS OF THE US GAINED FROM CUTTING (2,460 SF)
LUW LOST
WATERS OF THE US LOST FROM FILL = 11,437 SF (INCLUDING THE NEW GAINED)
0
40
100
200
11X17 SCALE: 1" = 40'
N
OFFSET: 9.64 LT
+25.90
MATCH LINE STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED, ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 6/26/2017
EDGE OF WATER AS LOCATED ON 6/26/2017
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
SNAKE RIVER
PROP WETLAND REPLICATION (TOTAL AREA = 275 SF)
PI +39.58
PC +25.90
TAUNTON
SCADDING STREET
PERMITTING PLAN
STATE
MA
FED. AID PROJ. NO.
PROJECT FILE NO.
608616
SHEET NO.
5
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS.DWG
Plotted on 17-Dec-2024 8:27 AM


DREDGE AREA
DREDGE AREA = 5,825 SF
(DREDGE VOLUME = 330 CY)
0
40
100
200
11X17 SCALE: 1" = 40'
N
OFFSET 9.64 LT
PC
P1 +39.58
MATCH LINE
STA. 15+56
MATCH LINE
STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 6/26/2017
ORDINARY HIGH WATER AS LOCATED ON 6/26/2017
EDGE OF WATER AS LOCATED ON 6/26/2017
EDGE OF WATER AS LOCATED ON 6/26/2017
PROP WETLAND REPLICATION (TOTAL AREA = 275 SF)
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
SNAKE RIVER
TAUNTON
SCADDING STREET
DREDGE AREAS
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
6
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
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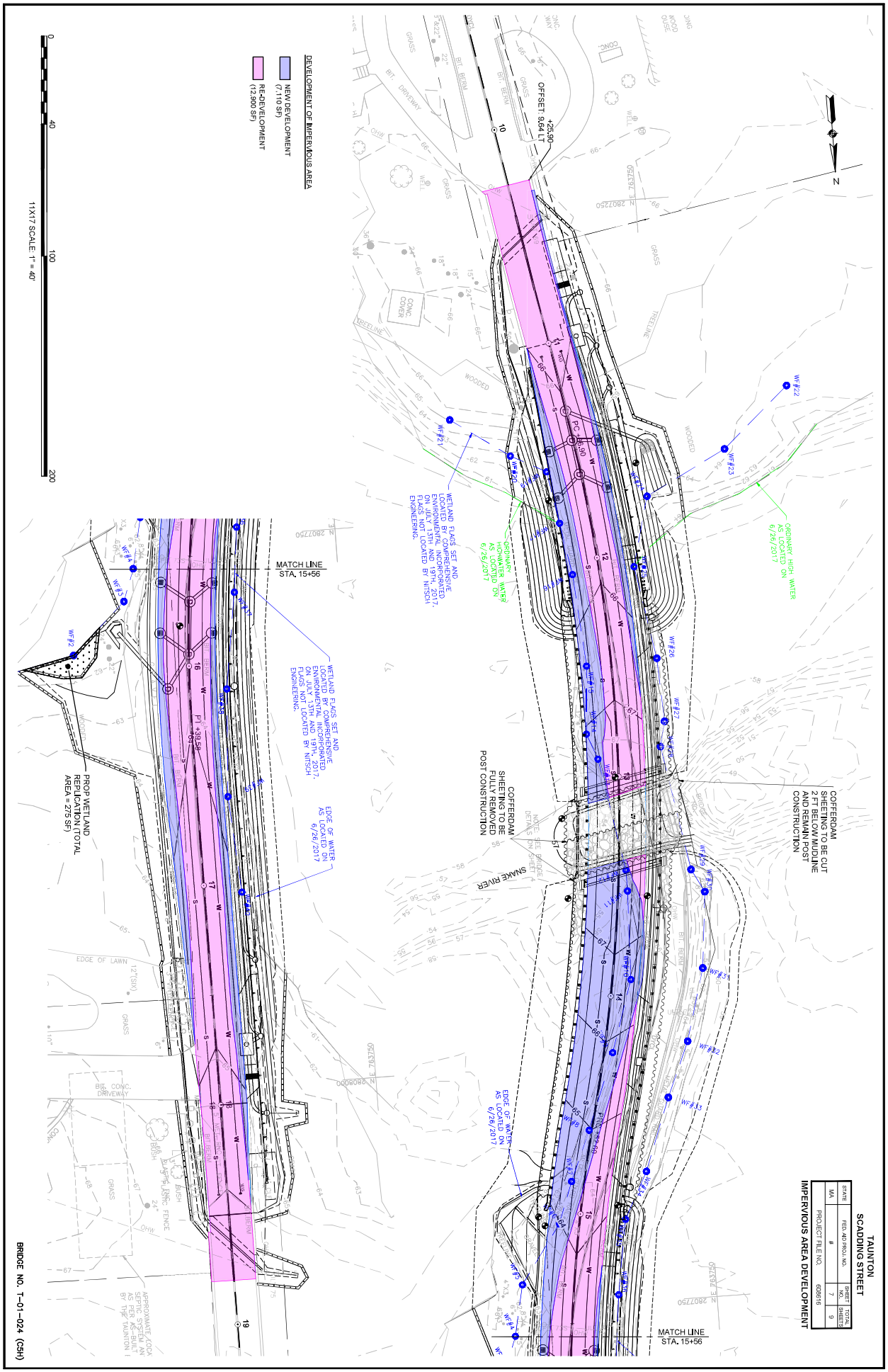
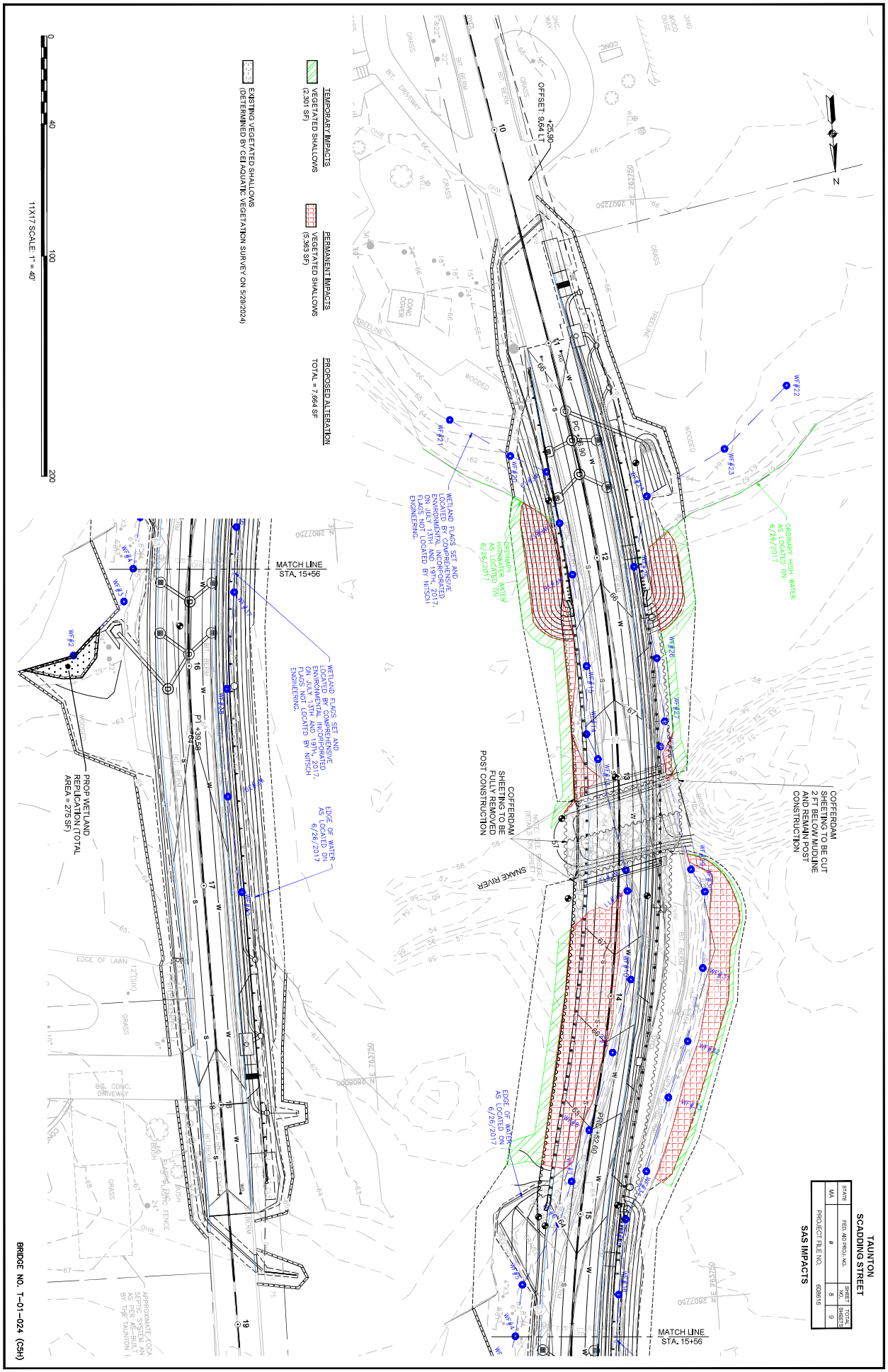
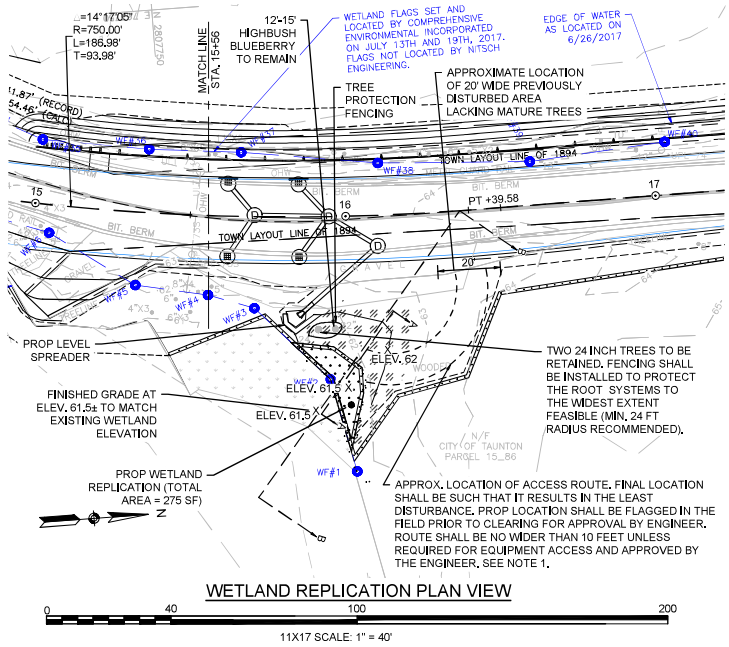

DEVELOPMENT OF IMPERVIOUS AREA
NEW DEVELOPMENT (7,110 SF)
RE-DEVELOPMENT (12,305 SF)
11X17 SCALE: 1" = 40'
0
40
100
200
N
OFFSET: 9.64 LT
+25.90
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
SNAKE RIVER
PROP WETLAND REPLICATION (TOTAL AREA = 275 SF)
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
EDGE OF WATER AS LOCATED ON 6/26/2017
EDGE OF WATER AS LOCATED ON 6/26/2017
ORDINARY HIGH WATER AS LOCATED ON 6/26/2017
ORDINARY HIGH WATER AS LOCATED ON 6/26/2017
WF#1
WF#2
WF#3
WF#4
WF#5
WF#6
WF#7
WF#8
WF#9
WF#10
WF#11
WF#12
WF#13
WF#14
WF#15
WF#16
WF#17
WF#18
WF#19
WF#20
WF#21
WF#22
WF#23
WF#24
WF#25
WF#26
WF#27
WF#28
WF#29
WF#30
WF#31
WF#32
WF#33
WF#34
WF#35
WF#36
WF#37
WF#38
WF#39
WF#40


TEMPORARY IMPACTS
VEGETATED SHALLOWS (2,301 SF)
PERMANENT IMPACTS
VEGETATED SHALLOWS (5,363 SF)
PROPOSED ALTERATION
TOTAL = 7,664 SF
EXISTING VEGETATED SHALLOWS (DETERMINED BY CEI AQUATIC VEGETATION SURVEY ON 5/29/2024)
0
40
100
200
11X17 SCALE: 1" = 40'
N
OFFSET 9.64 LT
PC +25.90
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED, ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 6/26/2017
MATCH LINE STA. 15+56
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
SNAKE RIVER
EDGE OF WATER AS LOCATED ON 6/26/2017
PROP WETLAND REPLICATION (TOTAL AREA = 275 SF)
PI +39.58
EDGE OF LAWN
BIT. CONC. DRIVEWAY
APPROXIMATE LOCATION OF SEPTIC SYSTEM AS PER AS-BUILT BY TYPE TAUNTON
PROP 25.60
TAUNTON
SCADDING STREET
SAS IMPACTS
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
8
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS.DWG
Plotted on 17-Dec-2024 8:29 AM

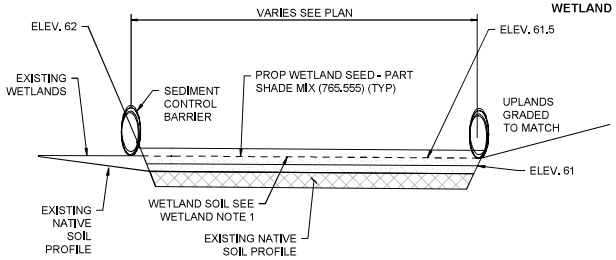
Proposal No. 608616-131225






NOTES:

1. CONTRACTOR CAN ACCESS THE REPLICATION AREA USING A MAXIMUM 10' WIDE ACCESS PATH WITHIN THE 20' WIDE PREVIOUSLY DISTURBED AREA USING CUTTING ONLY.
2. EXISTING STONE PARKING AREA TO ACT AS TRACKING PAD.
3. ACCESS ROUTE SHALL BE FLAGGED FOR APPROVAL BY THE ENGINEER PRIOR TO SITE DISTURBANCE. ONCE APPROVED, VEGETATION SHALL BE CUT FLUSH TO THE GROUND. IF REQUIRED TO REPAIR EXPOSED SOILS AT THE COMPLETION OF WORK, THE ACCESS ROUTE SHALL BE SCARIFIED FOR DECOMPACTION AND SEEDED WITH THE UPLAND SEED MIX.




SECTION A-A

## WETLAND REPLICATION DETAIL

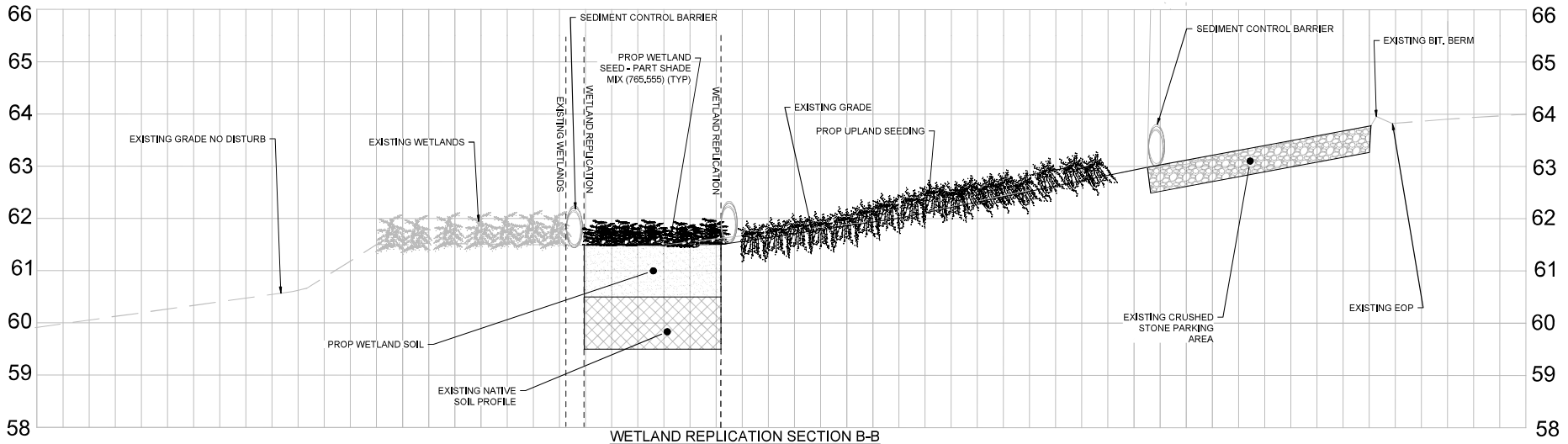
NOT TO SCALE

LEGEND:

- EXISTING WETLAND
- REPLICATION
- UPLAND SEED

WETLAND NOTES:

1. WETLAND REPLICATION AREA SHALL BE CONSTRUCTED IN ACCORDANCE WITH ITEM 755.35 OF THE SPECIAL PROVISIONS. EXCAVATE EXISTING SOIL TO TARGET ELEVATIONS. IF EXISTING SUBSOIL IS DETERMINED TO BE UNSUITABLE FOR PLANTING, EXCAVATE TO DEPTH NECESSARY FOR PLANTING AND BACKFILL WITH APPROPRIATE MANUFACTURED SOIL. BACKFILL SHALL BE INSTALLED AS PER MASSDOT STANDARD SPECIFICATIONS.
2. WETLAND SEED SHALL BE PART SHADE MIX AND PER THE WETLAND SPECIFICATIONS.
3. UPLAND SEED SHALL BE THE UPLAND MIX AND PER THE NATIVE SEEDING SPECIFICATIONS AND SHALL BE APPLIED TO ALL DISTURBED AREA ADJACENT TO THE WETLAND MITIGATION WORK.




## WETLAND REPLICATION SECTION B-B

HOR. SCALE IN FEET

11X17 SCALE: 8 0 12 32

2 0 3 8

VER. SCALE IN FEET

TAUNTON
SCADDING STREET

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | # | 9 | 9 |
| PROJECT FILE NO. | 608616 | | |

WETLAND REPLICATION PLAN

WETLAND REPLICATION PLAN.DWG Plotted on 12-Dec-2024 12:30 PM

FIRST BRIDGE SUBMISSION - (91) 30-JUNE-2021

# Attachment C
# LEDPA

608616 TAUNTON- BRIDGE REPLACEMENT, T-01-024

SCADDING STREET OVER SNAKE RIVER

Least Environmentally Damaging Practicable Alternative (LEDPA)

1. Purpose and Need

   Purpose- The purpose of the project is to provide an improved Scadding Street crossing of the Snake River.

   Need- The existing bridge is structurally deficient and the alignment of the Scadding Street approaches to the bridge are dangerous and do not meet industry safety standards.

2. Project Description

   The project to improve the crossing of the Snake River along Scadding Street involves replacing the existing bridge with a new structure. This new bridge will feature a precast concrete superstructure supported by cantilevered abutments. Additionally, a sidewalk will be added on the west side of the roadway and bridge to enhance pedestrian safety. The project also includes realigning and improving the profile of Scadding Street.

   The goal of this project is to increase the load-carrying capacity of the bridge and improve both vehicle and pedestrian safety in the area.

   The resource areas surrounding the existing structure consist of impoundment bank (along the causeway), Land Under Water/Waters of the US, Bordering Vegetated Wetlands (BVW) and vegetated shallows which are considered Special Aquatic Sites (SAS). There are no Isolated Wetlands in the vicinity of the existing bridge.

3. Alternatives

   I. Alternate Alignment 1- Retaining Walls, 2:1 Embankments-Preferred Alternative
   II. No Action Alternative
   III. Replace In-kind
   IV. Alternate Alignment 2- New off-line bridge
   V. Alternate Alignment 3- 4:1 Embankments

608616 TAUNTON- BRIDGE REPLACEMENT, T-01-024

SCADDING STREET OVER SNAKE RIVER

Least Environmentally Damaging Practicable Alternative (LEDPA)

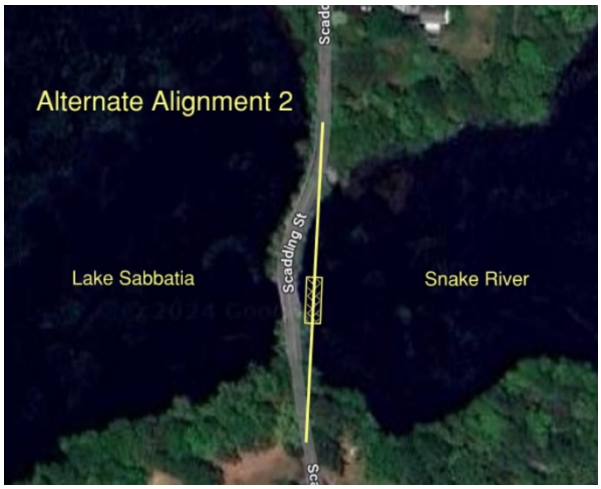
4. Alternative Descriptions

I. **Alternate Alignment 1- Retaining Walls, 2:1 Embankments-Preferred Alternative**- This alternative proposes to replace the existing bridge in the same footprint with a slightly altered skew to accommodate realignment of Scadding Street to improve the horizontal alignment for safety reasons. In order to achieve this realignment the embankments will change, filling the Snake River impoundment to the east and removing existing embankments in Lake Sabbatia to the west. Retaining walls are proposed along a portion of the proposed embankments and 2:1 side slopes elsewhere along the proposed embankments. This alternative is shown on Sheet 1 of 1 (attached) which also illustrates the limits of existing vegetated shallows.

II. **No Action Alternative**- This alternative would involve not doing the project.

III. **Replace In-kind**- This alternative would involve replacing the existing span in place with no change in size, skew angle with respect to the road center-line, no change in hydraulic capacity and no change in roadway alignment.

IV. **Alternate Alignment 2- New off-line bridge**- This alternative would build a new alignment on earthen embankment and a new bridge to the east of the existing structure in the Snake River. The new embankment and bridge would be constructed while maintaining existing traffic. The realignment of Scadding Street would start further to the north near #289 Scadding Street and extend further south toward #260 Scadding Street. The alignment would straighten Scadding Street for approximately 550' and reduce the radii of the horizontal curves needed. The new bridge span would be increased over the existing to meet hydraulic requirements.




V. **Alternate Alignment 3- 4:1 Embankments**- This alternative proposes to replace the existing bridge in the same footprint with a slightly altered skew to accommodate realignment of Scadding Street to improve the horizontal alignment for safety reasons. In order to achieve this realignment the embankments will change, filling the Snake River impoundment to the east and removing existing embankments in Lake Sabbatia to the west. 4:1 side slopes would be proposed along the new embankments.

608616 TAUNTON- BRIDGE REPLACEMENT, T-01-024

SCADDING STREET OVER SNAKE RIVER

Least Environmentally Damaging Practicable Alternative (LEDPA)

5. Discussion

**Alternate Alignment 1- Retaining Walls, 2:1 Embankments-Preferred Alternative**- This alternative is the preferred alternative. The alternative meets the purpose and need by providing a new structure with a span meeting the hydraulic needs of the project. In addition, this alternative improves the horizontal alignment addressing a critical safety issue. This alternative requires the closing of Scadding Street with a short detour. The use of retaining walls in conjunction with 2:1 side slopes limits the impacts to the Snake River and Lake Sabbatia resources. This alternative is the fourth most expensive alternative.

**No Action Alternative**- This alternative does not meet the purpose and need of the project. This is the least expensive alternative. This alternative also has the least impact on environmental resources.

**Replace In-kind-** This alternative does not meet the purpose and need of the project. While this alternative addresses the deficient structure, it does not address the critical safety issue regarding the horizontal alignment. This alternative may require the closing of Scadding Street with a short detour dependent upon phasing options. This alternative does limit the impacts to the Snake River impoundment and Lake Sabbatia resources since the impacts associated with relocating the embankments for re-alignment noted in other alternatives would not occur. Impacts to the Snake River under and around the crossing would remain the same. This alternative is the second most expensive alternative.

**Alternate Alignment 2- New off-line bridge-** This alternative meets the purpose and need by providing a new structure with a span meeting the hydraulic needs of the project. In addition, this alternative improves the horizontal alignment addressing a critical safety issue. This alternative could potentially be the least disruptive to traffic as most could be built off-line while maintaining traffic on Scadding Street. This alternative would require the acquisition of substantially more property than other alternatives. The use of retaining walls in conjunction with 2:1 side slopes would help limit environmental impacts to the Snake River resources, however because this alternative is off-line it represents the greatest impact to the environment. This alternative is the fifth and most expensive alternative.

**Alternate Alignment 3- 4:1 Embankments-** This alternative meets the purpose and need by providing a new structure with a span meeting the hydraulic needs of the project. In addition, this alternative improves the horizontal alignment addressing a critical safety issue. This alternative requires the closing of Scadding Street with a short detour. The use of 4:1 side slopes helps cut costs making this the third least expensive alternative. Impacts to the Snake River and Lake Sabbatia resources would be substantially more than other alternatives with the exception of the off-line alternative.

6. Alternative Comparison Matrix for Practicability

Practicable is defined as meaning the alternative is available and capable of being done after taking into consideration feasibility factors such as available land, logistics, existing technology, and/or costs in light of the overall project purpose(s). An alternative needs to fail only one practicability factor to be eliminated during the screening process.

**Table 1- Comparison Matrix**

| Practicability Category | Factor | Alternative I. Alternate Alignment 1- Preferred Alternative | Alternative II. No Action Alternative | Alternative III. Replace Bridge In-kind | Alternative IV. Alternate Alignment 2 Off-line Bridge | Alternative V. Alternate Alignment 3 4:1 Slopes |
|---|---|---|---|---|---|---|
| **Available** | Land Available for Acquisition | YES Applicant owns the parcel | YES Applicant owns the parcel | YES Applicant owns the parcel | NO Applicant does not own all necessary parcels and acquisition time makes the project infeasible | YES Applicant owns the parcel |
| **Logistics** | Replaces the severely deficient structure | YES | NO Project does not replace the deficient structure | YES | N/A – failed availability screen | YES |
| | Provides necessary horizontal alignment safety improvements | YES | N/A- failed logistics replacement of deficient structure | NO Does not provide safety improvements | N/A | YES |
| **Existing Technology** | Topography and other Site Conditions Feasible for Construction of Project | YES With use of engineered retaining walls and 2:1 embankment side slopes | N/A | N/A- failed logistics safety improvements | N/A | YES With use of 4:1 embankment side slopes |
| **Cost** | Reasonable Acquisition and Construction Costs (non-exorbitant) | YES Cost basis | N/A | N/A | N/A Exorbitant – acquisition and construction costs are likely 5 times the cost of a normal project | YES Costs less with no retaining walls or 2:1 slopes |

7. Least Environmentally Damaging Alternative

Section 5 Alternative Comparison Matrix for Practicability identified that Alternate Alignment 1- Retaining Walls, 2:1 Embankments-Preferred Alternative and Alternate Alignment 3- 4:1 Embankments are both practicable. As such those two alternatives are compared in the table below based on impacts to the resources identified in the project area.

**Impacts to resources for each of the remaining alternatives are as follows.**

**Alternate Alignment 1- Retaining Walls, 2:1 Embankments**

Permanent impacts to the banks of the Snake River impoundment and Lake Sabbatia occur from the proposed realignment of Scadding Street and retaining wall and construction of 2:1 side slopes.

Permanent impacts to the wetlands occur from the proposed realignment of Scadding Street and retaining wall and construction of 2:1 side slopes.

Permanent impacts to open water occur from the discharge of fill associated with moving portions of Scadding Street to the south for realignment, the construction of cofferdams, the proposed structure and 2:1 side slopes.

Permanent impacts to the vegetated shallows occur from the discharge of fill associated with moving portions of Scadding Street to the south for realignment, the construction of cofferdams, the proposed structure and 2:1 side slopes.

**Alternate Alignment 3- 4:1 Embankments**

Permanent impacts to the banks of the Snake River impoundment and Lake Sabbatia occur from the proposed realignment of Scadding Street and construction of the 4:1 side slopes.

Permanent impacts to the wetlands occur from the proposed realignment of Scadding Street and construction of the 4:1 side slopes.

Permanent impacts to open water occur from the discharge of fill associated with moving portions of Scadding Street to the south for realignment, the construction of cofferdams, the proposed structure and 4:1 side slopes.

Permanent impacts to the vegetated shallows occur from the discharge of fill associated with moving portions of Scadding Street to the south for realignment, the construction of cofferdams, the proposed structure and 4:1 side slopes.

| Table 2- LEDPA Comparison | | |
|---|---|---|
| **Environmental Factors** | **Alternative I.**<br><br>**Preferred Alternative** | **Alternative V.** |
| **Impoundment Bank (Linear Feet)** | 976 | 976 |
| **Wetland Impacts (Square Feet)** | 106 | 106 |
| **Open Water Impacts (Acres)** | 0.32 | 0.52 |
| **Vegetated Shallows (Acres)** | 0.12 | 0.27 |
| **LEDPA** | Yes | No |

Both alternatives listed in the table above meet the purpose and need. Alternative I. results in the least open water and vegetated shallows impacts to waters of the U.S. as shown in Table 2 above. Alternative I. has less impacts via the use of retaining walls and steeper embankment sections which help limit the impacts to the environment. The other practicable alternative results in more impacts since the 4:1 side slope embankment work would extend further into Lake Sabbatia and the Snake River impoundment. The preferred alternative, Alternative I. reduces the extent the impacts from embankment work cause by utilizing the retaining walls and 2:1 slopes although at a higher financial cost.

8. Conclusion

The preferred alternative, Alternate Alignment 1- Retaining Walls, 2:1 Embankments, represents the Least Environmentally Damaging Practicable Alternative (LEDPA). It meets the purpose and need and results in less impacts to SAS and Waters of the U.S. Since Alternate I. meets the purpose of providing a better replacement crossing and satisfies the need to replace the deficient structure and provide a safer horizontal alignment with the least environmental impacts it is the preferred alternative and LEDPA.

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DOCUMENT A00831

# ARMY CORPS OF ENGINEERS

# GENERAL PERMIT

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April 30, 2025

Regulatory Division
File Number: NAE-2024-00894

Courtney Walker
MassDOT – Highway Division
10 Park Plaza
Boston, Massachusetts 02116
(via email: courtney.l.walker@dot.state.ma.us)

Dear Ms. Walker:

Enclosed is your validated Department of the Army permit from the U.S. Army Corps of Engineers (USACE) authorizing your project. This project is located in waters of the United States at the bridge conveying Scadding Street over Lake Sabbatia in Taunton, Massachusetts. We have assigned the file number provided above to this project. Please refer to this number in all communication concerning this matter.

This permit is a limited authorization containing a specific set of conditions. Please read the permit thoroughly to familiarize yourself with the conditions, including any conditions contained in the enclosed State Section 401 water quality certification. If a contractor performs any authorized work for you, both you and the contractor are responsible for ensuring that the work is performed in compliance with the permit's terms and conditions, as any violations could result in civil or criminal penalties.

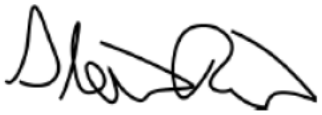
Please contact us immediately if you change the plans or construction methods for work within our jurisdiction. We must approve any changes before you undertake them.

This authorization does not obviate the need to obtain other Federal, state, or local authorizations required by law.

We continually strive to improve our customer service. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at https://regulatory.ops.usace.army.mil/customer-service-survey.

Please contact Dan Vasconcelos, of my staff, at (978) 318-8653 or daniel.b.vasconcelos@usace.army.mil if you have any questions.

Sincerely,



Stephen Rochette
Acting Chief, Technical Support Branch
Regulatory Division

Enclosures
1. Standard Permit Form
2. Plans
3. Work Start Notification Form
4. Compliance Certification Form
5. Water Quality Certification

**DEPARTMENT OF THE ARMY PERMIT**

**Permittee** MassDOT – Highway Division

**Permit No.** NAE-2024-00894

**Issuing Office** New England District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

**Project Description:**
The work involves the permanent discharge of fill material within 10,374 square feet (0.2 acres) of waters of the United States (WOTUS), including 9,741 square feet below the Ordinary High Water (OHW) mark of Lake Sabbatia, of which 4,053 square feet is within vegetated shallows, and 633 square feet within wetlands, associated with the replacement of the bridge conveying Scadding Street over Lake Sabbatia in Taunton, Massachusetts. The existing single-span bridge will be replaced with a new, longer and wider single-span bridge in a slightly different alignment to address the existing “S” curve and associated poor sight distances. The new abutments will be installed landward of the existing and the existing removed. Scour protection consisting of rip-rap overtopped with 12 inches of natural streambed material will be placed at the abutments.

The work is shown on the enclosed plans titled, “TAUNTON MASSDOT SCADDING STREET BRIDGE REPLACEMENT: T-01-024 (C5H) IN THE CITY/TOWN OF TAUNTON BRISTOL COUNTY,” on 10 sheets, and dated “27-Feb-2025.”

**Project Location:**

The project/review area is located at the bridge conveying Scadding Street over Lake Sabbatia in Taunton, Massachusetts, at Latitude 41.951389°N and Longitude -71.104472°W.

**Permit Conditions:**

**General Conditions:**

1. The time limit for completing the work authorized ends on **April 30, 2030**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

**Special Conditions:**

1. The permittee shall ensure that a copy of this permit is at the work site (and the project office) authorized by this permit whenever work is being performed, and that all personnel with operational control of the site ensure that all appropriate personnel performing work are fully aware of its terms and conditions. The entire permit shall be made a part of any and all contracts and sub-contracts for work that affects areas of Corps jurisdiction at the site of the work authorized by this permit. This shall be achieved by including the entire permit in the specifications for work. The term “entire permit” means this permit (including its drawings, plans, appendices and other attachments) and also includes permit modifications.

If the permit is issued after the construction specifications, but before receipt of bids or quotes, the entire permit shall be included as an addendum to the specifications. If the permit is issued after receipt of bids or quotes, the entire permit shall be included in the contract or sub-contract. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions contained within the entire permit, and no contract or sub-contract shall require or allow unauthorized work in areas of Corps jurisdiction.

2. The permittee shall complete and return the enclosed Work Start Notification Form to this office at least two weeks before the anticipated starting date.

3. The permittee shall complete and return the enclosed Compliance Certification Form to this office at least within one month following the completion of the authorized work.

4. Wetlands temporarily impacted by construction activities shall be restored to their preconstruction conditions, including revegetation with appropriate native herbaceous and woody plant species characteristic of the impacted areas.

5. The introduction, spread, or increased risk of invasion of non-native invasive plant or animal species on the project site into new or disturbed areas is prohibited. Invasive species shall be monitored and controlled onsite throughout construction, and all equipment to be used on the project site, including construction mats, shall be thoroughly inspected and cleaned prior to being onsite to prevent the introduction of invasive species.

**Further Information:**

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
( ) Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408).
(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).
( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d, This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from Natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interested decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Courtney Walker _____ 4/30/2025

***(Permittee)*** ***(Date)***

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

_____ 4/30/2025

***(Date)***

***(For District Engineer)***

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ _____

***(Transferee)*** ***(Date)***

# TAUNTON
# MASSDOT

## SCADDING STREET BRIDGE REPLACEMENT: T-01-024 (C5H)

IN THE CITY/TOWN OF

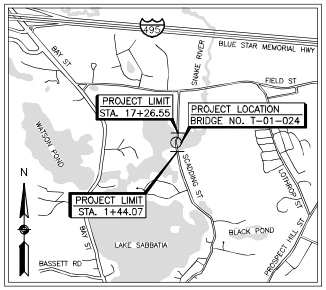
TAUNTON

BRISTOL COUNTY

## PERMITTING PLANS

INDEX OF DRAWINGS

| SHEET | TITLE |
|---|---|
| 1. | KEY PLAN, LOCUS, AND PROFILES |
| 2. | CONSTRUCTION PLAN |
| 3. | ROAD PROFILE |
| 4. | ROAD PROFILE |
| 5. | PERMITTING PLAN |
| 6. | DREDGING AREAS |
| 7. | IMPERVIOUS AREA DEVELOPMENT |
| 8. | SPECIAL AQUATIC SITES (SAS) IMPACTS |
| 9. | WETLAND REPLICATION PLAN |




LOCUS PLAN
SCALE: 1" = 1000'

HYDRAULIC DESIGN DATA

DRAINAGE AREA: 38.7 SQUARE MILES
DESIGN FLOOD DISCHARGE: 1,000 CUBIC FEET PER SECOND
DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 10% (10 YEARS)
DESIGN FLOOD VELOCITY: 1.07 FEET PER SECOND
DESIGN FLOOD ELEVATION: 60.8 FEET, NAVD

BASE (100-YEAR) FLOOD DATA

BASE FLOOD DISCHARGE: 1,840 CUBIC FEET PER SECOND
BASE FLOOD ELEVATION: 63.1 FEET, NAVD

DESIGN AND CHECK SCOUR DATA

SCOUR DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 4% (25 YRS)
DESIGN FLOOD ABUTMENT SCOUR DEPTH: 4.76 FEET
SCOUR CHECK FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 2% (50 YRS)
CHECK FLOOD ABUTMENT SCOUR DEPTH: 5.94 FEET

FLOOD OF RECORD

DISCHARGE: UNKNOWN
FREQUENCY: UNKNOWN
MAXIMUM ELEVATION: UNKNOWN
DATE: UNKNOWN

HISTORY OF ICE FLOES: NONE DOCUMENTED
EVIDENCE OF SCOUR & EROSION: NONE DOCUMENTED

DESIGN:

IN ACCORDANCE WITH THE 2020 AASHTO, NINTH EDITION, LRFD BRIDGE DESIGN SPECIFICATIONS FOR HL-93 LOADING.

SURVEY:

FIELD SURVEY PERFORMED IN JUNE 2017 BY NITSCH ENGINEERING IN ACCORDANCE WITH MASSDOT GUIDELINES.

ISSUED FOR CONSTRUCTION


COMPREHENSIVE ENVIRONMENTAL INC.
41 MAIN STREET
BOLTON, MA 01740

Dewberry
99 SUMMER ST.,
SUITE 700
BOSTON, MA 02110
(617) 695-3400
(617) 695-3310


massDOT Highway Division

PROPOSED BRIDGE REPLACEMENT
TAUNTON
SCADDING SCREET
OVER SNAKE RIVER

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
10 PARK PLAZA BOSTON, MASS

TITLE: _____ CHIEF ENGINEER

BRIDGE NO. T-01-024 (C5H)

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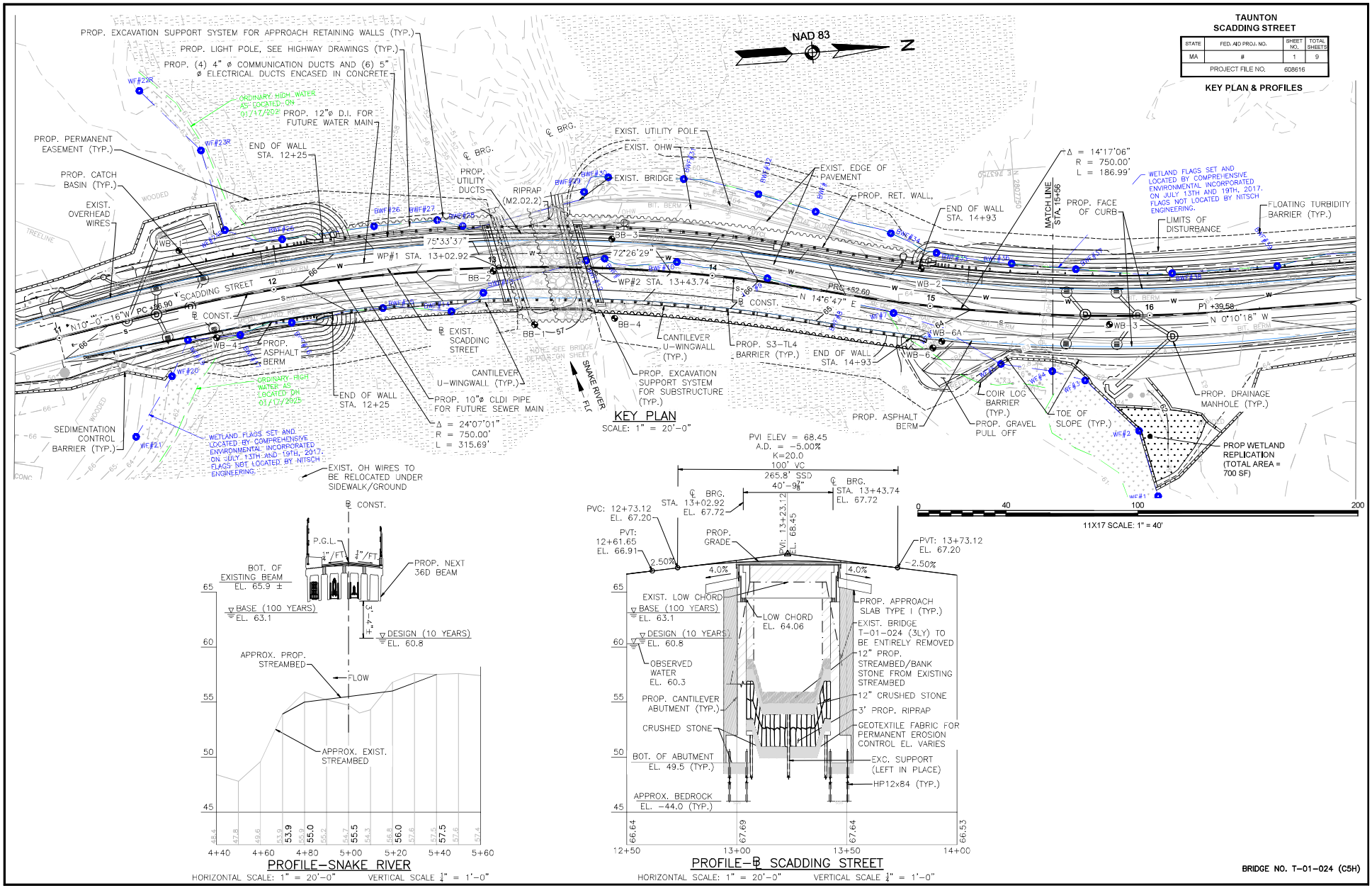
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021

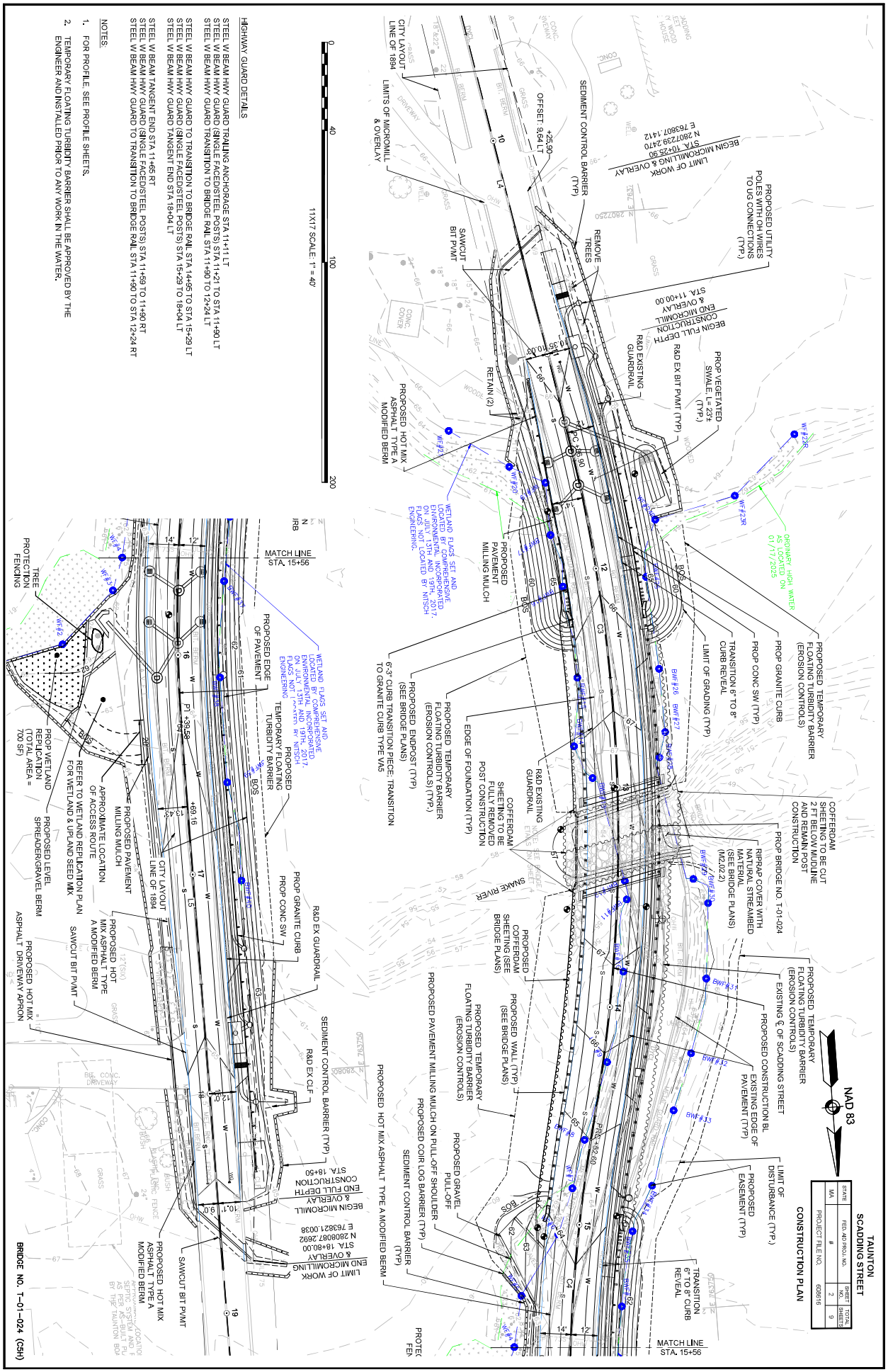
Proposal No. 608616-131225

A00831 - 8

Proposal No. 608616-131225

A00831 - 9




TAUNTON
SCADDING STREET
CONSTRUCTION PLAN
NAD 83
0
40
100
200
11X17 SCALE: 1" = 40'
HIGHWAY GUARD DETAILS
STEEL W BEAM HWY GUARD TRAILING ANCHORAGE STA 11+11 LT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 11+21 TO STA 11+90 LT
STEEL W BEAM HWY GUARD TRANSITION TO BRIDGE RAIL STA 11+90 TO 12+24 LT
STEEL W BEAM HWY GUARD TO TRANSITION TO BRIDGE RAIL STA 14+95 TO STA 15+29 LT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 15+29 TO 18+04 LT
STEEL W BEAM HWY GUARD TANGENT END STA 18+04 LT
STEEL W BEAM TANGENT END STA 11+65 RT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 11+69 TO 11+90 RT
STEEL W BEAM HWY GUARD TO TRANSITION TO BRIDGE RAIL STA 11+90 TO STA 12+24 RT
NOTES:
1. FOR PROFILE, SEE PROFILE SHEETS.
2. TEMPORARY FLOATING TURBIDITY BARRIER SHALL BE APPROVED BY THE ENGINEER AND INSTALLED PRIOR TO ANY WORK IN THE WATER.
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
PROP GRANITE CURB
PROP CONC SW (TYP)
TRANSITION 6" TO 8" CURB REVEAL
LIMIT OF GRADING (TYP)
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
PROP BRIDGE NO. T-01-024
RIPRAP COVER WITH NATURAL STREAMBED MATERIAL (SEE BRIDGE PLANS) (M2.02.2)
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
EXISTING ℄ OF SCADDING STREET
PROPOSED CONSTRUCTION BL
EXISTING EDGE OF PAVEMENT (TYP)
PROPOSED EASEMENT (TYP)
LIMIT OF DISTURBANCE (TYP.)
TRANSITION 6" TO 8" CURB REVEAL
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
PROPOSED COIR LOG BARRIER (TYP)
SEDIMENT CONTROL BARRIER (TYP)
PROPOSED GRAVEL PULL-OFF
PROPOSED PAVEMENT MILLING MULCH ON PULL-OFF SHOULDER
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
PROPOSED WALL (TYP) (SEE BRIDGE PLANS)
PROPOSED COFFERDAM SHEETING (SEE BRIDGE PLANS)
SNAKE RIVER
R&D EX GUARDRAIL
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
EDGE OF FOUNDATION (TYP)
PROPOSED ENDPOST (TYP) (SEE BRIDGE PLANS)
6'-3" CURB TRANSITION PIECE; TRANSITION TO GRANITE CURB TYPE VA6
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS) (TYP)
PROPOSED PAVEMENT MILLING MULCH
R&D EXISTING GUARDRAIL
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
RETAIN (2)
R&D EX BIT PVMT (TYP)
PROP VEGETATED SWALE; L=23' (TYP.)
BEGIN FULL DEPTH CONSTRUCTION MICROMILL END MICROMILL & OVERLAY STA. 11+00.00
R&D EXISTING GUARDRAIL
SAWCUT BIT PVMT
REMOVE TREES
PROPOSED UTILITY POLES WITH OH WIRES TO UG CONNECTIONS (TYP.)
LIMIT OF MICROMILL & OVERLAY
CITY LAYOUT LINE OF 1894
SEDIMENT CONTROL BARRIER (TYP)
OFFSET 9.64 LT
+25.90
LIMIT OF WORK BEGIN MICROMILLING & OVERLAY STA. 10+25.90 N 2807239.2470 E 7638071.4112
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED, ON JULY 13TH AND 19TH, 2017. FLAGS LOCATED BY NITSCH ENGINEERING.
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED, ON JULY 13TH AND 19TH, 2017. FLAGS LOCATED BY NITSCH ENGINEERING.
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
TREE PROTECTION FENCING
PROPOSED EDGE OF PAVEMENT
TEMPORARY FLOATING TURBIDITY BARRIER
PROPOSED PAVEMENT MILLING MULCH
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
PROPOSED LEVEL SPREADER/GRAVEL BERM
REFER TO WETLAND REPLICATION PLAN FOR WETLAND & UPLAND SEED MIX
APPROXIMATE LOCATION OF ACCESS ROUTE
PROP GRANITE CURB
R&D EX GUARDRAIL
SEDIMENT CONTROL BARRIER (TYP)
R&D EX CLF
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
SAWCUT BIT PVMT
PROPOSED HOT MIX ASPHALT DRIVEWAY APRON
CITY LAYOUT LINE OF 1894
BEGIN FULL DEPTH CONSTRUCTION MICROMILL & OVERLAY STA. 18+50
LIMIT OF END MICROMILLING & OVERLAY STA 18+80.00 N 2806087.2692 E 7638321.0038
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
SAWCUT BIT PVMT
BRIDGE NO. T-01-024 (CSH)
EXIST
MA
PROJECT FILE NO. 608616
FED. AID PROJ. NO.
#
SHEET NO. 2
TOTAL SHEETS 9
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
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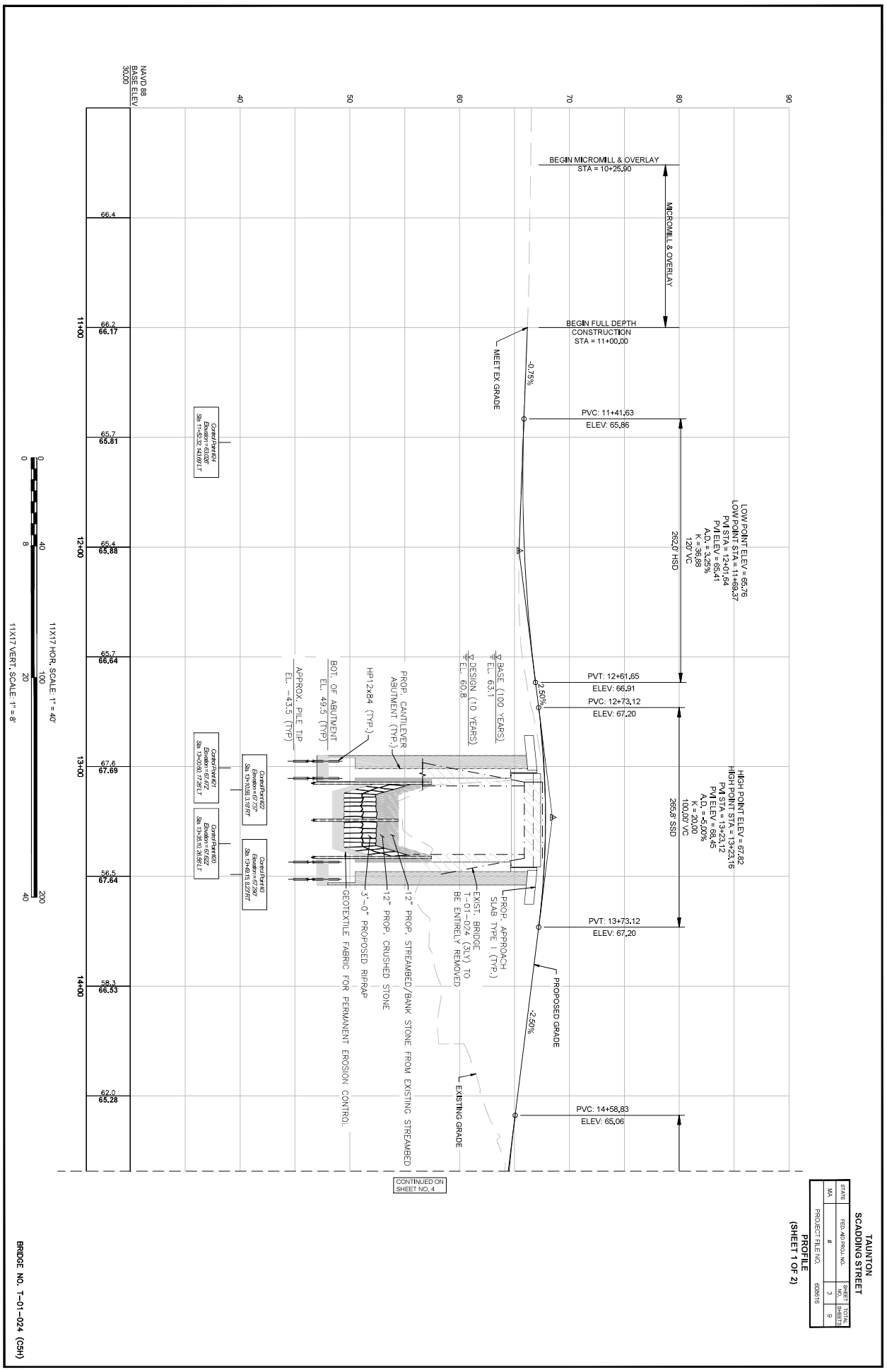


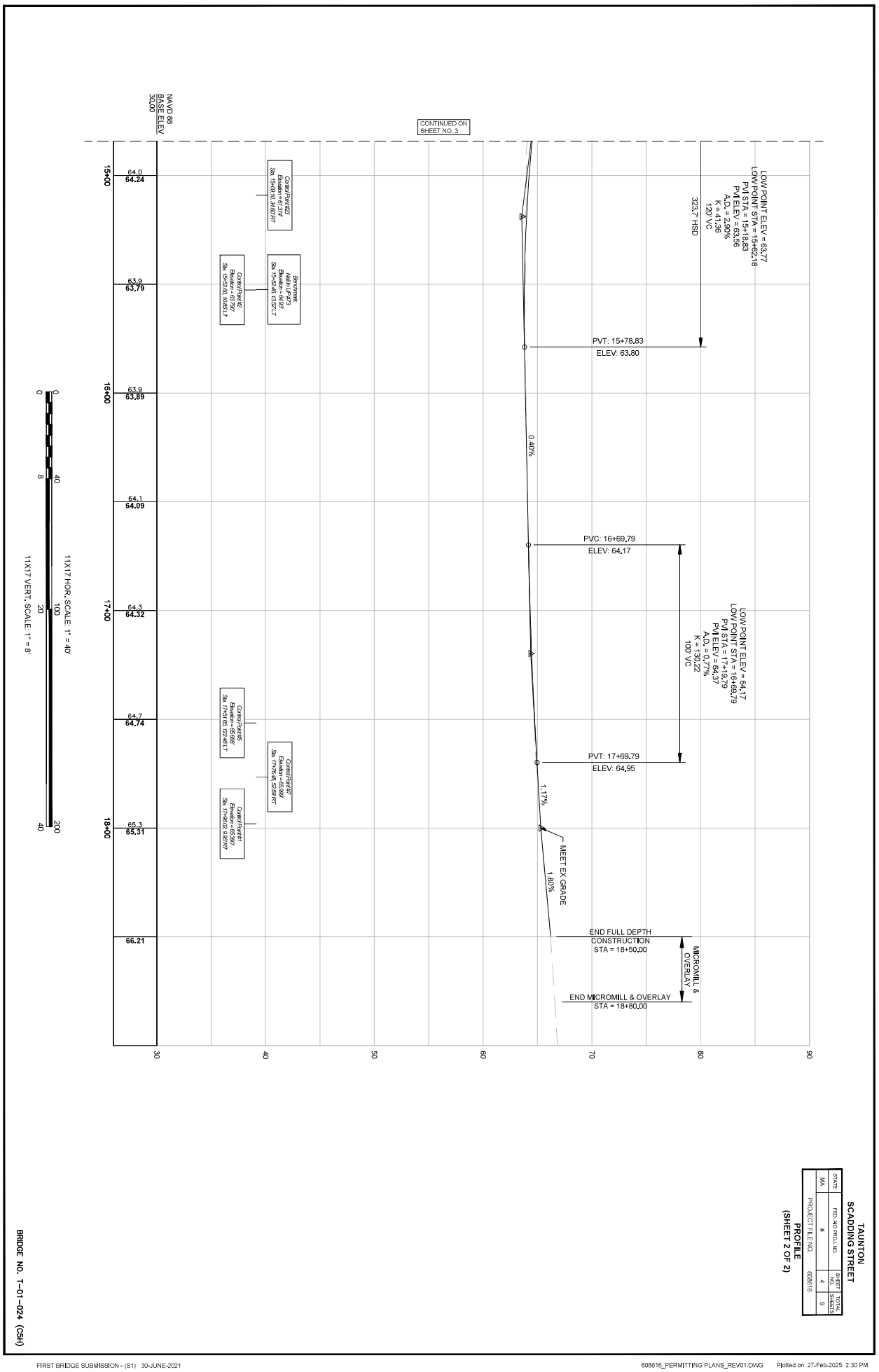

TAUNTON
SCADDING STREET
PROFILE
(SHEET 1 OF 2)

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | # | 3 | 9 |
| PROJECT FILE NO. | 608616 | | |

BRIDGE NO. T-01-024 (C5H)

FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021

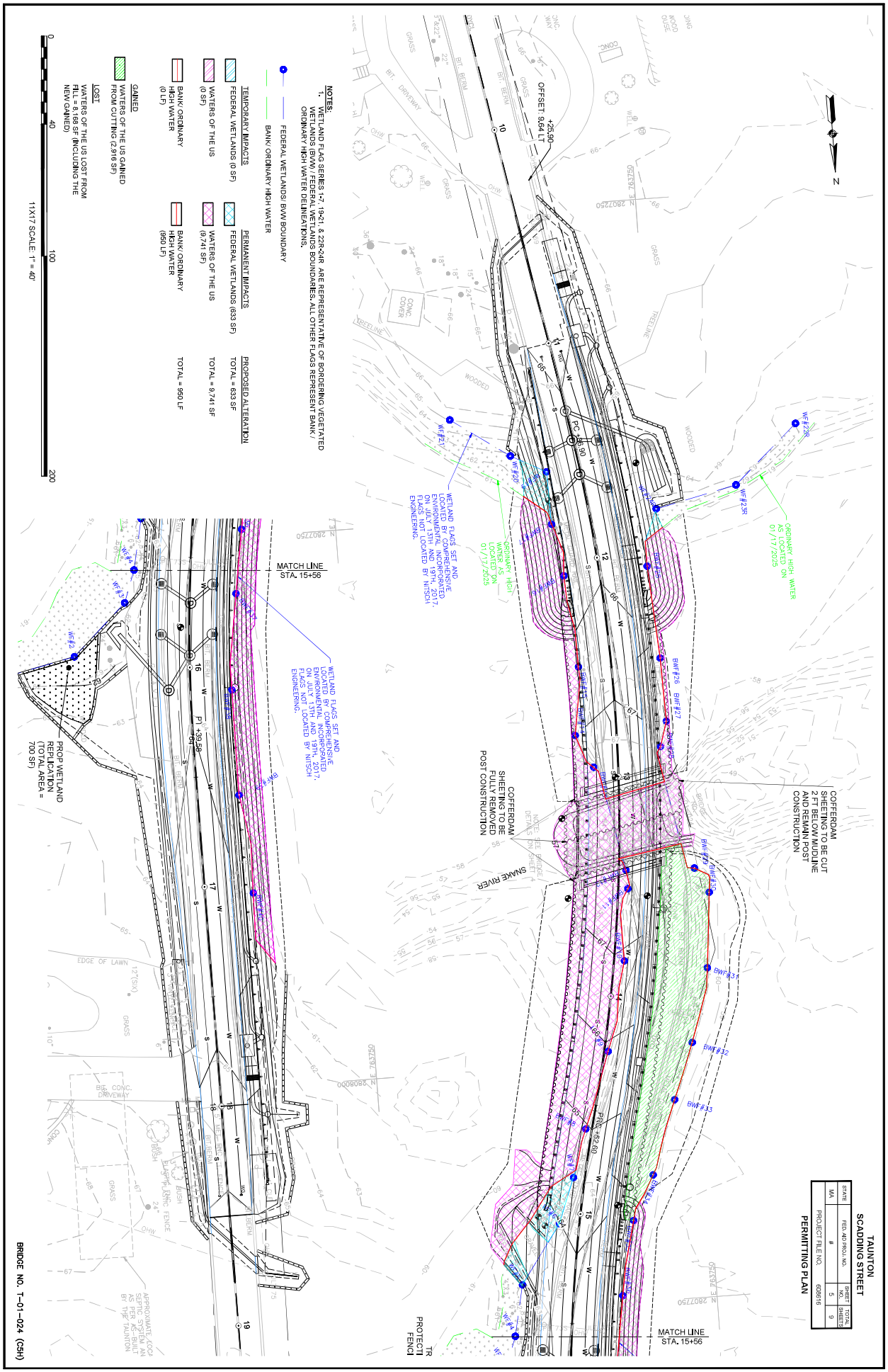
608616_PERMITTING PLANS_REV01.DWG Plotted on 27-Feb-2025 2:30 PM

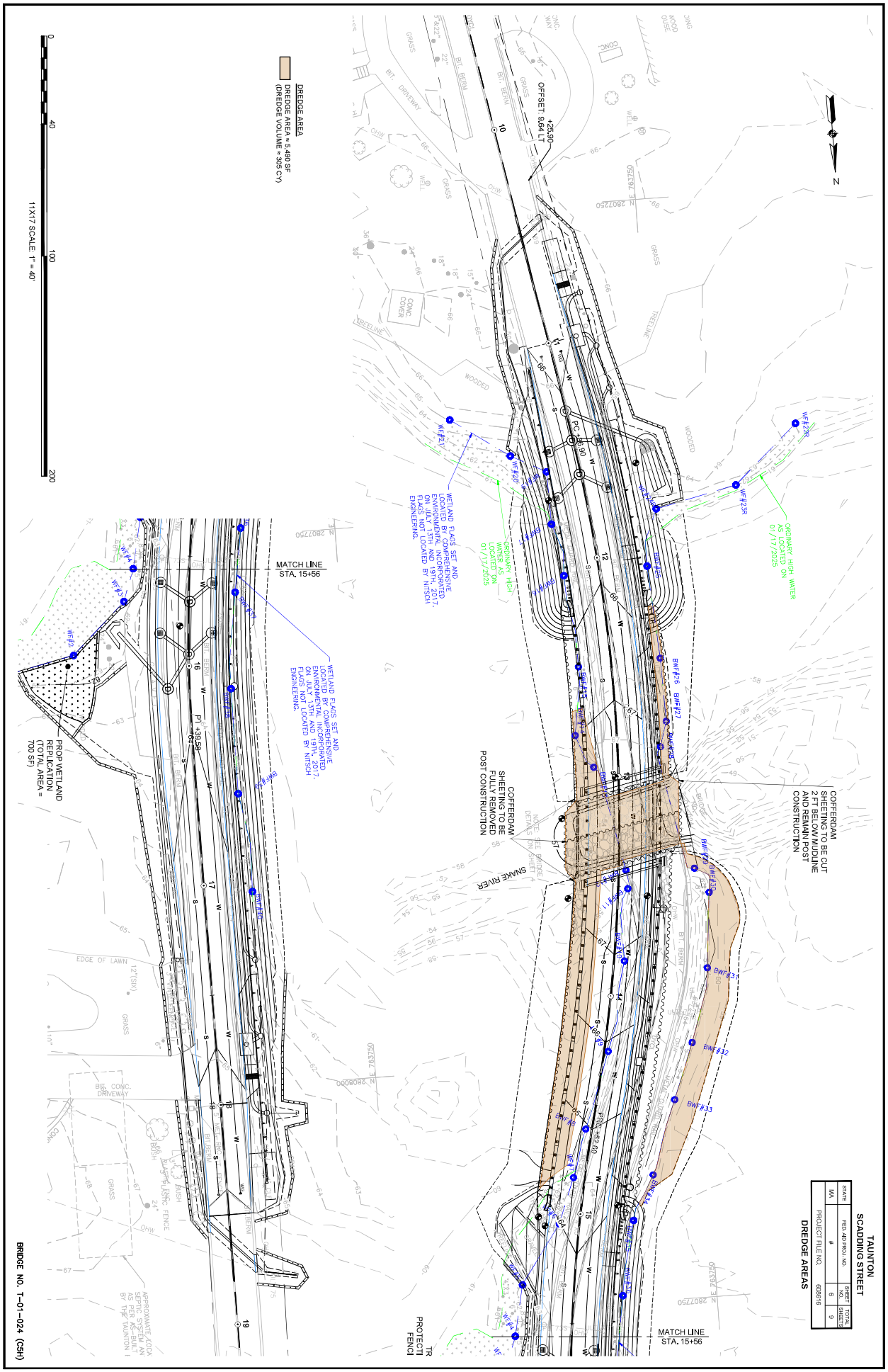


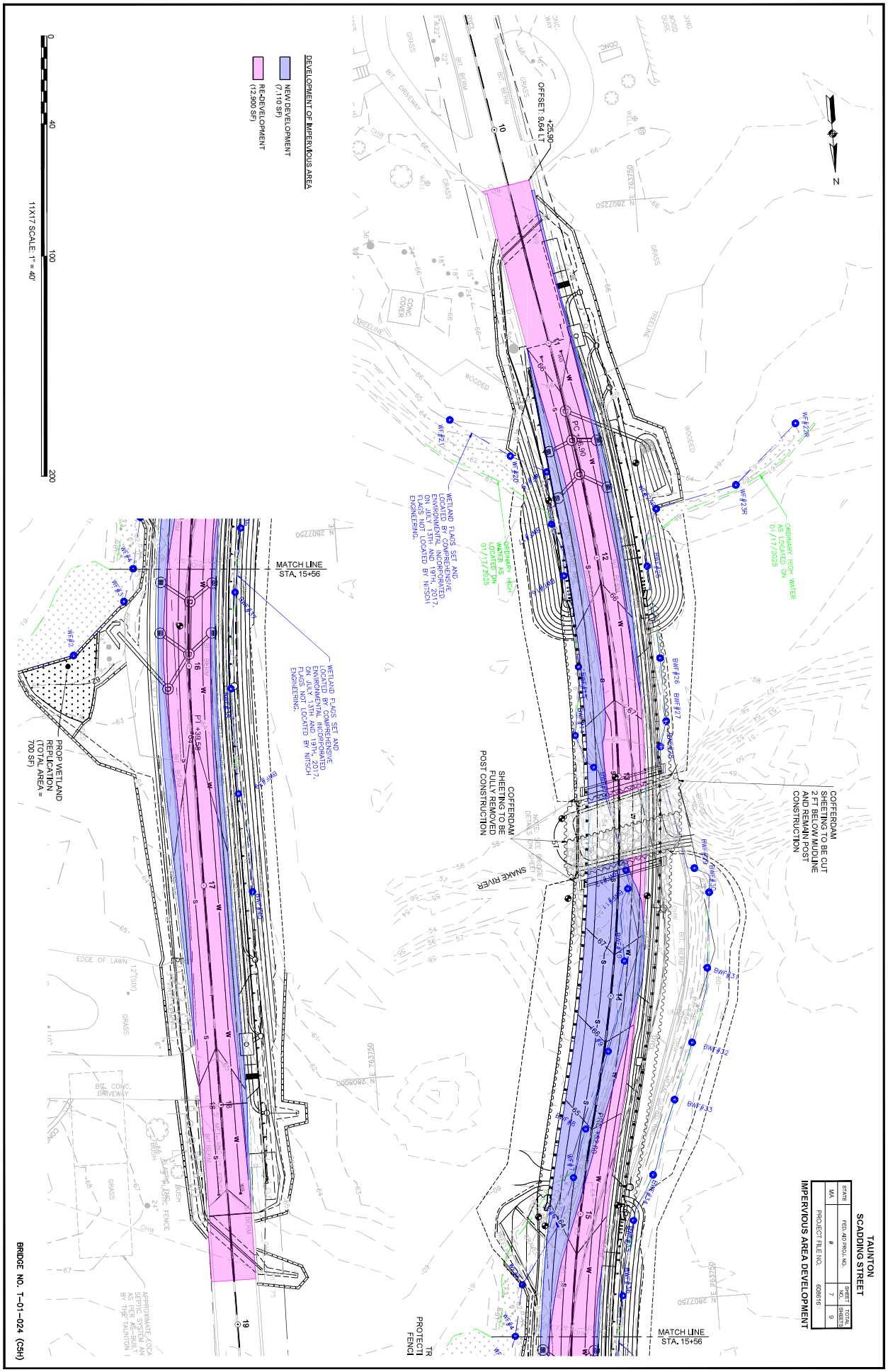

TAUNTON
SCADDING STREET
PROFILE
(SHEET 2 OF 2)

| STATE | | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | # | 4 | 9 |
| PROJECT FILE NO. | FED. AID PROJ. NO. | | |
| 608616 | | | |

BRIDGE NO. T-01-024 (C5H)


NOTES:
1. WETLAND FLAG SERIES 1-7, 19-21, & 22R-24R ARE REPRESENTATIVE OF BORDERING VEGETATED WETLANDS (BVW) FEDERAL WETLANDS BOUNDARIES. ALL OTHER FLAGS REPRESENT BANK / ORDINARY HIGH WATER DELINEATIONS.
FEDERAL WETLANDS/ BVW BOUNDARY
BANK/ ORDINARY HIGH WATER
TEMPORARY IMPACTS
FEDERAL WETLANDS (0 SF)
WATERS OF THE US (0 SF)
BANK/ ORDINARY HIGH WATER (0 LF)
PERMANENT IMPACTS
FEDERAL WETLANDS (633 SF)
WATERS OF THE US (9,741 SF)
BANK/ ORDINARY HIGH WATER (950 LF)
PROPOSED ALTERATION
TOTAL = 633 SF
TOTAL = 9741 SF
TOTAL = 950 LF
GAINED
WATERS OF THE US GAINED FROM CUTTING (2,916 SF)
LOST
WATERS OF THE US LOST FROM FILL = 8,166 SF (INCLUDING THE NEW GAINED)
0
40
100
200
11X17 SCALE: 1" = 40'
N
OFFSET: 9.64 LT
+25.90
PC
PT +39.58
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATERS LOCATED ON 01/17/2025
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
SNAKE RIVER
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
TAUNTON
SCADDING STREET
PERMITTING PLAN
STATE
FED. AID PROJ. NO.
MA
#
PROJECT FILE NO.
608616
SHEET NO.
5
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
Plotted on 27-Feb-2025 2:31 PM


DREDGE AREA
DREDGE AREA = 5,490 SF
(DREDGE VOLUME = 305 CY)
0
40
100
200
11X17 SCALE: 1" = 40'
N
MATCH LINE
STA. 15+56
MATCH LINE
STA. 15+56
OFFSET: 9.64 LT
PC
PT
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
SNAKE RIVER
EDGE OF LAWN
BIT. DRIVEWAY
CONC. DRIVEWAY
TR PROTECT FENCI
TAUNTON
SCADDING STREET
DREDGE AREAS
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
6
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
Plotted on 27-Feb-2025 2:32 PM


DEVELOPMENT OF IMPERVIOUS AREA
NEW DEVELOPMENT (7,110 SF)
RE-DEVELOPMENT (12,305 SF)
0
40
100
200
11X17 SCALE: 1" = 40'
N
OFFSET: 9.64 LT
+25.90
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
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EDGE OF LAWN
BRIDGE NO. T-01-024 (CSH)
TAUNTON
SCADDING STREET
IMPERVIOUS AREA DEVELOPMENT
STATE
MA
FED. AID PROJ. NO.
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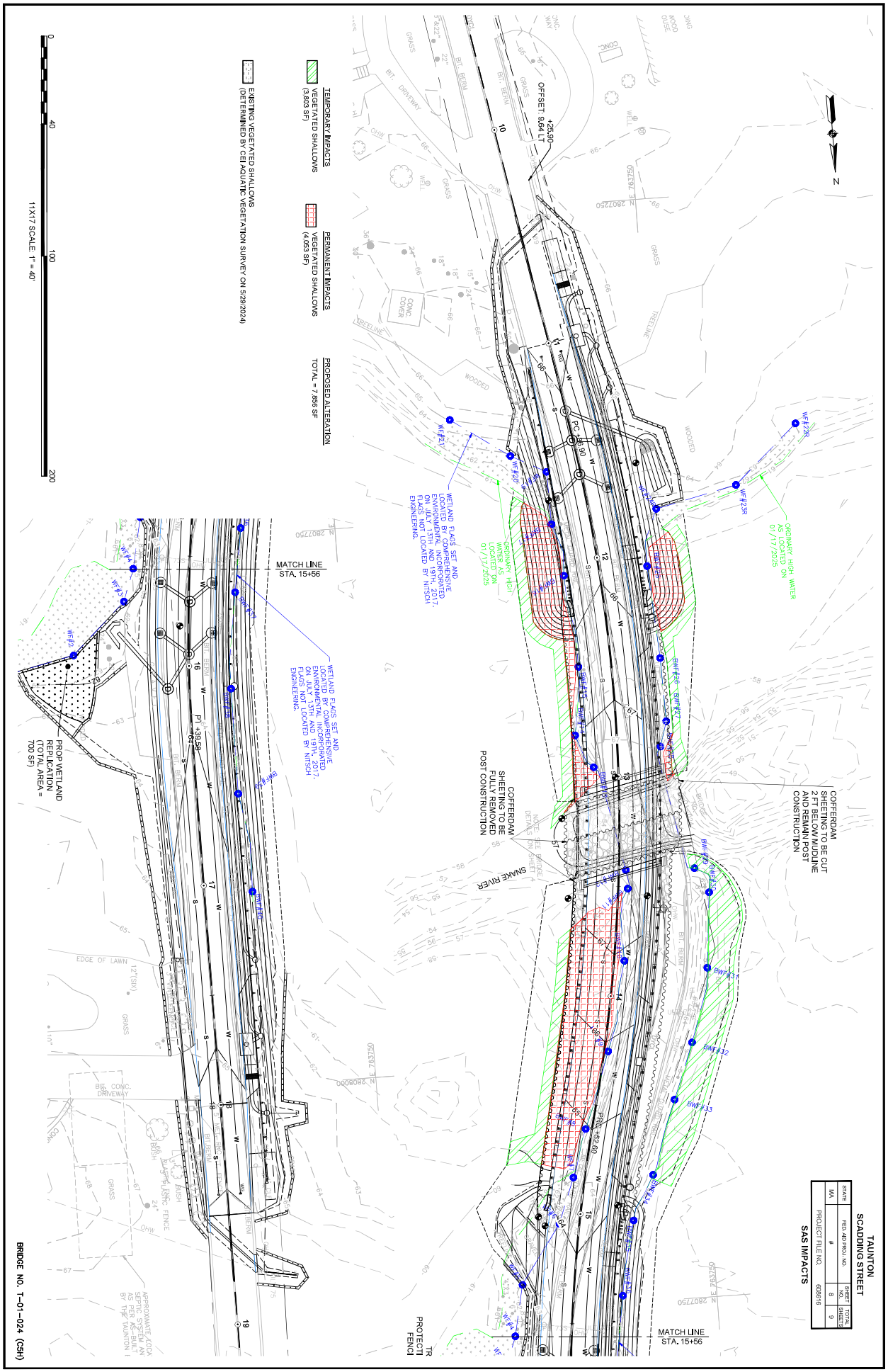
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
Plotted on 27-Feb-2025 2:33 PM


TEMPORARY IMPACTS
VEGETATED SHALLOWS (3,803 SF)
PERMANENT IMPACTS
VEGETATED SHALLOWS (4,053 SF)
PROPOSED ALTERATION
TOTAL = 7,856 SF
EXISTING VEGETATED SHALLOWS (DETERMINED BY CEI AQUATIC VEGETATION SURVEY ON 5/29/2024)
11X17 SCALE: 1" = 40'
0
40
100
200
N
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
OFFSET: 9.64 LT
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
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SNAKE RIVER
TAUNTON
SCADDING STREET
SAS IMPACTS
STATE
MA
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BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
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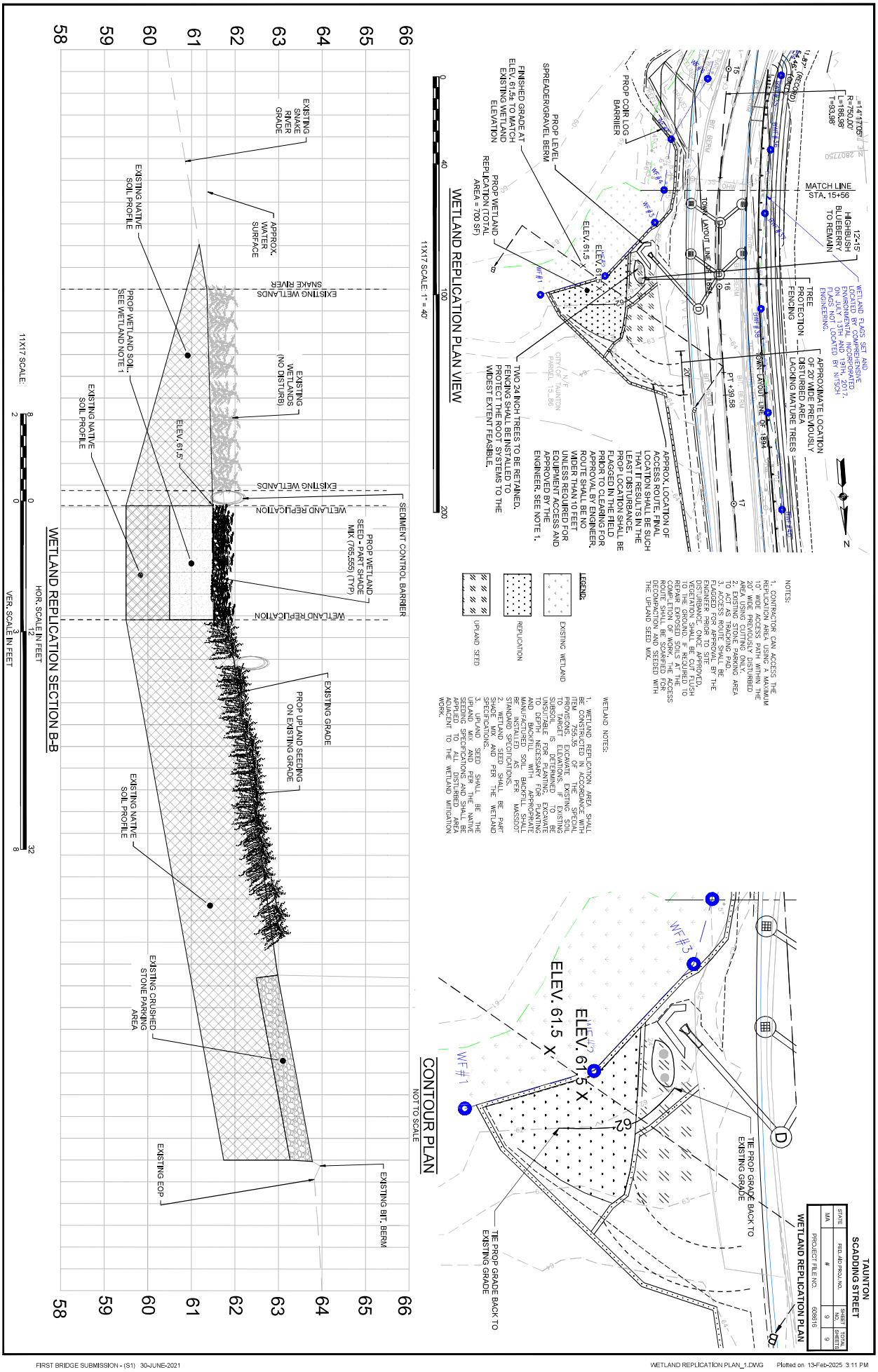
WETLAND REPLICATION PLAN VIEW
WETLAND REPLICATION SECTION B-B
CONTOUR PLAN
NOT TO SCALE
WETLAND NOTES:
NOTES:
LEGEND:
EXISTING WETLAND
REPLICATION
UPLAND SEED
EXISTING GRADE
EXISTING BIT. BERM
EXISTING EOP
EXISTING NATIVE SOIL PROFILE
EXISTING CRUSHED STONE PARKING AREA
EXISTING SNAKE RIVER GRADE
APPROX. WATER SURFACE
PROP WETLAND SOIL, SEE WETLAND NOTE 1
EXISTING WETLANDS (NO DISTURB)
SEDIMENT CONTROL BARRIER
PROP WETLAND SEED + PART SHADE MIX (765.555) (TYP)
PROP UPLAND SEEDING ON EXISTING GRADE
TIE PROP GRADE BACK TO EXISTING GRADE
WETLAND REPLICATION
EXISTING WETLANDS
SNAKE RIVER
ELEV. 61.5
11X17 SCALE: 1" = 40'
11X17 SCALE:
HOR. SCALE IN FEET
VER. SCALE IN FEET
TAUNTON
SCADDING STREET
WETLAND REPLICATION PLAN
STATE
MA
FED. AID PROJ. NO.
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PROJECT FILE NO.
608616
SHEET NO.
9
TOTAL SHEETS
9

US Army Corps of Engineers ®
New England District

**WORK-START NOTIFICATION FORM**
(Minimum Notice: Two weeks before work begins)

**********

EMAIL TO: daniel.b.vasconcelos@usace.army.mil and cenae-r-ma@usace.army.mil; or

MAIL TO: Daniel Vasconcelos
Regulatory Division
U.S. Army Corps of Engineers, New England District
696 Virginia Road
Concord, Massachusetts 01742-2751

**********

A U.S. Army Corps of Engineers authorization, file # 2024-00894, was issued to MassDOT – Highway Division. The permit authorized the permanent discharge of fill material within 10,374 square feet (0.2 acres) of waters of the United States (WOTUS), including 9,741 square feet below the Ordinary High Water (OHW) mark of Lake Sabbatia, of which 4,053 square feet is within vegetated shallows, and 633 square feet within wetlands, associated with the replacement of the bridge conveying Scadding Street over Lake Sabbatia in Taunton, Massachusetts. The existing single-span bridge will be replaced with a new, longer and wider single-span bridge in a slightly different alignment to address the existing "S" curve and associated poor sight distances. The new abutments will be installed landward of the existing and the existing removed. Scour protection consisting of rip-rap overtopped with 12 inches of natural streambed material will be placed at the abutments.

The people (e.g., contractor) listed below will do the work, and they understand the permit's conditions and limitations.

**PLEASE PRINT OR TYPE**

**Name of Person/Firm:** _____

**Business Address:** _____

_____

_____

**Phone:** (___) _____ (___) _____

**Email:** _____

**Proposed Work Dates: Start** _____ **Finish** _____

**Permittee/Agent Signature:** _____ **Date:** _____

**Printed Name:** _____ **Title:** _____

**Date Permit Issued:** _____ **Date Permit Expires:** _____

**********

**FOR USE BY THE ARMY CORPS OF ENGINEERS**

**PM:** Vasconcelos **Submittals Required:** _____

**Inspection Recommendation:** _____

US Army Corps of Engineers ®
New England District

# COMPLIANCE CERTIFICATION FORM

(Minimum Notice: Permittee must sign and return notification within one month of the completion of work.)

**Permit Number:** NAE-2024-00894

**Project Manager:** Dan Vasconcelos

**Name of Permittee:** MassDOT – Highway Division

**Permit Issuance Date:** 4/30/2025

Please sign this certification and return it to our office upon completion of the activity.

E-MAIL TO: cenae-r-tu@usace.army.mil; or

MAIL TO: Transportation & Utilities Section
Regulatory Division
U.S. Army Corps of Engineers, New England District
696 Virginia Road
Concord, MA 01742-2751

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

**I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the above referenced permit, and any required mitigation was completed in accordance with the permit conditions.**

Signature of Permittee _____ Date _____

Printed Name _____ Date of Work Completion _____

( ) _____ ( ) _____
Telephone Number Telephone Number

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

April 25, 2025

Massachusetts Department of Transportation (MassDOT)
Highway Division
10 Park Plaza
Boston, MA 02116
ATTN: Courtney Walker

RE: **AMENDED** 401 Water Quality Certification
BRP WW 10, Major Fill Project
BRP WW 08, Minor Dredge
Scadding Street Bridge Replacement (Bridge T-01-024)
Lake Sabbatia
Taunton, MA

401 WQC Transmittal No: 24-WW26-0036-APP
USACE Application Number: NAE-2024-00894
DOT Project File Number: 608616

Dear Ms. Walker:

On January 28, 2025, the Massachusetts Department of Environmental Projection (MassDEP) issued a Water Quality Certification (WQC) to the Massachusetts Department of Transportation (MassDOT) for the realignment of Scadding Street which traverses a causeway through Lake Sabbatia, as well as the replacement of bridge T-01-024, installation of scour protection, stormwater improvements, and streambed restoration. The WQC contained 51 conditions and addressed impacts to Land Under Water (LUW). MassDOT requested a modification of the WQC in a letter dated April 4, 2025.

The WQC amendment request addresses changes to the designation of impacts to bordering vegetated wetland (BVW) and land under water (LUW) at the direction of the United States Army Corps of Engineers (USACE). The USACE made comments via email on January 3, 2025 and February 24, 2025 requesting that certain impact areas be designated as permanent impacts instead of temporary impacts as well as resolution of other discrepancies in the delineation. These adjustments decreased overall impacts on the project but increased permanent impacts to both BVW and LUW. The changes to impact numbers can be seen in Table 1. The addition to permanent impacts to BVW will require an increase in the size of the replication area, which will now be 700 square feet (sf).

This information is available in alternate format. Please contact MassDEP at 617-626-1282.
TTY# MassRelay Service 1-800-439-2370
MassDEP Website: www.mass.gov/dep

Printed on Recycled Paper

Table 1: Changes to Impacts

| | BVW Temporary | BVW Permanent | LUW Temporary | LUW Permanent |
|---|---|---|---|---|
| Originally Proposed | 567 sf | 106 sf | 5,123 sf | 13,897 sf |
| Newly Proposed | 0 sf | 633 sf | 0 sf | 9,741 sf |

In accordance with the provisions of MGL c. 21, s. 26-53 and Section 401 of the Federal Clean Water Act as amended (33 U.S.C. s. 1251 et seq.), MassDEP has reviewed this project change request and has determined that there is reasonable assurance that the project change will not violate applicable water quality standards. MassDEP hereby approves of the above-mentioned project changes and amends the WQC dated January 28, 2025, by referencing the following documents and subject to the following Special Conditions:

**Reference Documents:**

1. Request for Amended Water Quality Certification: Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA. 401 WQC Application Number 24-WW26-0036-APP. Prepared by Comprehensive Environmental Inc. and Dewberry on behalf of MassDOT. Dated April 4, 2025.

**Conditions:**

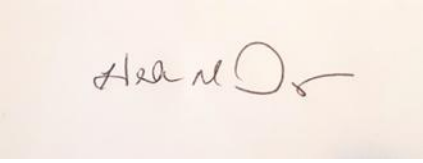
16. No more than **633 sf** of permanent impacts to BVWs shall occur. No more than **9,741 sf** of permanent impacts to LUW shall occur. No more than **330 cy** of dredging in LUW shall occur. All work shall avoid unapproved impacts to BVW and LUW.

41. A minimum of **700 sf** of wetland replication shall be completed in coordination with an approved WS. The WS shall oversee all BVW replication and restoration, including final grading and seeding. The WS shall confirm that constructed BVW replication and restoration areas have adequate soils and hydrology to promote wetland plant species prior to seeding and shall recommend measures to amend soils and promote wetland hydrology as needed.

**All WQC Special Conditions remain in effect as applicable.**

Should you have any questions relative to this permit, please contact me at heidi.davis@mass.gov or Tyler Lewis at tyler.lewis@mass.gov.

Very truly yours,



Heidi M. Davis

Highway Unit Supervisor

Ecc: DEP SERO – Maissoun Reda
USACE – Dan Vasconcelos
MassDOT District 5 – Andrea Coates
MassDOT District 5 – David Pichette
Comprehensive Environmental Inc. – Nicholas Shaw - nshaw@ceiengineers.co
Comprehensive Environmental Inc. – Matthew Lundsted – mlundsted@ceiengineers.co
Taunton Conservation Commission – Michele Restino

Failure to comply with this amended certification is grounds for enforcement, including civil and criminal penalties, under MGL Ch. 21 §42, MGL Ch. 21A §16, or other possible actions/penalties as authorized by the General Laws of the Commonwealth.

This amended certification does not relieve the applicant of the obligation to comply with other appropriate state or federal statutes or regulations.

NOTICE OF APPEAL RIGHTS

A) Appeal Rights and Time Limits

Certain persons shall have a right to request an adjudicatory hearing concerning certifications by MassDEP when an application is required: (a) the applicant or property owner; (b) any person aggrieved by the decision who has submitted written comments during the public comment period; (c) any ten (10) persons of the Commonwealth pursuant to M.G.L. c.30A where a group member has submitted written comments during the public comment period; or (d) any governmental body or private organization with a mandate to protect the environment which has submitted written comments during the public comment period. Any person aggrieved, any ten (10) persons of the Commonwealth, or a governmental body or private organization with a mandate to protect the environment may appeal without having submitted written comments during the public comment period only when the claim is based on new substantive issues arising from material changes to the scope or impact of the activity and not apparent at the time of public notice. To request an adjudicatory hearing pursuant to M.G.L. c.30A, § 10, a Notice of Claim must be made in writing, provided that the request is made by certified mail or hand delivery to MassDEP, with the appropriate filing fee specified within 310 CMR 4.10 along with a DEP Fee Transmittal Form within twenty-one (21) days from the date of issuance of this Certificate, and addressed to:

Case Administrator
Department of Environmental Protection
100 Cambridge Street, Suite 900
Boston, MA 02108

A copy of the request shall at the same time be sent by certified mail or hand delivery to the Department of Environmental Protection at:

Department of Environmental Protection
Commissioner's Office
100 Cambridge Street, Suite 900

Boston, MA 02108

B) Contents of Hearing Request

A Notice of Claim for Adjudicatory Hearing shall comply with MassDEP's Rules for Adjudicatory Proceedings, 310 CMR 1.01(6), and shall contain the following information pursuant to 314 CMR 9.10(3):

a.) the 401 Certification Transmittal Number;
b.) the complete name of the applicant and address of the project;
c.) the complete name, address, and fax and telephone numbers of the party filing the request, and, if represented by counsel or other representative, the name, fax and telephone numbers, and address of the attorney;
d.) if claiming to be a party aggrieved, the specific facts that demonstrate that the party satisfies the definition of "aggrieved person" found at 314 CMR 9.02;
e.) a clear and concise statement that an adjudicatory hearing is being requested;
f.) a clear and concise statement of (1) the facts which are grounds for the proceedings, (2) the objections to this Certificate, including specifically the manner in which it is alleged to be inconsistent with the MassDEP's Water Quality Regulations, 314 CMR 9.00, and (3) the relief sought through the adjudicatory hearing, including specifically the changes desired in the final written Certification; and
g.) a statement that a copy of the request has been sent by certified mail or hand delivery to the applicant, the owner (if different from the applicant), the conservation commission of the city or town where the activity will occur, the Department of Environmental Management (when the certificate concerns projects in Areas of Critical Environmental Concern), the public or private water supplier where the project is located (when the certificate concerns projects in Outstanding Resource Waters), and any other entity with responsibility for the resource where the project is located.

C) Filing Fee and Address

The hearing request along with a DEP Fee Transmittal Form and a valid check or money order payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
Commonwealth Master Lockbox
PO Box 4062
Boston, MA 02211

The request will be dismissed if the filing fee is not paid unless the appellant is exempt or granted a waiver. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority. MassDEP may waive the adjudicatory hearing filing fee pursuant to 310 CMR 4.06(2) for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file an affidavit setting forth the facts believed to support the claim of undue financial hardship together with the hearing request as provided above.

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

January 28, 2025

Massachusetts Department of Transportation
Highway Division
10 Park Plaza
Boston, MA 02116
ATTN: Courtney Walker

RE: 401 WATER QUALITY CERTIFICATION
BRP WW 10, Major Fill Project
BRP WW 08, Minor Dredge
Scadding Street Bridge Replacement (Bridge T-01-024)
Lake Sabbatia
Taunton, MA

401 WQC Transmittal No: 24-WW26-0036-APP
USACE Application Number: NAE-2024-00894
DOT Project File Number: 608616

Dear Ms. Walker:

The Massachusetts Department of Environmental Protection (MassDEP) has reviewed your application for a Water Quality Certification (WQC), as referenced above; this application was deemed complete on December 31, 2024. In accordance with the provisions of MGL Ch. 21, §§26-53 and Section 401 of the Federal Clean Water Act as amended (33 U.S.C. §1251 et seq.), it has been determined there is reasonable assurance the proposed project will be conducted in a manner which will not violate applicable water quality standards (314 CMR 4.00) and other applicable requirements of state law.

The proposed project consists of the realignment of Scadding Street which traverses a causeway through Lake Sabbatia, as well as the replacement of bridge T-01-024, installation of scour protection, stormwater improvements, and streambed restoration. This work is proposed to address structural concerns regarding the bridge as well as safety concerns with the existing alignment of the roadway.

The existing bridge was constructed in 1967 and is a two-lane, single span bridge; the bridge span has a length of 30 feet and a width of 24 feet. The bridge superstructure has spalling and cracked concrete and rusted bridge rails. Scour is occurring at the base of both abutments and the slopes adjacent to the abutments are beginning to erode. The bridge is located within the Canoe River Aquifer Area of Critical Environmental Concern (ACEC) and Natural Heritage and Endangered Species Program (NHESP) habitats

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MassDEP Website: www.mass.gov/dep

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for Tidewater Mucket and Eastern Pondmussel. In a letter from the MA Division of Fisheries and Wildlife, it was determined that this project will not result in a prohibited Take. The project is within the Federal Emergency Management Agency 1% annual chance of flooding zone (Zone AE).

The project will replace the existing bridge in the same location with a new structure that has a greater span and width. The new bridge will have a span of 38 feet and width of 35 feet to allow for wider travel lanes and a sidewalk along the roadway. New integral concrete abutments, concrete wingwalls, scour protection, bank stabilization, and streambed material will also be installed. Scour protection will consist of a one-foot layer of crushed stone, a three-foot layer of riprap, and a one-foot layer of natural streambed material on top. Scadding Street will be re-aligned to reduce the "S" curve which will improve traffic safety. Realignment will require that the northeast side of the existing embankment be cut and balanced by fill on the southeast side of the existing embankment. Full depth roadway reconstruction is proposed for approximately 383 feet north of the bridge and 260 feet south of the bridge. The total length of the project is 683 feet.

In total, 673 square feet (sf) (567 sf temporary and 106 sf permanent) of Bordering Vegetated Wetland (BVW) impacts, and 19,020 square sf (5,123 sf temporary and 13,897 sf permanent) of Land Under Water (LUW) impacts are required for the project. Impacts to BVW are primarily from the roadway realignment. Temporary impacts to LUW are primarily due to dewatering within a cofferdam to remove the existing substructure and install the new banks. The permanent impacts to LUW are a result of the installation of riprap for scour protection and installation and the north approach of the newly realigned roadway. Due to the realignment of the roadway, 2,460 sf of LUW will be created on the northwest side of the bridge. A total of 330 cubic yards (cy) of dredging in Lake Sabbatia is required for the installation of riprap below ordinary high water, streambed restoration, and bank stabilization. To mitigate the permanent impacts to BVW on site, a 275-sf wetland replication area will be installed on the northeast portion of the project. Land Under Water/Waters of the U.S. will be restored with streambed/bank material to be placed on top of the proposed riprap prior to the completion of construction. Cofferdams will be removed to the extent possible as described in Special Condition 28.

The project will result in a 7,371 sf increase in impervious surface. 12,900 sf of the proposed roadway qualifies as redevelopment and 7,110 sf of the proposed roadway is considered new development as defined at 314 CMR 9.02. The increase in impervious is due to the widening of the bridge and roadway on each approach, adding the sidewalk, and adjusting the alignment of the roadway. As the project locus is on a causeway with a narrow embankment, stormwater management opportunities are limited. Two catch basin systems will be installed at each end of the project and will consist of eight deep sump catch basins that direct flow to two vegetated swales that eventually discharge to Lake Sabbatia. Existing conditions will be improved by installing the deep sump catch basins and vegetated swales to treat what was originally country drainage. These improvements will allow the project to fully comply with MA Stormwater Management Standard 1, and Standards 2, 3, and 4 to the Maximum Extent Practicable.

Sediment sample analytical results were compared to the Reportable Concentration (RC) S-1 criteria of the Massachusetts Contingency Plan (MCP). Results of the sediment samples analyzed indicated there are no compounds that exceed the RC S-1 reporting criteria under the MCP. Excavated sediment will be disposed of at an approved off-site facility to be determined or used to backfill dredge areas.

An alternatives analysis was completed in accordance with 314 CMR 9.00. Given the poor condition of the existing bridge and the dangerous alignment of the Scadding Street approaches in both directions, the no-build alternative is not a viable option. Adverse impacts to Land Under Water have been minimized through the use of proposed retaining walls.

Based on a review of information provided by the applicant, MassDEP finds that this project complies with the standards described under 314 CMR 9.06. Public notice was provided in the Taunton Daily Gazette on April 7, 2024. No comment letters were received during the public comment period.

Therefore, based on information currently in the record, MassDEP grants a WQC for this project subject to the following conditions to maintain water quality, to minimize impact on waters and wetlands, and to ensure compliance with appropriate state law. The Department further certifies in accordance with 314 CMR 9.00 that there is reasonable assurance the project or activity will be conducted in a manner which will not violate applicable water quality standards (314 CMR 4.00) and other applicable requirements of state law. Finally, the Department has determined that upon satisfying the conditions and mitigation requirements of this approval, the project provides a level of water quality necessary to protect existing uses and accordingly finds that the project to be implemented satisfies the Surface Water Quality Standards at 314 CMR 4.00.

Pursuant to 314 CMR 9.09(1)(d); 314 CMR 9.06(6)(a); 310 CMR 9.06(2); 314 CMR 9.07; 314 CMR 9.07(1); 314 CMR 9.09(7)(5)(c); 314 CMR 9.11; and 314 CMR 9.09(1)(e), the following Special Conditions are necessary to ensure that construction practices and stormwater controls are implemented in such a manner as to prevent degradation to wetlands and waters; ensure that practicable steps have been taken which will avoid and minimize impacts to wetlands and waters; minimize turbidity and sediment caused by construction activities; ensure that water quality is not degraded, and that biology of the waters are not negatively impacted by potential discharges; and/or maintain a record of the dredged material for reference and to ensure accountability in its transportation.

**Those Special Conditions that require direct submittals to MassDEP for either review, or review and approval, are denoted by the following notation (Submittal) at the end of the condition and are summarized in Attachment A. In addition, those conditions with the (Submittal) designation shall be included in the Special Provisions and, as applicable, reviewed at the Pre-Construction Meeting.**

1. All work shall be performed in accordance with the following documents and plans:

    - NARRATIVE for the Water Quality Certification Application: MassDOT Project No. 608616 Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA. Prepared by Comprehensive Environmental Incorporated on behalf of MassDOT. Dated June 6, 2024.
    - PERMITTING PLANS for the Water Quality Certification Application: MassDOT Project No. 608616 Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA. Prepared by Comprehensive Environmental Incorporated on behalf of MassDOT. Dated June 6, 2024.
    - Online Application WW26 - Combined Licenses/Permits for Waterways and Water Quality Certification Application. Dated June 12, 2024.

- AQUATIC VEGETATION SURVEY for the Water Quality Certification Application: MassDOT Project No. 608616 Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA. Prepared by Comprehensive Environmental Incorporated on behalf of MassDOT. Dated June 6, 2024.
- HYDRAULIC STUDY REPORT for the Water Quality Certification Application: MassDOT Project No. 608616 Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA. Prepared by Comprehensive Environmental Incorporated on behalf of MassDOT. Dated January 11, 2019.
- CULTURAL RESOURCE PROJECT DOCUMENTS for the Water Quality Certification Application: MassDOT Project No. 608616 Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA. Prepared by Comprehensive Environmental Incorporated on behalf of MassDOT. Dated October 17, 2024.
- STORMWATER MANAGEMENT SYSTEM OPERATIONS AND MAINTENANCE PLAN AND LONG-TERM POLLUTION PREVENTION PLAN for the Water Quality Certification Application: MassDOT Project No. 608616 Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA. Prepared by Comprehensive Environmental Incorporated on behalf of MassDOT. Dated February 20, 2024.
- PROJECT ENVIRONMENTAL SPECIFICATIONS for the Water Quality Certification Application: MassDOT Project No. 608616 Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA.
- Determination Letter from U.S. Fish and Wildlife Service, dated March 9, 2023.
- Letter from Everose Schluter of the MA Division of Fisheries and Wildlife, dated January 4, 2024.
- 401 WATER QUALITY CERTIFICATION Response to Comments (RTC) Administrative Completeness and Technical Deficiency Review 401 WQC Transmittal No: 24-WW26-0036-APP. Prepared by Comprehensive Environmental Incorporated on behalf of MassDOT. Dated December 17, 2024.

**Pre-Construction**

2. A qualified **Wetland Scientist** (WS) with a minimum of five years of relevant professional experience with wetland and stream replacement and restoration projects shall be employed to oversee all BVW and LUW replication and restoration activities as proposed in the application, including but not limited to grading, placement of substrate, and seeding. The name, contact information, and qualifications of the WS shall be provided to MassDEP for approval prior to the Pre-Construction Meeting required in Condition 4. The name and contact information of the approved WS shall be provided to the Taunton Conservation Commission prior to the start of work. **(Submittal)**

3. Prior to the Pre-Construction Meeting required in Condition 4, the applicant shall provide MassDEP with the name and contact information of the Resident Engineer (RE) responsible for ensuring that all work complies with the conditions of this WQC. **(Submittal)**

4. A minimum of 21 days prior to the start of work, MassDOT shall contact MassDEP to schedule an onsite Pre-Construction Meeting to review the approved plans and terms and conditions of this WQC. The RE, the construction contractor, and a representative from the MassDOT Environmental Section and/or the District Environmental Engineer shall attend the Pre-Construction Meeting.

5. MassDEP shall be copied on applicable submittals to the U.S. Army Corps of Engineers (USACE). These include but are not limited to: Self-Verification Notification Form (SVNF); Pre-Construction Notification (PCN); Work-Start Notification Form; Mitigation Work-Start Notification Form; and Compliance Certification Form. The Work-Start Notification Form shall be submitted at least 14 days before the anticipated start of work and the Compliance Certification Form shall be submitted within 30 days following the completion of the authorized work. **(Submittal)**

6. A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan (CP/PP) shall be developed and implemented as required by 314 CMR 9.06(6)(a)8. A minimum of 14 days prior to the start of work, MassDOT shall submit the CP/PP for review and approval. If the U.S. Environmental Protection Agency (EPA) Construction General Permit (CGP) applies, Stormwater Pollution Prevention Plan (SWPPP) may serve as the CP/PP, providing it includes the measures required to be in the CP/PP per these Special Conditions, in addition to the measures specifically required by the CGP. Any subsequent changes to the Final CP/PP (defined herein as including the construction period SWPPP if applicable) must be approved by MassDEP. **(Submittal)**

7. Training regarding erosion and sedimentation controls is required. The RE, CP/PP Inspector, and any other relevant personnel responsible for erosion and sedimentation controls shall complete the EPA CGP Inspector Training, or other training that meets the CGP requirements, as well as complete a comprehensive review of the approved CP/PP. Verification of proof of completion training of the shall be submitted to MassDEP prior to the start of work. **(Submittal)**

8. The CP/PP shall identify, but shall not be limited to, staging and laydown areas in relation to BVWs and LUW, proposed dewatering locations, proposed stockpile locations and their proximity to catch basins or other drainage conveyances that discharge to wetland resource areas, and the location of construction-period erosion and sedimentation controls.

9. A minimum of 14 days prior to the start of work, MassDOT shall submit a Control of Water Plan for review and approval. The Plan shall include proposed methods to manage construction-period water including but not limited to dewatering methods and locations, specifications for any water bypass systems, and dredge and debris material dewatering prior to shipment off site, as applicable. The plan shall meet requirements of the CP/PP and be specific to the Project. Dewatering and water bypasses shall be conducted under the supervision of the RE or other project staff with knowledge of these practices and comply with the applicable conditions identified herein. **(Submittal)**

10. Prior to the start of work, approved erosion and sedimentation control measures shall be installed per the approved CP/PP and as applicable, the manufacturer specifications. Erosion

and sedimentation control measures may consist of, but are not limited to, silt fence, staked straw bales, silt/turbidity curtains, compost filter tubes, etc.

11. Prior to the Pre-Construction Meeting, the boundaries of BVWs and LUW shall be re-flagged where they are within 50 feet of the limits of work. In the event BVWs and LUW boundaries overlap, the outermost boundary (i.e., closest to the proposed work) shall be flagged. All boundary markers, once in place, shall remain in place throughout construction until all disturbed surfaces have been permanently stabilized. Boundary markers shall be fully evaluated annually and refreshed where needed. Implementation of and compliance with this requirement shall be documented by the RE. All construction personnel shall be made aware of these markers.

12. A Flood Contingency Plan shall be submitted to MassDEP for review and approval that addresses areas that fall within the 1% annual chance of flooding zone within project limits. The Plan shall address the potential need for temporary relocation of construction and auxiliary equipment during flood events to designated upland locations above the Base Flood Elevation. The Plan shall be approved by MassDEP prior to any work within the 1% annual chance of flooding zone, including mobilization or storage of equipment and materials. **(Submittal)**

13. A minimum of 21 days prior to the start of work, a Demolition Plan shall be submitted for review and approval describing how the existing bridge will be demolished and what measures will be taken to assure that demo material is properly contained and does not enter Lake Sabbatia. **(Submittal)**

14. The applicant shall develop an Invasive Plant Management Strategy (IMPS) to be submitted to MassDEP for review and approval prior to the Pre-Construction Meeting. The IMPS shall be implemented as approved. **(Submittal)**

15. If needed, use of herbicides to control invasive species shall be implemented in accordance with the approved IPMS and with the following requirements:

    a. Herbicides can only be applied by a Licensed Applicator;

    b. Applicant must provide MassDEP Material Safety Data Sheets (MSDS) of the product being used and must also keep MSDS sheets on site;

    c. Product registration in MA with Massachusetts Pesticide Product Registration Number must be confirmed with Massachusetts Department of Agricultural Resources Pesticide Division;

    d. EPA Registration Number for the product must be identified;

    e. Product label restricted use provisions must be followed; and

    f. Applicant must contact MassDEP Division of Watershed Planning to determine if a BRP WM 04 herbicide permit is required.

**Construction Period**

16. No more than **106 sf** of permanent and **567 sf** of temporary impacts to BVWs shall occur. No more than **13,897 sf** of permanent and **5,123 sf** of temporary impacts to LUW shall occur. No more than **330 cy** of dredging in LUW shall occur. All work shall avoid unapproved impacts to BVW and LUW.

17. CP/PP inspections shall occur at least once every seven calendar days and within 24 hours of a storm event that produces 0.5 inches or more of rain within a 24-hour period, or at a more stringent frequency if the CP/PP requires.

18. Copies of CP/PP Inspection and Maintenance Log Forms shall be submitted to MassDEP within 14 days upon request.

19. The Project shall identify one individual with at least three years of experience with construction period erosion and sedimentation control to be responsible for erosion and sedimentation control inspections (CP/PP Inspector). Under the direction of the CP/PP Inspector, inspection and maintenance of erosion and sediment controls in active work areas may be performed by both the Contractor and RE or other MassDOT project staff. Maintenance is the responsibility of the Contractor; however, the permittee shall be ultimately responsible for erosion and sedimentation control failure. The RE and/or contractor shall immediately notify MassDEP and the Taunton Conservation Commission if any unauthorized discharges to BVWs or LUW occur.

20. Disturbed areas shall be stabilized immediately after activities have permanently ceased or will be temporarily inactive for 14 or more calendar days. The installation of stabilization measures shall be implemented as soon as practicable, but no later than 14 calendar days after stabilization has been initiated.

21. Work within LUW shall be conducted in low or no-flow conditions to the extent practicable. Notice shall be provided to MassDEP and the Taunton Conservation Commission within 24 hours prior to the commencement of dewatering. Dewatering methods and location(s) shall be approved by the RE prior to use, and shall be documented in the CP/PP. There shall be no discharge of untreated dewatered stormwater or groundwater to BVWs or LUW. Any discharges shall be visibly free of sediment.

22. Additional erosion and sedimentation control materials shall be stored on-site at all times for emergency and routine replacement. Materials shall be kept covered, dry, and accessible at all times. The CP/PP Inspector shall be responsible for anticipating the need for and installation of additional erosion and sedimentation controls and shall have the authority to require additional erosion control measures to protect wetland resource areas beyond what is shown on the plans if field conditions or professional judgment dictate that additional protection is necessary.

23. The Contractor shall monitor the National Weather Service forecast for updates, and upon issuance of a flood watch for the 1% annual chance of flooding zone, shall implement the flood contingency plan referenced in Condition 12.

24. Any storm drains with potential to receive discharge from stockpiled materials or construction operations shall be managed to inhibit the inflow of sediment while not increasing the likelihood of roadway flooding during periods of precipitation. Stockpiles shall be located no less than 50 feet from LUW and catch basins, or other drainage conveyances that discharge to LUW. The CP/PP shall specify measures to implement this. Filter fabric stretched under storm drain inlet grates are not acceptable for this purpose.

25. The contractor shall have designated washout areas for concrete equipment that will be comprised of impermeable material and sized to contain project concrete wastes and wash water. Concrete wash out areas shall be located no less than 50 feet from BVWs, LUW and catch basins or other drainage conveyances that discharge directly or indirectly to BVWs or LUW.

26. Refueling, washing, and cleaning of vehicles and other construction equipment shall not take place within 50 feet of BVWs or LUW and any wash water shall be contained such that it does not drain toward BVWs or LUW. MassDEP shall explicitly approve in writing any deviation to this condition for oversized stationary vehicles.

27. The contractor shall have spill containment kits on site. In the event of a release of fuels and/or oils, the local fire department, MassDEP Emergency Response and MassDEP Wetlands Program Highway Unit shall be contacted, and in addition, the MassDEP Bureau of Waste Site Cleanup shall be notified per the requirements of the Massachusetts Contingency Plan, 310 CMR 40.0000.

28. Construction vehicles and equipment shall not enter the BVW or LUW unless authorization is provided by way of this permit or amendment. The Contractor shall use equipment with boom reach capabilities and other measures to avoid inadvertent impacts to jurisdictional resource areas as a result of excavation, riprap placement, and/or bridge/pier demo materials.

29. A temporary shielding system shall be in place beneath the bridge structure prior to removal and concrete excavation to prevent debris from falling into the water below. If any debris accidentally enters Lake Sabbatia, it shall be immediately retrieved. Notice shall be provided to MassDEP if debris enters the river and photo documentation (if practicable) provided that it has been removed submitted by email.

30. As shown on the plan set plotted on December 17, 2024 (“plan set”), the cofferdam traversing the centerline of the channel shall be removed completely following the completion of the second new abutment and before beams are placed. The upstream channel cofferdam shall also be removed. Cofferdam sheeting abutting the scour hole shall be cut at least two feet below the mudline.

31. Streambed/bank material shall be placed on top of the proposed riprap.

**Dredge Conditions**

32. Best Management Practices (BMPs) shall be employed by the contractor to protect resource areas located adjacent to the proposed staging/temporary dredged material stockpiling and dewatering areas. Sediment stockpiles shall be constructed in accordance with the MassDEP approved project plans, stabilized, bottom-lined if not placed on paved surfaces and securely covered with wind tear resistance tarpaulin, polyethylene sheeting or similar impermeable material at all times, and properly labeled. Stockpile covers shall be securely weighed down. Stockpiles shall also be secured to restrict access by the public and shall be set back at least 10 feet from temporary construction access roads or other areas and activities which could disturb the stockpiles and associated erosion controls; if the 10-foot setback cannot be met, then a MassDEP-approved barrier shall be provided. Inspection of the sediment containment and dewatering location and associated erosion controls shall be conducted daily and within 24 hours of a storm that produces 0.5 inches or more of rain. Any observed deficiency shall be corrected or repaired in a timely manner.

33. In the event of a precipitation or storm event, the site shall be secured beforehand in such a way as to protect resource areas and waters on site and downstream of the site, including covering of stockpiles of dredged material. Sediment stockpile areas shall be inspected in line with the frequency of the CP/PP required in Condition 6. Any observed deficiency shall be corrected or repaired in a timely manner to prevent discharge from the stockpiled material. If stormwater runoff and erosion is observed from stockpiled dredged material, additional erosion and/or damage prevention controls measures shall be implemented.

34. Measures shall be in place to prevent turbid waters, due to dredging, demolition, or debris removal activities, from extending past the limits of work into Lake Sabbatia. These measures can be items such as turbidity curtains and/or sheet piles.

35. MassDEP shall be notified one week prior to the start of dredging so that staff may inspect the work for compliance throughout the project.

36. If visual turbidity escapes the controls in place, as described in Condition 34, work shall stop immediately and MassDEP shall be notified within 24 hours. Work shall not resume until the issue is corrected and MassDEP to the satisfaction of MassDEP.

37. All turbidity controls shall be inspected daily by the RE or a designated MassDOT Project Staff. If any damage is observed the controls in place will be replaced or repaired immediately.

38. If excavated sediment is disposed of off-site, MassDEP shall be notified in writing of the name and location of the upland licensed facilities accepting the dredged material for disposal or reuse for review and approval. If the licensed facility is located out of state, documentation shall be provided to MassDEP that the dredged material disposal/reuse has been approved and will be accepted by the receiving State. The dredged material shall not be transported to the facility without concurrence of MassDEP.

39. If excavated sediment is disposed of off-site, a Bill-of-Lading (BOL) or a Material Shipping Record (MSR) shall be used to track the dredged material to the proposed intermediate (stockpiling /dewatering) facility. A fully executed copy of the BOL or MSR shall be provided to MassDEP within 30 days of final shipment to the reused location or facility.

40. If excavated sediment is disposed of off-site, Best Management Practices (BMPs) shall be implemented during transportation of the dredged material to the licensed receiving facility. At a minimum, when transported upon public roadways, all dredged material shall have no free liquid as determined by the Paint Filter Test or other suitably analogous methodology acceptable to MassDEP, and a tarpaulin or other means shall be used to cover the dredged material during transport.

**Wetland and LUW Mitigation/Restoration**

41. A minimum of **275 sf** of wetland replication shall be completed in coordination with an approved WS. The WS shall oversee all BVW replication and restoration, including final grading and seeding. The WS shall confirm that constructed BVW replication and restoration areas have adequate soils and hydrology to promote wetland plant species prior to seeding and shall recommend measures to amend soils and promote wetland hydrology as needed.

42. Seeding shall not take place between November 15th and April 15th, except as allowed by MassDEP in writing. Seed mixes shall consist of native and non-invasive species. Species may be substituted at the recommendation of the WS, and review and approval by MassDEP.

43. At least 75% of the surface area of the BVW replication areas shall be vegetated with indigenous wetland plant species within two growing seasons, or the period required by the Section 404 permit, whichever is longer. Additionally, evidence of hydrology, including hydric soil formation shall be submitted at the same time. Annual monitoring reports shall be submitted by the WS no later than January 15th each year. Monitoring reports shall include an assessment based on the approved success criteria, representative photos, and recommended corrective actions as needed. **(Submittal)**

44. MassDEP reserves the right to determine the success or failure of the BVW replication area, and reserves the right to require additional seeding, regrading, or other measures deemed necessary to promote success.

45. Two 24-inch trees and two highbush blueberry shrubs to the east of STA 16+ 00 and the proposed level spreader shall be retained. Fencing shall be installed to protect the root system at a minimum of a 24-foot radius, as noted on Sheet 9 of 9 of the December 17, 2024, plan set.

46. The final location of the access route for the replication area shall be located such that it results in the least disturbance. The proposed location shall be flagged in the field prior to clearing for approval by R.E.

**Post-Construction**

47. All temporary erosion controls shall be removed at the conclusion of work once the surrounding area has achieved final stabilization.

**General Conditions**

48. Any proposed alterations, minor plan changes, or amendment requests, as well as any required submittals shall be sent by email for review and approval to heidi.davis@mass.gov and tyler.lewis@mass.gov. **(Submittal)**

49. This WQC remains in effect for the same duration as the Section 404 permit that requires it.

50. No Special Condition set forth herein shall be construed or operate to prohibit MassDEP from taking enforcement against the MassDOT or its contractors for any failure to comply with the terms and requirements of this WQC.

51. No activity authorized by this WQC may begin prior to expiration of the 21-day appeal period, or until a final decision is issued by MassDEP in the event of an appeal.

Failure to comply with this Certification is grounds for enforcement, including civil and criminal penalties, under MGL Ch. 21 §42, MGL Ch. 21A §16, or other possible actions/penalties as authorized by the General Laws of the Commonwealth.

This Certification does not relieve the applicant of the obligation to comply with other appropriate state or federal statutes or regulations.

NOTICE OF APPEAL RIGHTS

a.) Appeal Rights and Time Limits

Certain persons shall have a right to request an adjudicatory hearing concerning certifications by MassDEP when an application is required: (a) the applicant or property owner; (b) any person aggrieved by the decision who has submitted written comments during the public comment period; (c) any ten (10) persons of the Commonwealth pursuant to M.G.L. c.30A where a group member has submitted written comments during the public comment period; or (d) any governmental body or private organization with a mandate to protect the environment which has submitted written comments during the public comment period. Any person aggrieved, any ten (10) persons of the Commonwealth, or a governmental body or private organization with a mandate to protect the environment may appeal without having submitted written comments during the public comment period only when the claim is based on new substantive issues arising from material changes to the scope or impact of the activity and not apparent at the time of public notice. To request an adjudicatory hearing pursuant to M.G.L. c.30A, § 10, a Notice of Claim must be made in writing, provided that the request is made by certified mail or hand delivery to MassDEP, with the appropriate filing fee specified within 310 CMR 4.10 along with a DEP Fee Transmittal Form within twenty-one (21) days from the date of issuance of this Certificate, and addressed to:

Case Administrator
Department of Environmental Protection
100 Cambridge Street, 9th Floor
Boston, MA 02114

A copy of the request shall at the same time be sent by certified mail or hand delivery to the Department of Environmental Protection at:

Department of Environmental Protection
Commissioner's Office
100 Cambridge Street, Suite 900
Boston, MA 02114

b.) Contents of Hearing Request

A Notice of Claim for Adjudicatory Hearing shall comply with MassDEP's Rules for Adjudicatory Proceedings, 310 CMR 1.01(6), and shall contain the following information pursuant to 314 CMR 9.10(3):

1. the 401 Certification Transmittal Number;
2. the complete name of the applicant and address of the project;
3. the complete name, address, and fax and telephone numbers of the party filing the request, and, if represented by counsel or other representative, the name, fax and telephone numbers, and address of the attorney;
4. if claiming to be a party aggrieved, the specific facts that demonstrate that the party satisfies the definition of "aggrieved person" found at 314 CMR 9.02;
5. a clear and concise statement that an adjudicatory hearing is being requested;
6. a clear and concise statement of (1) the facts which are grounds for the proceedings, (2) the objections to this Certificate, including specifically the manner in which it is alleged to be inconsistent with the MassDEP's Water Quality Regulations, 314 CMR 9.00, and (3) the relief sought through the adjudicatory hearing, including specifically the changes desired in the final written Certification; and
7. a statement that a copy of the request has been sent by certified mail or hand delivery to the applicant, the owner (if different from the applicant), the conservation commission of the city or town where the activity will occur, the Department of Conservation and Recreation (when the certificate concerns projects in Areas of Critical Environmental Concern), the public or private water supplier where the project is located (when the certificate concerns projects in Outstanding Resource Waters), and any other entity with responsibility for the resource where the project is located.

c.) Filing Fee and Address

The hearing request along with a DEP Fee Transmittal Form and a valid check or money order payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100) must be mailed to:

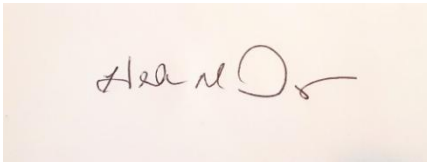
Commonwealth of Massachusetts
Department of Environmental Protection
Commonwealth Master Lockbox
PO Box 4062
Boston, MA 02211

The request will be dismissed if the filing fee is not paid unless the appellant is exempt or granted a waiver. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority. MassDEP may waive

the adjudicatory hearing filing fee pursuant to 310 CMR 4.06(2) for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file an affidavit setting forth the facts believed to support the claim of undue financial hardship together with the hearing request as provided above.

Should you have any questions relative to this permit, please contact myself or Tyler Lewis at tyler.lewis@mass.gov.

Very truly yours,



Heidi M. Davis
Highway Unit Supervisor

Ecc: DEP SERO – Maissoun Reda
USACE – Dan Vasconcelos
MassDOT – Melissa Lenker
MassDOT District 5 – Andrea Coates
MassDOT District 5 – David Pichette
Comprehensive Environmental Inc. – Nicholas Shaw - nshaw@ceiengineers.co
Comprehensive Environmental Inc. – Matthew Lundsted – mlundsted@ceiengineers.co
Taunton Conservation Commission – Michele Restino

**ATTACHMENT A**
**Bridge Replacement over Lake Sabbatia (T-01-024)**
**Taunton, MA**

**PRE-CONSTRUCTION SUBMITTAL CHECKLIST**

**THIS CHECKLIST MUST BE COMPLETED PRIOR TO THE START OF WORK; NOTE THAT SOME CONDITIONS REQUIRE THAT INFORMATION BE SUBMITTED A SPECIFIC NUMBER OF DAYS PRIOR TO THE START OF WORK OR THE PRE-CONSTRUCTION MEETING.**

| Condition | Required Submittal | Due Date | Date Submitted | Date Approved |
|---|---|---|---|---|
| **PRE-CONSTRUCTION SUBMITTAL REQUIREMENTS** | | | | |
| 2 | Name, contact information, and qualifications of the WS, including specific experience and years to meet requirements | Prior to Pre-Construction Meeting | | |
| 3 | Name and contact information of the RE | Prior to Pre-Construction Meeting | | |
| 5 | USACE Work-Start Notification Form | 14 days prior to work start | | |
| 6 | CP/PP | 14 days prior to work start | | |
| 7 | Verification of Erosion and Sedimentation Controls Training | Prior to work start | | |
| 9 | Control of Water Plan | 21 days prior to work start | | |
| 12 | Flood Contingency Plan | Prior to in water work | | |
| 13 | Demolition Plan | 21 days prior to work start | | |
| 14 | Invasive Plan Management Strategy | 21 days prior to work start | | |

重要 महत्वपूर्ण σημαντικός Important կարեւոր quan trọng مهم

## Communication for Non-English-Speaking Parties

***This document is important and should be translated immediately.***

If you need this document translated, please contact MassDEP's Director of Environmental Justice at the telephone number listed below.

### Español Spanish

Este documento es importante y debe ser traducido inmediatamente. Si necesita traducir este documento, póngase en contacto con el Director de Justicia Ambiental de MassDEP (*MassDEP's Director of Environmental Justice*) en el número de teléfono que figura más abajo.

### Português Portuguese

Este documento é importante e deve ser traduzido imediatamente. Se você precisar traduzir este documento, entre em contato com o Diretor de Justiça Ambiental do MassDEP no número de telefone listado abaixo.

### 繁體中文 Chinese Traditional

本文檔很重要，需要即刻進行翻譯。
如需對本文檔進行翻譯，請透過如下列示電話號碼與 MassDEP 的環境司法總監聯絡。

### 简体中文 Chinese Simplified

*这份文件非常重要，需要立即翻译。*
如果您需要翻译这份文件，请通过下方电话与 MassDEP 环境司法主任联系。

### Ayisyen Kreyòl Haitian Creole

Dokiman sa a enpòtan epi yo ta dwe tradui l imedyatman. Si w bezwen tradui dokiman sa a, tanpri kontakte Direktè. Jistis Anviwònmantal MassDEP a nan nimewo telefòn ki endike anba a.

### Việt Vietnamese

Tài liệu này và quan trọng và phải được dịch ngay. Nếu quý vị cần bản dịch của tài liệu này, vui lòng liên hệ với Giám Đốc Phòng Công Lý Môi Trường của MassDEP theo số điện thoại được liệt kê bên dưới.

### ប្រទេសកម្ពុជា Khmer/Cambodian

ឯកសារនេះមានសារៈសំខាន់
ហើយគប្បីត្រូវបានបកប្រែភ្លាមៗ។
ប្រសិនបើអ្នកត្រូវការអោយឯកសារនេះបកប្រែ
សូមទាក់ទងនាយកផ្នែកយុត្តិធម៌បរិស្ថានរបស់
MassDEPតាមរយៈលេខទូរស័ព្ទដែលបានរាយដូចខាងក្រោម។

### Kriolu Kabuverdianu Cape Verdean

Es dokumentu sta important i tenki ser tradusidu immediatamenti. Se nho ta presisa ke es dokumentu sta tradisidu, por favor kontata O Diretor di Justisia di Environman di DEP ku es numero di telifoni menxionadu di baixo.

**Contact Deneen Simpson 857-406-0738**
**Massachusetts Department of Environmental Protection**
**100 Cambridge Street 9th Floor Boston, MA 02114**
TTY# MassRelay Service 1-800-439-2370 • https://www.mass.gov/environmental-justice
(Version revised 8.2.2023) 310 CMR 1.03(5)(a)

## Русский Russian

Это чрезвычайно важный документ, и он должен быть немедленно переведен. Если вам нужен перевод этого документа, обратитесь к директору Департамента экологического правосудия MassDEP (MassDEP's Director of Environmental Justice) по телефону, указанному ниже.

## العربية Arabic

*هذه الوثيقة مهمة وتجب ترجمتها على الفور.*

إذا كنت بحاجة إلى ترجمة هذه الوثيقة، فيرجى الاتصال بمدير العدالة البيئية في MassDEP على رقم الهاتف المذكور أدناه.

## 한국어 Korean

*이 문서는 중대하므로 즉시 번역되어야 합니다.*
본 문서 번역이 필요하신 경우, 매사추세츠 환경보호부의 "환경정의" 담당자 분께 문의하십시오. 전화번호는 아래와 같습니다.

## հայերեն Armenian

Այս փաստաթուղթը կարևոր է, և պետք է անհապաղ թարգմանել այն:
Եթե Ձեզ անհրաժեշտ է թարգմանել այս փաստաթուղթը, դիմեք Մասաչուսեթսի շրջակա միջավայրի պահպանության նախարարության (MassDEP) Բնապահպանական հարցերով արդարադատության ղեկավարին (Director of Environmental Justice)՝ ստորև նշված հեռախոսահամարով

## فارسی Farsi Persian

این نوشتار بسیار مهمی است و باید فوراً ترجمه شود.
اگر نیاز به ترجمه این نوشتار دارید لطفاً با مدیر عدالت محیط زیستی MassDEP در شماره تلفن ذکر شده زیر تماس بگیرید.

## Français French

Ce document est important et doit être traduit immédiatement. Si vous avez besoin d'une traduction de ce document, veuillez contacter le directeur de la justice environnementale du MassDEP au numéro de téléphone indiqué ci-dessous.

## Deutsch German

Dieses Dokument ist wichtig und muss sofort übersetzt werden. Wenn Sie eine Übersetzung dieses Dokuments benötigen, wenden Sie sich bitte an MassDEP's Director of Environmental Justice *(Direktor für Umweltgerechtigkeit in Massachusetts)* unter der unten angegebenen Telefonnummer.

## Ελληνική Greek

Το έγγραφο αυτό είναι πολύ σημαντικό και πρέπει να μεταφραστεί αμέσως. Αν χρειάζεστε μετάφραση του εγγράφου αυτού, παρακαλώ επικοινωνήστε με τον Διευθυντή του Τμήματος Περιβαλλοντικής Δικαιοσύνης της Μασαχουσέτης στον αριθμό τηλεφώνου που αναγράφεται παρακάτω

## Italiano Italian

Questo documento è importante e deve essere tradotto immediatamente. Se hai bisogno di tradurre questo documento, contatta il Direttore della Giustizia Ambientale di MassDEP al numero di telefono sotto indicato.

## Język Polski Polish

Ten dokument jest ważny i powinien zostać niezwłocznie przetłumaczony. Jeśli potrzebne jest tłumaczenie tego dokumentu, należy skontaktować się z dyrektorem ds. sprawiedliwości środowiskowej MassDEP pod numerem telefonu podanym poniżej.

## हिन्दी Hindi

*यह दस्तावेज महत्वपूर्ण है और इसका अनुवाद तुरंत किया जाना चाहिए।* यदि आपको इस दस्तावेज का अनुवाद कराने की जरूरत है, तो कृपया नीचे दिए गए टेलीफोन नंबर पर MassDEP के पर्यावरणीय न्याय निदेशक से संपर्क करें।

**Contact Deneen Simpson 857-406-0738**
**Massachusetts Department of Environmental Protection**
**100 Cambridge Street 9th Floor Boston, MA 02114**
TTY# MassRelay Service 1-800-439-2370 • https://www.mass.gov/environmental-justice
(Version revised 8.2.2023) 310 CMR 1.03(5)(a)

General Permit No.: NAE-2022-02649 Final Effective Date: June 2, 2023
Applicant: General Public, Commonwealth of Massachusetts Expiration Date: June 1, 2028

**Department of the Army**
**General Permits for the Commonwealth of Massachusetts**

The New England District of the U.S. Army Corps of Engineers (USACE) hereby issues twenty-five (25) regional general permits (GPs) for activities subject to USACE jurisdiction in waters of the U.S., including wetlands, navigable waters within the Commonwealth of Massachusetts and adjacent ocean waters to the seaward limit of the outer continental shelf. The Massachusetts GPs (hereafter referred to as the MA GP or GP) are issued in accordance with USACE regulations at 33 CFR 320 – 332 [see 33 CFR 325.5(c)(1)]. These GPs establish criteria and contain permit conditions to ensure that the authorized activities have no more than minimal individual and cumulative adverse impacts to the environment.

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In issuing these GPs, the Federal Government does not assume any liability for the following: (a) damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes; (b) damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the U.S. in the public interest; (c) damages to persons, property or to other permitted or unpermitted activities or structures caused by the activity authorized by any of the GPs; (d) design or construction deficiencies associated with the permitted work; or (e) damage claims associated with any future modification, suspension or revocation of these permits.

Tammy R. Turley 02 June 2023

Tammy R. Turley Date
Chief, Regulatory Division

## SECTION I. STATUTORY AUTHORITES & REGULATED ACTIVITIES

### 1. Work Requiring USACE Authorization

a. Section 10: Work and structures that are located in, over, under or that affect navigable waters of the United States (U.S.) (see 33 CFR 329). The USACE regulates these activities under section 10 of the Rivers and Harbors Act of 1899 (see 33 CFR 322).

b. Section 404: The discharge of dredged or fill material into waters of the U.S (see 33 CFR 328). The USACE regulates these activities under Section 404 of the Clean Water Act (CWA). The term "discharge of dredged or fill material" also includes certain discharges resulting from excavation. Applicants should contact USACE to determine if a particular excavation discharge occurring within waters of the U.S., is a regulated activity. See 33 CFR 323.4 of the CWA for exempted activities.

For additional information on the limits of USACE jurisdiction, please see: https://www.nae.usace.army.mil/Portals/74/docs/regulatory/JurisdictionalLimits/Jurisdictional_Limits_Brochure.pdf

### 2. Authority to Issue General Permits

a. In accordance with 33 CFR 322.2(f), 325.2(e)(2), and 325.5(c), USACE may issue regional general permits authorizing activities under Section 10 of the RHA.

b. In accordance with Section 404(e) of the CWA, 33 USC 1344(e), and 33 CFR 323.2(h), 325.2(e)(2), and 325.5(c), after notice and opportunity for public hearing, USACE may issue regional general permits for any category of activities involving discharges of dredged or fill material if the activities in such category are similar in nature, will cause only minimal adverse environmental effects when performed separately, and will only have minimal cumulative adverse effect on the environment.

### 3. Related Laws

33 CFR 320.3 includes a list of related laws including, but not limited to, Section 408 of the Rivers and Harbors Act of 1899, Section 401 of the Clean Water Act, Section 402 of the Clean Water Act, Section 307(c) of the Coastal Zone Management Act of 1972, Section 106 of the National Historic Preservation Act of 1966, Section 7 of the Endangered Species Act, the Fish and Wildlife Coordination Act of 1956, the Magnuson-Stevens Fishery Conservation and Management Act, the Fish and Wildlife Coordination Act, Section 302 of the Marine Protection, Research and Sanctuaries Act of 1972, Section 7(a) of the Wild and Scenic Rivers Act, the Golden Eagle Protection Act, and the Migratory Bird Treaty Act.

## SECTION II. REVIEW CATEGORIES & APPLICATION PROCEDURES

To qualify under these GPs, the design, construction, and maintenance associated with each proposed activity must meet the terms and eligibility criteria listed in Section III, all applicable general conditions (GCs) in Section IV, and any specific mitigation requirements in Section V. Applicants should first review the GPs to see if a project is eligible for authorization under one or more of the GPs within this document. Any activity not specifically listed may still be eligible for authorization under these GPs; applicants are advised to contact USACE for specific eligibility determination.

Please note that these GPs allow for Self-Verification (SV) contingent upon meeting all criteria and with full adherence to all GCs. Projects that do not qualify for SV, may meet criteria for Pre-Constriction Notification (PCN). Tables are provided under each activity, which outline criteria for SV and PCN. Activities that do not meet criteria for SV or PCN may require review as an Individual Permit (IP). Activities may require a PCN or IP as noted in Sections III and/or IV of this GP. Notwithstanding compliance with the terms of these GPs, USACE retains discretionary authority to require either PCN review or IP review on a case-by-case basis for any project based on concerns for the environment or for any of the other public interest factors found in 33 CFR 320.4(a). These GPs also do not replace or change those activities identified as exempt from USACE regulation (33 CFR 323.4).

### 1. Pre-Application Assistance

Prospective applicants may request a pre-application meeting to address any questions they may have. USACE may also request a pre-application meeting or additional information to facilitate review of the request. Pre-application meetings and/or site visits help streamline the authorization process by alerting the prospective applicant to potentially time-consuming factors that may arise during the evaluation of their project (e.g., avoidance, minimization and compensatory mitigation requirements, historic properties, endangered species, essential fish habitat, impacts to federal projects, and/or dredging of contaminated sediments).

To schedule a pre-application meeting, present questions, or if you need further assistance, please contact USACE at:

Email: cenae-r-ma@usace.army.mil (strongly preferred) Phone: (978) 318-8338

Mail: U.S. Army Corps of Engineers
New England District
Regulatory Division, Massachusetts Section
696 Virginia Road
Concord, MA 01742

### 2. Submitting a Request

Please follow the procedures outlined in Sections II.2-5 when requesting an SV or applying for PCN authorization for activities covered by these GPs. The GPs are provided in Section III below. For SV-eligible projects, the Self-Verification Notification (SVN) must be submitted within 30 days of commencing work. Otherwise, a Pre-Construction Notification (PCN) must be submitted for work that is not SV-eligible. Please include appropriate drawings and attachments and submit your request using the mailbox identified in Section II.4 or II.5 below. USACE will promptly confirm receipt of your request and notify you in the event additional information is required. Guidance on

how to submit electronic correspondence is located on the NAE Regulatory website here: https://www.nae.usace.army.mil/Missions/Regulatory/Submitting-Electronic-Correspondence.

## 3. Local, State & Federal Approvals

Applicants are responsible for applying for and obtaining any required local, state, and federal permits or approvals. These must be obtained prior to the commencement of work in waters. Such authorizations may include a Water Quality Certification, a Coastal Zone Management Act consistency determination, and other approvals as noted below. Authorization under these GPs does not obviate the need for the permittee to obtain other Federal, State, or local permits, approvals, or authorizations required by law.

***I. Water Quality Certification under Section 401 of the Federal Clean Water Act (33 USC 1341).***
Applicants are responsible for determining the appropriate 401 Water quality Certification (WQC) requirements and submitting this information to the USACE at the time of their PCN application or when completing their SVN. Applicants that are unsure of whether their activity has been certified should contact MassDEP, or EPA Region 1 when the activity is located on tribal lands, for a determination. The 401 WQC requirement must be satisfied by acquiring one of the following WQCs from MassDEP (see GC 8):

**General 401 WQC:** The MassDEP issued a WQC on April 21, 2023 conditionally certifies all activities in GPs 1 – 24 eligible for SV and PCN so long as the activity is described in 314 CMR 9.03, and is not an activity described in 314 CMR 9.04, and so long as the activity meets all other requirements, terms and conditions of this WQC. The MassDEP WQC also conditionally certifies activities described in GP 25 so long as the activity meets all other conditions of the WQC. Emergency projects described in GP 25 must obtain an emergency certification or otherwise be authorized pursuant to 310 CMR 10.06, qualify under a Severe Weather Emergency Declaration pursuant to 310 CMR 10.06(8) issued by the MassDEP, or meet the requirements of 9.12(2) or (3) in order to be certified under the WQC

Applicants should refer to the following link to determine if their activity is eligible: *https://www.nae.usace.army.mil/Missions/Regulatory/ State-General-Permits/ Massachusetts-General-Permit/*. If eligible, you must comply with all applicable WQC conditions. Activities listed in 314 CMR 9.03 that are not exempt from the Wetland Protection Act must have a valid Final Order of Conditions (OOC) or Final Restoration Order of Conditions pursuant to 310 CMR 10.00 to be eligible under the General 401 WQC.

**Individual 401 WQC:** In the event the proposed activity is not covered by the general WQC, applicants shall contact MassDEP and apply for an individual 401 WQC if their activity does not qualify for a General 401 WQC as outlined above. MassDEP may issue, waive, or deny the individual 401 WQC on a case-by-case basis. All activities listed in 314 CMR 9.04 must obtain an individual 401 WQC from MassDEP to be eligible under these GPs. When an Individual 401 WQC is required for *PCN activities*, the applicant shall submit their Individual 401 WQC application concurrently to MassDEP and the USACE to comply with 40 CFR 121.

Activities Proposed on Tribal Lands: When an activity is proposed on Tribal lands, the applicant shall refer to the general 401 WQCs granted by the Environmental Protection Agency (EPA), Region 1 on May 15, 2023. These 401 WQCs are located on the USACE Regulatory website: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.

***II. Coastal Zone Management Act Federal Consistency Concurrence pursuant to Section 307 of the CZMA of 1972, as amended.*** Federal consistency concurrence is required for all activities located within the coastal zone, unless determined otherwise by the Massachusetts Office of Coastal Zone Management (MA CZM) (see GC 9). As applicable, this requirement must be satisfied by acquiring one of the following from the MA CZM:

**General CZM Federal Consistency Concurrence (General Concurrence):** MA CZM has granted General Concurrence for all SV and PCN activities for GPs 1-25 and this can be found at: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/. The applicant must obtain all applicable permits and approvals prior to the commencement of work in USACE jurisdiction (i.e., construction begins on site). For SVs, General Concurrence is automatically granted and no further action is required from the applicant. For PCNs, the USACE will coordinate with MA CZM to acquire General Concurrence as part of the PCN application review. During review of the PCN application, USACE may request additional information from the applicant to support CZM's evaluation of the activity.

**Individual CZM Federal Consistency Concurrence (Individual Concurrence):** In certain cases, MA CZM may elevate any GP activity 1-25 to require Individual Concurrence. The applicant must contact MA CZM and follow the procedures to obtain Individual Concurrence as determined appropriate by MA CZM.

The MA CZM program includes five regional offices that serve 78 coastal municipalities. The following map provides more information about these offices: https://www.mass.gov/service-details/czm-regions-coastal-communities-and-coastal-zone-boundary

**III. Other Approvals:** Approvals typically required in Massachusetts include, but are not limited to, a Chapter 91 Permit/License, Massachusetts Environmental Protection Act (MEPA) review, Wetlands Protection Act Order of Conditions, and/or Aquaculture Certification. *Applicants should also be aware that USACE may not be able to render a permit decision in the event the proposed activity is denied by another local, state and/or federal agency.*

### 4. Procedures for Self-Verification (SV) Eligible Projects

If the activity is eligible for an SV, the Self-Verification Notification (SVN) must be completed prior to the start of project construction and submitted to USACE within 30 days of commencing work. The purpose of the SVN is to provide applicants with a tool to assist them when determining if the activity as proposed is SV-eligible. The following GPs do not require submission of the SVN: GP 1 (SV #1), GP 3 (SV #2-3), GP 4 (SV #2), GP 11, GP 12 (note #2), GP 14 (see note), GP 15 (see note), and GP 24 (SV #3). **For the activities not listed above, the SVN must be completed prior to the start of work and be kept on site at all times during project construction.** The applicant shall not begin work for SV-eligible activities until they have completely verified the bulleted items below.

Digital submittals by email are **strongly encouraged** to facilitate the most efficient processing of the SVN submittal. Please communicate with USACE staff if you are unable to provide a digital copy. Addresses are cenae-r-ma-sv@usace.army.mil (email) or Regulatory Division, U.S. Army Corps of Engineers, New England District, 696 Virginia Road, Concord, MA 01742-2751 (mail).

*Eligible SV Activities:*

- Are subject to USACE jurisdiction (see GC 2); and
- Qualify for one or more of the GPs within this document (Section III); and
- Meet the GCs within this document (Section IV); and

- When required, are supported by a complete SVN (Appendix C); and
- Receive all other required local, State, and/or Federal approvals.

## 5. Procedures for Pre-Construction Notification (PCN) Eligible Projects

For activities that require a PCN, an application to and written authorization from USACE is required. *No work requiring a PCN may proceed until the applicant receives written authorization from USACE verifying that the activity is authorized.* The verification letter may include special conditions that the applicant must comply with. When possible, it is *highly* recommended that PCN application materials are submitted at least 90 days before the target start date to allow for USACE evaluation and any necessary agency consultations. PCN applications shall demonstrate in writing how the proposed activity complies with all GCs, as applicable to their activity.

Digital submittals by email are **strongly encouraged** to facilitate the most efficient processing of the PCN application. Please communicate with USACE staff if you are unable to provide a digital copy. Addresses are cenae-r-ma@usace.army.mil or Regulatory Division, U.S. Army Corps of Engineers, New England District, 696 Virginia Road, Concord, MA 01742-2751 (mail).

*Eligible PCN Activities:*

- Are subject to USACE jurisdiction (see GC 2); and
- Qualify for one or more of the GPs within this document (Section III); and
- Meet the GCs within this document (Section IV); and
- Comply with the Mitigation Standards within this document (Section V); and
- Are supported by a complete PCN document (Appendix B); and
- When required, are supported by the submittal of project information to the appropriate parties identified in Appendix A; and
- Receive all other required local, State, and/or Federal approvals.

## 6. Interagency Review Procedures

The USACE reserves the opportunity to coordinate PCN activities with Federal and State agencies to ensure that the proposed activity results in no more than a minimal impact to the aquatic environment. In some cases, USACE may require project modifications involving avoidance, minimization, and/or compensatory mitigation for unavoidable impacts to ensure the net effects of a project are minimal. The USACE determines, after review and coordination with the agencies and/or the applicant, if PCN applications:

a. Meet the terms and conditions of the GP as proposed;
b. Require additional information;
c. Require avoidance, minimization, compensatory mitigation, construction sequencing, project modification, or other special conditions to avoid or minimize adverse impacts to the aquatic environment;
d. Require individual permit review regardless of whether the terms and GCs of these GPs are met, based on concerns for the aquatic environment or any other factor of the public interest (see Section 9 below).

For activities requiring a PCN, the applicant must wait for written authorization from USACE before commencing activities in waters of the U.S. Beginning work for PCN required activities without a USACE written authorization is a violation of these GPs, and the terms and conditions of this document. The applicant may be subjected to an enforcement action by USACE and/or the Environmental Protection Agency (EPA).

### 7. Construction of Solid Fill Structures and Fills Along the Coastline or Baseline from Which the Territorial Sea is Measured.

Projects involving the construction of solid fill structures or discharge of fill that may extend beyond the coastline or the baseline from which the territorial sea is measured (i.e., mean low water) will require a PCN. The USACE will submit a description of the proposed work and a copy of the plans to the Solicitor, Department of the Interior, Washington, DC 20240, and request comments concerning the effects of the proposed work on the outer continental rights of the United States. These comments will be included in the administrative record of the application. After completion of permit review, the record will be forwarded to the Chief of Engineers. The decision on the application will be made by the Secretary of the Army after coordination with the Attorney General.

### 8. Emergency Activities

Per 33 CFR 325.2(e)(4), an emergency is limited to a situation that would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if corrective action requiring a permit is not undertaken within a time period less than the normal time needed to process an application under standard procedures. Emergency work shall be limited to that which is necessary to stabilize and secure the situation. Additional work needed for final repairs shall not be completed until approval is obtained through the appropriate, non-emergency process. Emergency work is subject to the same terms and conditions of these GPs as non-emergency work, and similarly, must qualify for authorization under these GPs; otherwise, an IP is required. *See GP 25 Emergency Situations for additional information.*

### 9. Individual Permit

Projects that do not meet the terms and conditions of this GP may require review as an IP (33 CFR 325.5 (b)). Proposed work in this category will require a separate Federal application for an individual permit from USACE (33 CFR 325.1). In addition, USACE retains discretionary authority on a case-by-case basis to elevate GP-eligible activities to an IP based on concerns for the environment or any other factor of the public interest (33 CFR 320.4 (a)). Applicants are required to submit the appropriate application materials directly to USACE as early as possible to expedite the permit review process. General information and application forms can be obtained at our website or by contacting our office at cenae-r-ma@usace.army.mil or (978) 318-8338. Individual 401 WQC and/or CZMA Federal consistency concurrence from the appropriate MA agencies are required before USACE can issue an individual permit. Applying for an IP does not relieve the applicant from their obligation to obtain all required Federal, State and/or local approvals.

### 10. Compliance

Applicants shall ensure compliance with all applicable GPs in Section III, GCs in Section IV, and any special conditions included in USACE verification letters. Noncompliance with these GPs, GCs, and special conditions may subject the applicant to criminal, civil, or administrative penalties, and/or an ordered restoration, and/or the permit may be modified, suspended or revoked by USACE. The USACE will consider any activity requiring USACE authorization to be noncompliant if that activity does not comply with all GP terms and conditions at all times, including while the project is under construction and when work is completed.

## SECTION III. MASSACHUSETTS GENERAL PERMITS

Applicants are encouraged to review Sections I & II prior to submitting an application to confirm that the activity as proposed complies with all terms and conditions of the 2023 MA GPs. Applicants are also encouraged to review the definitions in Section VII, Definitions & Acronyms, of this document. Several terms are frequently used throughout the GPs, and it is important for the reader to understand these terms. If seeking verification for an activity previously verified under the 2018 MA GPs, please contact the USACE to discuss permitting needs in advance of submitting an application.

General Permits

1. Aids to Navigation and Temporary Recreational Structures
2. Maintenance
3. Moorings
4. Structures in Navigable Waters of the U.S.
5. Boat Ramps and Marine Railways
6. Utility Lines, Oil or Natural Gas Pipelines, Outfall Or Intake Structures, and Appurtenant Features
7. Dredging, Disposal of Dredged Material, Beach Nourishment, Rock Removal and Rock Relocation
8. U.S. Coast Guard Approved Bridges
9. Bank and Shoreline Stabilization
10. Aquatic Habitat Restoration, Enhancement, and Establishment Activities
11. Fish and Wildlife Harvesting and Attraction Devices and Activities
12. Response Operations, Oil and Hazardous Substances
13. Cleanup of Hazardous and Toxic Waste
14. Scientific Measurement Devices
15. Survey Activities
16. Land and Water-Based Renewable Energy Generation Facilities and Hydropower Projects
17. Residential, Commercial and Institutional Developments, and Recreational Facilities
18. Aquaculture
19. Mining Activities
20. Living Shorelines
21. Agricultural Activities
22. Reshaping Existing Drainage Ditches, Construction of New Ditches, and Mosquito Management
23. Linear Transportation Projects and Wetland/Stream Crossings
24. Temporary Construction, Access, and Dewatering
25. Emergency Situations

| **GP 1. AIDS TO NAVIGATION AND TEMPORARY RECREATIONAL STRUCTURES (Authority: §10)** | |
|---|---|
| (a) The placement of aids to navigation and regulatory markers that are approved by and installed in accordance with the requirements of the U.S. Coast Guard (USCG). See 33 CFR, Part 66; and (b) Temporary buoys, markers, and similar structures placed for recreational use during specific events such as water skiing competitions and boat races or seasonal use. See GC 16. | |
| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
| 1. Aids to navigation and regulatory markers approved by and installed in accordance with the requirements of the USCG.<br><br>2. Temporary buoys, markers and similar structures that are: (a) placed for recreational use during specific events and removed within 30 days after event; or (b) placed during winter events on ice and removed before spring thaw. These structures must be authorized by the local harbormaster, not located within an FNP or its buffer zone, and not located in saltmarsh or tidal vegetated shallows. | 1. Impacts in saltmarsh or tidal vegetated shallows.<br><br>2. Activities that are not SV eligible. |
| Note: An SVN submittal to USACE is not required for work authorized under SV #1 above. | |

**GP 2. MAINTENANCE (Authorities: §10 and §404)**

Repair, rehabilitation, or replacement of any previously authorized[1], currently serviceable structure, or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3 (activities occurring before certain dates), provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction technique requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the activities above. Maintenance dredging and beach nourishment are not eligible under GP 2 (see GP 7). Stream crossing modifications (including sliplining), replacements or extensions are not eligible under GP 2 (see GPs 6, 17, 23). *See GP 25 Emergency Situations for expedited review of emergency activities.*

**Not authorized under GP 2 (IP required):** (a) Permanent impacts in >1 acre in non-tidal waters and/or wetlands; or (b) Permanent impacts >1/2 acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; or (c) Temporary impacts >1 acre in tidal waters; >5000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >1000 SF in vegetated shallows; (d) New stream channelization or stream relocation projects (e.g., those in response to storm or flood events).

**Self-Verification Eligible**

Maintenance activities that meet all of the following terms:

1. In non-tidal waters, the combined permanent and temporary impacts extending beyond the original footprint are ≤5,000 SF[2] and not located in vegetated shallows or riffle and pool complexes.

2. In tidal waters, the combined permanent and temporary impacts extending beyond the original footprint are ≤5,000 SF, ≤1,000 SF in mudflats and/or natural rocky habitat, and not located in saltmarsh and tidal vegetated shallows.

3. Minor deviations in the repair, rehabilitation, or replacement of previously authorized, currently serviceable structures or fills.

4. Bulkhead replacement in tidal and non-tidal waters via installation of new bulkhead within 18 inches of the existing bulkhead and associated backfill.

5. Drawdown of an impoundment for dam/levee repair provided it does not exceed 18 months and one growing season (April through September).

**Pre-Construction Notification Required**

1. Discharges associated with removal of accumulated sediments and debris in the vicinity of existing structures, including intake and outfall structures and associated canals.

2. The removal of sediment outside the immediate vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.) that is ≥200 linear feet. This activity is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions existing when the structure was built.

3. Dam and flood control or levee repair, rehabilitation, or replacement involves:
   a. A change in the flood elevation or permanent water surface elevation of the impoundment; or
   b. Drawdown of impoundment for construction exceeding one growing season (see SV eligible #5);
   c. Any modification that changes the character, scope, or size of the original fill design; or
   d. Does not meet SV eligible 1-7.

4. Installation of steel piles, including steel sheet piles, that cannot be done in the dry and where NOAA-ESA listed species are mapped as present.

[1] Some maintenance activities may not be subject to regulation under Section 404 of the CWA in accordance with 33 CFR 323.4(a)(2). Per 33 CFR 330.3, Vested dates are: a) Work performed and structures installed before December 18, 1968 (Section 10); and b) Fill placed before July 25, 1975 (Section 404).
[2] This excludes dam projects that may require a temporary drawdown with impacts >5,000 SF in non-tidal waters. Instead, the drawdown shall comply with SV #5 to be eligible under Self-Verification.

| | |
|---|---|
| 6. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project or within the boundaries of the structure or fill.<br><br>7. Work to previously approved tide gates not affecting upstream tidal resource areas. | 5. Activities located in the Connecticut River or Merrimack River, unless they are completed in the dry or when the tide is waterward of the work area.<br><br>6. Activities on USACE properties & USACE-controlled easements.<br><br>7. Activities that do not require an IP. Activities that do not require a PCN or an IP may be SV eligible. |
| Notes:<br>1. This authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the CWA §404(f) exemption for maintenance. See 33 CFR 323.4(a)(2). Prior USACE permits may have included authorization to maintain the activity, in which case authorization under this GP is not necessary.<br>2. See GC 22 for information on temporary construction mats. | |

**GP 3. MOORINGS (Authority: §10)**

New moorings and mooring fields; the relocation of previously authorized moorings; expansions, boundary reconfigurations or modifications of previously authorized mooring fields; and maintenance and replacement of moorings.

**Not authorized under GP 3 (IP required):** (a) Moorings or mooring fields converted to or associated with a new boating facility[1]; or (b) Moorings in a USACE Federal Navigation Anchorage or USACE Federal Navigation Channel, except municipal-operated mooring fields.

| Self-Verification Eligible | Pre-Construction Notification Required |
|---|---|
| 1. New or relocated moorings that meet all the following terms:<br>a. Authorized by a local harbormaster/ municipality under MGL Chapter 91 §10A; and<br>b. No interference with navigation; and<br>c. Single boat, single-point and non-commercial; and<br>d. Not associated with a boating facility, and<br>e. Neither placed within nor impact tidal vegetated shallows (e.g., eelgrass); and<br>f. Not located within a USACE Federal navigation project (FNP) or the FNP buffer zone.<br><br>2. Existing, authorized moorings are converted from traditional moorings to low impact mooring technology (see note below) and/or helical anchors.<br><br>3. Maintenance and replacement of moorings authorized by the USACE. | 1. New mooring fields; or expansions, boundary reconfigurations or modifications of existing, authorized mooring fields.<br><br>2. Moorings located such that they, and/or vessels docked or moored at them, are within the buffer zone of the horizontal limits of a Federal Anchorage. The buffer zone is equal to 3 times the authorized depth of that channel (see GC 15).<br><br>3. New individual moorings located in saltmarsh, mudflats, natural rocky habitat, and tidal vegetated shallows. Locating moorings these areas should be avoided to the maximum extent practicable. If these areas cannot be avoided, plans should show conservation mooring or low-impact mooring systems that prevent mooring chains from resting or dragging on the bottom substrate at all tides, where practicable. USACE may require a survey in areas previously mapped as containing eelgrass or within 100 ft. of existing eelgrass beds to document presence or absence of eelgrass and to determine the appropriate type and amount of compensatory mitigation for impacts to eelgrass.<br><br>4. Replacement moorings located in tidal vegetated shallows.<br><br>5. Moorings that are not SV eligible and do not require an IP. |

Notes:

1. Low impact mooring systems, including conservation moorings, are encouraged to minimize impacts of chain scouring from conventional moorings during the tidal cycle.
2. An SVN submittal to USACE is not required for work authorized under SV #2-3 above.

[1] Boating facilities are marinas, yacht clubs, boat clubs, boat yards, dockominiums, town facilities, land/homeowner's associations, etc. that provide for a fee, rent or sell mooring or docking space. Not classified as boating facilities are municipal moorings or municipal mooring fields that charge an equitable user fee based only on the actual costs incurred.

**GP 4. STRUCTURES IN NAVIGABLE WATERS OF THE U.S. (Authority: §10 & §404)**

New, expansions, reconfigurations or modifications of structures for navigational access in waters of the U.S. including but not limited to temporary/seasonal or permanent pile and pole-supported piers, floats, stairs, shore outhauls, and boat and float lifts.

**Not authorized under GP 4 (IP required):** (a) Structures associated with a new boating facility; (b) Structures in a USACE Federal anchorage or channel; or (c) Artificial reefs.

**Self-Verification Eligible**

1. Private, non-commercial piers, floats and lifts that meet all the following terms:

a. Piers and floats in: (i) Tidal waters total ≤600 SF combined; and (ii) Non-tidal navigable waters of the U.S. total ≤600 SF combined; and

b. Piers are ≤4 feet wide and ≥6 feet above the marsh substrate (the height is measured from the marsh substrate to the bottom of the lowest longitudinal support); and

c. Floats and lifts in tidal waters and non-tidal navigable waters of the U.S. are ≥24 inches above the substrate during all tidal cycles. Float stops are preferred when site conditions warrant them (i.e., low tide exposes substrate), and skids can only be used in areas where piles are not feasible and on sandy or hard bottom substrates; and

d. Piers, floats and lifts: (i) Are ≥25 feet from previously mapped or existing vegetated shallows, or riparian property line extensions; (ii) Extend ≤25% of the waterway width in non-tidal navigable waters of the U.S. or MHW in tidal navigable waters of the U.S.

e. Installation of ≤12-inch diameter timber piles. Installation of ≥12-inch diameter piles of any material type when installed in the dry.

2. Fenders and similar structures.

**Pre-Construction Notification Required**

1. Shore outhauls.
2. Expansions, modifications, or new reconfiguration zones at any authorized boating facility.
3. New, expansions, reconfigurations, reconfiguration zones, or modifications of structures that provide public, community or government recreational uses such as boating, fishing, swimming, access, etc.
4. Installation of steel piles, including steel sheet piles, that cannot be done in the dry and where NOAA-ESA listed species are mapped as present.
5. Located within the buffer zone of the horizontal limits of an FNP (GC 15).
6. Miscellaneous structures.
7. Impacts in tidal vegetated shallows.
8. Structures that are not SV eligible and do not require an IP.

Notes:

1. See GC 19 regarding pile driving and pile removal in navigable waters and
2. See GC 20 regarding time of year restrictions in tidal waters.
3. Boating facilities are facilities that provide for a fee, rent, or sell mooring space, such as marinas, yacht clubs, boat clubs, boat yards, town facilities, dockominiums, etc. Pile supported structures with no discharges of dredged or fill material are not regulated by USACE in non-navigable waters.
4. A SVN submittal to USACE is not required for SV #2 above.

**GP 5. BOAT RAMPS AND MARINE RAILWAYS (Authorities: §10 and §404)**

Activities required for the construction of boat ramps and marine railways, including excavation and fill.

**Not authorized under GP 5 (IP required):** (a) Permanent impacts that are >1 acre in non-tidal waters of the U.S., >½ acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows[1]; or (c) dredging in navigable waters of the U.S. (see GP 7).

| Self-Verification Eligible | Pre-Construction Notification Required |
|---|---|
| 1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows. | 1. Boat ramps are located within 25 feet of property line extensions unless the properties are owned by the same owner. The USACE may require a letter of no objection from the abutter(s). |
| 2. In tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) ≤1,000 SF in mudflats and/or natural rocky habitat, and (c), not located in saltmarsh and tidal vegetated shallows. | 2. Activities that are not eligible for SV and do not require an IP. |

**GP 6. UTILITY LINES, OIL OR NATURAL GAS PIPELINES, OUTFALL OR INTAKE STRUCTURES, AND APPURTENANT FEATURES (Authorities: §10 & §404)**

Activities required for: (a) The construction, maintenance, repair or removal of utility lines, oil or natural gas pipelines[1], outfall or intake structures[2], and appurtenant features including the associated excavation, backfill, or bedding for these structures. (b) The construction, maintenance, or expansion of substations and other appurtenant facilities associated with a utility line, oil or natural gas pipeline, and outfall or intake structure in non-tidal waters of the U.S.; and (c) The construction and maintenance of foundations for overhead utility line towers, poles, and anchors in tidal and non-tidal waters of the U.S., provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible. This GP authorizes the construction of access roads to facilitate construction of the above activities provided the activity, in combination with all other activities included in one single and complete project, does not exceed the thresholds identified below (IP required). Access roads used solely for construction of the utility line must be removed upon completion of the work. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the activities above.[3]

**Not authorized under GP 6 (IP required):** (a) Permanent impacts for any single and complete project that are >1 acre in non-tidal waters of the U.S.; >½ acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows; (c) Stormwater treatment or detention systems, or subsurface sewage disposal systems in waters of the U.S.; or (d) New tide gates that do not meet SV criteria below.

| Self-Verification Eligible | Pre-Construction Notification Required |
|---|---|
| 1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows.<br><br>2. In tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) ≤1,000 SF in mudflats and/or natural rocky habitat, and (c), not located in saltmarsh and tidal vegetated shallows.<br><br>3. Intake structures that are dry hydrants used exclusively for firefighting activities with no stream impoundments.<br><br>4. New tide gates on outfall structures for pipes conveying stormwater and/or industrial NPDES-permitted discharges from waters that are not waters of the U.S. | 1. New outfall and/or intake structures.<br><br>2. Unconfined work or silt producing activities in streams with diadromous fish.<br><br>3. Submarine cables, conduits, or pipelines that occur in, over or under navigable waters of the U.S.<br><br>4. Stream channelization, relocation, impoundment, or loss of streambed occurs.<br><br>5. The activity is placed within and runs parallel to or along a streambed within waters of the U.S.<br><br>6. There is a permanent change in preconstruction contours in waters of the U.S.<br><br>7. Installation of utility lines or gas/oil pipelines using trench excavation where material is temporarily sidecast into waters of the U.S. for >3 months. Applicants must demonstrate how the material would not be dispersed by currents or other forces.<br><br>8. Activities that are not SV eligible and do not require an IP. |

[1] See the definitions of a “utility line” and “oil or natural gas pipeline” in Section VII.
[2] Outfall structures must be in compliance with regulations issued under the National Pollutant Discharge Elimination System Program (Section 402 of the Clean Water Act).
[3] Temporary impacts shall comply with all GCs, including GC 32 Utility Line Installation and Removal.

**GP 7. DREDGING (Authority: §10), DISPOSAL OF DREDGED MATERIAL (Authorities: §10, §404), BEACH NOURISHMENT (Authorities: §10 & §404), ROCK REMOVAL (Authority: §10) AND ROCK RELOCATION (Authorities: §10 & §404)**

New, improvement and maintenance dredging (see notes below) including: (a) Disposal of dredged material at a confined aquatic disposal cell, beach nourishment location, near shore site, or ocean disposal site selected under Section 404 of the Clean Water Act pursuant to the 404(b)(1) Guidelines, provided the dredged material meets the requirements for such disposal; (b) Beach nourishment not associated with dredging; and (c) Rock removal and relocation for navigation.

**Not authorized under GP 7 (IP required):** (a) Dredging where ocean disposal is required for the disposal of dredged material (Section 103); New dredging >½ acre; ≥10,000 CY; >1000 SF permanent impacts to intertidal areas, saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF permanent impacts to tidal vegetated shallows; (b) Maintenance or improvement dredging and/or disposal with >1 acre of impacts to intertidal areas, saltmarsh, mudflats, riffle and pool complexes, or non-tidal vegetated shallows; (c) New dredging where the primary purpose is sand mining for beach nourishment; (d) Beach scraping; (e) Boulder removal and relocation for navigation >½ acre; or (f) Blasting.

**Self-Verification Eligible**

1. Maintenance dredging of previously dredged areas, with upland disposal, that meet all of the following terms:
   a. Dredged area ≤1/2 acre; and
   b. Activities comply with GC 20, TOY Restrictions. The time-of-year restriction(s) stated in Appendix B of the MA Division of Marine Fisheries (DMF) Technical Report TR-47[1] can apply instead if the general TOY restriction if a TOY is provided for a specific waterbody and is less restrictive. This is to protect endangered species, EFH, and other species; and
   c. The dredge footprint is located >25' from salt marsh or >100' from vegetated shallows; and
   d. Combined permanent and temporary impacts that are (i) ≤1,000 SF in mudflats or natural rocky habitat, or (ii) ≤5,000 SF within intertidal habitat and areas containing shellfish (an area contains shellfish unless: it is verified that minimal shellfish are present per the local shellfish constable or a shellfish survey; or it is not mapped as a MassGIS shellfish suitability area).
   e. No return water from upland disposal areas.

2. Boulder relocation with ≤1,000 SF of impacts, relocated to a similar depth and substrate.

**Pre-Construction Notification Required**

1. Maintenance dredging where the primary purpose is sand mining for beach nourishment.

2. New dredging and associated disposal ≤1/2 acre or <10,000 cubic yards.

3. Improvement dredging.

4. Beach nourishment in waters of the U.S. not associated with dredging.

5. Activities that are located in saltmarsh and tidal vegetated shallows.

6. Dredging in a Federal Navigation Project or within the buffer zone (see GC 15).

7. Activities that are not eligible for SV and do not require an IP.

Notes:

1. See Section VII for definitions of improvement and maintenance dredging.
2. For PCN activities, the USACE may waive or adjust the time of year requirement on a case-by-case basis after consultation with resource agencies.
3. Disposal site of any dredged material must be identified prior to obtaining USACE authorization.
4. Contact the USACE if a ten-year authorization to maintain an area is desired.

[1] The MA DMF Technical Report TR-47: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/

**GP 8. U.S. COAST GUARD APPROVED BRIDGES (Authorities: §404)**

Discharges of dredged or fill material incidental to the construction and modification of bridges across navigable waters of the U.S., including cofferdams, abutments, foundation seals, piers, and temporary construction and access fills provided that the USCG authorizes the construction of the bridge structure under Section 9 of the Rivers and Harbors Act of 1899 or other applicable laws. A USCG Authorization Act Exemption or a Surface Transportation and Uniform Relocation Assistance Act (STURRA) (144h) exemption do not constitute USCG authorization.

**Not authorized under GP 8 (IP Required):** Causeways and approach fills (see GP 23).

| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
|---|---|
| 1. Discharges of dredged or fill material that are incidental to the construction of bridges across navigable waters and meet all of the following:<br>a. Combined permanent and temporary impacts that are ≤5,000 SF.<br>b. Combined permanent and temporary impacts that are ≤1,000 SF in mudflats and natural rocky habitat.<br>c. Not located in saltmarsh and tidal vegetated shallows. | 1. Activities on USACE properties & USACE controlled easements.2. Installation of steel piles, including steel sheet piles, that cannot be done in the dry and where NOAA-ESA listed species are mapped as present.<br>3. Activities that are not eligible for SV and do not require an IP. |

Notes:

1. GP 8 is not applicable to bridges over inland waters or wetlands that are not tidally influenced or regulated as navigable under Section 10.
2. See eligibility criteria for GPs 2 & 23 for projects that are not subject to USCG regulations.

**GP 9. BANK AND SHORELINE STABILIZATION (Authorities: §10 & §404)**

Bank stabilization activities necessary for erosion protection along the banks of lakes, ponds, streams, estuarine and ocean waters, and any other open waters. Includes bulkheads, seawalls, riprap, revetments, living seawalls, or slope protection & similar structures, specifically for the purpose of shoreline protection. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the activities above.

Activities must meet the following criteria: (a) No material is placed in excess of the minimum needed for erosion protection; (b) No material is of a type, or is placed in any location, or in any manner, that will impair surface water flow into or out of any waters of the U.S.; (c) No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored native trees and treetops may be used in low energy areas); (d) Native plants appropriate for current site conditions, including salinity, must be used for bioengineering or vegetative bank stabilization; (e) The activity is not a stream channelization activity; and (f) The activity must be properly maintained, which may require repairing it after severe storms or erosion events. This GP authorizes those maintenance and repair activities if they require authorization. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the bank stabilization activity. See GP 20 for living shoreline stabilization structures or fills.

**Not authorized under GP 9 (IP required):** (a) New bank stabilization >500 feet in total length (>1,000 linear feet in total length when necessary to protect transportation infrastructure) or permanent loss of saltmarsh >1,000 SF, unless the District Engineer waives this criterion by making a written determination concluding that the discharge of dredged or fill material will result in no more than minimal adverse environmental effects (an exception is for bulkheads – the district engineer cannot issue a waiver for a new bulkhead that is >1,000 feet in length along the bank); (b) Stream channelization or relocation activities; or (c) Breakwaters, groins or jetties.

**Self-Verification Eligible**

1. Activities in tidal and non-tidal waters that are:
   a. <200 feet in length.
   b. <400 feet in length when necessary to protect transportation infrastructure.
   c. ≤1 cubic yard of fill per linear foot average along the bank waterward of the plane of OHW or HTL.
   d. Not located in non-tidal wetlands, saltmarsh, vegetated shallows.

**Pre-Construction Notification Required**

1. Activities in tidal and non-tidal waters that are:
   a. ≥200 feet to ≤500 feet in total length. Activities >500 feet in total length must have a written waiver from USACE.
   b. ≥400 feet to ≤1,000 feet in total length when necessary to protect transportation infrastructure. Activities >1,000 feet in total length must have a written waiver from USACE.
   c. >1 cubic yard of fill per linear foot average along the bank waterward of the plane of OHW or HTL.
   d. Located in non-tidal wetlands, saltmarsh, vegetated shallows.
2. Activities with permanent loss of tidal or non-tidal waters that is (a) ≥5,000 SF or (b) ≥1,000 SF in mudflats and natural rocky habitat.
3. Activities that are (a) located in the Connecticut River or Merrimack River and/or (b) require installation of steel piles/steel sheet piles that cannot be done in the dry where NOAA ESA-listed species are mapped as present.
4. Activities on USACE properties & USACE-controlled easements.
5. Activities that require grouted riprap and/or poured/unformed concrete.
6. Activities that are not eligible for SV and do not require an IP.

Note: The applicant shall comply with GC 24. This includes utilization of bioengineering techniques in lieu of hard armoring to the maximum extent practicable as site conditions allow.

**GP 10. AQUATIC HABITAT RESTORATION, ENHANCEMENT, AND ESTABLISHMENT ACTIVITIES (Authorities: §10 and §404)**

Activities for the restoration, enhancement and establishment of non-tidal and tidal wetlands and riparian areas, including invasive, non-native or nuisance species control; the restoration and enhancement of non-tidal streams and other non-tidal open waters; the relocation of non-tidal waters, including non-tidal streams & associated wetlands for reestablishment of a natural stream morphology and reconnection of the floodplain; the restoration and enhancement of shellfish, finfish and wildlife; and the rehabilitation or enhancement of tidal streams, tidal wetlands and tidal open waters; provided those activities result in net increases in aquatic resource functions and services. See GP 9 for bank and shoreline stabilization. See GP 20 for living shorelines.

**Not authorized under GP 10 (IP required):** Stream channelization activities and artificial reefs.

| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
|---|---|
| 1. In tidal and non-tidal waters excluding tidal vegetated shallows, the combined permanent and temporary impacts are ≤5,000 SF.<br><br>2. Eelgrass (vegetated shallows) planting and transplanting ≤100 SF in tidal waters. | 1. In tidal and non-tidal waters excluding tidal vegetated shallows, the combined permanent and temporary impacts are >5,000 SF.<br><br>2. Eelgrass (vegetated shallows) planting and transplanting >100 SF in tidal waters.<br><br>3. Permanent water impoundments, dam removal, fish ladders, or tide gates.<br><br>4. Stream relocation, impoundment, or loss of streambed occurs.<br><br>5. Runneling projects with the purpose of restoring saltmarsh by removing excess water that ponds on the saltmarsh surface.<br><br>6. The conversion of: (a) a stream or natural wetlands to another aquatic habitat type (e.g., stream to wetland or vice versa, wetland to pond, etc.) or uplands, (b) one wetland type to another (e.g., forested wetland to an emergent wetland).<br><br>7. Activities in the Connecticut River from the Turners Falls Dam to the MA/CT border, or Merrimack River from the Essex Dam to the mouth, involving permanent or temporary impacts unless they are performed <5 feet waterward from OHW or HTL and in the dry. This is to protect endangered species.<br><br>8. Activities on USACE properties & USACE-controlled easements.<br><br>9. Activities that are not eligible for SV and do not require an IP. |

Notes:

1. Changes in wetland plant communities that occur when wetland hydrology is more fully restored during wetland rehabilitation activities are not considered a conversion to another aquatic habitat type.
2. See RGL 18-01 for guidance on removal of obsolete dams and other structures from rivers and streams. https://www.usace.army.mil/missions/civil-works/regulatory-program-and-permits/guidance-letters/
3. An ecological reference site may be used for a design basis of the restoration activity. The reference site should possess characteristics of an intact aquatic habitat or riparian area that exists in the region. The reference site shall represent the target habitat type of the proposed activity. A reference site may be required at the discretion of USACE.

**GP 11. FISH AND WILDLIFE HARVESTING AND ATTRACTION DEVICES AND ACTIVITIES (Authorities: §10 and §404)**

Fish and wildlife harvesting and attraction devices and activities in waters of the U.S. such as pound nets, crab traps, crab and shellfish dredging, eel pots, lobster traps, duck blinds, clam and oyster digging, fish aggregating devices, and small fish attraction devices such as open-water fish concentrators (sea kites, etc.).

**Not authorized under GP 11 (IP required):** Artificial reefs; or new, or expansions of, impoundments and semi-impoundments of waters of the U.S. for the culture or holding of motile species such as lobster with an impounded area >½ acre.

| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
|---|---|
| 1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤1/2 acre, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows.<br>2. Fish and wildlife harvesting and attraction devices and activities that do not require a PCN or IP. | 1. Pound nets, impoundments or semi-impoundments of waters of the U.S. for the culture or holding of motile species such as lobster with an impounded area ≤½ acre, fish aggregating devices, or small fish attraction devices.<br>2. Devices and activities that are located in tidal vegetated shallows, mud flats, or saltmarsh.<br>3. Devices and activities that do not require an IP. |

Note: An SVN submittal to USACE is not required for work authorized under GP 11.

**GP 12. RESPONSE OPERATIONS, OIL AND HAZARDOUS SUBSTANCES (Authorities: §10 & §404)**

(a) Activities conducted in response to a discharge or release of oil and hazardous substances that are subject to the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300) including containment, cleanup, and mitigation efforts, provided that the activities are done under either: (i) The Spill Prevention, Control and Countermeasure Plan required by 40 CFR 112.3; (ii) The direction or oversight of the Federal on-scene coordinator designated by 40 CFR 300; or (iii) Any approved existing State, regional or local contingency plan provided that the Regional Response Team concurs with the proposed response efforts or does not object to the response effort; (b) Activities required for the cleanup of oil releases in waters of the U.S. from electrical equipment that are governed by EPA's polychlorinated biphenyl (PCB) spill response regulations at 40 CFR 761; (c) Booms placed in navigable waters of the U.S. for oil and hazardous substance containment, absorption and prevention; and (d) The use of structures and fills for spill response training exercises. Wetlands, vegetated shallows, mudflats, and riffle and pool complexes should be restored in place at the same elevation.

| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
|---|---|
| 1. Activities are conducted in accordance with (a) or (b) above that are not planned or scheduled, but an emergency response (see Note 1).<br><br>2. Booms placed in navigable waters of the U.S. for oil and hazardous substance containment, absorption and prevention.<br><br>3. Temporary impacts for spill response training exercises ≤5000 SF in non-tidal waters and ≤1000 SF in tidal waters with no impacts to wetlands, saltmarsh, mudflats, or vegetated shallows.<br><br>4. Temporary structures in tidal waters with no impacts to wetlands, saltmarsh, mudflats, vegetated shallows, or riffle and pool complexes and in place ≤30 days. | 1. Activities (a) or (b) above are planned or scheduled, not an emergency response; or<br><br>2. Activities that are not eligible for SV and do not require an IP. |

Notes:

1. For emergency response activities in the Connecticut River from the Turners Falls Dam to the MA/CT border, Merrimack River from the Essex Dam to the mouth, and remaining tidal waters that are not rivers, the permittee must contact the USACE at (978) 318-8338 before or as soon as possible after the work authorized under GP 12(a) - (c) commences for the USACE to address effects under the Endangered Species Act.
2. An SVN submittal to USACE is not required for booms used for spill prevention, or properly contained and cleaned de minimus oil or hazardous substance discharges into navigable waters of the U.S.

**GP 13. CLEANUP OF HAZARDOUS AND TOXIC WASTE (Authorities: §10 and §404)**

Specific activities required to affect the containment, stabilization, or removal of hazardous or toxic waste materials, including court ordered remedial action plans or related settlements, which are performed, ordered or sponsored by a government agency with established legal or regulatory authority.

**Not authorized under GP 13:** (a) Establishment of new disposal sites; or (b) Expansion of existing sites used for the disposal of hazardous or toxic waste.

| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
|---|---|
| 1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in vegetated shallows and riffle and pool complexes. | 1. In non-tidal waters, the combined permanent and temporary impacts are (a) >5,000 SF, and (b) located in vegetated shallows and riffle and pool complexes.<br>2. Permanent and temporary impacts in tidal waters or navigable waters of the U.S.<br>3. Stream channelization, relocation, impoundment, or loss of streambed occurs.<br>4. Activities that are not eligible for SV and do not require an IP. |

Notes:

1. Wetlands, vegetated shallows, mudflats, and riffle and pool complexes should be restored in place at the same elevation to the maximum extent practicable.
2. Activities undertaken entirely on a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site by authority of CERCLA, are not required to obtain permits under Section 404 of the CWA or Section 10 of the Rivers and Harbors Act.

**GP 14. SCIENTIFIC MEASUREMENT DEVICES (Authorities: §10 and §404)**

Scientific measurement devices for measuring and recording scientific data, such as staff gauges, tide and current gauges, meteorological stations, water recording and biological observation devices, water quality testing and improvement devices, and similar structures. Also eligible are small weirs and flumes constructed primarily to record water elevation, flow and/or velocity. Upon completion of the use of the device to measure and record scientific data, the measuring device and any other structures or fills associated with that device (e.g., foundations, anchors, buoys, lines, etc.) must be removed to the maximum extent practicable and the site restored to preconstruction elevations.

**Not authorized under GP 14 (IP required):** (a) Permanent impacts that are >5,000 SF in tidal and non-tidal waters of the U.S.; >1000 SF in tidal saltmarsh, mud flats, riffle and pool complexes; or >100 SF in tidal vegetated shallows; or (b) Temporary impacts in tidal waters that are >1 acre, unless the District Engineer waives this criterion by making a written determination concluding that the discharge of dredged or fill material will result in no more than minimal adverse environmental effects; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows.

| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
|---|---|
| 1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) not located in riffle and pool complexes and non-tidal vegetated shallows.<br><br>2. In tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) ≤1,000 SF in mudflats and/or natural rocky habitat, (c) not located in saltmarsh and tidal vegetated shallows.<br><br>3. Temporary, non-biological sampling devices in waters that do not restrict or concentrate movement of aquatic organisms and will not adversely affect the course, condition, or capacity of a waterway for navigation.<br><br>4. Scientific measurement devices, and small weirs and flumes constructed primarily to record water quantity and velocity provided the discharge of fill is limited to 25 cubic yards. These cannot obstruct or restrict the waterway course, condition, capacity, and location.<br><br>5. Temporary measuring devices and associated structures (e.g., anchors, buoys, etc.) in tidal and non-tidal waters that do not require a PCN or IP. | 1. Biological sampling devices, weirs or flumes, or the activity restricts or concentrates movement of aquatic organisms.<br><br>2. Permanent towers located in navigable waters that record and measure scientific data.<br><br>3. Devices that are not eligible for SV and do not require an IP. |

Note: An SVN submittal to USACE is not required for temporary measuring devices with a footprint of <10 SF, with a profile of <3 feet high measured from the substrate and located in water deeper than -10 feet MLW.

**GP 15. SURVEY ACTIVITIES (Authorities: §10 and §404)**

Survey activities such as soil borings, core sampling, seismic exploratory operations, plugging of seismic shot holes and other exploratory-type bore holes, exploratory trenching, soil surveys, sampling, sample plots or transects for wetland delineations, and historic resources surveys.

**Not authorized under GP 15 (IP required):** (a) Permanent impacts that are >1 acre in tidal and non-tidal waters; >1000 SF in tidal saltmarsh, mud flats, or riffle and pool complexes; or >100 SF in tidal vegetated shallows; or (b) Temporary impacts in tidal waters that are >1 acre, unless the District Engineer waives this criterion by making a written determination concluding that the discharge of dredged or fill material will result in no more than minimal adverse environmental effects; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows.

| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
|---|---|
| 1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) not located in riffle and pool complexes and non-tidal vegetated shallows.<br><br>2. In tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, (b) ≤1,000 SF in mudflats and/or natural rocky habitat, (c) not located in saltmarsh and tidal vegetated shallows. | 1. Exploratory trenching (see Note 2) occurs in waterways (e.g., streams, tidal waters).<br><br>2. Activities associated with the recovery of historic resources, and the drilling and discharge of excavated material from test wells for oil and gas exploration.<br><br>3. Seismic exploratory operations occur in tidal waters, the Connecticut River from the Turners Falls Dam to the MA/CT border, or the Merrimack River from the Essex Dam to the mouth. This is to protect endangered species.<br><br>4. Activities that are not eligible for SV and do not require an IP. |

Notes:

1. An SVN submittal is not required for wetland delineations, and core sampling conducted for preliminary evaluation of dredge project analysis.
2. For the purposes of GP 15, the term “exploratory trenching” means mechanical land or underwater clearing of the upper soil profile to expose bedrock or substrate for the purpose of mapping or sampling the exposed material.
3. The discharge of drilling mud and cuttings may require a permit under §402 of the CWA.

**GP 16. LAND AND WATER-BASED RENEWABLE ENERGY GENERATION FACILITIES (Authorities: §10 and §404), AND HYDROPOWER PROJECTS (Authority: §10 and §404)**

Structures and work in tidal waters and discharges of dredged or fill material into tidal and non-tidal waters for the construction, expansion, modification or removal of: (a) Land-based renewable energy production facilities (e.g., solar, wind, biomass, geothermal) and their attendant features; (b) Water-based wind or hydrokinetic renewable energy generation projects and their attendant features; and (c) Discharges of dredged or fill material associated with hydropower projects. Attendant features may include, but are not limited to, land-based collection and distribution facilities, control facilities, and parking lots. For each single and complete project in (b) above, no more than 10 generation units (e.g., wind turbines or hydrokinetic devices) are authorized in navigable waters of the U.S. Upon completion of the pilot project (see note 2), the generation units, transmission lines, and other structures or fills associated with the pilot project must be removed to the maximum extent practicable.

**Not authorized under GP 16 (IP required):** (a) Permanent impacts that are >1 acre in non-tidal waters, >½ acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in vegetated shallows; or (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows.

| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
|---|---|
| In non-tidal waters, the combined permanent and temporary impacts for land-based activities are (a) ≤5,000 SF, (b) not located in riffle and pool complexes and non-tidal vegetated shallows. | 1. In non-tidal waters, the combined permanent and temporary impacts for land-based activities are (a) >5000 SF, or (b) located in vegetated shallows or riffle and pool complexes.<br>2. Permanent and temporary impacts in tidal waters.<br>3. Water-based wind or hydrokinetic renewable energy generation projects, and hydropower projects.<br>4. For all activities eligible for authorization under GP 16:<br>a. The activity occurs in tidal waters or in, over or under navigable waters.<br>b. Stream channelization, relocation, impoundment, or loss of streambed occurs.<br>5. Activities that are not eligible for SV and do not require an IP. |

Notes:

1. Utility lines constructed to transfer the energy from the land-based renewable generation or collection facility to a distribution system, regional grid, or other facility may be authorized by GP 6.
2. For the purposes of this GP, the term “pilot project” means an experimental project where the renewable energy generation units will be monitored to collect information on their performance and environmental effects at the project site.

**GP 17. RESIDENTIAL, COMMERCIAL AND INSTITUTIONAL DEVELOPMENTS AND RECREATIONAL FACILITIES (AUTHORITIES: §404)**

Discharges of dredged or fill material into non-tidal waters for the construction or expansion of: (a) Residences and residential subdivisions; (b) Residential, commercial and institutional building foundations and building pads; and (c) Recreational facilities such as playgrounds, playing fields, bikeways, trails, etc. This GP also authorizes attendant features that include, but are not limited to, roads, parking lots, garages, yards, and utility lines, and stormwater management facilities. This GP authorizes attendant features if they are necessary for the use of the project purpose.

**Not authorized under GP 17 (IP required):** (a) Permanent impacts that result in loss of non-tidal waters >1/2 acre; >1000 SF in riffle and pool complexes or vegetated shallows; or (b) Subsurface sewerage disposal systems in non-tidal waters.

| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
|---|---|
| 1. In non-tidal waters, the combined permanent and temporary impacts are (a) <5,000 SF, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows.<br><br>2. Stream channelization or relocation resulting in loss of streambed that is <200 LF. | 1. In non-tidal waters, the combined permanent and temporary impacts are (a) ≥5,000 SF, or (b) located in riffle and pool complexes or non-tidal vegetated shallows.<br><br>2. Stream and wetland crossings that require a PCN per GCs 20 TOY Restrictions and GC 31 Stream Work and Crossings & Wetland Crossings.<br><br>3. Stream channelization or relocation resulting in loss of streambed that is ≥200 LF. Stream impoundment activities of any kind.<br><br>4. Activities on USACE properties & USACE-controlled easements.<br><br>5. Activities that are not SV eligible and do not require an IP. |

Notes:

1. Stream and wetland crossings (permanent and temporary), including those built with construction mats; and modifications (including sliplining), replacements or extensions to existing crossings.
2. See GC 22 for information on temporary construction mats.
3. Subdivisions: For residential subdivisions, the aggregate total loss of waters of United States authorized by this GP cannot exceed 1/2-acre. This includes any loss of waters of the United States associated with development of individual subdivision lots.

**GP 18. AQUACULTURE (Authorities: §10 and §404)**

(a) The installation of buoys, floats, racks, trays, nets, lines, tubes, containers, and other structures into navigable waters of the U.S.; (b) Discharges of dredged or fill material into tidal and non-tidal waters necessary for shellfish seeding, rearing, cultivating, transplanting, and harvesting activities; and (c) Shellfish seeding or brushing the flats projects. Any fill material imported to the project from offsite (this is limited to mineral growth medium used in culture trays) shall be clean and of comparable grain size to the native substrate. Activities authorized under this GP must have (a) their MA DMF Aquaculture Certificate letter for licensed shellfish aquaculture sites, (b) documentation that the applicant has coordinated with the U.S. Coast Guard regarding USCG Private Aids to Navigation standards, (c) their MEPA Certificate (if required), and (d) documentation that the applicant has contacted their local authorities (ex. harbormaster, select board, shellfish constable) for authorization of their facility.

**Not authorized under GP 18 (IP required):** (a) New, or expansions of, impoundments and semi-impoundments of tidal and non-tidal waters for the culture or holding of motile species such as lobster with an impounded area >½ acre; (b) Cultivation of a nonindigenous species (see Note 1) unless that species has been previously cultivated in the waterbody; (c) Cultivation of an aquatic nuisance species (see Note 1); (d) Attendant features such as docks, piers, boat ramps (see GP 4); (e) stockpiles, staging areas, or the deposition of shell material back into tidal and non-tidal waters as waste.

**Self-Verification Eligible**

1. In tidal waters, a new lease site area is (a) ≤2-acre, (b) not located in salt marsh, natural rocky habitat, or tidal vegetated shallows.

2. In tidal waters, *expansions* of existing lease sites not to exceed 2 acres for the entire site (e.g. 1 acre lease site increasing to a 2 acre lease site may qualify as SV). A PCN is required for expansions in salt marsh, natural rocky habitat, and tidal vegetated shallows.

3. Cages, racks that are elevated ≥2 feet above the ocean floor with legs within a lease site with ≤4 buoys marking the corners.

4. Floating cage strings with a single connecting line, ≤2 anchors and ≤2 end marker buoys per string within a lease site with ≤4 buoys marking the corners.

5. No activities located within 25 feet of tidal vegetated shallows.

6. Culture only indigenous species.

7. Not located in FNP or within a distance of three times the authorized depth of an FNP (see GC 15).

8. Not located in or impinge upon the value of any National Lands or Federal Properties.

9. Floating upweller docks that total ≤600 SF in area.

**Pre-Construction Notification Required**

1. Discharges of fill material associated with aquaculture >5,000 SF.

2. Research, educational, commercial-viability or experimental aquaculture gear activities >1,000 SF.

3. Kelp or finfish aquaculture.

4. Land-based hatchery intakes >3 inches in diameter.

5. Activities in water depths >10 feet mean low lower water (MLLW).

6. Activities with in-water lines, ropes or chains that are not SV eligible (see #3-4).

7. Activities occur in the Connecticut River from the Turners Falls Dam to the MA/CT border or the Merrimack River from the Essex Dam to the mouth. This is to protect endangered species.

8. New, or expansions of, impoundments and semi-impoundments for the culture or holding of motile species such as lobster with an impounded area ≤1/2 acre.

9. Activities that do not require an IP. Activities that do not require a PCN or an IP may be SV eligible.

Note: The Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 defines: (a) nonindigenous species as “any species or other viable biological material that enters an ecosystem beyond its historic range, including any such organism transferred from one country into another”; and (b) aquatic nuisance species as “a nonindigenous species that threatens the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aquacultural, or recreational activities dependent on such waters.”

**GP 19. MINING ACTIVITIES (Authorities: §10 and §404)**

Discharges of dredged or fill material into non-tidal waters for mining activities, except for coal mining and metallic mineral mining activities.

**Not authorized under GP 19 (IP required):** (a) Permanent impacts >1 acre in non-tidal waters; or (b) Activities in tidal waters.

| Self-Verification Eligible | Pre-Construction Notification Required |
|---|---|
| In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in riffle and pool complexes, non-tidal vegetated shallows, and streams. | 1. In non-tidal waters, the combined permanent and temporary impacts are (a) >5,000 SF, or (b) located in riffle and pool complexes, non-tidal vegetated shallows, and streams.<br>2. The activity occurs in non-tidal navigable waters of the U.S.<br>3. Stream channelization, relocation, impoundment, loss of streambed, or discharge of tailings into streams occurs.<br>4. Work on USACE properties & USACE-controlled easements.<br>5. Activities that are not eligible for SV and do not require an IP. |

**GP 20. LIVING SHORELINES[1] (Authorities: §10 and §404)**

Construction and maintenance of living shorelines to stabilize banks and shores in tidal waters. In non-tidal waters that are not subject to the ebb and flow of the tide, nature-based bank stabilization techniques such as bioengineering and vegetative stabilization may be authorized by GP 9. This GP authorizes those maintenance and repair activities in-kind that are necessary to address changing environmental conditions.

The following terms must be met for both SVs and PCNs as applicable: (a) Coir logs, coir mats, stone, native oyster shell, native wood debris, and other structural materials must be adequately anchored, of sufficient weight, or installed in a manner that prevents relocation in most wave action or water flow conditions, except for extremely severe storms; (b) For living shorelines consisting of tidal fringe wetlands, native plants appropriate for current site conditions, including salinity and elevation, must be used if the site is planted by the permittee; (c) Discharges of dredged or fill material into waters of the U.S., and oyster or mussel reef structures in navigable waters, must be the minimum necessary for the establishment and maintenance of the living shoreline; (d) If sills or other structural materials per PCN #4 must be constructed to protect fringe wetlands for the living shoreline, those structures must be the minimum size necessary to protect those fringe wetlands; (e) The activity must be designed, constructed, and maintained so that it has no more than minimal adverse effects on water and sediment movement between the waterbody and the shore and the movement of aquatic organisms between the waterbody and the shore; and (f) The living shoreline must be properly maintained and monitored, which may require periodic repair of sills, bioengineered components, or replacing sand fills after severe storms or erosion events. Vegetation may be replanted to maintain the living shoreline.

**Not authorized under GP 20 (IP required):** (a) The activity is ≥1000 feet in length along the bank (≥2000 LF both banks) unless waived by the District Engineer; or (b) The activity is >30 feet channel ward of mean low water in tidal waters; or (c) Upland reclamation activities; or (d) Stream channelization or relocation activities; or (e) Breakwaters, groins, jetties, or artificial reefs; or (f) Permanent impacts >1,000 SF in existing saltmarsh; >100 SF in existing tidal vegetated shallows.

| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
|---|---|
| 1. Tidal and non-tidal living shorelines ≤100 LF for each bank (≤200 LF for both banks).<br><br>2. Combined permanent and temporary impacts ≤5,000 SF in tidal waters, excluding existing salt marsh, tidal vegetated shallows, natural rocky habitat, and mudflats. | 1. Tidal and non-tidal living shorelines >100 LF to <1000 LF (>200 LF to <2000 LF for both banks).<br><br>2. Permanent and temporary impacts in existing salt marsh, tidal vegetated shallows, or mudflats.<br><br>3. Work on USACE properties & USACE-controlled easements.<br><br>4. Use of stone sills, native oyster shell, native wood debris, or other structural materials. |

Notes:

1. PCNs require monitoring for a minimum of 5 years in accordance with an approved restoration plan, unless otherwise determined by the USACE. The first year of monitoring will be the first year that the site has been through a full growing period after completion of construction and planting.
2. Applicants are encouraged to obtain a MEPA certificate prior to submitting a USACE permit application.

[1] A living shoreline has a footprint that is made up mostly of native material. It incorporates vegetation or other living, natural "soft" elements alone or in combination with some type of harder shoreline structure (e.g., oyster or mussel reefs or rock sills) for added protection and stability. Living shorelines should maintain the natural continuity of the land-water interface and retain or enhance shoreline ecological processes. Living shorelines must have a substantial biological component, either tidal or lacustrine fringe wetlands or oyster or mussel reef structures.

**GP 21. AGRICULTURAL ACTIVITIES (Authority: §404)**

Discharges of dredged or fill material in non-tidal waters for agricultural activities, including the construction of building pads for farm buildings. Authorized activities include: (a) installation, placement, or construction of drainage tiles, ditches, or levees; mechanized land clearing; land leveling; the relocation of existing serviceable drainage ditches; and similar activities; (b) construction of farm ponds, excluding perennial streams, provided the farm pond is used solely for agricultural purposes; and (c) discharges of dredged or fill material to relocate existing serviceable drainage ditches constructed in non-tidal streams.

**Not authorized under GP 21 (IP required):** (a) Permanent impacts that are >1 acre in non-tidal waters; or >1000 SF in riffle and pool complexes, or non-tidal vegetated shallows; (b) Work in tidal waters; or (c) Construction of farm ponds in perennial streams.

| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
|---|---|
| In non-tidal waters, the combined permanent and temporary impacts are (a) ≤5,000 SF, and (b) not located in riffle and pool complexes and non-tidal vegetated shallows. | 1. In non-tidal waters, the combined permanent and temporary impacts are (a) >5,000 SF, or (b) located in riffle and pool complexes and non-tidal vegetated shallows.<br>2. Activities occur in non-tidal navigable waters of the U.S.<br>3. Stream channelization, relocation, impoundment, loss of streambed, or farm ponds in non-perennial streams occurs.<br>4. Activities that are not eligible for SV and do not require an IP. |

Note: Some discharges for agricultural activities may qualify for an exemption under Section 404(f) of the CWA (see 33 CFR 323.4). This GP authorizes the construction of farm ponds that do not qualify for the CWA §404(f)(1)(C) exemption because of the recapture provision at §404(f)(2).

**GP 22. RESHAPING EXISTING DRAINAGE DITCHES, CONSTRUCTION OF NEW DITCHES, AND MOSQUITO MANAGEMENT (Authorities: §10 and §404)**

Discharges to modify the cross-sectional configuration of currently serviceable drainage ditches constructed in tidal and non-tidal waters, for the purpose of improving water quality by regrading the drainage ditch with gentler slopes, which can reduce erosion, increase growth of vegetation, and increase uptake of nutrients and other substances by vegetation. Also authorized are mosquito reduction activities.

**Not authorized under GP 22 (IP required):** Stream channelization, relocation, impoundments, or loss of streambed.

| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
|---|---|
| ≤500 linear feet of drainage ditch will be reshaped provided excavated material is deposited in an upland area. | 1. >500 linear feet of drainage ditch will be reshaped, excavated material is deposited in a water of the U.S., or the reshaping of the ditch increases the drainage capacity beyond the original as-built capacity or expands the area drained by the ditch as originally constructed (i.e., the capacity of the ditch is not the same as originally constructed or drains additional wetlands or other waters of the U.S.).<br>2. Permanent and temporary impacts in tidal vegetated shallows.<br>3. New ditches or relocation of drainage ditches constructed in waters of the U.S. (i.e., the location of the centerline of the reshaped drainage ditch is not approximately the same as the location of the centerline of the original drainage ditch).<br>4. Activities that are not eligible for SV and do not require an IP. |

Note: Some ditch activities are exempt under Section 404(f) of the CWA (see 33 CFR 323.4).

**GP 23. LINEAR TRANSPORTATION PROJECTS AND WETLAND/STREAM CROSSINGS (Authorities: §10 & §404)**

Activities[1] required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., driveways, roads, highways, railways, trails, airport runways, and taxiways) and attendant features. This GP also authorizes temporary structures, fills, and work, including the use of temporary mats (see Note 1), necessary to construct the linear transportation project.

**Not authorized under GP 23 (IP required):** (a) Permanent impacts for any single and complete project that are >1 acre in non-tidal waters; >½ acre in tidal waters; >1000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows; (c) Non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars (see GP 17); or (d) New tide gates.

**Self-Verification Eligible**

1. In non-tidal waters, the combined permanent and temporary impacts are a) ≤5,000 SF; b) not located in riffle and pool complexes and non-tidal vegetated shallows; and c) meet the Massachusetts River and Stream Crossing Standards

2. Existing crossings (e.g., culverts, elliptical or arch pipes, etc.) are not modified by (a) decreasing the diameter of the crossing or (b) changing the friction coefficient, such as through slip lining (retrofitting an existing culvert by inserting a smaller diameter pipe), culvert relining or invert lining.

3. Stream channelization or relocation resulting in loss of streambed that is <200 LF.

**Pre-Construction Notification Required**

1. In non-tidal waters, the combined permanent and temporary impacts are a) >5,000 SF; b) located in vegetated shallows or riffle and pool complexes; or c) do not meet the Massachusetts River and Stream Crossing Standards (see note 4).

2. The activity occurs in tidal waters, salt marsh, or in, over or under navigable waters of the U.S.

3. Stream and wetland crossings that require a PCN per GC 20 TOY Restrictions and GC 31 Stream Work and Crossings & Wetland Crossings.

4. Stream channelization or relocation resulting in loss of streambed that is ≥200 LF. Stream impoundment activities of any kind.

5. Work on USACE properties & USACE-controlled easements.

6. Activities that are not eligible for SV and do not require an IP.

Notes:

1. See GC 22 for information on temporary construction mats.
2. Discharges of dredged or fill material incidental to the construction of bridges across navigable waters of the U.S. may be authorized under GP 8.
3. Loss of streambed does not require a PCN when bridge piers or similar supports are used.
4. In their PCN application submission to the USACE, applicants must explain why they are unable to meet the Massachusetts River and Stream Crossing Standards.
5. For tidal crossings, modeling is encouraged as a method to verify the proposed crossing would not be undersized and resilient to the effects of sea level rise.

[1] Stream crossings must conform with the MA Stream Crossing Guidelines when practicable and comply with all applicable GCs of this document (Section IV).

**GP 24. TEMPORARY CONSTRUCTION, ACCESS, AND DEWATERING (Authorities: §10 and §404)**

Temporary structures, work, and discharges, including cofferdams, necessary for construction activities or access fills or dewatering of construction sites that are not authorized under another GP activity.

**Not authorized under GP 24 (IP required):** (a) Permanent structures or impacts; (b) Temporary impacts in tidal waters that are >1 acre; >5000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1000 SF in vegetated shallows; (c) Use of cofferdams to dewater wetlands or other aquatic areas to change their use; (d) Temporary stream crossings (see GPs 6, 17, 23); (e) Structures or fill left in place after construction is completed.

| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
|---|---|
| 1. In non-tidal waters, temporary impacts are a) ≤5,000 SF; b) not located in riffle and pool complexes and non-tidal vegetated shallows.<br><br>2. In tidal waters, temporary impacts are a) ≤5,000 SF, b) ≤1,000 SF in mudflats and/or natural rocky habitat, and c) not located in saltmarsh and tidal vegetated shallows.<br><br>3. Structures in navigable waters of the U.S. provided impacts do not require a PCN and they are left in place ≤30 days. | 1. In non-tidal waters, temporary impacts are a) >5,000 SF; b) located in riffle and pool complexes or non-tidal vegetated shallows.<br><br>2. In tidal waters, temporary impacts are a) >5,000 SF; b) >1,000 SF in mudflats and/or natural rocky habitat, or (c) located in saltmarsh and tidal vegetated shallows.<br><br>3. Activities in the Connecticut River from the Turners Falls Dam to the MA/CT border, or Merrimack River from the Essex Dam to the mouth, involving temporary impacts unless they are performed <5 feet waterward from OHW or HTL and in the dry. This is to protect endangered species; or<br><br>4. Activities not eligible for SV and do not require an IP. |

Notes:

1. Turbidity or sediment resuspension is generally not considered to occur when properly using management techniques to work in dry conditions. See GC 25.
2. Total impact areas under SV Eligible 1-2 exclude use of temporary construction mats. See GC 22 for information on temporary construction mats.
3. An SVN submittal to USACE is not required for SV #3 above.

**GP 25. EMERGENCY SITUATIONS (Authorities: §10 and §404)**

Structures or work in or affecting navigable waters of the U.S. and the discharge of dredged or fill material into waters of the U.S., including wetlands, necessary for repair or protection measures associated with an emergency situation[1], MassDEP Emergency Declaration/Certification, or FEMA Declared Disaster. The activity shall be the minimum necessary to alleviate the immediate emergency unless that additional work would result in no more than minimal effects to aquatic environment and is necessary to reduce the potential for future failure or loss of the structure or site. Typical activities authorized under this GP include, but are not limited to, restoration of damaged areas; bank stabilization; temporary fills for staging, access, and dewatering; and, repair, replacement, or rehabilitation of existing structures and/or fills (i.e., roads, bridges, utility pipelines and flood control structures, including attendant features, and other existing structures located in waters of the U.S.).

For the restoration of areas damaged by storms floods, or other discrete events: (a) The restored area must not extend waterward of the ordinary high-water mark or high tide line that existed prior to the damage. (b) The slope of the restored area below the ordinary high-water mark or high tide line must not exceed the slope that existed prior to the damage. (c) The bottom elevation of the restored area must not exceed the bottom elevation that existed prior to the damage (i.e., the restored area must not result in a reduction in the depth of the waterbody that existed prior to the damage). (d) Except in cases of FEMA reimbursement, the activity must be initiated, under contract to commence, or funds shall be allocated for the activity within 30 days of authorization under GP 25.

**Not authorized under GP 25 (IP required):** (a) Permanent impacts for a single and complete project >1/2 acre in tidal waters, unless the district engineer waives this criterion by making a written determination concluding that the activity will result in no more than minimal adverse environmental effects; >1,000 SF in saltmarsh, mud flats, riffle and pool complexes, or non-tidal vegetated shallows; or >100 SF in tidal vegetated shallows; (b) Temporary impacts in tidal waters that are >5,000 SF in saltmarsh, mud flats, or riffle and pool complexes; or >1,000 SF in vegetated shallows; (c) New structures or fills that did not previously exist before the storm event or other discrete event (see other GPs).

| **Self-Verification Eligible** | **Pre-Construction Notification Required** |
|---|---|
| 1. Activities that qualify under a Severe Weather Emergency Declaration pursuant to 310 CMR 10.06(8) and/or receive an Emergency Certification pursuant to 310 CMR 10.06 and/or meet the requirements of 314 CMR 9.12(2) or (3); and<br><br>2. Activities eligible under a FEMA Declared Disaster that also comply with #1 above. | 1. Activities that are eligible under a FEMA Declared Disaster and do not qualify under SV #1.<br><br>2. Minor deviations in the structure or fill area, including those to existing structures or fills are authorized due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to alleviate the emergency.<br><br>3. Activities that are not eligible for SV and do not require an IP. |

Notes:

1. Review the GCs (Section IV) to confirm if a PCN is not required elsewhere in this document.
2. If the activity is not a MassDEP Emergency Declaration/Certification, does not meet the requirements of 314 CMR 9.12(2) or (3), or is not a FEMA Declared Disaster, applicants must explain in writing why their activity qualifies as an emergency (see footnote) to be eligible under GP 25.
3. SV eligible activities qualify under the general 401 WQC MassDEP issued for the 2023 MA GPs (GC 9).

[1] An emergency, as determined by this office and 33 CFR 325.2(e)(4), is one which would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if corrective action requiring a Department of the Army permit is not undertaken within a time period less than the normal time to process the request under standard processing procedures.

## SECTION IV. GENERAL CONDITIONS:

To qualify for GP authorization, the applicant must comply with the following general conditions, as applicable, in addition to authorization-specific conditions imposed by the division or district engineer.

1. Other Permits
2. Federal Jurisdictional Boundaries
3. Single and Complete Projects
4. Use of Multiple General Permits
5. Suitable Material
6. Tribal Rights & Burial Sites
7. Avoidance, Minimization, and Compensatory Mitigation
8. Water Quality & Stormwater Management
9. Coastal Zone Management
10. Federal Threatened and Endangered Species
11. Essential Fish Habitat
12. National Lands
13. Wild and Scenic Rivers
14. Historic Properties
15. USACE Property and Federal Projects (§408)
16. Navigation
17. Permit/Authorization Letter On-Site
18. Storage of Seasonal Structures
19. Pile Driving and Pile Removal in Navigable Waters
20. Time of Year Restrictions
21. Heavy Equipment in Wetlands
22. Temporary Fill & Construction Mats
23. Restoration of Wetland Areas
24. Bank Stabilization
25. Soil Erosion and Sediment Controls
26. Aquatic Life Movements and Management of Water Flows
27. Spawning, Breeding, and Migratory Areas
28. Vernal Pools
29. Invasive Species
30. Fills Within 100-Year Floodplains
31. Stream Work and Crossings & Wetland Crossings
32. Utility Line Installation and Removal
33. Water Supply Intakes
34. Coral Reefs
35. Blasting
36. Inspections
37. Maintenance
38. Property Rights
39. Transfer of GP Verifications
40. Modification, Suspension, and Revocation
41. Special Conditions
42. False or Incomplete Information
43. Abandonment
44. Enforcement Cases
45. Previously Authorized Activities
46. Duration of Authorization

**1. Other Permits.** Authorization under these GPs does not obviate the need for the permittee to obtain other Federal, State, or local permits, approvals, or authorizations required by law. Permittees are responsible for obtaining all required permits, approvals, or authorizations. Activities that are not regulated by the State, but subject to USACE jurisdiction, may still be eligible for these GPs.

**2. Federal Jurisdictional Boundaries**.
a. Applicability of these GPs shall be evaluated with reference to Federal jurisdictional boundaries. Activities shall be evaluated with reference to "waters of the U.S." under the CWA (33 CFR 328) and "navigable waters of the U.S." under §10 of the Rivers and Harbors Act of 1899 (33 CFR 329). Permittees are responsible for ensuring that the boundaries used satisfy the Federal criteria defined at 33 CFR 328-329. These sections prescribe the policy, practice, and procedures to be used in determining the extent of the USACE jurisdiction. Note: Waters of the U.S. includes all waters pursuant to 33 CFR 328.3(a), and adjacent wetlands as the term is defined in 33 CFR 328.3(c).
b. Wetlands shall be delineated in accordance with the USACE Wetlands Delineation Manual and the most recent Northcentral/Northeast Regional Supplement. Wetland delineation and jurisdiction information is located at: www.nae.usace.army.mil/missions/regulatory/jurisdiction-and-wetlands and maps are located at www.nae.usace.army.mil/missions/regulatory/state-general-permits/massachusetts-general-permit.
c. Vegetated shallows shall be delineated when present on the project site. Vegetated shallow survey guidance and maps are located at: www.nae.usace.army.mil/missions/regulatory/state-general-permits/massachusetts-general-permit.
d. Natural rocky habitats shall be delineated when present on the project site. The definition of natural rocky habitats is in Section VII of the MA GP. Natural rocky habitat survey guidance and maps are located at: www.nae.usace.army.mil/ missions/regulatory/state-general-permits/massachusetts-general-permit.

**3. Single and Complete Projects**. The MA GP shall not be used for piecemeal work and shall be applied to single and complete projects. The term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers.
a. For non-linear projects, a single and complete project must have independent utility. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed, even if the other phases were not built, can be considered as separate single and complete projects with independent utility.
b. Unless USACE determines the activity has independent utility, all components of a single project and/or all planned phases of a multi-phased project (e.g., subdivisions should include all work such as roads, utilities, and lot development) shall be evaluated as one single and complete project.
c. For linear projects such as power lines or pipelines with multiple crossings, a "single and complete project" is all crossings of a single water of the U.S. (i.e., single waterbody) at a specific location. For linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately. If any crossing requires a PCN review or an individual permit review, then the entire linear project shall be reviewed as one project under PCN or the individual permit procedures.

**4. Use of Multiple General Permits**. The use of more than one GP for a single and complete project is prohibited, except when the acreage loss of waters of the U.S. authorized by the GPs does not exceed the acreage limit of the GPs with the highest specified acreage limit. For example, if a road crossing over waters is constructed under GP 23, with an associated utility line

crossing authorized by GP 6, if the maximum acreage loss of waters of the U.S. for the total project is ≥1 acre it shall be evaluated as an IP.

**5. Suitable Material & Discharge of Pollutants.** No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). All activities involving any discharge into waters of the U.S. authorized under these GPs shall be consistent with applicable water quality standards, effluent limitations, standards of performance, prohibitions, and pretreatment standards and management practices established pursuant to the CWA (33 U.S.C. 1251), and applicable state and local laws. If applicable water quality standards, limitations, etc., are revised or modified during the term of this GP, the authorized work shall be modified to conform with these standards within six months from the effective date of such revision or modification, or within a longer period of time deemed reasonable by the District Engineer in consultation with the Regional Administrator of the EPA. Unless monitoring data indicates otherwise, applicants may presume that their activity complies with state water quality standards provided they are in compliance with the Section 401 WQC (Applicable only to the Section 404 activity).

**6. Tribal Rights & Burial Sites**

a. For all SV and PCN applications, prospective permittees shall follow the guidance set forth in Appendix A, Guidance for NHPA Section 106 Compliance in Massachusetts.

b. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

c. Many tribal resources are not listed on the National Register of Historic Places (NRHP) and may require identification and evaluation in collaboration with the identifying tribe and by qualified professionals. The Tribal Historic Preservation Officer (THPO) and State Historic Preservation Officer (SHPO) may be able to assist with locating information on:

i. Previously identified tribal resources; and
ii. Areas with potential for the presence of tribal resources.

d. Discovery of Previously Unknown Remains and Artifacts: If any previously unidentified human remains, cultural deposits, or artifacts are discovered while accomplishing the activity authorized by this permit, you must immediately notify the USACE of what you have found, and to the maximum extent practicable, cease work and avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The USACE will initiate the appropriate the Federal, Tribal, and state coordination required to determine if the items or remains are eligible for listing in the NRHP and warrant a recovery effort or can be avoided.

e. Burial Sites: Burial sites, marked or unmarked, are subject to state law (Massachusetts Unmarked Burial Law). Native American burial sites on federal or tribal land are subject to the provisions of Native American Graves Protection and Repatriation Act (NAGPRA). Regulated activities may not result in disturbance or removal of human remains until disposition of the remains has been determined by the appropriate authority under these laws, and the work is authorized by the USACE. Regulated activities which result in an inadvertent discovery of human remains must stop immediately, and the USACE, as well as the appropriate state and tribal authority, must be notified. Regulated work at inadvertent discovery sites requires compliance with state law or NAGPRA, as appropriate, prior to re-starting work.

**7. Avoidance, Minimization, and Compensatory Mitigation.** To qualify under the MA GP, activities must comply with Section V Mitigation Standards and the following as applicable:

a. Avoid and Minimize: Activities must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the U.S. to the maximum extent practicable at the project site. Avoidance and minimization are required to the extent necessary to ensure that the adverse effects to the aquatic environment (both area and function) are no more than minimal.

b. Compensatory mitigation for unavoidable impacts to waters of the U.S., including direct, indirect, secondary, and temporal loss, will generally be required for permanent impacts that exceed the thresholds identified in Section V, and may be required for temporary impacts, to offset unavoidable impacts which remain after all appropriate and practicable avoidance and minimization has been achieved and to ensure that the adverse effects to the aquatic environment are no more than minimal. Proactive restoration projects or temporary impact work with no secondary effects may generally be excluded from this requirement.
c. Mitigation proposals shall follow the guidelines found in the Compensatory Mitigation for Losses of Aquatic Resources; Final Rule April 10, 2008; 33 CFR 332. Prospective permittees may purchase mitigation credits in-lieu of permittee-responsible mitigation as compensation for unavoidable impacts to waters of the U.S. in the Commonwealth of Massachusetts.

**8. Water Quality & Stormwater Management.** The 401 WQC requirement applies to all activities listed under GPs 1-25, unless determined otherwise by MassDEP. Permittees shall also satisfy stormwater management requirements in Massachusetts.

a. General 401 WQC: MassDEP issued a WQC on April 21, 2023 which conditionally certifies all activities in GPs 1 – 24 eligible for SV and PCN so long as the activity is described in 314 CMR 9.03, and is not an activity described in 314 CMR 9.04, and so long as the activity meets all other requirements, terms and conditions of the WQC. The MassDEP WQC also conditionally certifies activities described in GP 25 so long as the activity meets all other conditions of the WQC. Emergency projects described in GP 25 must obtain an emergency certification or otherwise be authorized pursuant to 310 CMR 10.06, qualify under a Severe Weather Emergency Declaration pursuant to 310 CMR 10.06(8) issued by the MassDEP, or meet the requirements of 9.12(2) or (3) in order to be certified under the WQC. Prospective permittees may refer to the following link to determine if their activity is eligible: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/ Massachusetts-General-Permit/. The General 401 WQC is located here, and it provides detailed information regarding what activities are certified and the conditions for certification. Activities listed in 314 CMR 9.03 that are not exempt from the Wetland Protection Act must have a valid Final Order of Conditions (OOC) or Final Restoration Order of Conditions pursuant to 310 CMR 10.00 to be eligible under the General 401 WQC.
b. Individual 401 WQC: Prospective permittees shall contact MassDEP and apply for an individual 401 WQC if their activity does not qualify for a General 401 WQC as outlined above. MassDEP may issue, waive, or deny the individual 401 WQC on a case-by-case basis. All activities listed in 314 CMR 9.04 must obtain an individual 401 WQC from MassDEP to be eligible under these GPs. When an Individual 401 WQC is required for *PCN activities*, the prospective permittee shall submit their Individual 401 WQC application concurrently to MassDEP and USACE to comply with 40 CFR 121.
c. The prospective permittee is responsible for determining the appropriate 401 WQC requirement and submitting this information to the USACE at the time of their PCN application or when completing their SVN. Prospective permittees that are unsure of whether their activity has been certified should contact MassDEP for a determination.
d. As applicable, all activities shall be compliant with the Massachusetts Stormwater Handbook. The Stormwater Handbook can be accessed on the NAE Regulatory website here: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.
e. No work requiring authorization under Section 404 of the CWA may be performed unless (1) the prospective permittee qualifies for coverage under the April 21, 2023 General 401 WQC, (2) the prospective permittee receives an individual Section 401 WQC from the MassDEP, or (3) the MassDEP waives individual Section 401 WQC.

**9. Coastal Zone Management.** The permittee must obtain CZM consistency concurrence when an activity is located in the coastal zone in order to be eligible under the MA GP. This requirement

shall be satisfied by acquiring one of the following from the Massachusetts Office of Coastal Zone Management (MA CZM):

a. General CZM Federal Consistency Concurrence (General Concurrence): MA CZM has granted General Concurrence for all SV and PCN activities for GPs 1-25. The prospective permittee must obtain all applicable permits and approvals before construction of the authorized activity begins (e.g., before work begins on site). For SVs, General Concurrence is automatically granted and no further action is required from the prospective permittee. For PCNs, the USACE will coordinate with MA CZM to acquire General Concurrence as part of the PCN application review.
b. Individual CZM Federal Consistency Concurrence (Individual Concurrence): In certain cases, MA CZM may elevate any GP activity 1-25 and require Individual Concurrence. The prospective permittee must contact MA CZM and follow the procedures to obtain Individual Concurrence as determined appropriate by MA CZM.
c. Permittees must obtain CZM consistency concurrence as outlined above before commencing work authorized under these GPs.

**10. Federal Threatened and Endangered Species**

a. No activity is authorized under any GP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any GP which "may affect" a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."
b. Other Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If a PCN is required for the proposed activity, the Federal permittee must provide USACE with the appropriate documentation to demonstrate compliance with those requirements. The USACE will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.
c. USFWS ESA-Listed Species: Non-federal applicants shall use the USFWS website, Information for Planning and Consultation (IPAC), to determine if their activity is located within the ESA-listed species range. The IPAC website can be accessed on the NAE Regulatory website: https://www. nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/. Applicants shall ensure they have an updated, valid species list before construction begins. This may require applicants to update their species list in IPAC before the start of construction. Note: Applicants should refer to the NAE Regulatory Website at the link above to determine if they have been designated as a non-federal representative. Applicants shall complete Section 7 consultation according to the guidance document located on the NAE Regulatory Website. After completing the Rangewide Determination Key and reaching the outcome "may affect, not likely to adversely affect", you may be required to wait up to 15 days before that outcome is final and compliance under Section 7 of the ESA is fulfilled.

i. *Self-Verification Criteria*: The activity is SV-eligible if:
   1) The activity is not located within the ESA-listed species range;
   2) Another (lead) Federal agency has completed Section 7 consultation; or
   3) The activity is located within the ESA-listed species range ***and*** USACE has designated the applicant as a non-federal representative under 50 CFR 402.08 of the ESA for all

species within the project's action area. As the non-federal representative, the applicant shall complete consultation through IPAC and reach the outcome of "no effect" or "not likely to adversely affect".

ii. *Pre-Construction Notification Criteria*: The activity requires a PCN if:

1) The activity is located within the ESA-listed species range ***and*** USACE has NOT designated the applicant as a non-federal representative under 50 CFR 402.08 of the ESA for all species within the project's action area;

2) The activity is located in designated or proposed critical habitat; or

3) The activity is located within the ESA-listed species range and completion of the IPAC determination key has resulted in the outcome of "may affect" or "may affect, likely to adversely affect"; or

4) A PCN is required elsewhere in this document.

d. NOAA-Listed Species: Non-federal applicants shall refer to the Section 7 Mapper for federally listed species to determine if any species are mapped as present. When NOAA-listed species are present, the applicant shall generate a species report through the mapper and submit this document as part of their PCN or SVN submission. The NOAA Fisheries' Section 7 Mapper can be accessed here on the NAE Regulatory website here: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.

e. Authorization of an activity by an GP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word "harm" in the definition of "take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

**11. Essential Fish Habitat (EFH).**

a. SV eligible activities have been determined to result in no more than minimal adverse effects, provided the permittee complies with all terms and conditions of the MA GP as appliable to the activity. NMFS has granted General Concurrence [50 CFR 600.920(g)] for all SV eligible activities. These activities do not require project specific EFH consultation.

b. For PCN required activities, the applicant is required to describe and identify potential adverse effects to EFH and should refer to NOAA Fisheries' EFH Mapper (http://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper) and Omnibus Essential Fish Habitat Amendment 2 Volume 2: EFH and HAPC Designation Alternatives and Environmental Impacts (https://www.habitat.noaa.gov/application/efhmapper/oa2_efh_hapc.pdf). If an activity is located within EFH, the PCN application must contain:

1. A description of the action located in EFH.
2. An analysis of the potential adverse effects of the action on EFH and the managed Species.
3. Conclusions regarding the effects of the action on EFH.
4. Proposed mitigation, if applicable (refer to the mitigation thresholds located in Section V).

c. Federal agencies shall follow their own procedures for complying with the EFH requirements of the Magnuson-Stevens Fishery Conservation and Management Act. For activities requiring a PCN, the applicant is responsible for furnishing documentation that demonstrates consultation for EFH has been completed.

d. For PCN activities, no work may commence until EFH consultation as required by the Magnuson-Stevens Act has been completed.

**12. National Lands**. Activities that impinge upon the value of any National Wildlife Refuge, National Forest, National Marine Sanctuary, National Historic Landmarks or any other area administered by the National Park Service, U. S. Fish and Wildlife Service (USFWS) or U.S. Forest Service (USFS) require a PCN or Individual Permit. Federal land managers seeking authorization for activities located in the above listed National Lands may proceed under SV, unless a PCN is required elsewhere in this document.

**13. Wild and Scenic Rivers.** The following activities in designated river or study river segments in the National Wild and Scenic River (WSR) System require a PCN unless the Federal agency with direct management responsibility for such river, in Massachusetts this is generally the National Park Service, has determined in writing to the proponent that the proposed work will not adversely affect the WSR designation or study status:

a. Activities that occur in WSR segments, in and 0.25 miles up or downstream of WSR segments, or in tributaries within 0.25 miles of WSR segments;
b. Activities that occur in wetlands within 0.25 miles of WSR segments;
c. Activities that have the potential to alter free-flowing characteristics in WSR segments.

No GP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

As of May 10, 2023, affected rivers in Massachusetts include: the Taunton River (40 miles), Sudbury River (16.6 miles), Assabet River (4.4 miles), Concord River (8 miles), Nashua River (27 miles), Squannacook River (16.3 miles), Nissitissit River (4.7 miles), and the Westfield River, including West Branch, Middle Branch, Gendale Brook, East Branch, Drowned Land Brook, Center Brook, Windsor Jambs Brook, Shaker Mill Brook, Depot Brook, Savery Brook, Watson Brook, Center Pond Brook (78.1 miles). The most up to date list of designated and study rivers and their descriptions may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

**14. Historic Properties**

a. For all SV and PCN applications, permittees shall follow the guidance set forth in Appendix A, Guidance for NHPA Section 106 Compliance in Massachusetts.

b. No undertaking authorized by these GPs shall cause effects[1] (defined in 36 CFR Part 800 and 33 CFR Part 325, Appendix C, and its Interim Guidance) on properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places (NRHP)[2], including previously unknown historic properties within the permit area, unless the USACE or another Federal action agency has satisfied the consultation requirements of Section 106 of the National Historic Preservation Act (Section 106). If another Federal agency is determined the lead federal agency for compliance with Section 106, applicant must obtain the appropriate documentation and provide this information to the USACE to demonstrate compliance with Section 106. The applicant shall not begin the activity until the USACE notifies them in writing that the documentation provided satisfies Section 106 requirements.

[1] Effect means the alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register of Historic Properties.
[2] See the NAE Regulatory website, National Register of Historic Places link here: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.

c. Many historic properties are not listed on the NRHP and may require identification and evaluation by qualified historic preservation and/or archaeological consultants. The State Historic Preservation Officer (SHPO), Massachusetts Board of Underwater Archaeological Resources (BUAR), local historical societies, certified local governments, general public, and NRHP may also be able to assist with locating information on:

i. Previously identified historic properties; and
ii. Areas with potential for the presence of historic properties.

d. Discovery of Previously Unknown Remains and Artifacts: If any previously unidentified human remains, cultural deposits, or artifacts are discovered while accomplishing the activity authorized by this permit, you must immediately notify the USACE of what you have found, and to the maximum extent practicable, cease work and avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The USACE will initiate the Federal, State and tribal coordination required to determine if the items or remains warrant a recovery effort and/or if the site is eligible for listing in the National Register of Historic Places.

e. Section 110k: Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. § 306113) prevents the USACE from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106, has intentionally significantly adversely effected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the USACE, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the USACE is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties effected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or effects historic properties on tribal lands or effects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

f. Underwater Archaeological Resources: Under Massachusetts General Law Ch. 6, s.'s 179-180, and Ch. 91, s. 63, the BUAR has statutory jurisdiction within state waters and is the sole trustee of the Commonwealth's underwater heritage, charged with the responsibility of encouraging the discovery and reporting, as well as the preservation and protection, of underwater archaeological resources. Underwater archaeological resources located within the waters of the Commonwealth of Massachusetts are property of the Commonwealth, which holds title to these resources and retains regulatory authority over their use. Under Massachusetts General Law, no person, organization or corporation may "remove, displace, damage, or destroy" any underwater archaeological resources located within the Commonwealth's submerged lands except through consultation with the BUAR and in conformity with the permits it issues. https://www.mass.gov/orgs/board-of-underwater-archaeological-resources.

**15. USACE Property and Federal Projects. (33 USC §408)**

a. USACE projects and property can be found at: https://www.nae.usace.army.mil/Missions/Civil-Works/.

b. In addition to any authorization under these GPs, prospective permittee shall contact the USACE Real Estate Division (https://www.nae.usace.army.mil/Missions/Real-Estate-Division/) at (978) 318-8585 for work occurring on or potentially affecting USACE properties and/or USACE-controlled easements. Work may not commence on USACE properties and/or USACE-controlled easements until they have received any required USACE real estate documents evidencing site-specific permission to work.

c. Any proposed temporary or permanent occupation or alteration of a Federal project (including, but not limited to, a levee, dike, floodwall, channel, anchorage, breakwater, seawall, bulkhead, jetty, wharf, pier, or other work built or maintained but not necessarily owned by the United States),

is not eligible for SV and requires a PCN. This includes all proposed structures and work in, over, or under a USACE federal navigation project (FNP) or in the FNP's buffer zone. The buffer zone is an area that extends from the horizontal limits of the FNP to a distance of three times the FNP's authorized depth. The activity also requires review and approval by the USACE pursuant to 33 USC 408 (Section 408 Permission). The prospective permittee may reach out to the POCs located here: https://www.nae.usace.army.mil/ Missions/Section-408/.
d. Any structure or work constructed in a FNP or its buffer zone shall be subject to removal at the owner's expense prior to any future USACE dredging or the performance of periodic hydrographic surveys.
e. Where a Section 408 permission is required, written verification for the PCN will not be issued prior to the decision on the Section 408 permission request.

**16. Navigation**
a. No activity may cause more than a minimal adverse effect on navigation.
b. Any safety lights and signals prescribed by the U.S. Coast Guard, must be installed, and maintained at the permittee's expense on authorized facilities in navigable waters of the U.S.
c. There shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein, and no attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity authorized herein.
d. The permittee understands and agrees that if future U.S. operations require the removal, relocation, or other alteration of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from USACE, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration.

**17. Permit/Authorization Letter On-Site.** For PCNs, the permittee shall ensure that a copy of these GPs and the accompanying authorization letter are at the work site (and the project office) whenever work is being performed, and that all personnel with operational control of the site ensure that all appropriate personnel performing work are fully aware of its terms and conditions. The entire permit authorization shall be made a part of any and all contracts and sub-contracts for work that affects areas of USACE jurisdiction at the site of the work authorized by these GPs. This shall be achieved by including the entire permit authorization in the specifications for work. The term "entire permit authorization" means these GPs, including GCs and the authorization letter (including its drawings, plans, appendices, special conditions, and other attachments), and any permit modifications. If the authorization letter is issued after the construction specifications, but before receipt of bids or quotes, the entire permit authorization shall be included as an addendum to the specifications. If the authorization letter is issued after receipt of bids or quotes, the entire permit authorization shall be included in the contract or sub-contract as a change order. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions contained within the entire authorization letter, and no contract or sub-contract shall require or allow unauthorized work in areas of USACE jurisdiction. For SVs, the permittee shall ensure that a complete and signed copy of the SVN is present on site during construction and is made available for review at any time by USACE and other Federal, State, & Local regulatory agencies. A complete and signed copy of the SVN must be submitted to USACE Regulatory within 30 days of initiating construction of the authorized activity, unless stated otherwise in the applicable GP.

**18. Storage of Seasonal Structures.** Coastal structures such as pier sections, floats, etc., that

are removed from the waterway for a portion of the year (often referred to as seasonal structures) shall be stored in an upland location, located above MHW and not in tidal wetlands. These seasonal structures may be stored on the fixed, pile-supported portion of the structure that is seaward of MHW. This is intended to prevent structures from being stored on the marsh substrate and the substrate seaward of MHW.

**19. Pile Driving and Pile Removal in Navigable Waters.**
a. Derelict, degraded or abandoned piles and sheet piles in navigable waters of the U.S., except for those inside existing work footprints for piers, must be completely removed, cut and/or driven to 3 feet below the substrate to prevent interference with navigation, and existing creosote piles that are affected by project activities shall be completely removed if practicable. In areas of fine-grained substrates, piles must be removed by the direct, vibratory or clamshell pull method[1] to minimize sedimentation and turbidity impacts and prevent interference with navigation from cut piles. Removed piles shall be disposed of in an upland location landward of MHW or OHW and not in wetlands, tidal wetlands or mudflats.
b. A PCN is required for the installation or removal of structures with jetting techniques.
c. A PCN is required for the installation of >12 inch-diameter piles of any material type or steel piles of any size in tidal waters, unless they are installed in the dry. If piles are not installed in the dry:
i. Impact pile driving shall commence with an initial set of three strikes by the hammer at 40% energy, followed by a one-minute wait period, then two subsequent 3-strike sets at 40% energy, with one minute waiting periods, before initiating continuous impact driving.
ii. Vibratory pile driving shall be initiated for 15 seconds at reduced energy followed by a one-minute waiting period. This sequence of 15 seconds of reduced energy driving, one-minute waiting period shall be repeated two more times, followed immediately by pile-driving at full rate and energy.
iii. In addition to using a soft start at the beginning of the workday for pile driving as described in 19c(i-ii), a soft start must also be used at any time following a cessation of pile driving for a period of 30 minutes or longer.
d. Bubble curtains may be used to reduce sound pressure levels during vibratory or impact hammer pile driving.

**20. Time-of-Year (TOY) Restrictions**. Activities that include in-water work must comply with the TOY Restrictions below to be SV eligible, otherwise a PCN is required. PCN submittals shall contain written justification for deviation from the TOY Restrictions. The term “in-water work” does not include conditions where the work site is “in-the-dry” (e.g., intertidal areas exposed at low tide). The term “in-the-dry” includes work contained within a cofferdam so long as the cofferdam is installed and subsequently removed outside the TOY Restriction. The TOY restrictions stated in Appendix B of the MA DMF Technical Report TR-47[2] can apply instead for activities in tidal waters if (1) TOYs are provided for a specific waterbody where the activity is proposed and (2) the TOYs are less restrictive than below. The activity must also not require a PCN elsewhere in this document to be SV eligible.

[1] Direct Pull: Each piling is wrapped with a choker cable or chain that is attached at the top to a crane. The crane then pulls the piling directly upward, removing the piling from the sediment. Vibratory Pull: The vibratory hammer is a large mechanical device (5-16 tons) that is suspended from a crane by a cable. The vibrating hammer loosens the piling while the crane pulls up. Clamshell Pull: This can remove intact, broken or damaged pilings. The clamshell bucket is a hinged steel apparatus that operates like a set of steel jaws. The bucket is lowered from a crane and the jaws grasp the piling stub as the crane pulls up. The size of the clamshell bucket is minimized to reduce turbidity during piling removal.
[2] The MA DMF Technical Report TR-47: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/

| | TOY Restriction (No work) |
|---|---|
| **Non-tidal Waters** | Defer to TR-47 |
| **Tidal Waters** | January 15 – November 15 |

Alternate work windows proposed under a PCN will generally be coordinated with the USFWS and NMFS. Resulting written verifications may include species-specific work allowed windows.

**21. Heavy Equipment in Wetlands.** Operating heavy equipment (drill rigs, fixed cranes, etc.) within wetlands shall be minimized, and such equipment shall not be stored, maintained, or repaired in wetlands, to the maximum extent practicable. Where construction requires heavy equipment operation in wetlands, the equipment shall:

i. Have low ground pressure (typically ≤3 psi);

ii. Be placed on swamp/construction/timber mats (herein referred to as "construction mats" or "mats") that are adequate to support the equipment in such a way as to minimize disturbance of wetland soil and vegetation. See GC 22 for information on the placement of construction mats; or

iii. Be operated on adequately dry or frozen wetlands such that shear pressure does not cause subsidence of the wetlands immediately beneath the equipment and upheaval of adjacent wetlands. Construction mats are to be placed in the wetland from the upland or from equipment positioned on mats if working within a wetland. Dragging construction mats into position is prohibited. Other support structures that are capable of safely supporting equipment may be used with written USACE authorization.

**22. Temporary Fill, Work & Construction Mats.**

a. *Construction mats in non-tidal waters*: Temporary construction mats shall be in place ≤1 year *and* for one growing season or less to be SV eligible. A PCN is required if construction mats are in place >1 year *or* for more than one growing season. Construction mats can be placed in an area of any size in non-tidal waters. The activity may occur in segments to ensure the requirements for SV above are met, otherwise a PCN is required.

b. *Construction mats in tidal waters*: Temporary construction mats placed in an area <5,000 SF in tidal waters are SV eligible, provided those mats are in place ≤6 months. Temporary construction mats placed in an area ≥5,000 SF or in place >6 months in tidal waters require a PCN.

c. *Management of construction mats:* At a minimum, construction mats shall be managed in accordance with the following construction mat best management practices (BMPs):

1. Mats shall be in good condition to ensure proper installation, use, and removal.
2. As feasible, mats shall be placed in a location that will minimize the amount of mats needed for the wetland crossing(s).
3. Inspect mats prior to their re-use and remove any plant debris. Mats are to be thoroughly cleaned before re-use to prevent the spread of invasive plant species.
4. Impacts to wetland areas shall be minimized during installation, use, and removal of the mats.
5. Adequate erosion & sediment controls shall be installed at approaches to mats to promote a smooth transition to, and minimize sediment tracking onto, the mats.
6. In most cases, mats should be placed along the travel area so that the individual boards are resting perpendicular to the direction of traffic. No gaps should exist between mats. Place mats far enough on either side of the resource area to rest on firm ground.

d. A PCN is required for temporary fills in place >2 years. All temporary fills and disturbed soils shall be stabilized to prevent the material from eroding into waters of the U.S. where it is not authorized. Work shall include phased or staged development to ensure only areas under active development are exposed and to allow for stabilization practices as soon as practicable. Temporary fill must be placed in a manner that will prevent it from being eroded by expected high flows.

e. Activities that require unconfined temporary fill and are authorized for discharge into waters of the U.S. shall consist of material that minimizes effects to water quality.
f. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Materials shall be placed in a location and manner that does not adversely impact surface or subsurface water flow into or out of the wetland. Temporary fill authorized for discharge into wetlands shall be placed on geotextile fabric or other appropriate material laid on the pre-construction wetland grade where practicable to minimize impacts and to facilitate restoration to the original grade. Construction mats are excluded from this requirement.
g. Construction debris and deteriorated materials shall not be located in waters of the U.S.
h. Temporary fills, construction mats, and corduroy roads shall be entirely removed as soon as they are no longer needed to construct the authorized activity and the disturbed areas be restored to pre-construction contours and conditions.
i. Construction equipment, such as temporary barges in tidal waters, shall provide clearance above the substrate to avoid grounding onto the substrate during all tides.

**23. Restoration of Wetland Areas.**
a. Upon completion of construction, all disturbed wetland areas shall be stabilized with a wetland seed mix or plant plugs containing only plant species native to New England, and be appropriate for site conditions, including salinity and frequency of inundation, and shall not contain any species listed in the “Invasive and Other Unacceptable Plant Species” Appendix K of the New England District “Compensatory Mitigation Standard Operating Procedures” found at https://www.nae.usace.army.mil/Missions/Regulatory/Mitigation.aspx.
b. The introduction or spread of invasive plant species in disturbed areas shall be prevented and controlled. Equipment shall be thoroughly cleaned before and after project construction to prevent the spread of invasive species. This includes, but is not limited to, tire treads and construction mats.
c. In areas of authorized temporary disturbance, if trees are cut in USACE jurisdiction, they shall be cut at or above ground level and not uprooted in order to prevent disruption of any kind to the wetland soil structure and to allow stump sprouts to revegetate the work area, unless otherwise authorized.
d. Wetland areas where permanent disturbance is not authorized shall be restored to their original condition and elevation, which under no circumstances shall be higher than the pre-construction elevation. Original condition means careful protection and/or removal of existing soil and vegetation, and replacement back to the original location such that the original soil layering and vegetation schemes are approximately the same, unless otherwise authorized.

**24. Bank Stabilization.**
a. Projects involving construction or reconstruction/maintenance of bank stabilization within USACE jurisdiction shall be designed to minimize environmental effects, effects to neighboring properties, scour, conversion of natural shoreline to hard armoring, etc. to the maximum extent practicable.
b. Projects involving the construction of new bank stabilization within USACE jurisdiction shall use bioengineering techniques and natural materials in the project design to the maximum extent practicable. Use of hard structures shall be eliminated or minimized unless the prospective permittee can demonstrate that use of bioengineering techniques is not practicable due to site conditions.
c. Where possible, bank stabilization projects shall optimize the natural function of the shoreline, including self-sustaining stability to attenuate flood flows, fishery, wildlife habitat and water quality protection, while protecting upland infrastructure from storm events that can cause erosion as well as impacts to public and private property.
d. No material shall be placed in excess of the minimum needed for erosion protection.
e. No material shall be placed in a manner that will be eroded by normal or expected high flows (properly anchored native trees and treetops may be used in low energy areas).

f. Native plants appropriate for current site conditions, including salinity, must be used for bioengineering or vegetative bank stabilization.
g. The activity must be properly maintained, which may require repairing it after severe storms or erosion events.

**25. Soil Erosion and Sediment Controls.**
a. Appropriate soil erosion and sediment controls[1] (hereinafter referred to as "controls") must installed prior to earth disturbance and maintained in effective operating condition during construction. Biodegradable wildlife friendly erosion controls should be used whenever practicable to minimize effects to water quality.
b. Activities in streams (rivers, streams, brooks, etc.) and tidal waters that are capable of producing sedimentation or turbidity should be done during periods of low-flow or no-flow, when the stream or tide is waterward of the work area. Controls may also be used to obtain dry work conditions (e.g., coffer dam, turbidity curtain). The prospective permittee must demonstrate in the project plans where the controls are proposed and how these controls would avoid and/or minimize turbidity or sedimentation.
c. A PCN is required for controls that encroach: i) >25% of the stream width measured from OHW in non-tidal diadromous streams from March 15 to June 30; or ii) >25% of the waterway width measured from MHW in tidal waters from Feb. 1 to June 30, or >50% of the waterway width measured from MHW in tidal waters from July 1 to Jan. 14. This is to protect upstream fish passage. Proponents must also maintain downstream fish passage throughout the project.
d. No dewatering shall occur with direct discharge to waters or wetlands. Excess water in isolated work areas shall be pumped or directed to a sedimentation basin, tank or other dewatering structures in an upland area adequately separated from waters or wetlands. Suspended solids shall be removed prior to discharge back into waters or wetlands from these dewatering structures. All discharge points back into waters and wetlands shall use appropriate energy dissipaters and erosion and sedimentation control BMPs.
e. Temporary controls shall be removed upon completion of work, but not until all exposed soil and other fills, as well as any work waterward of OHW or the HTL, are permanently stabilized at the earliest practicable date. Sediment and debris collected by these devices shall be removed and placed at an upland location in a manner that will prevent its later erosion into a waterway or wetland. Controls may be left in place if they are biodegradable and flows and aquatic life movements are not disrupted.

**26. Aquatic Life Movements and Management of Water Flows.**
a. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies and wetlands shall be:

i. Suitably spanned, bridged, culverted, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species; and
ii. Properly aligned and constructed to prevent bank erosion or streambed scour both adjacent to and inside the crossing.

[1] Appropriate soil erosion, sediment and turbidity controls include cofferdams, bypass pumping around barriers immediately up and downstream of the work footprint (i.e., dam and pump), installation of sediment control barriers (i.e., silt fence, vegetated filter strips, geotextile silt fences, filter tubes, erosion control mixes, hay bales or other devices) downhill of all exposed areas, stream fords, retention of existing vegetated buffers, application of temporary mulching during construction, phased construction, and permanent seeding and stabilization, etc.

b. To avoid adverse impacts on aquatic organisms, the low flow channel/thalweg shall remain unobstructed during periods of low flow, except when necessary to perform the authorized work.
c. For work in tidal waters, in-stream controls (e.g., cofferdams) should be installed in such a way as to not obstruct fish passage.
d. Riprap and other stream bed materials shall be installed in a manner that avoids organism entrapment in rock voids or water displaced to subterranean flow with crushed stone and riprap.
e. To the maximum extent practicable, the preconstruction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity shall not restrict or impede the passage of normal or high flows unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

**27. Spawning, Breeding, and Migratory Areas.**
a. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized under these GPs.
b. Activities in waters of the U.S. that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.
c. The applicant is responsible for obtaining any "take" permits required under the USFWS's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The applicant should contact the appropriate local office of the USFWS to determine if such "take" permits are required for a particular activity.
d. Information on spawning habitat for species managed under the Magnuson-Stevens Fishery Conservation and Management Act (i.e., EFH for spawning adults) can be obtained from NAE Regulatory website, Essential Fish Habitat section, at: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.
e. Information regarding diadromous fish habitat can be obtained from the following DMF website at: https://www.mass.gov/info-details/massgis-data-diadromous-fish.

**28. Vernal Pools.**
a. A PCN is required if a discharge of dredged or fill material is proposed within a vernal pool depression that is also a water of the U.S.
b. Vernal pools must be identified on the plans that show aquatic resource delineations.
c. Adverse impacts to vernal pools shall be avoided & minimized to the maximum extent practicable.

**29. Invasive Species.**
a. The introduction, spread or the increased risk of invasion of invasive plant or animal species on the project site, into new or disturbed areas, or areas adjacent to the project site caused by the site work shall be avoided. Construction mats shall be thoroughly cleaned before reuse to avoid spread of invasive species.
b. Unless otherwise directed by USACE, all applications for PCN non-tidal projects proposing fill in USACE jurisdiction shall include an Invasive Species Control Plan. Additional information can be found at: https://www.nae.usace.army.mil/Missions/Regulatory/Invasive-Species/, https://www.nae.usace.army.mil/Missions/Regulatory/Mitigation/.

**30. Fills Within 100-Year Floodplains.** The activity shall comply with applicable Federal Emergency Management Agency (FEMA) approved, Massachusetts Emergency Management

Agency (MEMA) approved and/or local floodplain management requirements. Applicants should contact FEMA and/or MEMA regarding floodplain management requirements.

**31. Stream Work and Crossings & Wetland Crossings.**
a. When feasible, all temporary and permanent crossings of waterbodies and wetlands (hereinafter referred to as "crossings") shall conform to the "Massachusetts River and Stream Crossing Standards" located at: https://www.mass.gov/doc/massachusetts-river-and-stream-crossing-standards/download or https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/. Projects that do not conform to these guidelines shall be reviewed under PCN or IP procedures.
b. Crossings shall be suitably culverted, bridged, or otherwise designed to withstand and to prevent the restriction of high flows, to maintain existing low flows, maintain water quality, and not obstruct the movement of aquatic life indigenous to the waterbody beyond the duration of construction.
c. Crossings shall be installed in such a manner as to preserve hydraulic capacity and flow, sediment transport, and organism passage at its present level, between the wetlands on either side of the road. The applicant shall take necessary measures to correct any wetland damage resulting from deficiencies in hydraulic capacity, sediment transport and organism passage.
d. Stream crossings shall utilize a natural mixed grain-size streambed material composition that matches upstream and downstream substrates to create a stable streambed. Substrate should function appropriately during normal and high flows without washing out. If natural streambed material is not utilized, a PCN is required.
e. Activities involving open trench excavation in flowing waters require a PCN. Work should not occur in flowing waters (requires using management techniques such as temporary flume pipes, culverts, cofferdams, etc.). Normal flows should be maintained within the stream boundary's confines when practicable. Projects utilizing these management techniques must meet all applicable terms and conditions of the GP, including the GCs in Section IV.

**32. Utility Line Installation and Removal**
a. Subsurface utility lines must be installed at a sufficient depth to avoid damage from anchors, dredging, etc., and to prevent exposure from erosion and stream adjustment.
b. When utility lines are installed via horizontal directional drilling, a frac-out contingency plan shall be present on site for the duration of construction. As necessary, the applicant shall immediately contain, control, recover, and remove drilling fluids released into the environment.
c. Abandoned or inactive utility lines must be removed and faulty lines (e.g., leaking hazardous substances, petroleum products, etc.) must be removed or repaired. A written verification from the USACE is required if they are to remain in place, e.g., to protect sensitive areas or ensure safety.
d. Utility lines shall not adversely alter existing hydrology, and trenches cannot be constructed or backfilled in such a manner as to drain waters of the U.S. (e.g., backfilling with extensive gravel layers, creating a French drain effect). In wetland areas, structures such as ditch plugs, cut-off walls, clay blocks, bentonite, or other suitable material shall be used within utility trenches to ensure that the trench through which the utility line is installed does not drain waters of the U.S. including wetlands.
e. Stockpiling of tree debris, to the extent where it has the effect of fill material, shall not occur in waters of the U.S. Tree debris shall be removed from waters of the U.S. and placed in uplands without causing additional disturbance to aquatic resources. Failure to meet this condition could change the bottom elevation of the wetland and be considered a discharge of fill material, and depending on the area of alteration, may require a PCN or IP.

**33. Water Supply Intakes.** No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

**34. Coral Reefs**. Impacts to coral reefs are not authorized under these GPs. Coral reefs consist of the skeletal deposit, usually of calcareous or silicaceous materials, produced by the vital activities of anthozoan polyps or other invertebrate organisms present in growing portions of the reef.

**35. Blasting.** Blasting in waters of the U.S. associated with work such as dredging, trenching, pile installation, etc. is not authorized under these GPs.

**36. Inspections.** The permittee shall allow USACE to make periodic inspections at any time deemed necessary to ensure that the work is being or has been performed in accordance with the terms and conditions of this permit. To facilitate these inspections, for activities requiring a PCN, the permittee shall complete and return the Certificate of Compliance when it is provided with a PCN verification letter. For SV-eligible activities, the permittee shall complete and submit the SVN to USACE within 30 days of initiating project construction, at which point, USACE may opt to inspect the activity to verify compliance with the terms and conditions of the GP. Post-construction engineering drawings may be required by USACE for completed work. This includes post-dredging survey drawings for any dredging work.

**37. Maintenance.** The permittee shall maintain the activity authorized by these GPs in good condition and in conformance with the terms and conditions of this permit. Some maintenance activities may not be subject to federal regulation under Section 404 in accordance with 33 CFR 323.4(a)(2). This condition is not applicable to maintenance of dredging projects. Prospective permittees should contact USACE to inquire about maintenance of dredging projects, and its eligibility under these GPs. Maintenance dredging is subject to the review thresholds in GP #7 as well as any conditions included in a written USACE authorization. Maintenance dredging includes only those areas and depths previously authorized and dredged.

**38. Property Rights.** Per 33 CFR 320.4(g)(6), these GPs do not convey any property rights, either in real estate or material, or any exclusive privileges, nor do they authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations.

**39. Transfer of GP Verifications.** When the work authorized by these GPs is still in existence at the time the property is transferred, the terms and conditions of these GPs, including any special conditions, will continue to be binding on the entity or individual who received the GP authorizations, as well as the new owner(s) of the property. If the permittee sells the property associated with a GP authorization, the applicant may transfer the GP authorization to the new owner by submitting a letter to USACE to validate the transfer. A copy of the GP authorization letter must be attached to the letter, and the letter must include the following statement: “The terms and conditions of these general permits, including any special conditions, will continue to be binding on the new owner(s) of the property.” This letter shall be signed by both the seller and new property owner(s).

**40. Modification, Suspension, and Revocation**. These GPs and any individual authorization issued thereof may be either modified, suspended, or revoked in whole or in part pursuant to the policies and procedures of 33 CFR 325.7; and any such action shall not be the basis for any claim for damages against the U.S.

**41. Special Conditions.** The USACE may impose other special conditions on a project authorized pursuant to these GPs that are determined necessary to minimize adverse navigational and/or environmental effects or based on any other factor of the public interest. Failure to comply with all conditions of the authorization, including special conditions, constitutes a permit violation and may subject the applicant to criminal, civil, or administrative penalties or restoration.

**42. False or Incomplete Information.** If USACE makes a determination regarding the eligibility of a project under these GPs, and subsequently discovers that it has relied on false, incomplete, or inaccurate information provided by the applicant, the authorization will not be valid, and the U.S. Government may institute appropriate legal proceedings.

**43. Abandonment.** If the permittee decides to abandon the activity authorized under these GPs, unless such abandonment is merely the transfer of property to a third party, he/she/they may be required to restore the area to the satisfaction of USACE.

**44. Enforcement cases.** These GPs do not apply to any existing or proposed activity in USACE jurisdiction associated with an on-going USACE or EPA enforcement action, until such time as the enforcement action is resolved or USACE or EPA determines that the activity may proceed independently without compromising the enforcement action.

**45. Previously Authorized Activities.**

a. Completed projects that received prior authorization from USACE (SV or PCN), shall remain authorized in accordance with the original terms and conditions of those authorizations, including their terms, GCs, and any special conditions provided in a written verification.

b. Activities authorized pursuant to 33 CFR 330.3 (activities occurring before certain dates) are not affected by these GPs.

**46. Duration of Authorization.**

These GPs expire on June 1, 2028. Activities authorized under these GPs will remain authorized until the GPs expire, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 CFR 325.2(e)(2). Activities authorized under GPs 1-25 that have either commenced (i.e., are under construction) or are under contract to commence in reliance upon this authorization will have until June 1, 2029 to complete the work. If requested by USACE, the permittee shall furnish documentation that demonstrates the project was under construction or under contract to commence by June 1, 2028. If work is not completed before June 1, 2029, the permittee must contact USACE. The USACE may issue a new authorization provided the project meets the terms and conditions of the MA GPs in effect at the time. Activities completed under the SV or PCN authorizations of these GPs will continue to be authorized after their expiration date.

## SECTION V: MITIGATION STANDARDS

### 1. Mitigation Types

For all activities, applicants must (a) demonstrate how the project has been designed to avoid or minimize impacts to aquatic resources; and (b) describe measures taken to avoid or minimize impacts to aquatic resources through construction techniques and/or site access. Please see https://www.nae.usace.army.mil/Missions/Regulatory/Mitigation/ for assistance with preparing mitigation in accordance with the 2008 Compensatory Mitigation for Losses of Aquatic Resources; Final Rule (33 CFR 332.3), hereafter referred to as "2008 Mitigation Rule."

*Avoidance* - Avoidance of impacts (direct and indirect) to aquatic resources means that project activities would not result in the placement of fill material or installation of a structure that could impact the resource area. Avoidance can include, but is not limited to, designing the project to avoid impacts to all or a portion of the aquatic resource areas.

*Minimization* - Minimization of impacts (direct and indirect) to aquatic resources means that measures are taken to ensure the amount and duration of impacts are limited to the maximum extent practicable. There are many minimization measures that could be implemented, prior to, during, or after the proposed activity, to ensure impacts are minimized. Examples include, but are not limited to:

- Permanent preservation of avoided aquatic features and buffer zone, in perpetuity. In these cases, the preserved area would be under a conservation easement and managed by conservation oriented third-party manager.
- Utilization of best management practices (BMPs) to ensure impacts are limited, and do not result in adverse impacts to the integrity and long-term functions of preserved/avoided features.

*Compensatory Mitigation* - Compensatory mitigation is generally required for PCN activities in which the impacts to the aquatic resources have been avoided and minimized to the maximum extent practicable but would still result in unavoidable adverse effects to the environment that are considered more than minimal or are contrary to the public interest. *Whatever the case may be, compensatory mitigation is no substitute for avoidance and minimization.*

### 2. Thresholds for Compensatory Mitigation

The basic objective of compensatory mitigation in the USACE Regulatory Program is to offset environmental losses resulting from unavoidable impacts to waters of the U.S. authorized by Department of the Army permits. **The following compensatory mitigation thresholds apply to all PCN activities that result in loss[1] of the resource area types listed below. Activities[2] in waters of the U.S. associated with the restoration, enhancement, and establishment of tidal and non-tidal aquatic resources are not considered loss and are not subject to the thresholds below.** Thresholds for different resource areas may not be combined to exceed 5,000 SF of total loss of all waters. The USACE will continue to evaluate projects on a case-by-case basis, and may in some cases require compensatory mitigation below these thresholds (e.g. minor impacts that add to a cumulative loss).

[1] See definition of loss in Section VII.
[2] These activities must result in net increases in aquatic resource functions and services to be exempted from the thresholds above.

| Compensatory Mitigation Thresholds in Massachusetts | | |
|---|---|---|
| **Resource Area** | **Non-Tidal Threshold** | **Tidal Threshold** |
| Stream | 200 LF | 200 LF |
| Bank Stabilization | 500 LF | 500 LF |
| Open Water | Project Dependent | Project Dependent |
| Wetland | 5,000 SF | 500 SF |
| Vernal Pool | All | N/A |
| SAV | Project dependent | 25 SF |
| Mudflat | N/A | 1,000 SF |
| Intertidal | N/A | 1,000 SF |

These thresholds can be utilized to determine at what point compensatory mitigation is required but are not used to determine how much mitigation may be needed to offset impacts to resources. Per the 2008 Mitigation Rule (33 CFR 332.3(f)(1)) "the amount of required compensatory mitigation must be, to the extent practicable, sufficient to replace lost aquatic resource functions. In cases where appropriate functional or condition assessment methods or other suitable metrics are available, these methods should be used where practicable to determine how much compensatory mitigation is required. If a functional or condition assessment or other suitable metric is not used, a minimum one-to-one acreage or linear foot compensation ratios must be used."

### 3. Compensatory Mitigation Hierarchy

Compensatory mitigation should follow the hierarchy as outlined in 33 CFR 332.3(b)(2-6) or current regulation. This hierarchy in order of preference includes: (1) Mitigation Bank credits, (2) In-Lieu Fee program credits, (3) permittee-responsible mitigation under a watershed approach, (4) permittee-responsible mitigation through on-site and in-kind mitigation, and (5) permittee-responsible mitigation through off-site and/or out-of-kind mitigation. If the proposed mitigation deviates from this mitigation hierarchy, the applicant **must** justify in writing why the proposed mitigation is environmentally preferable to the preferred method of compensatory mitigation (See 2008 Mitigation Rule). **In order for your application to be considered complete, you must provide a statement that discusses how your project will compensate for the loss or impact to aquatic resources.** If you are proposing permittee responsible mitigation, the 12 components of a mitigation plan (33 CFR 332.4(c)(2-14) must be addressed for your application to be considered complete. Prospective applicants are encouraged to contact USACE with questions at any time. Addressing the 12 components of a mitigation plan is commensurate with the amount of compensatory mitigation required, and USACE can assist prospective applicants with the level of information needed to satisfy each component.

For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee.

### 4. In-Lieu Fee (ILF)

The purchase of credits from the Massachusetts In-Lieu Fee Program (MA ILFP) is the ***preferred*** method of compensatory mitigation in Massachusetts since, as of the issuance date of this GP, there are no mitigation banks available in Massachusetts. The applicant shall develop a mitigation plan that addresses the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

The MA ILFP is administered by the Massachusetts Department of Fish & Game (DFG) in accordance with the 2008 Mitigation Rule at 33 CFR 332. The Mitigation Rule governs in-lieu fee compensatory mitigation associated with USACE permits under §404 of the Clean Water Act and/or §9 or §10 of the Rivers and Harbors Act of 1899.

MA ILFP Website: https://www.mass.gov/in-lieu-fee-program

Acceptance of an ILF payment into the ILFP established by the 2014 MA ILFP Instrument (link below) is an acknowledgement by DFG that it assumes all legal responsibility for satisfying the mitigation requirements of the USACE (i.e., the implementation, performance, and long-term management and monitoring of the compensatory mitigation project(s) approved under this Instrument and subsequent Compensatory Mitigation Plans). This transfer of legal responsibility is established by: 1) the approval of this In-Lieu Fee Instrument; 2) receipt by the district engineer of a Notice of Credit Sale and Transfer of Legal Responsibility to DFG that is signed by the DFG and the permittee and dated; and 3) the transfer of fees from the permittee to DFG.

MA ILFP Fact Sheet: https://www.mass.gov/files/documents/2017/01/sj/ilfp-fact-sheet-ma-ilfp-fees.pdf

MA ILFP Instrument: https://www.mass.gov/files/documents/2016/08/nd/ilfp-final-instrument-dfg.pdf

### 5. Permittee-Responsible

The USACE may determine that the proposed permittee-responsible compensatory mitigation is appropriate on a case-by-case basis. As described in the Compensatory Mitigation Hierarchy section above, applicants must justify in writing why the proposed mitigation is environmentally preferable to the purchase of ILF credits. Applicants are encouraged to contact the USACE prior to submission of a permit application to seek further guidance regarding USACE mitigation requirements.

Applicants will demonstrate their proposed compensatory mitigation in writing by addressing the 12 components of a mitigation plan (33 CFR 332.4(c)(2-14). *Please note that all elements must be addressed, or the permit application will be deemed incomplete.* In certain circumstances, the district engineer may determine that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). Guidance on how to address these components can be found on the New England District Mitigation webpage: https://www.nae.usace.army.mil/Missions/Regulatory/Mitigation/

Performance standards will be used to measure the successfulness of the mitigation project. A successful mitigation project is one that is self-sustaining. For a mitigation project that will restore, enhance, or create wetlands, proper performance standards must address hydrology, hydric soils, and hydrophytic vegetation. The mitigation proposal must include an explanation of quantitative methods used to measure the success of performance standards (i.e., percent cover may be measured using vegetation plots, hydrology may be measured using data loggers, soil cores may be taken and evaluated for hydric soil indicators).

Monitoring methods should include quantitative sampling methods following established, scientific protocols. Sampling documentation, as part of monitoring reports, should include maps and coordinates (also shapefiles, if available) showing locations of sampling points, transects, quadrats, etc. In addition, permanent photo stations should be established coincident with sampling locations.

## SECTION VI: FEDERAL & STATE AGENCY CONTACT INFORMATION & ORGANIZATIONAL WEBSITES

### Federal Agencies

U.S. Army Corps of Engineers
Regulatory Division
696 Virginia Road
Concord, Massachusetts 01742-2751
(978) 318-8338 (phone); (978) 318-8303 (fax)
www.nae.usace.army.mil/missions/regulatory

U.S. Army Corps of Engineers
Navigation Division – Section 408
696 Virginia Road
Concord, Massachusetts 01742-2751
*See link below for contact information:*
https://www.nae.usace.army.mil/Missions/Section-408/

National Marine Fisheries Service
55 Great Republic Drive
Gloucester, Massachusetts 01930
(978) 281-9300 (phone)
(*Federal endangered species & EFH)*

U.S. Fish & Wildlife Service
70 Commercial Street, Suite 300
Concord, New Hampshire 03301
(603) 223-2541 (phone)
*(Federal endangered species)*

National Park Service
15 State Street
Boston, Massachusetts 02109
(617) 223-5191 (phone)
(*Wild and Scenic Rivers*)

Bureau of Ocean and Energy Management
1849 C Street, NW
Washington D.C. 20240
202-208-6474 (phone)
(*Offshore Wind Facilities)*

Chief, Risk Analysis Branch
FEMA Region 1
99 High Street, 6th Floor
U.S. Department of Homeland Security
Boston, Massachusetts 02110
(617) 956-7576 (phone)

Commander (dpb)
First Coast Guard District
Battery Building
One South Street
New York, New York 10004-1466
(212) 514-4331 (phone); (212) 514-4337 (fax)
(*Bridge permits*)

U.S. Environmental Protection Agency
5 Post Office Square
Suite 100 (OEP06–3)
Boston, Massachusetts 02109-3912
(617) 918-1692 (phone)

**State Agencies in Massachusetts**

| Massachusetts Department of Environmental Protection (MassDEP) | |
|---|---|
| DEP Division of Wetlands & Waterways | 100 Cambridge Street, Suite 900<br>Boston, Massachusetts 02114<br>(617) 292-5695 |
| Northeast Region | 150 Presidential Way, Suite 300<br>Woburn, Massachusetts 01801<br>(978) 694-3200 |
| Southeast Region | 20 Riverside Drive, Route 105<br>Lakeville, Massachusetts 02347<br>(508) 946-2800 |
| Central Region | 8 New Bond Street<br>Worcester, Massachusetts 01606<br>(508) 792-7650 |
| Western Region | 436 Dwight Street<br>Springfield, Massachusetts 01103<br>(413) 784-1100 |

| Massachusetts Office of Coastal Zone Management (CZM)<br>Emails may be sent to: czm@mass.gov | |
|---|---|
| MA Office of Coastal Zone Management | 100 Cambridge Street, Suite 900<br>Boston, Massachusetts 02114<br>(617) 626-1200 |
| North Shore Region | 2 State Fish Pier<br>Gloucester, Massachusetts 01930<br>(978) 281-3972 |
| South Shore Region | 175 Edward Foster Road<br>Scituate, Massachusetts 02066 |
| Cape Cod and Islands Region | 3195 Main Street, P.O. Box 220<br>Barnstable, MA 02630 |
| South Coastal Region | 81-B County Road, Suite E<br>Mattapoisett, MA 02739 |

| Massachusetts Historical Commission (MHC) | |
|---|---|
| Office Location: | 220 Morrisey Boulevard<br>Boston, Massachusetts 02125<br>(617) 727-8470 |

| Massachusetts Board of Underwater Archaeological Resources (BUAR)<br>Emails may be sent to: david.s.robinson@mass.gov | |
|---|---|
| Office Location: | 100 Cambridge Street, Suite 900<br>Boston, Massachusetts 02114<br>(617) 626-1014 |

## SECTION VII: Definitions & Acronyms

**Artificial or Living Reef:** A structure which is constructed or placed in waters for the purpose of enhancing fishery resources and commercial and recreational fishing opportunities.
**Attendant Features:** Occurring with or as a result of; accompanying.
**Biodegradable:** A material that decomposes into elements found in nature within a reasonably short period of time and will not leave a residue of plastic or a petroleum derivative in the environment after degradation. In contrast, degradable plastics break down into plastic fragments that remain in the environment after degradation. Examples of biodegradable materials include jute, sisal, cotton, straw, burlap, coconut husk fiber (coir) or excelsior. In contrast, degradable plastics break down into plastic fragments that remain in the environment after degradation. Photodegradable, UV degradable or Oxo-(bio)degradable plastics are not considered biodegradable under this GP.
**Boating facilities:** These provide, rent or sell mooring space, such as marinas, yacht clubs, boat yards, dockominiums, municipal facilities, land/home owners, etc. Not classified as boating facilities are piers shared between two abutting properties or municipal mooring fields that charge an equitable user fee based on the actual costs incurred.
**Compensatory mitigation:** The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved. Must comply with the applicable provisions of 33 CFR 332. See also the New England District Compensatory Mitigation Guidance at http://www.nae.usace.army.mil/Missions/Regulatory/Mitigation.aspx.
**Construction mats:** Constructions, swamp and timber mats (herein referred to as “construction mats”) are generic terms used to describe structures that distribute equipment weight to prevent wetland damage while facilitating passage and providing work platforms for workers and equipment. They are comprised of sheets or mats made from a variety of materials in various sizes. A timber mat consists of large timbers bolted or cabled together. Corduroy roads, which are not considered to be construction mats, are cut trees and/or saplings with the crowns and branches removed, and the trunks lined up next to one another. Corduroy roads are typically installed as permanent structures. Like construction mats, they are considered as fill whether they are installed temporarily or permanently.
**Cumulative Impacts:** The impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.1). Although the impact of a particular discharge may constitute a minor change in itself, the cumulative effect of numerous such piecemeal changes can result in a major impairment of the water resources and interfere with the productivity and water quality of existing aquatic ecosystems. See 40 CFR 230.11(g).
**Currently serviceable:** Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.
**Dredging:**
*Improvement Dredging*: For the purposes of these GPs, this is dredging deeper than previously authorized by the USACE and dredged under that authorization.
*Maintenance Dredging*: For the purposes of these GPs, this is dredging from an area previously authorized by the USACE and dredged under that authorization. The USACE may require proof of authorization and dredging. Maintenance dredging typically refers to the routine removal of accumulated sediment to maintain the design depths of serviceable navigation channels, harbors, marinas, boat launches and port facilities. Maintenance dredging is conducted for navigational purposes and does not include any expansion of the previously dredged area. The USACE may

review a maintenance dredging activity as new dredging if sufficient time has elapsed to allow for the colonization of SAS, shellfish, etc.

*New Dredging*: For the purposes of these GPs, this is a) first time the USACE authorizes dredging of a particular location or b) dredging has not occurred for an extended period of time, and this has allowed for aquatic resources (i.e., eelgrass, shellfish, etc.) to redevelop in the area.

**Dredged material & discharge of dredged material:** These are defined at 33 CFR 323.2(c) and (d). The term dredged material means material that is excavated or dredged from waters of the U.S.

**Enhancement:** The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s) but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

**Ephemeral stream:** A stream with flowing water only during, and for a short duration, after precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

**Erosion Controls:** Appropriate soil erosion, sediment and turbidity controls include cofferdams, bypass pumping around barriers immediately up and downstream of the work footprint (i.e., dam and pump), installation of sediment control barriers (i.e., silt fence, vegetated filter strips, geotextile silt fences, filter tubes, erosion control mixes, hay bales or other devices) downhill of all exposed areas, stream fords, retention of existing vegetated buffers, application of temporary mulching during construction, phased construction, and permanent seeding and stabilization, etc.

**Establishment (creation):** The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area (33 CFR 332.2).

**Expansions:** Work that increases the footprint of fill, structures, depth of basin or drainage features, or floats, or slip capacity.

**Essential Fish Habitat (EFH):** The Federal Magnuson-Stevens Fishery Management and Conservation Act broadly defines EFH to include those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. See www.greateratlantic.fisheries.noaa.gov/habitat for more information.

**Fill material & discharge of fill material:** Material placed in waters of the U.S. where the material has the effect of either replacing any portion of a water of the U.S. with dry land or changing the bottom elevation of any portion of a water of the U.S. Fill material does not include any pollutant discharged into the water primarily to dispose of waste. These are defined at 33 CFR 323.2 (e) & (f).

**Federal navigation projects (FNPs):** These areas are maintained by the USACE; authorized, constructed and maintained on the premise that they will be accessible and available to all on equal terms; and comprised of USACE Federal anchorages, Federal channels and Federal turning basins. The buffer zone is equal to three times the authorized depth of a FNP. The following are FNPs in MA and more information, including the limits, is provided at www.nae.usace.army.mil/missions/navigation >> Navigation Projects:

- Andrews River, Harwich, MA
- Aunt Lydia's Cove
- Beverly Harbor
- Boston Harbor
- Buttermilk Bay Channel
- Canapitsit Channel
- Cape Cod Canal
- Chatham Harbor
- Cohasset Harbor
- Cross Rip Shoals, Nantucket Sound
- Cuttyhunk Harbor
- Dorchester Bay and Neponset River
- Duxbury Harbor
- Edgartown Harbor
- Essex River
- Fall River Harbor
- Falmouth Harbor
- Gloucester Harbor and Annisquam River
- Green Harbor
- Hingham Harbor
- Hyannis Harbor
- Ipswich River
- Island End River (Chelsea, MA)
- Kingston Harbor
- Lagoon Pond
- Little Harbor Woods Hole

Lynn Harbor
Malden River
Menemsha Creek
Merrimack River
Mystic River
Nantucket Harbor of Refuge
New Bedford and Fairhaven Harbor
Newburyport Harbor
Oak Bluffs Harbor
Pigeon Cove Harbor
Plymouth Harbor
Pollock Rip Shoals, Nantucket Sound
Provincetown Harbor
Red Brook Harbor
Rockport Harbor
Salem Harbor
Sandy Bay Harbor of Refuge
Saugus River
Scituate Harbor
Sesuit Harbor
Taunton River
Vineyard Haven Harbor
Wareham Harbor
Wellfleet Harbor
Westport River and Harbor
Weymouth Back River
Weymouth Fore and Town Rivers
Winthrop Harbor
Woods Hole Channel

**Flume:** An open artificial water channel, in the form of a gravity chute, which leads water from a diversion dam or weir alongside a natural flow. A flume can be used to measure the rate of flow.
**FNP buffer zone:** The buffer zone of a USACE Federal Navigation Project (FNP) is equal to three times the authorized depth of the FNP.
**Frac out:** During horizontal directional drilling (HDD) operations, drilling fluid travels up the borehole into a pit. When the borehole becomes obstructed or the pressure becomes too great inside the borehole, the ground fractures and fluid escapes to the surface and may affect surface waters.
**Ground disturbance:** Any activity that compacts, relocates, overturns, removes, mixes, or otherwise disturbs the ground, including under water. Ground disturbance can be caused by the use of hand tools (shovels, pick axe, posthole digger, etc.), heavy equipment (excavators, backhoes, bulldozers, dredgers, trenching and earthmoving equipment, etc.), and heavy trucks (large four wheel drive trucks, dump trucks and tractor trailers, etc.). Trenching, bulldozing, dredging, excavating, scraping, and plowing are typical examples of ground disturbance activities.
**Height:width ratio:** The height of structures shall at all points be equal to or exceed the width of the deck. For the purpose of this definition, height shall be measured from the marsh substrate to the bottom of the longitudinal support beam.
**High Tide Line (HTL):** The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides 58 that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds. (33 CFR 328). Refer to the highest predicted tide for the current year at the nearest NOAA tide gage. https://tidesandcurrents.noaa.gov/map/index.html
**Historic Property:** Any prehistoric or historic site (including archaeological sites), district, building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).
**Impacts:**
*Direct Impacts:* Effects that are caused by the activity and occur at the same time and place (40 CFR 1508.7).
*Indirect impacts:* Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.
*Secondary impacts:* Effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material.

Information about secondary effects on aquatic ecosystems shall be considered prior to the time final section 404 action is taken by permitting authorities. Some examples of secondary effects on an aquatic ecosystem are: aquatic areas drained, flooded, fragmented; fluctuating water levels in an impoundment and downstream associated with the operation of a dam; septic tank leaching and surface runoff from residential or commercial developments on fill; and leachate and runoff from a sanitary landfill located in waters of the U.S. See 40 CFR 230.11(h).

**Incidental Fallback:** Incidental fallback is the redeposit of small volumes of dredged material that is incidental to excavation activity in waters of the U.S. when such material falls back to substantially the same place as the initial removal (33 CFR 323.2(d)(2)(iii)).

**In the dry:** Work that is done under dry conditions, e.g., work behind cofferdams or when the stream or tide is waterward of the work.

**Independent utility:** A test to determine what constitutes a single and complete non-linear project in the USACE Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

**Individual permit:** A Department of the Army authorization that is issued following a case-by-case evaluation of a specific structure or work in accordance with the procedures of 33 CFR 322, or a specific project involving the proposed discharge(s) in accordance with the procedures of 33 CFR 323, and in accordance with the procedures of 33 CFR 325 and a determination that the proposed discharge is in the public interest pursuant to 33 CFR 320.

**Intermittent stream:** An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

**Intertidal:** The area in between mean low water and the high tide line.

**Living reef:** See the definition of “artificial or living reef.”

**Living shoreline:** A term used to describe a low-impact approach with a substantial biological component to shoreline protection and restoration along coastal shores, riparian zones, lacustrine fringe wetlands, or oyster or mussel reef structures. This approach integrates natural features to restore, enhance, maintain, or create habitat, functions, and processes while also functioning to mitigate flooding or shoreline erosion. Living shorelines may stabilize banks and shores with small fetch and gentle slopes that are subject to low-to mid-energy waves. A living shoreline has a footprint that is made up mostly of native material. It incorporates vegetation or other living, natural “soft” elements alone or in combination with some type of harder shoreline structure (e.g., oyster or mussel reefs or rock sills) for added protection and stability. Living shorelines should maintain the natural continuity of the land-water interface and retain or enhance shoreline ecological processes.

**Loss of waters of the United States:** Waters of the U.S. that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the U.S. is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for a GP; it is not a net threshold that is calculated after considering compensatory mitigation that maybe used to offset losses of aquatic functions and services. Waters of the U.S. temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the U.S. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the U.S.

**Maintenance:** The repair, rehabilitation, or in-kind replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3 – "Activities occurring before certain dates," provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Maintenance includes minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards that are necessary to make repair, rehabilitation, or replacement are authorized. Currently serviceable means useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

**Maintenance Exemption**: In accordance with 33 CFR 323.4(a)(2), any discharge of dredged or fill material that may result from any of the following activities is not prohibited by or otherwise subject to regulation under Section 404 of the CWA: "Maintenance, including emergency reconstruction of recently damaged parts, of currently serviceable structures such as dikes, dams, levees, groins, riprap, breakwaters, causeways, bridge abutments or approaches, and transportation structures. Maintenance does not include any modification that changes the character, scope, or size of the original fill design."

**Mean high water:** Line on the shore reached by the plane of the average high water. Where precise determination of the actual location of the line becomes necessary, it must be established by survey with reference to the available tidal datum, preferably averaged over a period of 18.6 years. Less precise methods, such as observation of the "apparent shoreline" which is determined by reference to physical markings, lines of vegetation, or changes in type of vegetation, may be used only where an estimate is needed of the line reached by the mean high water.

**Mechanized land clearing:** Land clearing activities using mechanized equipment such as backhoes or bulldozers with sheer blades, rakes or discs constitute point source discharges and are subject to section 404 jurisdiction when they take place in wetlands or waters of the U.S (Regulatory Guidance Letter 90-05).

**Metallic mineral:** Any ore or material to be excavated from the natural deposits on or in the earth for its metallic mineral content to be used for commercial or industrial purposes. "Metallic mineral" does not include thorium or uranium.

**Minor deviations:** Deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards, which are necessary to make repair, rehabilitation, or replacement are permitted, provided the adverse environmental effects resulting from such repair, rehabilitation, or replacement are minimal.

**Natural Rocky Habitats:** Intertidal and subtidal substrates of pebble-gravel, cobble, boulder, or rock ledge and outcrops. Manufactured stone (e.g., cur or engineered riprap) is not considered a natural rocky habitat. Natural rocky habitats are either found as pavement (consolidated pebble-gravel, cobble, or boulder areas) or as a mixture with fines (i.e., clay and sand) and other substrates. Rocky habitats as EFH are defined as follows: (1) All pebble-gravel, cobble, or boulder pavements; (2) Pebble-gravel mixed with fines: mixed substrate of pebble-gravel and fines where pebble-gravel is an evident component of the substrate (either through visual observation or within sediment samples). Sediment samples with a content of 10% or more of pebble-gravel in the top layer (6-12 inches) should be delineated; (3) Scattered cobble, scattered boulder, scattered cobble/boulder: mixed substate of cobble and/or boulder and other substrates. The aerial extent of cobbles and/or boulders should be delineated; and (4) All rock ledge outcrops: area should be delineated along the edge of the ledge/outcrop (as defined by NMFS Habitat and Ecosystems Services Branch, Gloucester, MA).

**Navigable waters or Navigable waters of the U.S.:** These waters are subject to section 10 of the Rivers and Harbors Act of 1899 and are defined as those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce (33 CFR Part 329). Work or structures in navigable

waters require permits pursuant to §9 and §10 of the Rivers and Harbors Act of 1899. Also see the definition of "waters of the U.S." below.
Note: Currently the following non-tidal waters have been determined to be navigable waters of the U.S. subject to permit jurisdiction in Massachusetts: Merrimack River, Connecticut River, and Charles River to the Watertown Dam.
**Nearshore disposal:** This is defined in the USACE Coastal Engineering Manual as "(1) In beach terminology an indefinite zone extending seaward from the shoreline well beyond the breaker zone. (2) The zone which extends from the swash zone to the position marking the start of the offshore zone, typically at water depths of the order of 20m." A nearshore berm is an artificial berm built in shallow water using dredged material. Often, the berm is intended to renourish the adjacent and downdrift shore over time under the influence of waves and currents.
**Non-regulated activity:** Only structures or fills that were previously authorized and are in compliance with the terms and condition of the original authorization can be maintained as a non-regulated activity under 33 CFR 323.4(a)(2). Minor deviations from the previously authorized footprint do not qualify as a non-regulated activity and require new authorization from the USACE. The state's maintenance provisions may differ from the USACE and a project may require reporting and written authorization from the state.
**Non-tidal wetlands:** A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the HTL (*i.e.,* spring HTL). Also see the definition of "Waters of the U.S." below.
**Oil or natural gas pipeline:** Any pipe or pipeline for the transportation of any form of oil or natural gas, including products derived from oil or natural gas, such as gasoline, jet fuel, diesel fuel. heating oil, petrochemical feedstocks, waxes, lubricating oils, and asphalt.
**Ordinary High Water Mark (OHWM):** A line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas. See 33 CFR 328.3(e).
**Overall project:** The overall project, for purposes of these GPs, includes all regulated activities that are reasonably related and necessary to accomplish the project purpose. Also see the definition of "single and complete linear project."
**Perennial stream**: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.
**Practicable:** Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.
**Permanent impacts:** Permanent impacts means waters of the U.S. that are permanently affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent impacts include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody.
**Preconstruction notification (PCN):** A request submitted by the applicant to the USACE for confirmation that a particular activity is authorized by these GPs. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Preconstruction notification may be required by the terms and conditions of these GPs. A PCN may be voluntarily submitted in cases where PCN is not required and the applicant wants confirmation that the activity is authorized under these GPs.
**Preservation:** The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions (33 CFR 332.2).
**Real estate subdivision:** Includes circumstances where a landowner or developer divides a tract of land into smaller parcels for the purpose of selling, conveying, transferring, leasing, or

developing said parcels. This would include the entire area of a residential, commercial or other real estate subdivision, including all parcels and parts thereof

**Reconfiguration zone:** A USACE authorized area in which permittees may rearrange pile-supported structures and floats without additional authorizations. A reconfiguration zone does not grant exclusive privileges to an area or an increase in structure or float area.

**Re-establishment:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/ historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in again in aquatic resource area and functions (33 CFR 332.2).

**Reference Site:** Reference sites - Compensatory restoration, rehabilitation, and creation mitigation projects should seek to duplicate the features of reference aquatic resources or enhance connectivity with adjacent natural upland and aquatic resource landscape elements. Performance standards related to reference sites are encouraged. Mitigation project sites must be selected based on their ability to be, and continue to be, resistant to disturbance from the surrounding landscape, by locating them adjacent to refuges, buffers, green spaces, and other preserved natural elements of the landscape. In general, aquatic resource mitigation projects must be designed to be self-sustaining, natural systems within the landscape and climate in which they are located, with little or no ongoing maintenance and/or hydrologic manipulation.

**Rehabilitation:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area (33 CFR 332.2).

**Restoration:** The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation (33 CFR 332.2).

**Riffle and pool complex:** Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

**Sedimentation:** Sedimentation is defined as the process of deposition of a solid material from a state of suspension. Deposited sediments may accumulate and have temporal impacts to aquatic resource areas. See secondary effects definition above. For the purposes of this document, “greater than minimal sedimentation” is generally not considered to occur when using proper erosion controls (GC 25) or when sedimentation is considered “de minimis” 33 CFR 323.2(d)(5).

**Single and complete linear project:** A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/ developer or partnership or other association of owners/developers that includes all crossings of a single water of the U.S. (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for the purposes of these GPs. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

**Single and complete non-linear project:** For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete

non-linear project must have independent utility (see the definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in a GP authorization.

**Special aquatic sites (SAS):** These include inland and saltmarsh wetlands, mud flats, vegetated shallows, sanctuaries and refuges, coral reefs, and riffle and pool complexes. These are defined at 40 CFR 230.3 and listed in 40 CFR 230 Subpart E.

**Streambed:** The stream substrate between the OHW marks on each side. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the streambed, but outside of the OHW marks, are not considered part of the streambed.

**Stream channelization:** The manipulation of a stream’s course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the U.S.

**Structure:** An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

**Temporal loss:** The time lag between the loss of aquatic resource functions caused by the permitted impacts and the replacement of aquatic resource functions at the compensatory mitigation site(s) (33 CFR 332.2).

**Temporary impacts:** Temporary impacts include, but are not limited to, jurisdictional waters that are temporarily filled, flooded, excavated, or drained because of the regulated activity. Impacts are considered temporary when they are removed immediately upon completion of the activity. Note: An impact is considered temporary when the aquatic resource is restored to pre-project conditions, but effects to archaeological and/or cultural resources may be permanent in duration.

**Tidal wetlands:** A wetland that is subject to the ebb and flow of the tide. See the definition of “Waters of the U.S.” below.

**Tide gates:** Structures such as duckbills, flap gates, manual and self-regulating tide gates, etc. that regulate or prevent upstream tidal flows.

**Turbidity:** A measure of the level of particles such as sediment, plankton, or organic by-products, in a body of water. As the turbidity of water increases, it becomes denser and less clear due to a higher concentration of these light-blocking particles. Suspended solids are more likely to carry toxic chemicals, and can also negatively affect aquatic organisms, water temperature, and dissolved oxygen levels.

**Utility line:** Any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose that is not oil, natural gas, or petrochemicals. A utility line also includes any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and radio and television communication. The term ‘utility line’ does not include activities that drain a water of the U.S., such as drainage tile or French drains, but it does apply to pipes conveying drainage from another area.

**Vegetated shallows:** Permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation, such as eelgrass *(Zostera marina)* and widgeon grass (*Rupia maritima*) in marine systems (does not include salt marsh) as well as a number of freshwater species in rivers and lakes. These are a type of SAS defined at 40 CFR 230.43. Vegetated shallows are commonly referred to as submerged aquatic vegetation or SAV. Vegetated shallow survey guidance is located at www.nae.usace.army.mil/missions/regulatory /jurisdiction-and-wetlands. Maps of vegetated shallows in Massachusetts are located at www.nae.usace.army.mil/missions/regulatory/state-general-permits/massachusetts-general-permit.

**Vernal pools:** For the purposes of these GPs, vernal pools are depressional wetland basins that typically dry up in most years and may contain inlets or outlets, typically of intermittent flow. Vernal pools range in both size and depth depending upon landscape position and parent material(s). In

most years, vernal pools support one or more of the following obligate indicator species: wood frog, spotted salamander, blue-spotted salamander, marbled salamander, Jefferson's salamander and fairy shrimp. However, they should preclude sustainable populations of predatory fish.

**Water diversions:** Water diversions are activities such as bypass pumping (e.g., "dam and pump") or water withdrawals. Temporary flume pipes, culverts or cofferdams where normal flows are maintained within the stream boundary's confines aren't water diversions. "Normal flows" are defined as no change in flow from pre-project conditions.

**Waters of the United States (U.S.)** These waterbodies are the waters where permits are required for the discharge of dredged or fill material pursuant to §404 of the CWA. These waters include but are not limited to navigable waters of the U.S. and tidal wetlands and include many non-tidal wetlands and other waterbodies. See definitions for navigable waters of the U.S., tidal wetlands, waterbody, and non-tidal wetlands. (33 CFR 328)

**Waterbody:** Examples of "waterbodies" include oceans, coastal waters, rivers, streams, ditches, lakes, ponds, and wetlands. If a wetland is adjacent to a waterbody determined to be a water of the U.S., that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).

**Weir:** A barrier across a river designed to alter the flow characteristics. In most cases, weirs take the form of a barrier, smaller than most conventional dams, across a river that causes water to pool behind the structure and allows water to flow over the top. Weirs are commonly used to alter the flow regime of a river, prevent flooding, measure discharge and help render a river navigable.

**Wetland:** Wetlands are areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. The Corps of Engineers Wetlands Delineation Manual in conjunction with the associated regional supplement should be used to determine if a wetland is present and delineate wetland boundaries.

**Acronyms**

| | |
|---|---|
| BMPs | Best Management Practices |
| BUAR | Massachusetts Board of Underwater Archaeological Resources |
| CWA | Clean Water Act |
| CZM | Coastal Zone Management |
| EPA | U.S. Environmental Protection Agency |
| ESA | Endangered Species Act |
| EFH | Essential Fish Habitat |
| FNP | Federal Navigation Project |
| GC | General Condition |
| GP | General Permit |
| HTL | High Tide Line |
| IP | Individual Permit |
| LID | Low impact development |
| MassDEP | Massachusetts Department of Environmental Protection |
| MA DMF | Massachusetts Division of Marine Fisheries |
| MHC | Massachusetts Historical Commission |
| MHW | Mean High Water |
| MLLW | Mean Lower Low Water |
| MLW | Mean Low Water |
| NHPA | National Historic Preservation Act |
| NMFS | National Marine Fisheries Service |
| OHW | Ordinary High Water Mark |
| PCN | Preconstruction Notification |
| SAS | Special Aquatic Sites |
| SF | Square Feet |
| SV | Self-Verification |
| SHPO | State Historic Preservation Officer |
| THPO | Tribal Historic Preservation Officer |
| USFWS | U.S. Fish and Wildlife Service |
| USCG | U.S. Coast Guard |
| USFS | U.S. Forest Service |
| USGS | U.S. Geological Service |
| WQC | Water Quality Certification |

## Appendix A: Guidance for NHPA Section 106 Compliance in Massachusetts

### 1. Purpose & Applicability

Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA) (54 U.S.C § 306108), requires Federal agencies to take into account the effects of their undertakings on Historic Properties and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on such undertakings. Therefore, in order for an activity to be eligible for authorization under the 2023 Massachusetts General Permit, the USACE must consider the effect the activity may have on historic properties. Historic properties may include, but are not limited to, historic districts, archaeological districts, sites, buildings, structures, objects, sacred sites, traditional cultural places, and traditional cultural landscapes that are included in, or eligible for inclusion in, the National Register of Historic Places (NRHP).

This guidance applies to projects that require authorization under Section 404 of the Clean Water Act (33 U.S.C. § 1344) and/or Section 10 of the Rivers and Harbors Act (33 U.S.C. §403) and will assist applicants when evaluating and documenting the presence of historic properties within or near their project site(s). The prospective applicant will evaluate their proposed project using the criteria below to determine if their project has the potential to affect historic properties and if so, whether or not historic properties are present or are likely to be present. All activities authorized under these GPs shall follow the terms outlined in General Condition 14: Historic Properties and General Condition 6: Tribal Rights & Burial Sites. Prospective applicants shall complete their due diligence according to the procedures below for their application to be deemed complete.

### 2. No Potential to Affect Historic Properties

Certain activities do not have the potential to cause effects on historic properties, assuming such historic properties were present, based on the nature of the activity and site-specific conditions. Therefore, these activities **do not** require historic property identification efforts or notification of the SHPO, THPOs, and/or BUAR under Section 106. The USACE has determined the following activities within the stated parameters have no potential to affect historic properties:

| General Permit | Activity Parameters |
|---|---|
| 1 | Temporary buoys, markers and similar structures that are placed during winter events on ice and removed before spring thaw. |
| 2 | Repair or rehabilitation of structures that are less than 45 years in age. Any temporary structures or fills or work necessary to complete repairs or rehabilitation must not result in any ground disturbance. |
| 3 | Maintenance and replacement of moorings that are less than 45 years in age. |
| 6 | Maintenance, repair, replacement, or removal of utility lines, oil or natural gas pipelines, outfall or intake structures, and/or appurtenant features that are less than 45 years in age when all access, staging, and ground disturbance is strictly limited to previously disturbed areas (including any previous ground disturbance). Replacement must be in kind or smaller in size.<br>Installation of tide gates on outfall structures that are less than 45 years in age. |
| 7 | Maintenance dredging of previously dredged areas where dredging does not extend beyond the original bottom elevations. |

| | |
|---|---|
| | Disposal of dredged material at an existing established and USACE-approved confined aquatic disposal cell.<br>Beach nourishment in ongoing existing nourishment areas. |
| 11 | Fish and wildlife harvesting and attraction devices and activities. |
| 13 | Cleanup of hazardous and toxic waste materials, including contaminated sediments, that are less than 45 years in age. |
| 16 | Removal of land-based and water-based renewable energy generation facilities and hydropower projects that are less than 45 years in age. |
| 18 | Installation of buoys, floats, racks, trays, nets, lines, tubes, containers, and other structures for previously authorized by the USACE and ongoing aquaculture activities.<br>Discharges of dredged or fill material into tidal or non-tidal waters necessary for shellfish seeding, rearing, cultivating, transplanting, and harvesting activities for previously authorized and ongoing aquaculture activities. |
| 20 | Maintenance activities for existing living shorelines excluding maintenance activities that require new ground disturbance such as excavation or re-sloping of the bank/shoreline. |
| 22 | Reshaping or maintenance of existing drainage ditches less than 45 years in age excluding ditch enlargement. |
| 23 | Placement of temporary and removable linear transportation and wetland/stream crossings that have no ground disturbance prior to placement, during placement, and during removal (i.e., placed on the surface and subsequently removed within one year of placement). |
| 24 | Placement of temporary and removable crossings and cofferdams that have no ground disturbance prior to placement, during placement, and during removal (i.e., placed on the surface and subsequently removed within one year of placement). |
| 25 | Emergency repair of existing structures and/or fills less than 45 years in age. |

### 3. Historic Property Identification

If the activity does not fit under the criteria above, the following historic property identification efforts must be completed to demonstrate compliance with Section 106 of the NHPA. This includes documenting previously identified and unidentified historic properties in the project area.

a. Previously Identified Historic Properties: The prospective applicant shall document if previously identified historic properties are present on or adjacent to the project site by notifying the Massachusetts Historical Commission (MHC) and the Massachusetts Board of Underwater Archaeological Resources (BUAR), as appropriate, of the proposed project. The MHC and BUAR will check their records for the presence of any previously identified historic properties. The following outlines how prospective applicants should notify the MHC and BUAR.

i. The prospective applicant will notify the SHPO and BUAR to identify any previously recorded cultural resources. Applicants shall mail a completed Project Notification Form[18], project narrative, location (coordinates), plans, soil maps, and information on known cultural resources to the MHC. The MHC does not accept submissions via email. Applicants shall email or mail this information to the BUAR when the activity is located in lakes, ponds, rivers, and/or navigable waters in MA. Emailed file attachments should be <10MB. Any files >10MB shall be delivered via a file exchange system or the hard copy documents shall be mailed. Preferred contact information is listed below.

ii. **When sending this information, applicants must also document proof of receipt OR proof the information was delivered.** Proof of receipt constitutes a certified mail receipt, read email receipt, or other mail/email/online tracking services that document the information has reached the intended recipient(s). Proof the information was delivered constitutes a certificate of mailing, email delivery receipt, or other mail/email/online services that document the information was sent at a particular time. When using proof of delivery such (e.g., certificate of mailing), applicants should add 5 days to the 30-day notification period so the mail has time to reach its intended recipient. When using proof of receipt, the applicant may begin the 30-day notification period from the date received by the intended recipient.

iii. When mailing or emailing the application materials, applicants should include the following statement: "Please send responses to this notification directly to the USACE via email: cenae-r-ma@usace.army.mil or address regular mail responses to: Regulatory Division, U.S. Army Corps of Engineers, New England District, 696 Virginia Road, Concord, Massachusetts 01742-2751." Email responses to the USACE are strongly preferred. The SHPO and BUAR will contact the USACE and cc the applicant(s) within 30 days of receiving the notification if their records indicate that historic properties are located in the project vicinity, and if additional review and/or surveys are recommended to ensure NHPA compliance. If the SHPO and/or BUAR do not respond within 30 days of receiving the notification, is it presumed that no known historic properties are present.

b. Previously Unidentified Historic Properties: The prospective applicant shall evaluate the project site and determine the sensitivity for the presence of historic properties if the project site has not been previously surveyed for cultural resources within the last 10 years. If the sensitivity is determined to be moderate to high, an intensive archaeological and/or architectural survey is required to investigate the potential presence of historic properties. The individual conducting this survey must meet the Secretary of the Interior's Standards for Professional Qualifications (48 FR 44738-44739) in the discipline relevant to a particular resource type. For example, archeologists should not document and evaluate buildings or structures and architectural historians should not document and evaluate archaeological sites. The identification and qualifications for those participating in any survey and evaluation of resources should be included with the survey results. The criteria listed below are indicators of low sensitivity for the presence of historic properties for consideration when determining if an archaeological or architectural survey is needed.

Low sensitivity indicators:

- Previous archaeological and/or architectural survey within the last 10 years with negative results.
- In a location created in modern times (i.e., built on fill placed within the last 45 years or within an area excavated within the last 45 years).
- USACE has reviewed the project description and determined that a survey is not warranted based on the proposed activity and its location.

State survey guidance and standards are provided in the September 1995 Historic Properties Survey Manual Guidelines for the Identification of Historical and Archaeological Resources in Massachusetts available. State survey guidance and standards for underwater surveys are provided

[18] https://www.sec.state.ma.us/mhc/mhcform/formidx.htm

in the Board of Underwater Archaeological Resources' 2022 Policy Guidance on Archaeological Investigations and Related Survey Standards for the Discovery of Underwater Archaeological Resources. This guidance is available on the NAE Regulatory website: https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Massachusetts-General-Permit/.

Please note, a negative result from MHC and/or BUAR does not necessarily mean no historic properties are present. Often proposed project sites have not been previously subject to a survey, so historic properties which may be present have not been previously recorded.

## 4. Tribal Coordination

Prospective applicants shall mail the Project Notification Form, project narrative, location (coordinates), plans with locus map, soil maps, and information on cultural resources to the Wampanoag Tribe of Gay Head (Aquinnah), Mashpee Wampanoag Tribe, Narragansett Indian Tribe, and/or Stockbridge-Munsee Community Band of Mohican Indians with interests in the project location. Preferred tribal contact information, including their respective areas of interest, can be found below. Applicants shall follow the same procedures as identified in Section 3(a)i-iii above when notifying Tribes of the proposed activity. Applicants shall provide the USACE with any responses received from the tribe(s) with their PCN application. If a tribe does not respond within 30 days of receiving the notification, the applicant shall provide USACE with all documentation of tribal outreach with their SV or PCN submission (e.g., emails, letters, phone call log, etc.). If the tribe indicates the presence of a previously unrecorded cultural resource, including a traditional cultural property (TCP) or traditional cultural landscape (TCL), a PCN is required.

## 5. Effect Determination

The project may have the potential to affect historic properties and/or tribal resources if 1) notification recipients respond within 30 calendar days of notification with concerns, 2) historic properties eligible for listing, or potentially eligible for listing in the NRHP, are present or 3) tribal resources are known to be present. The USACE may need to further review the project to confirm potential effects to historic properties and/or tribal resources. A PCN is required for any activity that may affect a historic property.

The USACE may determine the project will have 'no effect' on historic properties (i.e., no historic properties affected) when procedures outlined in Section 3 above are followed and no cultural resources are identified. Similarly, if historic properties are identified and will be completely avoided, the USACE may determine 'no effect.'

## 6. Contact Information:

### *Massachusetts Historical Commission*

The Massachusetts Archives Building
220 Morrissey Boulevard
Boston, Massachusetts 02125

No email. Applicants or their representatives must send project information via certified mail and submit the certified mail receipt to the USACE or send via regular mail and submit proof of delivery.

Area of concern: All of Massachusetts.

***Massachusetts Board of Underwater Archaeological Resources (BUAR)***

100 Cambridge Street, Suite 900
Boston, Massachusetts 02114
Email: david.s.robinson@mass.gov

Applicants or their representatives must send project information via email (***strongly preferred***) or regular mail and provide proof of receipt or proof of delivery.

Area of concern: All waterbodies in Massachusetts.

***Wampanoag Tribe of Gay Head (Aquinnah)***

Bettina Washington
Tribal Historic Preservation Officer (THPO)
20 Black Brook Road
Aquinnah, Massachusetts 02535
Email: thpo@wampanoagtribe-nsn.gov

Applicants or their representative must send project information via email (***preferred***) or regular mail and provide proof of receipt or proof of delivery.

Area of concern: All of Massachusetts.

***Mashpee Wampanoag Tribe***

ATTN: David Weeden
Tribal Historic Preservation Officer (THPO)
483 Great Neck Road South
Mashpee, Massachusetts 02649
Email: 106review@mwtribe-nsn.gov
Cc: David.weeden@mwtribe-nsn.gov

Applicants or their representative must send project information via email (***preferred***) or regular mail and provide proof of receipt or proof of delivery.

Area of concern: All of Massachusetts.

***Narragansett Indian Tribe***

ATTN: John Brown
Tribal Historic Preservation Officer (THPO)
Narragansett Indian Longhouse
4425 South County Trail
Charlestown, Rhode Island 02813
Email: tashtesook@aol.com

Applicants or their representative must send project information via email (***preferred***) or regular mail and provide proof of receipt or proof of delivery.

Area of concern: Massachusetts east of the Connecticut River.

***Stockbridge-Munsee Community Band of Mohican Indians***

ATTN: Jeff Bendremer
Tribal Historic Preservation Manager
Stockbridge-Munsee Community
Tribal Historic Preservation Extension office
86 Spring Street
Williamstown, Massachusetts 01267
Email: thpo@mohican-nsn.gov

Applicants or their representative must send project information via email (***preferred***) or regular mail and provide proof of receipt or proof of delivery.

Area of concern: West of the Connecticut River and Northfield, Montague, Miller's Falls, Turner's Falls, Sunderland, Amherst, Hadley, South Hadley, Chicopee, Springfield and Longmeadow.

# APPENDIX B PRE-CONSTRUCTION NOTIFICATION

U.S. Army Corps of Engineers (USACE), New England District (NAE)

# PRE-CONSTRUCTION NOTIFICATION (PCN)

**DATA REQUIRED BY THE PRIVACY ACT OF 1974**

**Authority** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332.

**Principal Purpose** The information provided will be used in evaluating activities under Pre-Construction Notification procedures within New England.

**Routine Uses** This information may be shared with other federal, state, and local government agencies during the application review process. Submission

**Disclosure** of requested information is voluntary. However, if information is not provided the PCN application cannot be fully evaluated nor can USACE render a permit decision.

**Instructions** The applicant must complete ALL required sections of this document before their submission to USACE. The PCN submission to USACE shall include one set of drawings which show the location and character of the proposed activity, statements that address each required field below, and documentation that supports each field (e.g., emails, letters, description/narrative, phone calls, surveys, reports, etc.). Electronic submissions to the following address are strongly preferred: cenae-r-ma@usace.army.mil. The email subject line shall contain the following: General Permit #, PCN, City/Town, and date submitted. An application that is not completed in full will be returned.

**(ITEMS 1 THRU 4 TO BE FILLED BY USACE)**

| 1. APPLICATION NO. | 2. FIELD OFFICE CODE | 3. DATE RECEIVED | 4. DATE APPLICATION COMPLETE |
|---|---|---|---|
| | | | |

**(ITEMS BELOW TO BE FILLED BY APPLICANT)**

| 5. APPLICANT'S NAME | 8. AUTHORIZED AGENT'S NAME AND TITLE (*agent is not required*) |
|---|---|
| First - Middle - Last - | First - Middle - Last - |
| Company - | Company - |
| E-mail Address - | E-mail Address - |
| 6. APPLICANT'S ADDRESS: | 9. AGENT'S ADDRESS: |
| Address- | Address- |
| City - State - Zip - Country - | City - State - Zip - Country - |
| 7. APPLICANT'S PHONE NOs. with AREA CODE | 10. AGENT'S PHONE NOs. with AREA CODE |
| a. Residence b. Business c. Fax d. Mobile | a. Residence b. Business c. Fax d. Mobile |

**STATEMENT OF AUTHORIZATION**

11. I hereby authorize, _____ to act on my behalf as my agent in the processing of this general permit PCN application and to furnish, upon request, supplemental information in support of this general permit PCN application.

_____ _____

SIGNATURE OF APPLICANT DATE

**NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY**

12. PROJECT NAME or TITLE (*see instructions*)

| 13. NAME OF WATERBODY, IF KNOWN (*if applicable*) | 14. PROPOSED ACTIVITY STREET ADDRESS (*if applicable*) |
|---|---|
| 15. LOCATION OF PROPOSED ACTIVITY (*see instructions*) | City: State: Zip: |
| Latitude: °N Longitude: °W | |

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (*see instructions*)

State Tax Parcel ID: Municipality:

Section: Township: Range:

17. DIRECTIONS TO THE SITE.

18. IDENTIFY THE SPECIFIC GENERAL PERMIT(S) YOU PROPOSE TO USE:

19. DESCRIPTION OF PROPOSED GENERAL PERMIT ACTIVITY (*see instructions*)

20. DESCRIPTION OF PROPOSED MITIGATION MEASURES (*see instructions*)

21. PURPOSE OF GENERAL PERMIT ACTIVITY (*Describe the reason or purpose of the project, see instructions*)

22. Quantity of Wetlands, Streams, or Other Types of Waters Directly Affected by Proposed General Permit Activity (*see instructions*)

| Area (square feet) | Length (linear feet) | Volume (cubic yards) | Duration | Purpose |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**Each PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site.**

23. List any other GP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project on any related activity (*see instructions*)

24. If the proposed activity will result in the loss of aquatic resources that exceed those identified in the New England District Compensatory Mitigation Thresholds, explain how the compensatory mitigation requirement will be satisfied. (*see instructions*)

25. Is Any Portion of the General Permit Activity Already Complete? ☐ Yes ☐ No If Yes, describe the completed work:

26. List the name(s) of any species listed as endangered or threatened under the Endangered Species Act that might be affected by the proposed GP activity or utilize the designated critical habitat that might be affected by the proposed GP activity. (*see instructions*)

27. List any historic properties that have the potential to be affected by the proposed GP activity or include a vicinity map indicating the location of the historic property or properties. Attach relevant project information, along with any responses received from project notifications to this submittal. (*see instructions*)

28. For a proposed GP activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, identify the Wild and Scenic River or the "study river":

29. If the proposed GP activity also requires permission from the USACE pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, have you submitted a written request for section 408 permission from the USACE district having jurisdiction over that project? ☐ Yes ☐ No

If "yes", please provide the date your request was submitted to the USACE District:

30. Does the activity require a 401 Water Quality Certification (WQC)? If so, specify the type of 401 WQC that is required (general or individual). In cases where an individual 401 WQC is required, provide the date the 401 WQC certification request was submitted to the certifying authority and their contact information.

31. If the terms of the GP(s) you want to use require additional information to be included in the PCN (i.e. sampling and analysis plan), please include that information in this space or provide it on an additional sheet of paper marked Block 30. (*see instructions*)

32. I certify that the information in this pre-construction notification is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

| SIGNATURE OF APPLICANT | DATE | SIGNATURE OF AGENT | DATE |
|---|---|---|---|
| | | | |

The Pre-Construction Notification must be signed by the person who desires to undertake the proposed activity (applicant) and, if the statement in block 11 has been filled out and signed, the authorized agent.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

**Instructions for Preparing a**

**Department of the Army**

**General Permit (GP) Pre-Construction Notification (PCN)**

**Blocks 1 through 4.** To be completed by the U.S. Army Corps of Engineers.

**Block 5. Applicant' Name.** Enter the name and the e-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the PCN, please attach a sheet of paper with the necessary information marked Block 5.

**Block 6. Address of Applicant.** Please provide the full address of the party or parties responsible for the PCN. If more space is needed, attach an extra sheet of paper marked Block 6.

**Block 7. Applicant Telephone Number(s).** Please provide the telephone number where you can usually be reached during normal business hours.

**Blocks 8 through 11.** To be completed, if you choose to have an agent.

**Block 8. Authorized Agent's Name and Title.** Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, consultant, or any other person or organization. Note: An agent is not required.

**Blocks 9 and 10. Agent's Address and Telephone Number.** Please provide the complete mailing address of the agent, along with the telephone number where they can be reached during normal business hours.

**Block 11. Statement of Authorization.** To be completed by the applicant, if an agent is to be employed.

**Block 12. Proposed General Permit Activity Name or Title.** Please provide a name identifying the proposed GP activity, e.g., Windward Marina, Rolling Hills Subdivision, or Smith Commercial Center.

**Block 13. Name of Waterbody.** Please provide the name (if it has a name) of any stream, lake, marsh, or other waterway to be directly impacted by the GP activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

**Block 14. Proposed Activity Street Address.** If the proposed GP activity is located at a site having a street address (not a box number), enter it in Block 14.

**Block 15. Location of Proposed Activity.** Enter the latitude and longitude of where the proposed GP activity is located. Indicate whether the project location provided is the center of the project or whether the project location is provided as the latitude and longitude for each of the "corners" of the project area requiring evaluation. If there are multiple sites, please list the latitude and longitude of each site (center or corners) on a separate sheet of paper and mark as Block 15.

**Block 16. Other Location Descriptions.** If available, provide the Tax Parcel Identification number of the site, Section, Township, and Range of the site (if known), and / or local Municipality where the site is located.

**Block 17. Directions to the Site.** Provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site. You may also provide a description of the location of the proposed GP activity, such as lot numbers, tract numbers, or you may choose to locate the proposed GP activity site from a known point (such as the right descending bank of Smith Creek, one mile downstream from the Highway 14 bridge). If a large river or stream, include the river mile of the proposed GP activity site if known. If there are multiple locations, please indicate directions to each location on a separate sheet of paper and mark as Block 17.

**Block 18. Identify the Specific General Permit(s) You Propose to Use.** List the number(s) of the General Permit(s) you want to use to authorize the proposed activity (e.g., GP 4).

**Block 19. Description of the Proposed General Permit Activity.** Describe the proposed GP activity, including the direct and indirect adverse environmental effects of the proposed activity. The description of the proposed activity should be sufficiently detailed for USACE to determine that the adverse environmental effects of the activity will be no more than minimal. Identify the materials to be used in construction, as well as the methods by which the work is to be done.

Provide drawings to show that the proposed GP activity complies with the terms of the applicable GP(s). Drawings should contain sufficient detail to provide an illustrative description of the proposed GP activity, but do not need to be detailed engineering plans. The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach an extra sheet of paper marked Block 19.

**Block 20: Description of Proposed Mitigation Measures.** Describe any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed GP activity. The description of any proposed mitigation measures should be sufficiently detailed for USACE to determine how the measures would avoid and minimize adverse environmental effects. If adverse effects exceed the New England District compensatory mitigation thresholds, you must document how compensatory mitigation would be satisfied in Block 24.

**Block 21. Purpose of General Permit Activity.** Describe the purpose and need for the proposed GP activity. What will it be used for and why? Also include a brief description of any related activities associated with the proposed project. Provide the approximate dates you plan to begin and complete all work.

**Block 22. Quantity of Wetlands, Streams, or Other Types of Waters Directly Affected by the Proposed General Permit Activity.** For discharges of dredged or fill material into Waters of the U.S., provide the amount of wetlands, streams, or other types of waters filled, flooded, excavated, or drained by the proposed GP activity. For structures or work in Navigable Waters of the U.S. subject to Section 10 of the Rivers and Harbors Act of 1899, provide the amount of navigable waters filled, dredged, occupied by one or more structures (e.g., aids to navigation, mooring buoys) by the proposed GP activity. The area of impact includes the structures or fills with direct or indirect effects to waters of the U.S. The length of impact includes the length of a stream, including is banks, that are directly affected by the structures or fills. The duration of impact should be identified as temporary (xx days) or permanent. The impact purpose should briefly describe what structure or fill is responsible for the impact.

**Block 23. Identify Any Other General Permit(s), Regional General Permit(s), or Individual Permit(s) Used to Authorize Any Part of Proposed Activity or Any Related Activity.** List any other GP(s) or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. For linear projects, list other separate and distant crossings of waters and wetlands authorized by these GPs that do not require PCNs. If more space is needed, attach an extra sheet of paper marked Block 23.

**Block 24. Compensatory Mitigation Statement for Losses Greater Than the New England District Compensatory Mitigation Thresholds.** New England District requires compensatory mitigation at a minimum one for one replacement ratio or greater for all aquatic resource losses that require a PCN and exceed the New England District Compensatory Mitigation Thresholds, unless USACE determines in writing that either some other form of mitigation is more environmentally appropriate or the adverse environmental effects of the proposed GP activity are no more than minimal without compensatory mitigation, and provides an activity specific waiver of this requirement. Describe the proposed compensatory mitigation for wetland losses greater than the New England District Compensatory Mitigation Thresholds or provide an explanation of why USACE should not require wetland compensatory mitigation for the proposed GP activity. If more space is needed, attach an extra sheet of paper marked Block 24.

**Block 25. Is Any Portion of the General Permit Activity Already Complete?** Describe any work that has already been completed for the GP activity.

**Block 26. List the Name(s) of Any Species Listed As Endangered or Threatened under the Endangered Species Act that Might be Affected by the General Permit Activity.** If you are not a federal agency, and if any listed species or designated critical habitat might be affected or is in the vicinity of the proposed GP activity, or if the proposed GP activity is located in designated critical habitat, list the name(s) of those endangered or threatened species that might be affected by the proposed GP activity or utilize the designated critical habitat that might be affected by the proposed GP activity. If you are a Federal agency, and the proposed GP activity requires a PCN, you must provide documentation demonstrating compliance with Section 7 of the Endangered Species Act.

**Block 27. List Any Historic Properties that Have the Potential to be Affected by the General Permit Activity.** If you are not a federal agency, and if any historic properties have the potential to be affected by the proposed GP activity, list the name(s) of those historic properties that have the potential to be affected by the proposed GP activity. Provide all relevant documentation about these historic properties in the PCN submittal. If you are a Federal agency, and the proposed GP activity requires a PCN, you must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

**Block 28. List the Wild and Scenic River or Congressionally Designated Study River if the General Permit Activity Would Occur in such a River.** If the proposed GP activity will occur in a river in the National Wild and Scenic River System or in a river officially designated by Congress as a “study river” under the Wild and Scenic Rivers Act, provide the name of the river. For a list of Wild and Scenic Rivers and study rivers, please visit http://www.rivers.gov/

**Block 29. General Permit Activities that also Require Permission from the USACE Under 33 U.S.C. 408.** If the proposed GP activity also requires permission from the USACE under 33 U.S.C. 408 because it will temporarily or permanently alter, occupy, or use a USACE federal authorized civil works project, indicate whether you have submitted a written request for section 408 permission from the USACE district having jurisdiction over that project.

**Block 30. 401 Water Quality Certification.** As described above, specify if the activity requires a 401 WQC from the certifying authority.

**Block 31. Other Information Required For General Permit Pre Construction Notifications.** The terms of some of the General Permits include additional information requirements for preconstruction notifications:

* Maintenance – information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals.
* Temporary Construction, Access, and Dewatering – a restoration plan showing how all temporary fills and structures will be removed and the area restored to pre-project conditions.
* Repair of Uplands Damaged by Discrete Events – documentation, such as a recent topographic survey or photographs, to justify the extent of the proposed restoration.
* Commercial Shellfish Aquaculture Activities – (1) a map showing the boundaries of the project area, with latitude and longitude coordinates for each corner of the project area; (2) the name(s) of the species that will be cultivated during the period this GP is in effect; (3) whether canopy predator nets will be used; (4) whether suspended cultivation techniques will be used; and (5) general water depths in the project area (a detailed survey is not required).Dredging – (1) a proposed sampling and analysis plan shall be provided to USACE for approval prior to its execution. Pre-application meetings are encouraged.
* Beach Nourishment – sediment grain size should be determined for the length of the beach where nourishment is proposed. The frequency and locations of sediment sampling shall be sufficient to identify the sediment composition of the beach profile. This data shall be consolidated to generate a sediment gradation curve for each sampled transect. Each sampled transect should also be identified on the project plans (drawings).

If more space is needed, attach an extra sheet of paper marked Box 31.

**Block 32. Signature of Applicant or Agent.** The PCN must be signed by the person proposing to undertake the GP activity, and if applicable, the authorized party (agent) that prepared the PCN. The signature of the person proposing to undertake the GP activity shall be an affirmation that the party submitting the PCN possesses the requisite property rights to undertake the GP activity (including compliance with special conditions, mitigation, etc.).

**DELINEATION OF WETLANDS, OTHER SPECIAL AQUATIC SITES, AND OTHER WATERS**

Each PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current wetland delineation manual and regional supplement published by the USACE. The permittee may ask the USACE to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the USACE does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. The 60-day PCN review period will not start until a delineation has been completed.

**DRAWINGS AND ILLUSTRATIONS**

**General Information.**

Three types of illustrations are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a Vicinity Map, a Plan View or a Typical Cross Section Map. Identify each illustration with a figure or attachment number. For linear projects (e.g. roads, subsurface utility lines, etc.) gradient drawings should also be included. Please submit one copy of all drawings on 8½ x 11 inch plain white paper (electronic submissions preferred). Use the fewest number of sheets necessary for your drawings or illustrations. Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross section). While illustrations need not be professional (many small, private project illustrations are prepared by hand), they should be clear, accurate, and contain all necessary information.

**ADDITIONAL INFORMATION AND REQUIREMENTS**

For proposed GP activities that involve discharges into waters of the United States, water quality certification from the State, Tribe, or EPA must be obtained or waived. Some States, Tribes, or EPA have issued water quality certification for one or more GPs. Please check the New England District website to see if water quality certification has already been issued for the GP(s) you wish to use. For proposed GP activities in coastal states, state Coastal Zone Management Act consistency concurrence must be obtained, or a presumption of concurrence must occur. Some States have issued Coastal Zone Management Act consistency concurrences for one or more GPs. Please check the New England District website to see if Coastal Zone Management Act consistency concurrence has already been issued for the GP(s) you wish to use.

# APPENDIX C SELF-VERIFICATION NOTIFICATION

U.S. Army Corps of Engineers (USACE)

# SELF-VERIFICATION NOTIFICATION (SVN)

**DATA REQUIRED BY THE PRIVACY ACT OF 1974**

**Authority** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332.

**Principal Purpose** This information will be used in evaluating activities under Self-Verification procedures within Massachusetts.

**Routine Uses** Routine uses will include: (1) Documenting compliance with the terms and conditions of the General Permit (GP) for activities that may require authorization pursuant to one or more of USACE's Regulatory authorities. (2) Records may be referred to other Federal, State, and local agencies for evaluation and enforcement purposes.

**Disclosure** Failure to fully comply and abide by the GP terms and conditions prior to commencing work and after completion project may result in formal enforcement action, up to and including monetary penalties and/or legal action, pursuant to 33 CFR Part 326.

**Instructions** The permittee must complete ALL required sections of this document before commencing USACE-regulated activities. A copy of this completed SVN must be kept on site during construction and be made available for review by USACE and other Federal, State, & Local regulatory authorities at any time. Within 30 days of initiating project construction, the permittee shall submit the completed SVN to USACE. The SVN shall be submitted to USACE as **ONE signed document** that includes project plans and documentation that supports each field (e.g., emails, letters, description, phone calls, surveys). Electronic submissions to the following address are strongly preferred: cenae-r-ma-sv@usace.army.mil. The email subject line shall contain the following: GP #, SVN, City/Town, and date submitted.

**(ITEMS 1 THRU 3 TO BE FILLED BY USACE)**

| 1. APPLICATION NO. | 2. FIELD OFFICE CODE | 3. DATE RECEIVED |
|---|---|---|
| | | |

**APPLICANT AND AGENT INFORMATION**

| 4. APPLICANT'S NAME | 7. AGENT'S ADDRESS: |
|---|---|
| First - Middle - Last - | First - Middle - Last - |
| Company - | Company - |
| E-mail Address - | E-mail Address - |
| 5. APPLICANT'S ADDRESS: | 8. AGENT'S ADDRESS: |
| Address- | Address- |
| City - State - Zip - Country - | City - State - Zip - Country - |
| 6. APPLICANT'S PHONE NOs. w/AREA CODE | 9. AGENTS PHONE NOs. w/AREA CODE |
| a. Residence b. Business c. Fax | a. Residence b. Business c. Fax |

**NAME, LOCATION, AND DESCRIPTION OF PROJECT SITE**

10. PROJECT NAME OR TITLE

| 11. FILE NUMBER(S) OF PREVIOUS USACE ACTIONS ON THE SITE (if applicable) | 12. NAME OF WATERBODY |
|---|---|
| | |
| 13. PROJECT COORDINATES (in decimal degrees) | 14. PROJECT STREET ADDRESS (if applicable) |
| Latitude: ◦N Longitude: ◦W | Address |
| | City - State - Zip - |

**ACTIVITY TYPE, PROJECT IMPACTS, AVOIDANCE & MINIMIZATION**

15. GENERAL PERMIT ACTIVITIES (CHECK ALL THAT APPLY)

| | | | | |
|---|---|---|---|---|
| 1 ☐ | 6 ☐ | 11 ☐ | 16 ☐ | 21 ☐ |
| 2 ☐ | 7 ☐ | 12 ☐ | 17 ☐ | 22 ☐ |
| 3 ☐ | 8 ☐ | 13 ☐ | 18 ☐ | 23 ☐ |
| 4 ☐ | 9 ☐ | 14 ☐ | 19 ☐ | 24 ☐ |
| 5 ☐ | 10 ☐ | 15 ☐ | 20 ☐ | 25 ☐ |

16. SUMMARY OF PROJECT IMPACTS (*see instructions*)

| Area (square feet) | Length (linear feet) | Volume (cubic yards) | Duration |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

17. PROJECT PLANS (BY CHECKING THE BOXES BELOW, YOU CERTIFY THESE ITEMS ARE COMPLETE) (*see instructions*)

- ☐ a. Plans shall at least contain the following: Vicinity Map, Plan View, and Typical Cross Section View of the proposed activity.
- ☐ b. All direct, indirect and secondary impacts from USACE regulated activities are shown on the project plans.
- ☐ c. The size of the impact area for each activity (acre, square feet, linear feet) are shown on the project plans.
- ☐ d. For discharges of fill material (§404), the volume of fill material is identified on the project plans.
- ☐ e. The duration of each impact, permanent or temporary (X days), is identified on the project plans.
- ☐ f. Do activities with permanent impacts result in the loss of waters? If so, this is identified on the project plans.
- ☐ g. All aquatic resources in the vicinity of the USACE regulated activities are delineated on the project plans.

18. AVOIDANCE & MINIMIZATION (BY CHECKING THE BOXES BELOW, YOU CERTIFY THESE CRITERIA ARE MET) (*see instructions*)

- ☐ a. The project has been designed to avoid and minimize impacts to aquatic resources.
- ☐ b. The footprint of activities in waters of the U.S. has been reduced to only what is necessary to achieve the overall project purpose.
- ☐ c. All practicable measures have been taken to avoid and minimize impacts to aquatic resources through construction techniques and site access (e.g., Best Management Practices, Time of Year Restrictions).
- ☐ d. All temporary impacts from USACE regulated activities will be restored upon completion of construction and the project area will be returned to pre-construction contours and conditions.

**COMPLIANCE WITH FEDERAL REGULATIONS & SUPPLEMENTAL INFORMATION**

19. DUE DILIGENCE (*see instructions*)

Complete the entries below to document compliance with the following Federal requirements. Construction may NOT begin if a PCN is/may be required, and you must contact USACE to determine permitting requirements. Documentation that demonstrates how the activity complies with each field below shall be submitted to the USACE as noted in the instructions block. See each General Condition (GC) in the GP for how to comply with each requirement.

| | | | |
|---|---|---|---|
| a. State Historic Preservation Officer | Select Option | | |
| b. Massachusetts BUAR | Select Option | | |
| c. Tribal Historic Preservation Officers | Select Option | | |
| d. Endangered Species Act - NOAA | Select Option | | |
| e. Endangered Species Act - USFWS | Select Option | | |
| f. Northern Long Eared Bat (ESA) | Select Option | | |
| g. Essential Fish Habitat | Select Option | | |
| h. Wild & Scenic Rivers | Select Option | | |
| i. 401 Water Quality Certification 401 | Select Option | | |
| | 401 WQC/OOC File Number: | OOC issued: | 401 issued: |
| j. Section 408 Permission | Select Option | | |
| k. Coastal Zone | Select Option | | |
| l. Construction Mats | Select Option | | |
| m.Time of Year Restrictions | Select Option | | |
| n. Vernal Pools | Select Option | | |
| o. Sediment & Erosion Controls | Select Option | | |
| p. Stream/Wetland Crossings | Select Option | | |

20. AQUACULTURE ACTIVITIES - GP 18 (*see instructions*)

- ☐ a. If required, an Aquaculture Certification from the Massachusetts Division of Marine Fisheries was obtained prior to commencing work.
- ☐ b. Coordination with the U.S. Coast Guard pursuant to Private Aids to Navigation has occurred prior to commencing work.
- ☐ c. If required, a MEPA Certificate was obtained from the Massachusetts Environmental Protection Agency prior to commencing work. Select Option
- ☐ d. The prospective permittee contacted local authorities (e.g. harbormaster, select board, shellfish constable) for authorization of their facility prior to commencing work.

21. ADDITIONAL INFORMATION/ATTACHMENTS (*see instructions*)

- ☐ a. The project plans are enclosed in this SVN submittal (see block 17).
- ☐ b. The activity Select Option funded through the Bipartisan Infrastructure Bill (also known as the Infrastructure Investment and Jobs Act).
- ☐ c. All required state, local and federal approvals were acquired prior to starting construction in USACE jurisdiction.
- ☐ d. After construction of the activity is completed, a complete Certificate of Compliance will be submitted to USACE.

22. IS THERE ANOTHER LEAD FEDERAL AGENCY:

☐ YES ☐ NO

23. STATEMENT OF AUTHORIZATION *(see instructions)*

I certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

| SIGNATURE OF APPLICANT | DATE | SIGNATURE OF AGENT | DATE |
|---|---|---|---|

24. SIGNATURES *(see instructions)*

I hereby certify that the information in this Self-Verification Notification is complete and accurate. As the applicant or their duly authorized agent, I certify the activity was completed in accordance with the terms and conditions of the GP. This includes all applicable terms, general conditions, and activity-specific GP criteria. I agree to allow the duly authorized representatives of the Corps of Engineers Regulatory Program and other regulatory or advisory agencies to enter upon the premises of the project site at reasonable times to evaluate inspect and photograph site conditions. This consent to enter the property is superior to, takes precedence over, and waives any communication to the contrary. For example, if the property is posted as “no trespassing” this consent specifically supersedes and waives that prohibition and grants permission to enter the property despite such posting.

| SIGNATURE OF APPLICANT | DATE | SIGNATURE OF AGENT | DATE |
|---|---|---|---|

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

**Instructions for Preparing a**
**Department of the Army**
**General Permit (GP) Self-Verification**

**Blocks 1 through 3.** To be completed by the Corps of Engineers.

**Block 4. Applicant' Name.** Enter the name and the e-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the self-verification, please attach a sheet of paper with the necessary information marked Block 4.

**Block 5. Address of Applicant.** Please provide the full address of the party or parties responsible for the self-verification. If more space is needed, attach an extra sheet of paper marked Block 5.

**Block 6. Applicant Telephone Number(s).** Please provide the telephone number where you can usually be reached during normal business hours.

**Blocks 7 through 9.** To be completed, if you choose to have an agent.

**Block 7. Authorized Agent's Name and Title.** Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, consultant, or any other person or organization. Note: An agent is not required.

**Blocks 8 and 9. Agent's Address and Telephone Number.** Please provide the complete mailing address of the agent, along with the telephone number where they can be reached during normal business hours.

**Block 10. Proposed General Permit Activity Name or Title.** Please provide a name identifying the proposed GP activity, e.g., Windward Marina, Rolling Hills Subdivision, or Smith Commercial Center.

**Block 11. File Number(s) of Previous USACE Actions on the Site** Please provide any known USACE file number. If the activity does not have a known USACE file number, you may state N/A.

**Block 12. Name of Waterbody.** Please provide the name (if it has a name) of any stream, lake, marsh, or other waterway to be directly impacted by the GP activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

**Block 13. Proposed Activity Coordinates.** Please enter the latitude and longitude of where the proposed GP activity is located. Indicate whether the project location provided is the center of the project or whether the project location is provided as the latitude and longitude for each of the "corners" of the project area. If there are multiple sites, please list the latitude and longitude of each site (center or corners) on a separate sheet of paper and mark as Block 13.

**Block 14. Proposed Activity Street Address.** If the proposed activity is located at a site having a street address (not a box number), enter it in Block 14.

**Block 15. General Permit Activity Type.** Please select all GP activity types that apply to the proposed activity. A list of GP activity types can be found in Section III of the GP.

**Block 16. Summary of Project Impacts.** Please provide ALL proposed impacts, both temporary and permanent in duration, that are located in Waters of the United States. The area of impact shall be provided in square feet (SF). When applicable, impacts that result in conversion of stream bank or shoreline must also be identified in linear feet (LF). Dredging or the discharge of dredged or fill material shall also include the volume, cubic yards (CY), of material removed from or placed into Waters of the U.S. If more entries are required, please attach a table matching the desired format in Block 16.

**Block 17. Project Plans.** Please verify that items a-g are included in the project plans. Three types of illustrations are necessary to properly depict the proposed work. These illustrations or drawings are identified as a Vicinity Map, a Plan View (Aerial view) and a Cross Section Map. For linear projects (e.g. roads, subsurface utility lines, etc.) gradient drawings (longitudinal profile) should also be included. Plans must accurately depict the existing conditions and all aspects of the proposed activity located in waters of the U.S. Please submit one copy of all drawings formatted to print on 8½ x 11 inch or 11 x 17 inch plain white paper. Use the fewest number of sheets necessary for your drawings or illustrations. Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross section). While illustrations need not be certified engineering sheets; they should be clear, accurate, contain all necessary information, and depict all proposed work. Each submission must also include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current wetland delineation manual and regional supplement published by USACE.

**Block 18. Avoidance & Minimization.** Please verify that items a-d have been implemented for the proposed activity.

**Block 19. Due Diligence.** Please complete all the fields and submit documentation to USACE to demonstrate compliance with the above requirements. This Documentation may include emails, letters, meeting notes, phone call log, project narrative, project plans, a species list from the NOAA Section 7 Mapper, a completed copy of the IPAC determination keys, etc. Documentation should be limited to what is necessary to demonstrate how the proposed activity meets each requirement. Refer to the MA GP, Appendix A, for specific guidance on the identification of previously identified historic properties and previously unidentified historic properties. Endangered Species: *The applicant must be designated as the non-federal representative for the purposes of Section 7 consultation to select the Rangewide D-Key options. Otherwise, the applicant shall select the following option when IPAC indicates the NLEB is present: "The activity IS located within the NLEB Species Range (PCN Required)."

**Block 20. Aquaculture Activities.** Please verify that items a-d have been obtained or completed prior to commencing work in waters of the U.S.

**Block 21. Additional Information/Attachments.** Please verify that items a-d have been completed prior to commencing work in waters of the U.S.

**Block 22. Lead Federal Agency.** Please identify if there is another lead federal agency involved with the proposed activity. Enter the lead federal agency name (e.g., the Federal Emergency Management Agency, FEMA) and the agency's designated person of contact for the activity.

**Block 23. Statement of Authorization.** The applicant shall sign this section for all activities. If an agent is to be employed, the agent shall sign this section.

**Block 24. Signatures.** The SVN must be signed by the person proposing to undertake the GP activity, and if applicable, the authorized party (agent) that prepared the SVN. The signature of the person proposing to undertake the GP activity shall be an affirmation that the party submitting the SVN possesses the requisite property rights to undertake the GP activity.

US Army Corps of Engineers®
New England District

## APPENDIX D: PCN APPLICATION CHECKLIST

The following information shall be submitted for all PCNs for USACE to properly evaluate your application. Some applications may require more information and this checklist is offered as a tool to assist applicants with submitting a complete application.

### *SECTION 1: GENERAL APPLICATION INFORMATION*

1. ☐ Complete the Pre-Construction Notification document (Appendix B).
2. ☐ Specify which local/state/federal authorizations are required for the project and if any have been obtained or applied for at the time of USACE application submittal.
3. ☐ Identify all funding sources the project will receive or has received to date. Provide any relevant information in the application submission.
4. ☐ Is this part of a larger project that is being implemented in phases? If so, describe the project schedule and how each phase will be implemented.
5. ☐ Describe the existing conditions on the site and the general land use in the vicinity of the project at the time application submittal.
6. ☐ Provide any historic information available that you may have of project area, e.g., existing USACE permit numbers, the names under which the permits were obtained if the permit numbers are unknown, construction dates and proof of prior existence (aerials, photos, town hall records, affidavits, state or local permits, etc.) to verify that the project predates regulation and is "vested".[19]
7. ☐ The anticipated start and end dates for construction.

### *SECTION 2: WETLAND DELINEATION*

8. ☐ Data used to support aquatic resource boundary determinations (delineation forms, delineation map(s) that show the locations of each aquatic resource in the project area, aerial and ground photographs, LIDAR imagery, national wetland inventory maps, soil maps, national hydrography dataset maps, floodplain maps, historical imagery, etc.).
9. ☐ Photographs of the wetland(s) and/or waterway(s) where impacts are proposed. Photos at low tide are preferred for work in tidal waters.
10. ☐ Indicate the relationship of the project area to waters of the U.S., i.e., adjacent wetlands, tidal influence or hydraulic connectivity through culverts, or other conveyances, etc.
11. ☐ At minimum the delineation map/figure should include the following:
    a. Contour lines showing topography.
    b. North arrow.
    c. Bar and text scale.
    d. Legend.
    e. Drawn project boundary.
    f. High tide line, mean high water, mean low water, ordinary high water mark, and/or wetland boundaries.
    g. Captions with a unique name for each aquatic resource and the area or length of the aquatic resource within the project area.

[19] Vested is exempt (someone or something) from a new law or regulation.

h. Appropriate landmarks and features (e.g., culverts, special aquatic sites, etc.).
i. Points showing the paired upland and wetland delineation locations for tidal and non-tidal wetlands only.

## *SECTION 3: AVOIDANCE & MINIMIZATION*

12. ☐ Describe specific measures taken to avoid impacts to aquatic resources or describe why aquatic resources could not be avoided while achieving the project purpose and need.
13. ☐ For impacts to aquatic resources that could not be avoided, describe specific considerations/ measures taken to minimize the area of proposed impacts to aquatic resources in designing the project.
14. ☐ Describe specific measures taken to avoid and minimize the proposed direct, indirect, and secondary impacts to aquatic resources and their functions through construction techniques and timing.
15. ☐ If applicable, provide a restoration plan that describes how all temporary fills and structures will be removed and the area restored to pre-impact conditions (see GC 22).
16. ☐ If applicable, provide an Invasive Species Control Plan (see GC 29). For sample control plans, see www.nae.usace.army.mil/missions/regulatory/invasive-species.
17. ☐ If applicable, describe how the proposed wetland/waterbody crossing is compliant with GC 31, Stream Work and Crossings, and Wetland Crossings.

## *SECTION 4A: PROJECT IMPACTS*

18. ☐ Describe the overall project and the activities located in Waters of the U.S. (WOTUS) that you are seeking authorization for.
19. ☐ Identify the following for project impacts in WOTUS:
    a. ☐ Direct, indirect, secondary impacts[20] within WOTUS.
    b. ☐ The size of each impact (square feet or acres, or linear feet).
    c. ☐ For discharges of fill material (§404), specify the volume of fill material to be discharged (cubic yards).
    d. ☐ The impact duration from each activity, permanent or temporary (X days).

## *SECTION 4B: PROJECT PLANS*

20. ☐ Submit project plans that depict all impacts in WOTUS. On the project plans, applicants shall provide:

    *General Information*

    a. ☐ Plan view and typical cross-section view sheets that show the existing and proposed conditions. These illustrations should each be identified with a figure number, date of the map, the project title, the name of the applicant and the type of illustration (vicinity map, plan view, or cross section).
    b. ☐ Drawings, sketches, or plans that are legible, reproducible (color is encouraged, but features must be distinguishable in black and white), drawn to scale, and no larger than 11”x17” and 10 MB when submitted in digital format. Numeric and graphic/bar scales must agree, and plan details must be measurable using a standard engineer’s scale on printed plans. Reduced plans are not acceptable.
    c. ☐ The north arrow and remove miscellaneous non-wetland or water project related features such as conduits, utility poles, guardrails, etc.

[20] See definitions section for the definitions of direct, indirect, secondary impacts.

d. ☐ Clearly draw the overall limits of work, staging areas, disposal sites, access routes, and any permittee responsible mitigation sites. These areas may include both aquatic resources and upland areas.
e. ☐ Names or numbers of all roads in the site's vicinity and ownership and numbers of abutting parcels.
f. ☐ Datum in plan and elevation views. The horizontal datum shall be in the NAD 83 Massachusetts State Plane Coordinate System (INSERT) in U.S. survey feet. The vertical data in coastal projects shall be referenced to either MLLW or the North American Vertical Datum of 1988 (NAVD 88). Both the distance and depth units shall be U.S. survey feet and specified on the project plans.

*Aquatic Resources & Project Impacts*

g. ☐ Delineation of all aquatic resource types on site including salt marsh; other special aquatic sites (vegetated shallows, mudflats, riffles and pools, coral reefs, and sanctuaries and refuges); other waters, such as lakes, ponds, vernal pools, natural rocky habitat (tidal only), and perennial, intermittent, and ephemeral streams.
h. ☐ Identify the substrate type (cobble/gravel, organic detritus, sand/shell, silt, mud) and the approximate percentage of each substrate type on site. Grain sizes shall be based on Wentworth grain size classification scale for granules, pebbles, cobbles, and boulders. Sediment samples with a content of 10% or more of pebble-gravel-cobble and/or boulder in the top layer (6-12 inches) should be delineated and material with epifauna/macroalgae should be differentiated from bare pebble-gravel-cobble and boulder.
i. ☐ The direction of ebb and flood in tidal waters and direction of flow in non-tidal waters.
j. ☐ In tidal waters, the project boundary distance from special aquatic sites identified in 20g above if within 25 feet from that resource.
k. ☐ USACE jurisdictional boundaries including ordinary high-water mark (OHWM), high tide line (HTL), mean high water (MHW). Other boundaries include mean low water (MLW), mean lower low water (MLLW), as applicable.
   - Non-tidal: OHWM and/or wetland boundaries.
   - Tidal (structures/work only): MHW, MLW.
   - Tidal (Fill and Structures/work): HTL, MHW, MLW.
   - Tidal (Dredging/Beach Nourishment): HTL, MHW, MLW, MLLW.
l. ☐ Identification of each aquatic resource with a unique name (ex. Wetland 1, Wetland 2, Tributary 1, Beaver Brook, Atlantic Ocean) and the size of each aquatic resource within the project area (square feet or acres).
m. ☐ Impacts to each aquatic resource with captions denoting the size of each impact (square feet, acres, or linear feet) and the duration of the impact (ex. Permanent, Temporary (X days).

## *SECTION 4C: PROJECT PLANS - SPECIFIC PROJECT INFORMATION*

21. ☐ For projects involving Navigation, Structures, Dredging, and/or Beach Nourishment, the applicant shall also address the following:

*Navigation*

a. ☐ Identify the locations of adjacent Federal navigation project (FNP) and/or state/local navigation projects on the project plans.
b. ☐ Specify the distance between the FNP and proposed project boundary, the authorized depths of the FNP, and state plane coordinates of seaward end(s) of project structures near an FNP.

*Structures*

a. ☐ Identification of the piling type (steel, timber, concrete) and diameter to be removed and/or installed.
b. ☐ Specify the minimal height of the structures' frame over saltmarsh. To meet the SV threshold, piers must be ≤4 feet in width and this minimal height must achieve a 1.5:1 ratio (i.e., a 4-foot-wide pier is 6 feet above a saltmarsh).
c. ☐ For floats, the methods of securing them (piles, bottom anchors) and for keeping them off substrate (skids, stops) at low water. To meet the SV threshold, a minimum depth of 18-inches of water should be maintained below a floating dock/structure at lower tide levels.

*Dredging*

a. ☐ The area (SF, acre) and volume (CY) of material to be dredged waterward of MHW for each dredge location.
b. ☐ Dredge boundaries.
c. ☐ Bathymetry for existing, proposed, and historical (include dates and USACE permits) dredge depths.
d. ☐ The likely final angle of repose of the side cuts based on the physical characterization of the material to be dredged and based upon the high/ medium/low, wave or current energy of the location.
e. ☐ Label area whether the dredging is new, maintenance, improvement, or a combination.
f. ☐ Location of the disposal site (include location sheet). NOTE: For projects proposing open water, nearshore disposal, or beach nourishment, contact USACE as early as possible for sampling and testing protocols. Sediment testing, including physical (e.g., grain-size analysis), chemical and biological testing may be required. Sampling/testing of sediments without such contact should not occur and if done, will be at the applicant's risk.
g. ☐ The methods and areas used to retain or prevent dredged material from running back into the wetland or waterway. Provide the capacity of the storage area and points of runback, including the overflow route, into the aquatic system.
h. ☐ For open-water disposal, explain why inland or beneficial reuse sites are not practicable.
i. ☐ Show the finished top elevation of the disposal site.

*Beach Nourishment*

a. ☐ For beach nourishment, identify the disposal footprint, existing and proposed nourishment profiles (multiple profiles are appropriate if the site is more than 150 feet long or non-contiguous), total fill area (SF) and volume (CY), fill area and volume waterward of the HTL, and delineation of dunes, banks, existing beach vegetation, and contours.
b. ☐ For beach nourishment identify the substrate type (fine sand, sand, cobble, boulder) and/or grain-size of existing material.

## *SECTION 5: STRUCTURES*

22. ☐ For projects with the removal of existing pilings identify the number, type (steel, timber, concrete) and diameter of pilings to be removed and the methodology for removal (cut off at mud line, pulling, vibratory, etc.).
23. ☐ For projects with the installation of new pilings identify the number, type (steel, timber, concrete) and diameter of pilings to be installed and the methodology for installation (vibratory hammer, impact hammer etc.).
24. ☐ Identify any existing structures and moorings in waters adjacent to the proposed activity, their dimensions, and the distance to the limits and coordinates of any proposed mooring field or reconfiguration zone. For reconfiguration zone and mooring fields, provide the coordinates for all

corners based on the Massachusetts State Plane Coordinate System. Specify the maximum number of slips and/or moorings within proposed reconfiguration zones or anchorage areas.

25. ☐ The dimensions of the structure or work and extent of encroachment waterward of MHW and from affixed point on the shoreline or upland.
26. ☐ Shoreline of adjacent properties and property boundary offset for structures. In narrow waterbodies, the distance to opposite shoreline, waterway width, and structures across from proposed work.
27. ☐ For new commercial boating facilities, anchorage areas or reconfiguration zones, provide a description of the type of vessels that would use the facility, and any plans for sewage pump-out facilities, fueling facilities and contingency plans for oil spills.
28. ☐ See Sections 4A-C above.

## *SECTION 6: AQUACULTURE*

29. ☐ Identify the coordinates for lease area corners and gear configuration area on the project plans.
30. ☐ Identify the proposed aquaculture gear type (buoys, floats, racks, trays, nets, lines, tubes, cages, containers, and other structures). Provide the impacts for each aquaculture gear type (see Section 4A 19a-d).
31. ☐ For a GP 18 to be valid, applicants must have (a) their MA DMF Aquaculture Certification letter for licensed shellfish aquaculture sites, (b) documentation that the applicant has coordinated with the U.S. Coast Guard regarding USCG Private Aids to Navigation standards, (c) their MEPA Certificate (if required), and (d) documentation that the applicant has contacted their local authorities (ex. harbormaster, select board, shellfish constable) for authorization of their facility.
32. Provide information on site the operation, maintenance, and access. Will the site be accessed via boat, kayak, etc.? Will cages be removed in the winter? How often will gear be checked on? Is there an operations plan for the proposed aquaculture area?
33. ☐ See Sections 4A-C above.

## *SECTION 7: DREDGING*

34. ☐ Sampling plan requests for new, improvement or maintenance dredging must submit completed **Dredged Material Evaluation checklist found at Dredged Material Evaluation Checklist, Sampling and Analysis Plan Requirements from Applicant (army.mil)** and identify the method of handling/transporting the dredged material.
35. ☐ Identify grain-size of material to be dredged (e.g., silty sand) and provide any existing sediment grain size and bulk sediment chemistry data from the proposed project or nearby projects. Include information on any recent spills of oil and/or other hazardous materials and/or nearby outfalls. Document the information source, e.g., EPA database, the harbormaster or fire chief. If there are none, state “none”.
36. ☐ See Section 4A, 4B and 4C, Dredging 21(a-i) above.

## *SECTION 8: WETLAND/WATERBODY CROSSINGS*

37. ☐ For the stream crossing, identify the crossing methodology on the project plan (e.g., dam and pump, dry, wet, etc.). Submit a waterway crossing sequencing plan with the application.
38. ☐ If the project includes a permanent crossing of a tidal waterway, your project design should be modified to match the velocity, depth, cross-sectional area, and substrate of the existing waterbody adjacent to the crossing and provide documentation (hydraulic analysis including low lying property analysis) that the size of the crossing will not restrict tidal flow over the full natural tide range and will not adversely affect abutting infrastructure.

39. ☐ If the work includes a permanent crossing of a non-tidal stream, your project design should be modified to match the culvert gradient of the existing stream channel profile, provide clearance for ≥1.2 times bank full width and conveyance should be embedded ≥1-2 feet for box culverts and pipe arches or ≥1-2 feet and at least 25 percent for rounded pipes/culverts in accordance with the Massachusetts Stream Crossing Standards. Provide the basis for any variation to this requirement.
40. ☐ If the work includes a permanent crossing of a non-tidal stream, the structure should be designed to include a natural bottom substrate within the conveyance that matches the characteristics of the substrate in the natural stream channel and the character of the banks (mobility, slope, stability, confinement, grain and rock size). The conveyance should be designed with a minimum openness ratio ≥0.82-feet (0.25-meters). For how to calculate openness ratio and stream simulation ecological approach for road and stream crossings, see https://www.nae.usace.army.mil/Missions/Regulatory/Stream-and-River-Continuity/.

## *SECTION 9: COMPENSATORY MITIGATION*

41. ☐ Does the project require Compensatory Mitigation[21] for impacts to Waters of the U.S.? (See Section V in the 2023 Massachusetts General Permit)
42. ☐ If the project requires mitigation, does the selected compensatory mitigation option (i.e., In-Lieu Fee, permittee-responsible mitigation) deviate from the order of the options presented in §332.3(b)(2)-(6)? If so, please explain why. https://www.ecfr.gov/current/title-33/chapter-II/part-332/section-332.3
43. ☐ For any compensatory mitigation that involves preservation, the applicant must use a site protection instrument to preserve the parcel in perpetuity. (Conservation Easement, Deed Restriction, etc.) https://www.mass.gov/service-details/conservation-restriction-review-program.

## *SECTION 10: HISTORIC PROPERTIES & NOTIFICATIONS TO SHPO, THPOs, BUAR*

44. ☐ Notify the SHPO, Massachusetts Historical Commission, of the Project via Certified Mail and include proof of delivery or receipt in the application package (See Appendix A).
45. ☐ As applicable, notify the THPOs, Narragansett Indian Tribe, Wampanoag Tribe of Gay Head (Aquinnah), and Mashpee Wampanoag Tribe, of the Project via email OR mail and include proof of delivery or receipt in the application package (See Appendix A).
46. ☐ As applicable, notify the BUAR via email (*strongly preferred*) OR mail and include proof of delivery or receipt in the application package (See Appendix A).
47. ☐ Include responses to this notification in the permit application.
48. ☐ As applicable, information on historic properties (Tribal and Archaeological) within the project area should be provided in the permit application.

## *SECTION 11: ENDANGERED SPECIES & ESSENTIAL FISH HABITAT*

49. ☐ Provide a USFWS Information for Planning and Consultation (IPaC) Official Species List from https://ecos.fws.gov/ipac and the email of the individual who generated the list (see GC 10 of the 2023 Massachusetts General Permit for more information).
50. ☐ Provide a species list from the NMFS Section 7 Endangered Species Act mapper at https://noaa.maps.arcgis.com/apps/webappviewer/index.html.
51. ☐ Provide a species list from the NMFS Essential Fish Habitat Mapper at https://www.habitat.noaa.gov/apps/efhmapper/?page=page_3.

[21] Your mitigation proposal must be consistent with the December 29, 2020 Compensatory Mitigation Standard Operating Procedures at https://www.nae.usace.army.mil/Portals/74/docs/regulatory/Mitigation/Compensatory-Mitigation-SOP-2020.pdf and 2008 Mitigation Rule.

52. ☐ If the project will generate turbidity, describe the extent of turbidity and if erosion controls will be used to contain turbidity. If turbidity controls are not operationally feasible, explain the basis for your conclusion and identify any other measures that you will implement to minimize resuspension of sediment.
53. ☐ Identify the substrate type and any aquatic resources that will be affected by the proposed action. (SAV, salt marsh, sand, silt/clay, rocky/hard bottom)
54. ☐ For projects which will include the installation of pilings/sheet-piles, identify the substrate at the project site (sand, cobble, silt/mud/clay), the installation method (vibratory hammer, impact hammer, combination) and indicate whether the following “soft start” procedures at beginning of the workday and after a 30-minute period of rest will be deployed:
    a. ☐ Vibratory Pile Installation: pile driving will be initiated for 15 seconds at reduced energy followed by a one-minute waiting period. This sequence of 15 seconds of reduced energy driving, one-minute waiting period will be repeated two additional times, followed immediately by pile-driving at full rate and energy.
    b. ☐ Impact Pile Installation: pile driving will commence with an initial set of three strikes by the hammer at 40% energy, followed by a one-minute wait period, then two subsequent 3-strike sets at 40% energy, with one-minute waiting periods, before initiating continuous impact driving.
55. ☐ If the project involves dredging, describe any dredge history, number of dredge events to be covered by the permit, erosion/sediment controls, dredge type, intake structures (mesh screen size), dredged material disposal site.
56. ☐ For project activities associated with structures, identify the number, type (drill barge, work boat, tugboat, etc.), and size of any temporary vessels that will be used. Specify measures that will be implemented to ensure vessels are not berthed in shallow water or will “ground out” at low tide.
57. ☐ For aquaculture projects identify whether any component of the gear is seasonal (will be removed annually) or will be in place year-round. If gear will be present year-round and will be variably managed (e.g., floating in summer, bottom in winter) identify month/date for such configurations.
58. ☐ For aquaculture projects identify whether the project will involve use of an existing vessel or new vessel. Identify the length for all work vessels and identify the distance round trip from vessel berthing location and aquaculture area.
59. ☐ For project activities associated with docking structures (either commercial, industrial, or recreational) identify the number, type (motorized/non-motorized, jet-ski, sailboat, kayak, canoe, other that will be berthed there and the sizes of each.
60. ☐ Information required for Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act:
    a. Results of an eelgrass survey completed per the INSERT.
    b. Essential Fish Habitat Assessment to determine project-related impacts to essential fish habitat, using guidance developed by the National Marine Fisheries Service.
61. ☐ A document containing the following information (requirements of 50 CFR §600.920(e)(3)):
    a. Description of proposed action.
    b. Analysis of potential adverse effects on essential fish habitat.
    c. Conclusions regarding the effects of the action on essential fish habitat.
    d. If applicable, proposed mitigation.
    e. Analysis of alternatives to the proposed action.
    f. Other:

DOCUMENT A00840

# MASSACHUSETTS
# Department of Environmental Protection

# Water Quality Certificate Application

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April 3, 2024

Heidi Davis
Massachusetts Department of Environmental Protection
Wetlands Program
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: Water Quality Certification
Scadding Street over Snake River (Bridge No. T-01-024)
Taunton, MA
MassDOT Project 608616
Transmittal #X285973, Fill Project Certification

Dear Ms. Davis,

The Massachusetts Department of Transportation, Highway Division (MassDOT) is submitting this 401 Water Quality Certification (WQC) application for the replacement of a bridge over Snake River on Scadding Street in Taunton, MA. This project is being filed under the MassDOT bridge exemption because the replacement is the functional equivalent and in similar alignment to the existing bridge.

MassDOT is replacing the bridge on Scadding Street over the Snake River due to alignment, safety and structural concerns. The bridge replacement project requires a 401 WQC and authorization under Section 404 as it will permanently disturb 9,107 square feet (sf) of Waters of the US and temporarily disturb an estimated 15,823 square feet (sf) of Waters of the US associated with Snake River. Additionally, the project will permanently impact 959 linear feet (lf) of Bank and temporarily disturb 117 linear feet (lf) of Bank.

A pre-application meeting for this project was held on January 12, 2024 with the Massachusetts Department of Environmental Protection. The project proponent hereby certifies that all information contained herein is true, accurate, and complete to the best of my knowledge and belief. The project proponent hereby requests that the certifying authority review and take action on this CWA 401 certification request within the applicable reasonable period of time.

If you require any additional information regarding the subject project, please contact me at (857) 262-0757 or by email at courtney.l.walker@dot.state.ma.us.

Sincerely,

Courtney Walker

Courtney Walker
Wetlands & Water Resources Coordinator
MassDOT Highway Division, Environmental Services

Cc: Caitlin Marshall, MassDOT
Kylie Abouzeid, MassDOT
Ryan Hale, MassDEP
Tyler Lewis, MassDEP
Dan Vasconcelos, US Army Corps of Engineers
Michele Restino, Taunton Conservation Commission

**PUBLIC NOTICE**

Massachusetts Department of Environmental Protection
Division of Wetlands and Waterways
100 Cambridge Street, Suite 900
Boston, MA 02114

Pursuant to 33 U.S.C. 1341 and M.G.L. c. 21 §43 and 33 U.S.C. 1341 M.G.L. c. 21 §§ 26 - 53, notice is given of a 401 Water Quality Certification application for the replacement of Bridge No. T-01-024 carrying Scadding Street over the Snake River in the Town of Taunton by the Massachusetts Department of Transportation – Highway Division, 10 Park Plaza, Room 7360, Boston, MA 02116. The project includes bridge replacement due to alignment, safety and structural concerns. The proposed replacement will be widened to include sidewalks. Additional information may be obtained from the Massachusetts Department of Transportation – Highway Division at the above address, Attention Courtney Walker or by emailing Courtney.l.walker@dot.state.ma.us. Written comments should be sent to Heidi Davis, MassDEP Wetlands Program, 100 Cambridge Street, Suite 900, Boston, MA 02114 or heidi.davis@mass.gov within 21 days of this notice.

Any group of ten persons, any aggrieved person, or any governmental body or private organization with a mandate to protect the environment who submits written comments within 21 days of this notice may appeal the Department's Certification. Failure to submit written comments before the end of the public comment period may result in the waiver of any right to an adjudicatory hearing.

**Enter your transmittal number** → X289100 (Transmittal Number)

Your unique Transmittal Number can be accessed online:
https://www.mass.gov/service-details/transmittal-form-number-for-massdep-permit-application-payment

**Massachusetts Department of Environmental Protection**

# Transmittal Form for Permit Application and Payment

**1.** Please type or print. A separate Transmittal Form must be completed for each permit application.

**2.** Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: MassDEP, P.O. Box 4062, Boston, MA 02211.

**3.** Three copies of this form will be needed.

**Copy 1 - the original** must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

**4.** Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

**MassDEP**
**P.O. Box 4062**
**Boston, MA**
**02211**

*** Note:**
For BWSC Permits, enter the LSP.

## A. Permit Information

| 1. Permit Code: 4-to-7-character code from permit instructions | 2. Name of Permit Category |
|---|---|
| BRP WW 10 | Major Project Certification |

3. Type of Project or Activity: Bridge Replacement

## B. Applicant Information – Firm or Individual

1. Name of Firm - Or, if party needing this approval is an individual enter name below: Massachusetts Department of Transportation, Highway Division

| 2. **Last Name** of Individual | 3. **First Name** of Individual | 4. MI |
|---|---|---|
| | | |

5. Street Address: 10 Park Plaza, Room 7360

| 6. City/Town | 7. State | 8. Zip Code | 9. Telephone # | 10. Ext. # |
|---|---|---|---|---|
| Boston | MA | 02116 | | |

| 11. Contact Person | 12. e-mail address |
|---|---|
| Courtney Walker | courtney.l.walker@dot.state.ma.us |

## C. Facility, Site or Individual Requiring Approval

1. Name of Facility, Site or Individual: Scadding Street over Snake River - Bridge Number: T-01-024 (C5H)

2. Street Address: Scadding Street

| 3. City/Town | 4. State | 5. Zip Code | 6. Telephone # | 7. Ext. # |
|---|---|---|---|---|
| Taunton | MA | 02780 | | |

| 8. DEP Facility Number (if Known) | 9. Federal I.D. Number (if Known) | 10. BWSC Tracking # (if Known) |
|---|---|---|
| | | |

## D. Application Prepared by (if different from Section B)*

1. Name of Firm or Individual: Comprehensive Environmental Inc.

2. Address: 41 Main Street

| 3. City/Town | 4. State | 5. Zip Code | 6. Telephone # | 7. Ext. # |
|---|---|---|---|---|
| Bolton | MA | 01740 | 800-725-2550 | 305 |

| 8. Contact Person | 9. LSP Number (BWSC Permits only) |
|---|---|
| Matt Lundsted | |

## E. Permit - Project Coordination

1. Is this project subject to MEPA review? ☐ yes ☒ no
If yes, enter the project's EOEA file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEA File Number

## F. Amount Due

*DEP Use Only*

*Permit No:*

*Rec'd Date:*

*Reviewer:*

### Special Provisions:

1. ☒ **Fee** Exempt: city, town, county, or district of the Commonwealth; federally recognized Indian tribe housing authority; municipal housing authority; the MBTA; or state agency if fee is $100 or less. *There are no fee exemptions for BWSC permits, regardless of applicant status.*
2. ☐ Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. ☐ Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. ☐ Homeowner (according to 310 CMR 4.02).

| Check Number | Dollar Amount | Date |
|---|---|---|
| | | |

April 3, 2024

Dan Vasconcelos
Regulatory Division
Department of the Army
New England District, Corps of Engineers
696 Virginia Road
Concord, MA 01742

RE: Pre-Construction Notification Application
Scadding Street over Snake River (Bridge No. T-01-024)
Taunton, MA
MassDOT Project 608616

Dear Mr. Vasconcelos,

The Massachusetts Department of Transportation, Highway Division (MassDOT) is submitting this application for Pre-Construction Notification Application for the replacement of a bridge over the Snake River on Scadding Street in Taunton, MA.

MassDOT is replacing the bridge on Scadding Street over the Snake River due to alignment, safety and structural concerns. The bridge replacement project requires a 401 WQC and authorization under Section 404 as it will permanently disturb 9,107 square feet (sf) of Waters of the US and temporarily disturb an estimated 15,823 square feet (sf) of Waters of the US associated with Snake River. Additionally, the project will permanently impact 959 linear feet (lf) of Bank and temporarily disturb 117 linear feet (lf) of Bank.

The Section 7 Northern Long Eared Bat review has been completed and is attached as part of this submittal .

If you require any additional information regarding the project, please contact me at (857) 262-0757 or by email at courtney.l.walker@dot.state.ma.us.

Sincerely,

Courtney Walker

Courtney Walker
Wetlands & Water Resources Coordinator
MassDOT Highway Division, Environmental Services

Cc: Caitlin Marshall, MassDOT
Kylie Abouzeid, MassDOT
Ryan Hale, MassDEP
Heidi Davis, MassDEP
Tyler Lewis, MassDEP
Michele Restino, Taunton Conservation Commission

U.S. Army Corps of Engineers (USACE), New England District (NAE)

# PRE-CONSTRUCTION NOTIFICATION (PCN)

**DATA REQUIRED BY THE PRIVACY ACT OF 1974**

**Authority** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332.

**Principal Purpose** The information provided will be used in evaluating activities under Pre-Construction Notification procedures within New England.

**Routine Uses** This information may be shared with other federal, state, and local government agencies during the application review process. Submission

**Disclosure** of requested information is voluntary. However, if information is not provided the PCN application cannot be fully evaluated nor can USACE render a permit decision.

**Instructions** The applicant must complete ALL required sections of this document before their submission to USACE. The PCN submission to USACE shall include one set of drawings which show the location and character of the proposed activity, statements that address each required field below, and documentation that supports each field (e.g., emails, letters, description/narrative, phone calls, surveys, reports, etc.). Electronic submissions to the following address are strongly preferred: cenae-r-ma@usace.army.mil. The email subject line shall contain the following: General Permit #, PCN, City/Town, and date submitted. An application that is not completed in full will be returned.

**(ITEMS 1 THRU 4 TO BE FILLED BY USACE)**

| 1. APPLICATION NO. | 2. FIELD OFFICE CODE | 3. DATE RECEIVED | 4. DATE APPLICATION COMPLETE |
|---|---|---|---|
| | | | |

**(ITEMS BELOW TO BE FILLED BY APPLICANT)**

| 5. APPLICANT'S NAME | 8. AUTHORIZED AGENT'S NAME AND TITLE (*agent is not required*) |
|---|---|
| First - Middle - Last - | First - Middle - Last - |
| Company - | Company - |
| E-mail Address - | E-mail Address - |
| 6. APPLICANT'S ADDRESS: | 9. AGENT'S ADDRESS: |
| Address- | Address- |
| City - State - Zip - Country - | City - State - Zip - 01740 Country - |
| 7. APPLICANT'S PHONE NOs. with AREA CODE | 10. AGENT'S PHONE NOs. with AREA CODE |
| a. Residence b. Business c. Fax d. Mobile | a. Residence b. Business c. Fax d. Mobile |

**STATEMENT OF AUTHORIZATION**

11. I hereby authorize, _____ to act on my behalf as my agent in the processing of this general permit PCN application and to furnish, upon request, supplemental information in support of this general permit PCN application.

Courtney Walker — SIGNATURE OF APPLICANT

4/3/2024 — DATE

**NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY**

12. PROJECT NAME or TITLE (*see instructions*)

| 13. NAME OF WATERBODY, IF KNOWN (*if applicable*) | 14. PROPOSED ACTIVITY STREET ADDRESS (*if applicable*) |
|---|---|
| 15. LOCATION OF PROPOSED ACTIVITY (*see instructions*) | City: State: Zip: |
| Latitude: °N Longitude: °W | |

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (*see instructions*)

State Tax Parcel ID: Municipality:

Section: Township: Range:

17. DIRECTIONS TO THE SITE.

18. IDENTIFY THE SPECIFIC GENERAL PERMIT(S) YOU PROPOSE TO USE:

19. DESCRIPTION OF PROPOSED GENERAL PERMIT ACTIVITY (*see instructions*)

20. DESCRIPTION OF PROPOSED MITIGATION MEASURES (*see instructions*)

21. PURPOSE OF GENERAL PERMIT ACTIVITY (*Describe the reason or purpose of the project, see instructions*)

22. Quantity of Wetlands, Streams, or Other Types of Waters Directly Affected by Proposed General Permit Activity (*see instructions*)

| Area (square feet) | Length (linear feet) | Volume (cubic yards) | Duration | Purpose |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

**Each PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site.**

23. List any other GP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project on any related activity (*see instructions*)

24. If the proposed activity will result in the loss of aquatic resources that exceed those identified in the New England District Compensatory Mitigation Thresholds, explain how the compensatory mitigation requirement will be satisfied. (*see instructions*)

25. Is Any Portion of the General Permit Activity Already Complete? ☐ Yes ☐ No If Yes, describe the completed work:

26. List the name(s) of any species listed as endangered or threatened under the Endangered Species Act that might be affected by the proposed GP activity or utilize the designated critical habitat that might be affected by the proposed GP activity. (*see instructions*)

27. List any historic properties that have the potential to be affected by the proposed GP activity or include a vicinity map indicating the location of the historic property or properties. Attach relevant project information, along with any responses received from project notifications to this submittal. (*see instructions*)

28. For a proposed GP activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, identify the Wild and Scenic River or the "study river":

29. If the proposed GP activity also requires permission from the USACE pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, have you submitted a written request for section 408 permission from the USACE district having jurisdiction over that project? ☐ Yes ☐ No

If "yes", please provide the date your request was submitted to the USACE District:

30. Does the activity require a 401 Water Quality Certification (WQC)? If so, specify the type of 401 WQC that is required (general or individual). In cases where an individual 401 WQC is required, provide the date the 401 WQC certification request was submitted to the certifying authority and their contact information.

31. If the terms of the GP(s) you want to use require additional information to be included in the PCN (i.e. sampling and analysis plan), please include that information in this space or provide it on an additional sheet of paper marked Block 30. (*see instructions*)

32. I certify that the information in this pre-construction notification is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

| Courtney Walker | 4/3/2024 | | 4/3/2024 |
|---|---|---|---|
| SIGNATURE OF APPLICANT | DATE | SIGNATURE OF AGENT | DATE |

The Pre-Construction Notification must be signed by the person who desires to undertake the proposed activity (applicant) and, if the statement in block 11 has been filled out and signed, the authorized agent.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

**Instructions for Preparing a**

**Department of the Army**

**General Permit (GP) Pre-Construction Notification (PCN)**

**Blocks 1 through 4.** To be completed by the U.S. Army Corps of Engineers.

**Block 5. Applicant' Name.** Enter the name and the e-mail address of the responsible party or parties. If the responsible party is an agency, company, corporation, or other organization, indicate the name of the organization and responsible officer and title. If more than one party is associated with the PCN, please attach a sheet of paper with the necessary information marked Block 5.

**Block 6. Address of Applicant.** Please provide the full address of the party or parties responsible for the PCN. If more space is needed, attach an extra sheet of paper marked Block 6.

**Block 7. Applicant Telephone Number(s).** Please provide the telephone number where you can usually be reached during normal business hours.

**Blocks 8 through 11.** To be completed, if you choose to have an agent.

**Block 8. Authorized Agent's Name and Title.** Indicate name of individual or agency, designated by you, to represent you in this process. An agent can be an attorney, builder, contractor, engineer, consultant, or any other person or organization. Note: An agent is not required.

**Blocks 9 and 10. Agent's Address and Telephone Number.** Please provide the complete mailing address of the agent, along with the telephone number where they can be reached during normal business hours.

**Block 11. Statement of Authorization.** To be completed by the applicant, if an agent is to be employed.

**Block 12. Proposed General Permit Activity Name or Title.** Please provide a name identifying the proposed GP activity, e.g., Windward Marina, Rolling Hills Subdivision, or Smith Commercial Center.

**Block 13. Name of Waterbody.** Please provide the name (if it has a name) of any stream, lake, marsh, or other waterway to be directly impacted by the GP activity. If it is a minor (no name) stream, identify the waterbody the minor stream enters.

**Block 14. Proposed Activity Street Address.** If the proposed GP activity is located at a site having a street address (not a box number), enter it in Block 14.

**Block 15. Location of Proposed Activity.** Enter the latitude and longitude of where the proposed GP activity is located. Indicate whether the project location provided is the center of the project or whether the project location is provided as the latitude and longitude for each of the "corners" of the project area requiring evaluation. If there are multiple sites, please list the latitude and longitude of each site (center or corners) on a separate sheet of paper and mark as Block 15.

**Block 16. Other Location Descriptions.** If available, provide the Tax Parcel Identification number of the site, Section, Township, and Range of the site (if known), and / or local Municipality where the site is located.

**Block 17. Directions to the Site.** Provide directions to the site from a known location or landmark. Include highway and street numbers as well as names. Also provide distances from known locations and any other information that would assist in locating the site. You may also provide a description of the location of the proposed GP activity, such as lot numbers, tract numbers, or you may choose to locate the proposed GP activity site from a known point (such as the right descending bank of Smith Creek, one mile downstream from the Highway 14 bridge). If a large river or stream, include the river mile of the proposed GP activity site if known. If there are multiple locations, please indicate directions to each location on a separate sheet of paper and mark as Block 17.

**Block 18. Identify the Specific General Permit(s) You Propose to Use.** List the number(s) of the General Permit(s) you want to use to authorize the proposed activity (e.g., GP 4).

**Block 19. Description of the Proposed General Permit Activity.** Describe the proposed GP activity, including the direct and indirect adverse environmental effects of the proposed activity. The description of the proposed activity should be sufficiently detailed for USACE to determine that the adverse environmental effects of the activity will be no more than minimal. Identify the materials to be used in construction, as well as the methods by which the work is to be done.

Provide drawings to show that the proposed GP activity complies with the terms of the applicable GP(s). Drawings should contain sufficient detail to provide an illustrative description of the proposed GP activity, but do not need to be detailed engineering plans. The written descriptions and illustrations are an important part of the application. Please describe, in detail, what you wish to do. If more space is needed, attach an extra sheet of paper marked Block 19.

**Block 20: Description of Proposed Mitigation Measures.** Describe any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed GP activity. The description of any proposed mitigation measures should be sufficiently detailed for USACE to determine how the measures would avoid and minimize adverse environmental effects. If adverse effects exceed the New England District compensatory mitigation thresholds, you must document how compensatory mitigation would be satisfied in Block 24.

**Block 21. Purpose of General Permit Activity.** Describe the purpose and need for the proposed GP activity. What will it be used for and why? Also include a brief description of any related activities associated with the proposed project. Provide the approximate dates you plan to begin and complete all work.

**Block 22. Quantity of Wetlands, Streams, or Other Types of Waters Directly Affected by the Proposed General Permit Activity.** For discharges of dredged or fill material into Waters of the U.S., provide the amount of wetlands, streams, or other types of waters filled, flooded, excavated, or drained by the proposed GP activity. For structures or work in Navigable Waters of the U.S. subject to Section 10 of the Rivers and Harbors Act of 1899, provide the amount of navigable waters filled, dredged, occupied by one or more structures (e.g., aids to navigation, mooring buoys) by the proposed GP activity. The area of impact includes the structures or fills with direct or indirect effects to waters of the U.S. The length of impact includes the length of a stream, including is banks, that are directly affected by the structures or fills. The duration of impact should be identified as temporary (xx days) or permanent. The impact purpose should briefly describe what structure or fill is responsible for the impact.

**Block 23. Identify Any Other General Permit(s), Regional General Permit(s), or Individual Permit(s) Used to Authorize Any Part of Proposed Activity or Any Related Activity.** List any other GP(s) or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. For linear projects, list other separate and distant crossings of waters and wetlands authorized by these GPs that do not require PCNs. If more space is needed, attach an extra sheet of paper marked Block 23.

**Block 24. Compensatory Mitigation Statement for Losses Greater Than the New England District Compensatory Mitigation Thresholds.** New England District requires compensatory mitigation at a minimum one for one replacement ratio or greater for all aquatic resource losses that require a PCN and exceed the New England District Compensatory Mitigation Thresholds, unless USACE determines in writing that either some other form of mitigation is more environmentally appropriate or the adverse environmental effects of the proposed GP activity are no more than minimal without compensatory mitigation, and provides an activity specific waiver of this requirement. Describe the proposed compensatory mitigation for wetland losses greater than the New England District Compensatory Mitigation Thresholds or provide an explanation of why USACE should not require wetland compensatory mitigation for the proposed GP activity. If more space is needed, attach an extra sheet of paper marked Block 24.

**Block 25. Is Any Portion of the General Permit Activity Already Complete?** Describe any work that has already been completed for the GP activity.

**Block 26. List the Name(s) of Any Species Listed As Endangered or Threatened under the Endangered Species Act that Might be Affected by the General Permit Activity.** If you are not a federal agency, and if any listed species or designated critical habitat might be affected or is in the vicinity of the proposed GP activity, or if the proposed GP activity is located in designated critical habitat, list the name(s) of those endangered or threatened species that might be affected by the proposed GP activity or utilize the designated critical habitat that might be affected by the proposed GP activity. If you are a Federal agency, and the proposed GP activity requires a PCN, you must provide documentation demonstrating compliance with Section 7 of the Endangered Species Act.

**Block 27. List Any Historic Properties that Have the Potential to be Affected by the General Permit Activity.** If you are not a federal agency, and if any historic properties have the potential to be affected by the proposed GP activity, list the name(s) of those historic properties that have the potential to be affected by the proposed GP activity. Provide all relevant documentation about these historic properties in the PCN submittal. If you are a Federal agency, and the proposed GP activity requires a PCN, you must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

**Block 28. List the Wild and Scenic River or Congressionally Designated Study River if the General Permit Activity Would Occur in such a River.** If the proposed GP activity will occur in a river in the National Wild and Scenic River System or in a river officially designated by Congress as a “study river” under the Wild and Scenic Rivers Act, provide the name of the river. For a list of Wild and Scenic Rivers and study rivers, please visit http://www.rivers.gov/

**Block 29. General Permit Activities that also Require Permission from the USACE Under 33 U.S.C. 408.** If the proposed GP activity also requires permission from the USACE under 33 U.S.C. 408 because it will temporarily or permanently alter, occupy, or use a USACE federal authorized civil works project, indicate whether you have submitted a written request for section 408 permission from the USACE district having jurisdiction over that project.

**Block 30. 401 Water Quality Certification.** As described above, specify if the activity requires a 401 WQC from the certifying authority.

**Block 31. Other Information Required For General Permit Pre Construction Notifications.** The terms of some of the General Permits include additional information requirements for preconstruction notifications:

* Maintenance – information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals.
* Temporary Construction, Access, and Dewatering – a restoration plan showing how all temporary fills and structures will be removed and the area restored to pre-project conditions.
* Repair of Uplands Damaged by Discrete Events – documentation, such as a recent topographic survey or photographs, to justify the extent of the proposed restoration.
* Commercial Shellfish Aquaculture Activities – (1) a map showing the boundaries of the project area, with latitude and longitude coordinates for each corner of the project area; (2) the name(s) of the species that will be cultivated during the period this GP is in effect; (3) whether canopy predator nets will be used; (4) whether suspended cultivation techniques will be used; and (5) general water depths in the project area (a detailed survey is not required).Dredging – (1) a proposed sampling and analysis plan shall be provided to USACE for approval prior to its execution. Pre-application meetings are encouraged.
* Beach Nourishment – sediment grain size should be determined for the length of the beach where nourishment is proposed. The frequency and locations of sediment sampling shall be sufficient to identify the sediment composition of the beach profile. This data shall be consolidated to generate a sediment gradation curve for each sampled transect. Each sampled transect should also be identified on the project plans (drawings).

If more space is needed, attach an extra sheet of paper marked Box 31.

**Block 32. Signature of Applicant or Agent.** The PCN must be signed by the person proposing to undertake the GP activity, and if applicable, the authorized party (agent) that prepared the PCN. The signature of the person proposing to undertake the GP activity shall be an affirmation that the party submitting the PCN possesses the requisite property rights to undertake the GP activity (including compliance with special conditions, mitigation, etc.).

**DELINEATION OF WETLANDS, OTHER SPECIAL AQUATIC SITES, AND OTHER WATERS**

Each PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current wetland delineation manual and regional supplement published by the USACE. The permittee may ask the USACE to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the USACE does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. The 60-day PCN review period will not start until a delineation has been completed.

**DRAWINGS AND ILLUSTRATIONS**

**General Information.**

Three types of illustrations are needed to properly depict the work to be undertaken. These illustrations or drawings are identified as a Vicinity Map, a Plan View or a Typical Cross Section Map. Identify each illustration with a figure or attachment number. For linear projects (e.g. roads, subsurface utility lines, etc.) gradient drawings should also be included. Please submit one copy of all drawings on 8½ x 11 inch plain white paper (electronic submissions preferred). Use the fewest number of sheets necessary for your drawings or illustrations. Each illustration should identify the project, the applicant, and the type of illustration (vicinity map, plan view, or cross section). While illustrations need not be professional (many small, private project illustrations are prepared by hand), they should be clear, accurate, and contain all necessary information.

**ADDITIONAL INFORMATION AND REQUIREMENTS**

For proposed GP activities that involve discharges into waters of the United States, water quality certification from the State, Tribe, or EPA must be obtained or waived. Some States, Tribes, or EPA have issued water quality certification for one or more GPs. Please check the New England District website to see if water quality certification has already been issued for the GP(s) you wish to use. For proposed GP activities in coastal states, state Coastal Zone Management Act consistency concurrence must be obtained, or a presumption of concurrence must occur. Some States have issued Coastal Zone Management Act consistency concurrences for one or more GPs. Please check the New England District website to see if Coastal Zone Management Act consistency concurrence has already been issued for the GP(s) you wish to use.

# BRP WW 10, 11: Major / Minor Fill and Excavation Projects Permit Form

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Contact:
Energy and Environmental Affairs, MASSDEP
Energy and Environmental Affairs, MDAR
Energy and Environmental Affairs, DCR

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### *Step 1: Contact Information > Page 1 of 1*

Instructions

* indicates a required field.

### Permittee

"Permittee" is the individual or individual authorized by a company/organization (previously referred to as "Applicant").

If you are the Permittee you may click on "Add New" button and select the checkbox on the top "Use Login Information" and click "Continue". (Please note: if you are just filing this Application on your behalf, please disregard the language below!)

However,

If you are a consultant, engineer, attorney, or other authorized representative who is preparing the application on behalf of the Permittee you are an "Application Contributor". Do not enter your name or contact information in the fields for the Permittee.

- If the Permittee has an EEA ePLACE account and they would like to contribute to the Application process, click "Look Up" button, search and select the appropriate Permittee.
- If the Permittee does not have an EEA ePLACE account and does not want to contribute to the Application process, click "Add New" button and enter the Permittee information on their behalf.

Permittee:

Courtney Walker

10 Park Plaza
Boston, MA, 02116

Telephone #: 857-368-8807 Email: Courtney.l.walker@dot.state.ma.us

Edit or View Remove

### Application Contacts

An "Application Contact" is an individual or organization who is a party to the application (in addition to the Permittee), or who is contributing to the application. For example, a Property Owner, Additional Permittee, a consultant, an authorized representative etc.,

- If the Contact has an EEA ePLACE account and they will be contributing to the Application process, click "Look Up" button, search and select the appropriate Contact.
- If the Contact does not have an EEA ePLACE account and/or will not be contributing to the Application process, click "Add

New" button and enter their Contact information.



Note – If a Contact who will be submitting information in the online Application process has not yet created an account, click on "save and resume later" button, advise the Contact to create an account in the EEA ePLACE Portal, and then resume the application and "Look Up" that person.

Add New  Look Up

Showing 1-3 of 3

| | Contact Type | Name | Organization Name | Contact Person | Action |
|---|---|---|---|---|---|
| | Application Prepared By | NICHOLAS SHAW | | | Edit/View Delete |
| | Permittee Company | | MASSACHUSETTS DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION | Courtney Walker | Edit/View Delete |
| | Application Prepared By | MATT LUNDSTED | | | Edit/View Delete |

Continue Application »  Save and resume later

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### *Step 2: Application Information > Page 1 of 4*

Instructions

* indicates a required field.

### Primary Project Location

**If the project site does not have a traditional physical address, please enter Street Number as "0" Street Name as "N/A" and enter the latitude and longitude coordinates.**

**To find the latitude and longitude information, type in your address on Search Google Maps - Right click on your location pin and select "What's here?"**

**The information will be displayed at the bottom of your page. The format should be in decimal degrees (i.e. Latitude XX.XXXXXX Longitude XX.XXXXXX) Please do not include the "-" sign with the longitude.**

*
Name of the Waterbody:
Snake River

*Street #: 0
*Street Name: Scadding Street
Street Name 2:

*City: Taunton
*State: MA
*Zip: 02780-

Latitude*: 41.951389
Longitude*: -71.104472

Clear

### Other Primary Location Info

*Parcel ID: 15-86-0

*Municipality : TAUNTON

## Project Information

Project Name:

Scadding Street Bridge Replacement over Snake River - Bridge Number: T

* Proposed Activity:

The project involves the replacement of the existing bridge along Scadding Street due to its structural deficiencies and susceptibility to scour. The proposed replacement will be widened to include a new sidewalk and horizontal/vertical alignment will be modified to make roadway travel safer.

* Will the project occur in multiple municipalities?:

◯ Yes ◉ No

## Additional Project Sites

***Additional Project Sites***

Showing 0-0 of 0

| | Municipality | Property Description | |
|---|---|---|---|
| No records found. | | | |

Add a Row | Edit Selected Delete Selected

Continue Application » Save and resume later

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* indicates a required field.

### Project Type

Commercial / Industrial:
☐
Utility:
☐
Real Estate Subdivision:
☐
Institutional:
☐
Other:
☑
* Please provide additional information for the selection of your project type:

Project is being completed for MassDOT

### Proposed Areal Extent Info

**Proposed Areal Extent of "Discharges of Dredged or Fill Material", including "redeposit of dredged or excavated material" to "Waters of the United States within the Commonwealth".**

**Report the areal extent, as expressed in square feet, of all proposed "discharges of dredged or fill material", including "redeposit of dredged or excavated material", both temporary and permanent, to each category of "Waters of the United States within the Commonwealth" below:**

* Bordering Vegetated Wetland (sqft):

0

* Isolated Vegetated Wetland (sqft):

0

* Non-tidal Land Under Water (sqft):

24930

* Salt Marsh (sqft):

0

* Land Under the Ocean (sqft):

0

* Intertidal Zone (sqft):

0

Total cumulative loss (sqft):

24930

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### *Step 2: Application Information > Page 3 of 4*

Instructions

For additional details regarding the compliance, please visit mass.gov.

* indicates a required field.

### Compliance With 314 CMR 9.00

* Does the proposed project meet the definition of a Single and Complete Project at 314 CMR 9.02?:
(●) Yes ( ) No

* Does the proposed project include "multi-phased activities"?:
(●) Yes ( ) No

* Does the proposed project meet the definition of an Ecological Restoration Project?:
( ) Yes (●) No

* Have you completed the Public Notice as per 314 CMR 9.05(3)? If yes, please attach a completed 'Proof of Public Notice' document in the document section.:
(●) Yes ( ) No

Date of Public Notice per 314 CMR 9.05(3):
02/22/2024

Does the required Alternatives Analysis screen all practicable alternatives to the proposed discharge that would have less adverse impact on the aquatic ecosystem?:
(●) Yes ( ) No

* Does this proposed project meet the definition of Water-Dependent at 314 CMR 9.02?:
(●) Yes ( ) No

* Is the proposed project restricted to access to one dwelling unit?:
( ) Yes (●) No

* Will the cumulative discharges of dredged or fill material to Waters of the United States within the Commonwealth exceed 1 acre in areal extent?:
( ) Yes (●) No

* Report the areal extent, as expressed in square feet, of all proposed restoration or replication of Bordering Vegetated Wetlands and/or Isolated Vegetated Wetlands:
0 SF

* Will any proposed discharges of dredged or fill material or any proposed restoration or replication occur within Rare Species Habitat as defined at 314 CMR 9.02?:
(●) Yes ( ) No

* If yes, does the Permittee presently hold a "no adverse effect determination" and/or a "no take determination", or a Conservation and Management Permit from the Natural Heritage and Endangered Species Program of the Massachusetts Division of Fisheries and Wildlife? Also, please attach a document 'NHESP Determination Letter or Conservation Management Permit' in the document section.:

○ Yes ◉ No

* Will the proposed project include or consist of the construction of a new non-tidal crossing of any Land Under Water? :

○ Yes ◉ No

* Will the proposed project include or consist of the construction of a new tidal crossing of any Land Under Water?:

○ Yes ◉ No

* Will the proposed project include or consist of the repair, replacement, and/or expansion of an existing non-tidal crossing of any Land Under Water? :

◉ Yes ○ No

If yes, will such repair, replacement, and/or expansion of an existing crossing comply with the Massachusetts River and Stream Crossing Standards (March 8, 2012) to the maximum extent practicable (see Practicable at 314 CMR 9.02)?: *

◉ Yes ○ No

* Will the proposed project include or consist of the repair, replacement, and/or expansion of an existing tidal crossing of any Land Under Water?:

○ Yes ◉ No

* Does the proposed project include any amount of discharges of dredged or fill material to any Outstanding Resource Water?:

○ Yes ◉ No

* Will any proposed "discharge of dredged or fill materials" occur within any certified Vernal Pool (as defined at 314 CMR 9.02)? :

○ Yes ◉ No

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* indicates a required field.

### Additional Information

* Is your project subject to Massachusetts Environmental Policy Act (MEPA)?:
○ Yes ◉ No

* Is your project subject to Massachusetts Wetlands Protection Act?:
○ Yes ◉ No

* Is your project subject to Massachusetts Public Waterfront Act?:
○ Yes ◉ No

* Is your project subject to Massachusetts Historical Commission?:
○ Yes ◉ No

* Is your project subject to Massachusetts Bureau of Underwater Archeological Resources?:
○ Yes ◉ No

* Is your project subject to U.S. Army Corps of Engineers – Section 404 of Federal Clean Water Act?:
◉ Yes ○ No

USACE File Number (if available):

Date of USACE PCN Authorization (if available):
MM/DD/YYYY

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### *Step 3: Documents > Page 1 of 1*

Instructions

* indicates a required field.

## Documents

**If you have Site Plans, please upload them for the Agency to review your application.**

**The system allows documents of up to 50MB in size. If your document is greater than 50MB, please attach a brief description of document type and instructions on how you will provide the document to the agency.**

Documents:

Please upload 3 Required Document(s) which are mandatory to Submit this Application:

1. Alternatives Analysis ✓
2. Proof of Public Notice ✓
3. Site Plans ✓

## Attachment

**When uploading file document(s) the maximum file size allowed is 50 MB.**
**The 'File Name' (including file extension) MUST NOT exceed 75 characters in length.**
**The document 'Description' MUST NOT exceed 50 characters in length.**
**Documents that exceed any of these limits will be removed by the system, and cannot be retrieved, which may delay the review process.**
**.bat;.bin;.dll;.exe;.js;.msi;.sql;.vbs;ade;adp;chm;cmd;com;cpl;hta;ins;isp;jar;jse;lib;lnk;mde;msc;msp;mst;php;pif;scr;sct;shb;sys;vb;vbe;vxd;wsc;wsf;wsh are disallowed file types to upload.**

| Name | Type | Size | Latest Update | Description | Action |
|---|---|---|---|---|---|
| USGS Locus Map.pdf | Other | 225.45 KB | 07/13/2023 | Locus Map | Actions |
| Environmental Constraints Map.pdf | Other | 7.54 MB | 07/13/2023 | Environmental Constraints Map | Actions |
| Site Photo Log.pdf | Site Inspection Photographs | 1.05 MB | 07/13/2023 | Site Photos | Actions |
| Taunton 608616 Legal Ad.pdf | Proof of Public Notice | 95.22 KB | 08/30/2023 | Public Notice | Actions |
| Historical Properties Map.pdf | Other | 412.43 KB | 08/31/2023 | Historical Properties Map | Actions |

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Contact:
Energy and Environmental Affairs, MASSDEP
Energy and Environmental Affairs, MDAR
Energy and Environmental Affairs, DCR

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Home

DEP Applications

## WW10 - 401 Major Fill and Excavation Project Application

| 1 | 2 Application Information | 3 Documents | 4 Special Fee Provision | 5 Review | 6 Application Submitted |
|---|---|---|---|---|---|

### *Step 4 : Special Fee Provision > Page 1 of 1*

Instructions

* indicates a required field.

### Special Fee Provision

**Check if applicable:**

Exemption:

☑

Exemption Type: *

State Agency (only applicable if fee < or = to $100)

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# BRP WW 7, 8, 9: Water Quality Certifications, Dredging Projects Permit Form

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DEP Applications

## WW08 - 401 Minor Dredging (less than 5000 cubic yards) Project Application

| 1 Pre-Application Information | 2 Contact Information | 3 Application Information | 4 Documents | 5 Special Fee Provision | 6 | 7 |
|---|---|---|---|---|---|---|

### *Step 1: Pre-Application Information > Page 1 of 1*

Instructions

**For instructions, please pay specific attention to the 401 WQC plan checklist about required information for application completeness.**

* indicates a required field.

### Pre-Application Information

* Have you consulted with the DEP Agency?:
(●) Yes ( ) No

Date you consulted with DEP Agency: *
01/22/2024

Has the DEP Agency specified that you are exempt from this process?: *
( ) Yes (●) No

Has the project's Sampling Analysis Plan been approved by the DEP Agency? If yes, please attach a document 'DEP Sampling Analysis Plan' in the document section.: *
(●) Yes ( ) No

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# Project Narrative

## 1. Introduction

The Massachusetts Department of Transportation (MassDOT) Highway Division is planning the replacement of the existing Scadding Street bridge structure over Snake River, due to alignment, safety and structural concerns. As part of the permitting process for this project, a Water Quality Certification (WQC) is being filed with the Massachusetts Department of Environmental Protection (MassDEP). Additionally, a Pre-Construction Notification is being filed concurrently with the Army Corps of Engineers. MassDOT is the main project proponent/applicant for the WQC, acting through its agent Comprehensive Environmental Inc. (CEI). The project is considered Bridge Exempt under the Massachusetts Transportation Bond Bill as the new bridge will be on the same alignment and will be the same functional equivalent to the existing bridge. Required permits for this project include the Massachusetts Department of Environmental Protection (MassDEP) Water Quality Certification (BRP WW 7 & BRP WW 10) and the U.S. Army Corps (USACE) Pre-Construction Notification.

## 2. Existing Conditions

The project is located in Massachusetts Department of Transportation (MassDOT) District 5, in the City of Taunton, Massachusetts in northeast part of Bristol County. The existing bridge, No. T-01-024, carries Scadding Street over Snake River. Scadding Street is functionally classified as a rural, local, city-owned road with a design speed of 30 mph. Snake River flows predominantly southwest into and through Lake Sabbatia (impounded) and eventually discharges into Winnecunnet Pond. The Snake River bankful width is approximately 54-feet within the extents of the project area. The bridge is located approximately 0.30 miles south of the intersection of Scadding Street and Field Street. The existing bridge is a single span consisting of precast concrete beams and granite block abutments supported by timber cribbing and piles. The existing bridge was constructed in 1967.

The resource areas surrounding the existing structure consists of impoundment bank (along the causeway) and Land Under Water/Waters of the US. There are no Isolated or Bordering Vegetated Wetlands in the vicinity of the existing bridge.

The bridge is located within the Canoe River Aquifer Area of Critical Environmental Concern (ACEC) and Natural Heritage and Endangered Species Program (NHESP) habitats PH687 and EH498 (Tidewater Mucket and Eastern Pondmussel). A mussel survey was performed during the summer of 2023 and it was determined that no rare mussel species were present within the project limits. The bridge is not located within any Outstanding

Resource Water (ORW) or certified vernal pools. Please see the attached Environmental Constraints figure.

The existing bridge is approximately 30 feet long carrying a roadway width of 24 feet. Bankful width of the Snake River is estimated at approximately 54 feet. This is based on USGS StreamStats predictions rather than field measurements. Field measurements would produce inaccurate results due to various impoundments. Lake Sabbatia dam causes an impoundment and backwatering of the Snake River both upstream and downstream of the crossing (creating the Lake). There is also a tributary which comes into the upstream impounded portion (besides and in addition to the mainstem of the Snake River). Further upstream reaches are impacted by the crossings at Field Street and Rte 495.

The bridge is structurally deficient and in need of replacement due to the following:

- The exposed concrete of the superstructure is spalling and cracked.
- Bridge rail is rusting.
- The slope adjacent to the abutments and wingwalls is beginning to erode.
- There is minor scour along the abutments.

The United States Federal Emergency Management Agency (FEMA) Flood Map Service Center's online map viewer indicates that the existing bridge is within the National Flood Insurance Program (NFIP) Special Flood Hazard Area (SFHA) Zone AE with a base flood elevation (BFE) of approximately 65.0 ft North American Vertical Datum of 1988 (NAVD88). The MassDOT Hydraulic Section has identified the Design Flood Elevation as the ten (10) year flood elevation. The proposed alternative's bottom of low chord elevation of 64.1' provides at least 2' of freeboard above the design flood elevation.

## 3. Proposed Conditions

This project involves the replacement of the existing bridge, No. T-01-024, in the same location with a new structure of similar capacity. The proposed bridge span will increase from approximately 30-feet to 38-feet. The proposed bridge width is also increasing from an out-to-out of 27-feet to 35-feet to allow for wider travel lanes and the construction of a sidewalk along the roadway.

This project intends to improve traffic safety and hydraulic conditions by replacing a structurally deficient bridge with a new bridge. Work for this project will include removal of the existing superstructure and substructure, construction of a new concrete substructure, integral abutments, integral concrete beam/deck units (NEXT), installation of concrete wingwalls, placement of scour protection, replacement of existing stream bed material and

associated slope work. The roadway within the extents of the project limits will be closed and traffic will be detoured during construction. Local residents will be allowed to access Scadding Street on either end of the project limits.

In order to improve traffic safety Scadding Street is proposed to be re-aligned to reduce the "S" curve affecting site distances and difficult vehicular movements. A cut on the northeast side of the existing embankment will be balanced by fill on the southeast side of the existing embankment. Full depth roadway reconstruction is proposed for approximately 383 feet north of the bridge and 260 feet south of the bridge. Roadway reconstruction, approaching both sides of the bridge, will include minor profile adjustments to match the proposed bridge elevations. The total length of the project, including the bridge replacement, is therefore approximately 683 feet.

Due to the widening of the crossing and re-alignment of the existing roadway, Land Under Water/Waters of the US, Bordering Lands subject to Flooding, and Linear Banks will be impacted during the construction of the proposed bridge. Although, it should be noted that new Land Under Water/Waters of the US will be created due to the shifting of the roadway alignment.

Land Under Water/Waters of the US of the existing impoundments will be filled on one side of the Scadding Street embankment and created on the other side with a net 1,376 SF loss.

Additionally, new impervious areas will be created as part of the new roadway alignment and bridge replacement. Pre-construction impervious area total approximately 18,000 SF within the project limits while post-construction impervious area totals 27,000 SF. This resulted in a net increase of 9,000 SF. Even though there is an increase in impervious area, it should be noted that new stormwater control measures (SCMs) are being proposed to treat these impervious areas. These stormwater control measures consist of a system of catch basins that collect into drainage manholes before discharging to vegetated swales, and eventually into the Snake River. This system is proposed both to the north and south of the bridge replacement along Scadding Street.

Based on the proposed activities and conditions, various permits are required. An Army Corps of Engineers Pre-construction Notification (PCN), Army Corps of Engineers Form 4345, and a MassDEP Water Quality Certification (WQC) are all being filed. A MassDEP Notice of Intent (NOI) will not be filed as the project is using the Bridge Exemption.

## 4. Construction Sequence

1. Note: While the Department does not dictate Contractor's Means and Methods for construction, the Contractor will be required to perform construction near and in portions of the impounded River (Land Under Water/Waters of the US) in the dry behind steel sheeting piles/cofferdams and will likely use adequately sized, typical heavy highway construction equipment (such as excavators, cranes, dump trucks, backhoes, compactors, loaders, bulldozers, etc.). Storage of equipment and materials will be in upland areas outside wetlands. No staging of equipment will be done in resource areas.
2. Install temporary erosion controls and sedimentation fence around the work area.
3. Clear and grub within project limits.
4. Provide a debris shield under the existing bridge prior to demolition to control demolition debris from entering the Snake River.
5. Remove existing guardrail and bridge rail.
6. Remove concrete slab and steel beams.
7. Install steel cofferdam sheeting. Dewatering equipment shall be used to maintain any work in the dry.
8. Remove, segregate and stock pile top 12" of existing river bed material from between steel sheeting and existing abutments taking care not to intermingle material from each abutment.
9. Remove the existing abutments. Once the river bed material has been salvaged the existing abutments will be removed by hydraulic hoe-ram or similar demolition equipment. At no time will equipment or debris be allowed outside temporary cofferdam or upland areas.
10. Excavate and prepare subgrade for placement of new foundations.
11. Install foundations, integral abutments, beam/deck units, wingwalls and retaining walls
12. Remove dewatering equipment and bypass piping.
13. Cut cofferdam sheeting.
14. Install riprap abutment scour protection.
15. Replace twelve (12") inches of existing stream bed material over abutment riprap and screening course.
16. Backfill slopes, reconstruct roadway subgrade and pavement structure.
17. Install bridge rail/guardrail sections.

18. Resurface roadway.
19. Install plantings and seed as shown on plans.
20. Stabilize all slopes prior to the removal of temporary erosion controls.
21. Cleanup area and return to pre-construction conditions.

## 5. Resource Impacts

A wetlands resource area delineation was conducted on July 13 and 19, 2017 and updated on July 11th, 2023. Wetland data forms are attached to this application. Based on hydrologic indicators, vegetative changes, stain lines, point bars other bank indicators (floated debris deposition, scouring, channeling, bank cuts, etc...), the limits of the Ordinary High Water mark were delineated. Resource areas within the project limits include the impounded Snake River as Land Under Water/Waters of the US.

For the removal of the existing bridge structure and installation of the new bridge abutments, steel sheet cofferdams will be installed to allow for the work to be done in the dry. The approximate limits of these cofferdams have been shown on the Construction Plans. The impacts to Land Under Water/Waters of the US from the installation of the cofferdams, construction excavation and placement of erosion controls (which will be removed following stabilization of upland graded areas) are estimated to be approximately 15,823 SF of temporary impacts. Permanent impacts to Land Under Water/Waters of the US will total approximately 9,107 SF. The permanent impacts are due to the installation of the proposed bridge abutments and the new roadway alignment. Although, it should be noted that approximately 2,460 SF of new Land Under Water/Waters of the US is to be gained due to cutting existing embankments for the new roadway alignment. All areas will be restored to pre-construction conditions and grades to the maximum extent possible. Additionally, there are 117 LF and 959 LF of both temporary and permanent impounded bank impacts, respectively. These impacts are associated with grading, installing sheet piling, excavation, installing the proposed structure and associated wingwalls, and installing the new roadway alignment.

Permanent linear bank impacts are associated with the impoundment embankments and although total more than 200 LF, an ACOE Stream Visual assessment using the SVAP2 method is not required since the project is located within a ponded setting, not riverine.

The project will also involve impacts to the regulatory FEMA flood zone AE (elevation 65.0’). The impacts will result in a net fill of approximately 500 CY due to the construction of the re-aligned roadway and associated embankments. It should be noted that although

there is a net fill, the hydraulic capacity of the structure is being increased due to the widening of the bridge. Based on hydraulic modeling, the widening of the bridge will result in a decrease of the 100-year water surface elevation by approximately 1-foot at the bridge crossing when compared to existing conditions (existing WSE = 64.1', Proposed WSE = 63.1'). Note that Lake Sabatia is an impounded water body with the elevation ultimately controlled via dam. Conservatively, if that "drop" in elevation was applied to the FEMA base flood elevation for the upstream impounded segment of the Snake River between Scadding Street and Field Street (approximately 23 acres), this would result in a net gain of approximately 37,000 CY of storage with "no rise" in surface elevation. Although exempt under the WPA from impacts to bordering land subject to flooding and compensatory storage at a 1:1 mitigation for the project, we have performed the above noted analysis and believe we meet the Act to the maximum extent practical.

**Table 1 – Impact Summary**

| Resource Area | Temporary Impacts | Permanent Impacts |
|---|---|---|
| Land Under Water/Waters of the US | 15,823 SF | 9,107 SF |
| Linear Bank | 117 LF | 959 LF |

## 6. Resource Area Replication

There will be no vegetated wetland impacts as a result of this project and therefore no wetland replication is required.

## 7. Sedimentation Control

Measures will be taken to minimize sedimentation/siltation into the resource areas, corresponding buffer zones, and the surrounding community during construction activities. Implementation of accepted and usual methods of sedimentation erosion control will be used at the site during all phases of construction. The perimeter erosion controls will also serve to demarcate the limits of work. Erosion controls during construction will include but are not limited to:

- A turbidity curtain will be deployed upstream and downstream prior to placement of the proposed steel sheet cofferdams to contain sediments during installation and which cannot be contained by the cofferdams;
- Steel sheet cofferdams will be installed to maintain a portion of the tributary undisturbed and will serve as sediment control during demolition and excavation for foundations;

- Compost filter tubes, or approved equivalent, will be placed as shown on the drawings to protect resource areas;
- Erosion control devices will be inspected weekly and after each significant rainfall event. Any entrapped silt or other materials will be removed;
- Erosion control devices will remain in place locally until disturbed surfaces have been stabilized with the final vegetative cover in the area of disruption;
- Construction and material storage activities will be conducted in a manner to control sediment and dust migration with wind. Dust control measures such as wetting or coverings will be used as needed to control dust;
- Contractors will be familiar with oil spill prevention and response measures and spill cleanup materials will be available onsite; and
- Construction vehicle access will follow existing roadways as much as possible to minimize land disturbance.

These erosion control devices/ methods will remain in place/use until all disturbed surfaces have stabilized. Additional control measures will be employed as necessary. All silt collected behind the erosion controls shall be removed before such measures are removed.

## 8. Dewatering

The proposed bridge foundations will be located below existing water elevations. Work will be conducted behind cofferdams to allow work to be completed in the dry. Dewatering will consist of dewatering well points and pumps to remove water from the areas of excavation and to allow for the placement of construction materials including soils and structures. The discharge pipes will transfer this pumped water to temporary dewatering sediment containment structures which will serve to filter out sediments before the runoff is discharged into the surrounding environment. Dewatering sediment containment structures will be located outside of environmentally sensitive resource areas. Exact means and methods of dewatering will be up to the contractor.

## 9. Storm Water Management

Drainage on Scadding Street currently sheets off the shoulders of the existing roadway (“country drainage”) untreated. As part of the proposed bridge replacement, new drainage systems are to be constructed. A series of deep sump catch basins and drainage manholes that discharge to a vegetated swale is proposed both to the north and south of the bridge replacement structure along the new roadway alignment. The new drainage system will treat stormwater prior to discharging it back into the Snake River.

Stormwater Performance Standards:

*Standard 1. No New Untreated Discharges*
Prior to construction there were no stormwater control measures to handle runoff from existing impervious surfaces. Under proposed conditions, a series of catch basins, drainage manholes and vegetated swales will treat runoff before entering the ground or discharging into the Snake River. Since there are no new untreated discharges, Standard 1 is being met.

*Standard 2. Peak Rate Attenuation*
Although there is an approximate increase of 9,000 square feet of impervious area, peak rate attenuation is anticipated to be mitigated to the maximum extent practicable by providing a series of deep sump catch basins that outlet to grass lined swales with small outlet protection aprons on either side of the proposed replacement structure. The catch basins and drainage manholes will offer detention before discharging into the grass lined swales.

*Standard 3. Recharge*
Groundwater recharge will occur to the maximum extent practical within the proposed grass lined swales with small splash pads on either side of the proposed replacement structure.

*Standard 4. Water Quality*
Temporary impacts and erosion control will be closely monitored, and any issues will be mitigated in a timely manner. Additionally, the proposed catch basins, drainage manholes, and vegetated swales will improve water quality by removing sediments and pollutants (such as phosphorus and nitrogen) from stormwater runoff. Under existing conditions, there were no stormwater control measures in-place. Runoff would percolate into the ground or into the Snake River untreated. An O&M plan and Long-Term Pollution Prevention Plan is provided for the proposed SCMs within Attachment F.

*Standard 5. Land Uses with Higher Potential Pollutant Loads*
N/A- Standard 5 does not apply to the project. There is no Land Uses with Higher Potential Pollutant Loads within the project area.

*Standard 6. Critical Areas*
N/A - Stormwater control measures will not discharge to any critical areas, as no critical areas are within the project limits. Standard 6 does not apply to the project.

*Standards 7. Redevelopments and Other Projects Subject to the Standards Only to the Maximum Extent Practicable*
This project is considered a combination of redevelopment and new development. The stormwater performance standards will be either fully met (standards 1, 8, 9, and 10), or met

to the maximum extent practicable (standards 2, 3, and 4). Standards 5 and 6 are not applicable to the project.

*Standard 8. Construction Period Pollution Prevention and Erosion and Sedimentation Control*
Erosion and sedimentation controls will be installed before any land disturbance begins and will remain in place for the duration of the Project. The erosion and sedimentation controls for the project are shown on the project plans.

The Project disturbs one or more acres of land; therefore, the project contractor will request coverage under the Construction General Permit (CGP) and develop a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP follows the requirements of this standard and is in compliance with the CGP.

*Standard 9. Operations & Maintenance Plan*
MassDOT O&M plans are implemented by each MassDOT district. Each MassDOT district office is responsible for providing operations and maintenance for the MassDOT stormwater management systems within their respective jurisdictions. An O&M plan and Long-Term Pollution Prevention Plan are attached to this permit application as Attachment E.

*Standard 10. Prohibition of Illicit Discharges*
The design plans submitted with this report have been designed in full compliance with Standard 10. The project area does not have any known illicit connections. The Long-Term Pollution Prevention Plan (LTPPP) includes measures to prevent illicit discharges. Attachment E includes the LTPPP for this project.

## 10. Fisheries and Wildlife/Natural Heritage Endangered Species/Vernal Pools

An online review of the Natural Heritage and Endangered Species Program (NHESP) using the MassGIS Online Data Viewer revealed that a portion of the project site is located within Priority Habitat of Rare Species and Estimated Habitat of Rare Wildlife. The project is located in PH627 and EH498 (Tidewater Mucket and Eastern Pond Mussel). Banks will be re-established at similar slopes in front of the retaining walls. The retaining walls exposed face will act as a deterrent for turtles and other reptiles and will direct them toward adjacent undisturbed bank or the new banks constructed within the proposed structure.

The project is also located within the Canoe River Aquifer ACEC. The Snake River is not listed as an ORW. Although the project is located within NHESP habitats, the project does not intend to adversely impact these habitats.

According to an Information for Planning and Consultation (IPaC) inquiry for the area, the Northern Long-eared Bat (*Myotis septentrionalis*) is listed as threatened; the Monarch Butterfly (*Danaus plexippus*) is listed as a candidate; the Bald Eagle (*Haliaeetus leucocephalus*) is listed as vulnerable; and the Black-billed Cuckoo (*Coccyzus erythropthalmus*), Blue-winged Warbler (*Vermivora pinus)*; Bobolink (*Dolichonyx oryzivorus*), Canada Warbler (*Cardellina Canadensis)*; Chimney Swift (*Chaetura pelagica)*; Lesser Yellowlegs (*Tringa flavipes)*; Prairie Warbler (*Dendroica discolor*); Rusty Blackbird (*Euphagus carolinus)* and Wood Thrush (*Hylocichla mustelina*) are listed as Birds of Conservation Concern. Birds are highly mobile and are expected to temporarily avoid the area during construction disturbance. The project is not intended to have an effect on any known Long-eared Bat or Monarch butterfly habitat as the Section 7 programmatic determination was Not Likely to Adversely Affect (NLAA). Project limits are within previously disturbed roadway embankment and bridge extents. The Section 7 consultation can be seen within Attachment C.

Impacts to fish movement will be temporary and may occur during installation of the cofferdams as the activity in the water (if water is present) may cause fish to avoid the area. The impact to fish movement will be minimized by the use of cofferdams to isolate the installation foundations and abutments from the portion of the Snake River that will remain connected during construction. Fish movement is likely impacted by the naturally occurring dry periods of Snake River; the river appears to be devoid of flow during some of the year. The proposed work is not expected to adversely affect fish passage following construction since the bridge will be rebuilt in the same location with the natural channel and streambed replaced.

In the existing condition, at typical non-flood water levels, natural banks exist within the limits of the crossing. These natural banks will be temporarily impacted during construction. Following construction, the banks will be re-established via replacement of existing streambed material over the proposed riprap along the abutments to match pre-existing conditions and grades adjacent to wingwalls to the maximum extent practical.

## 11. Massachusetts Stream Crossing Performance Standards

1. *Type of Crossing- Spans and/or Open Bottom Preferred*
   The bridge replacement will be an open bottom structure. This qualifies as “optimum” for the Type of Crossing under the Massachusetts Stream Crossing Standards (SCS)
2. *Embedment*

a. *All culverts should be embedded (sunk into stream) a minimum of 2 feet, and round pipe culverts at least 25%;*

   This project is a bridge replacement project, and therefore, this standard does not apply.

b. *If pipe culverts cannot be embedded this deep, then they should not be used;*
   N/A- no pipe is proposed.

c. *When embedment material includes elements >15 inches in diameter, embedment depths should be at least twice the D84 (particle width larger than 84% of particles) of the embedment material.*
   A pebble count was not performed, but bridge abutments will be embedded approximately 6-7 feet below the streambed. The bottom of the bridge abutments will be located below 12-inches of existing streambed material, 12-inches of crushed stone, and 3-feet of riprap for scour protection.

3. *Crossing Span- Span is a minimum of 1.2 times the bankfull width of the stream.*
   StreamStats indicates the bankful width of the Snake River above the impoundment to be 54.3', requiring a 1.2 span to be 65.1' while the proposed span is 38.0'. The existing span is approximately 30' so the proposed represents an improved opening. Bankfull width is not applicable in ponded (impounded) settings. In these cases the hydraulics dictate the design, being sure to allow space for debris movement. The proposed hydraulic design provides over 1.5' of freeboard over the 100 YR flood..
4. *Openness Ratio*
   a. *General- Openness ratio (cross-sectional area/crossing length) of at least 0.82 feet (0.25 meters). The crossing should be wide and high relative to its length;*
      The proposed openness ratio is 358.20 SF/ 35 LF = 10.23 feet, which exceeds the minimum 0.82 feet.
   b. *Optimum- Openness ratio of at least 1.64 feet (0.5 meters) and minimum height of 6 feet. If conditions significantly reduce wildlife passage near a crossing (e.g., steep embankments, high traffic volumes, and physical barriers), maintain a minimum height of 8 feet (2.4 meters) and openness ratio of 2.46 feet (0.75 meters);*
      The proposed crossing meets the optimum standards of exceeding 6' in height (10.30' proposed) and 1.64 feet openness ratio (10.23 feet proposed).
5. *Substrate- Natural bottom substrate should be used within the crossing and it should match the upstream and downstream substrates. The substrate and design should resist dis-placement during foods and maintain an appropriate bottom during normal flows.*
   The proposed natural substrate will be salvaged from excavations below the existing bridge (historical streambed) and be re-used for the disturbed and proposed substrate

sections through the bridge channel. The natural substrate is proposed to be a minimum of 2' thick.

6. *Water Depth and Velocity- Water depths and velocities are comparable to those found in the natural channel at a variety of flows.*
   Hydraulic modeling of the proposed crossing indicates that velocities and water surface elevations better match the downstream natural channel values. This is the result of "opening up" the crossing cross-section.

## 12. Alternatives Analysis

**No-Build**
One alternative is the no-build alternative. Given the poor condition of the existing bridge and the dangerous shape of Scadding Street approaches in both directions, the no-build alternative is not a viable option because it would allow the bridge to further deteriorate and leave a dangerous safety condition in place. As noted by abutters, alternate detour routes for school buses, delivery vehicles and emergency services are longer and less passable due to the deteriorated condition of one of the roads included in the detour, which makes the bridge a critical structure. This alternative also does not address scour noted in the bridge inspection report.

**Full Replacement (Preferred Alternative)**
A full replacement of the bridge would include removal and replacement of the entire superstructure and substructure. This alternative would eliminate unsafe conditions created by the deteriorated condition of the existing bridge as well as afford the opportunity to increase the span thereby improving hydraulics. In addition, scour occurring in conjunction with the existing bridge can be addressed. Since the bridge (abutments) will be replaced in full the opportunity to remove the unsafe S-curve in the road will improve safety conditions for motorists, pedestrians and fishermen.

**Bridge Deck Replacement**
This alternative does not address the deteriorated substructure or the adverse scour conditions. While this alternative has less potential environmental impacts, it does not adequately address all the safety concerns. By leaving the existing abutments in place and maintaining the bridge's current alignment, the dangerous S-curve, narrow roadway and lack of sidewalks off the bridge cannot be addressed.

While the full replacement has greater environmental impacts than the bridge deck replacement and no-build alternatives, the impacts are small, mostly outweigh one another by reducing Land Under Water/Waters of the US on one side of the causeway and

increasing Land Under Waters/Waters of the US on the other side. These alternatives also do not rectify safety concerns which need to be addressed. In addition, the preferred alternative allows for widening of the hydraulic opening which will provide improved environmental conditions for both wildlife and the River itself. For these reasons, the full replacement was determined to be the preferred alternative.

## 13. Conclusion

The project proposes to replace the existing deteriorated bridge and inadequate roadway alignment along Scadding Street in Taunton, MA. As part of project activities, there are impacts jurisdictional wetland resource areas. Impacts to Land Under Water/Waters of the US total 24,930 square feet (15,823 SF temporary and 9,107 SF permanent). Impacts to Linear Bank total 1,076 linear feet (117 LF temporary and 959 permanent). The permanent impacts involve the new roadway alignment and replacement of the existing bridge. Temporary impacts are associated with the installation of cofferdams, erosion controls, and grading. Additionally, approximately 9,000 square feet of new impervious area and 215 cubic feet of dredge is proposed.

Although there are impacts within resource areas, the applicant respectfully requests that MassDEP and the United States Army Corps of Engineers find these measures adequately protective of the interests identified under Section 401 and 404 of the Clean Water Act Regulations and issue a 401 WQC and 404 Permit under the Massachusetts General Permit approving the work shown on the accompanying plan set.

## 14. Environmental Related Specifications to be Included into the Contract

- Demolition of Superstructure
- Temporary Fence
- Floating Turbidity Barrier
- Sediment Control Barrier
- Streambed/bank Restoration
- Temporary Protective Shielding
- Dumped Riprap

## WATER QUALITY CERTIFICATION- List of Attachments

*MassDOT Project No. 608616*
Scadding Street Bridge Replacement over Snake River
Bridge No. T-01-024 (3LY)
Taunton, MA

| | |
|---|---|
| Attachment A | Environmental Related Specifications |
| Attachment B | Project Locus- USGS |
| Attachment C | Environmental Constraints |
| Attachment D | Correspondences |
| Attachment E | Photos |
| Attachment F | O&M and LTPPP |
| Attachment G | Project Plans |
| Attachment H | Wetland Data Forms |
| Attachment I | Sediment Sampling Plan |

# Attachment A
# Environmental Related Specifications

**ITEM 115.1** **DEMOLITION OF BRIDGE NO. T-01-024(3LY)** **LUMP SUM**

The work to be done under this item shall conform to the relevant provisions of Sections 112 and 140 of the Standard Specifications and the following:

The work shall include furnishing all material, labor, equipment, and tools necessary to perform the demolition, removal, and satisfactory disposal of the existing concrete superstructure and concrete and granite block substructure of Bridge No. T-01-024, as designated on the Contract Plans. This includes, but is not limited to the existing concrete approach slabs, abutments, footings, wingwalls, and bridge railing.

In addition, the Contractor is required to remove all dust, loose concrete and debris encountered as part of the excavation and prior to installation of the new structure.

The Contractor is to ensure that concrete, reinforcing steel and other demolition materials will be prevented from falling into the River below. Temporary Protective shielding to be used in conjunction with this demolition is specified and paid for separately under Item 994.01. Additionally, work shall not commence until the Floating Turbidity Barrier is in place and approved by the Engineer. All materials, equipment, labor, etc. to accomplish this task shall be considered as incidental to this Item. Any material that falls into such areas shall be removed immediately by the Contractor by whatever means are necessary, and at the Contractor's expense.

Reinforced concrete excavation shall be considered incidental to Item 115.1 and shall conform to the relevant provisions of Sections 112, 120 and 140 of the Standard Specifications.

All materials removed in this demolition shall become the property of the Contractor and shall be recycled, reused, or disposed of in accordance with all applicable Local, State, and Federal requirements. Removal of these substructure elements in their entirety shall be included in the Contract Unit Price bid for this Item regardless of actual materials encountered. **No additional compensation will be made for this work. The Contractor shall make his/her bid for this Item accordingly.**

The Contractor shall be required to remove any debris generated from construction from the site immediately. The Contractor shall be responsible for dust control as a result of the demolition operations.

The Contractor shall be responsible for protecting from any damage any existing utilities that pass over, under and/or are attached to the bridge.

Prior to commencing work on this Item, the Contractor shall submit his proposed method of demolition including equipment, tools, devices, etc. to the Engineer for approval. The demolition procedure and any necessary calculations and drawings shall bear the stamp of a Professional Engineer Registered in the Commonwealth of Massachusetts certifying that all existing structural members are suitably braced and supported throughout the demolition process. Work shall not commence until the Engineer has given written approval of the method of demolition proposed.

The Contractor shall also submit the crane capacity, location, radii of movement, etc. to the Engineer for approval for all stages of construction. The submittal shall include calculations of all loads, including all factors of safety, and selection of crane and lifting hardware and shall be stamped by a Professional Engineer Registered in the Commonwealth of Massachusetts.

COMPENSATION

The work under this Item will be paid at the Contract Lump Sum Price Bid, under Item 115.1, which price shall include all labor, materials, transportation, equipment, reinforced concrete excavation, disposal fees, special handling and removal of hazardous materials and incidental costs necessary to remove the existing bridge structure, foundations, approach roadway slab, and bridge rail.

The contractor will make his own investigation of the structure to be demolished. No increase will be made to the bid price due to the nature of the materials involved in the demolition. Miscellaneous removals and disposals that are not specifically listed for payment under another item shall be deemed included under this Item.

**ITEM 657. TEMPORARY FENCE FOOT**

DESCRIPTION

Work under this item includes the furnishing, installing, maintaining and removal of temporary chain link fence and/or gates as specified herein and shown on the drawings. Except as indicated below and on the plans, all work shall be in accordance with the requirements of Standard Specifications Section 644.

MATERIALS

Fence fabric shall be two inch (2") galvanized steel mesh that meets the requirements of M08.09.0.

Temporary fence may be provided as individual fence sections or as continuous fence fabric with temporary posts.

A. Temporary fence provided in sections shall be capable of being individually supported. When installed, sections shall be six (6) feet in height and shall be between eight (8) and ten (10) feet in length. Individual sections shall be provided with a method of connecting together adjacent sections to form a continuous barrier and shall have a maximum gap of 4" from the bottom of the fence fabric to the ground surface.

   Fence supports shall be capable of supporting adjacent sections of fence with a maximum gap of one (1) inch between sections.

B. Temporary fence provided as continuous fence fabric with temporary posts shall meet the applicable requirements of Section 644 of the Standard Specifications for 72" Chain Link Fence, (Spring Tension Wire).

C. Temporary chain link fence gates and gate posts up to a maximum width of six feet (6') shall be single gates. Gates over six feet wide shall be double gates. All gates provided shall be provided with a means to secure the gate in the closed position with a lock. Provide keys for all locks used to the resident engineer and the City of Taunton representative for the duration of the project.

CONSTRUCTION METHODS

Temporary fence and /or gates shall be installed at the locations indicated on the plans or as directed.

METHOD OF MEASUREMENT

Measurement for this item shall be by the foot for the maximum length of fence, including gates, installed during the project.

BASIS OF PAYMENT

Payment for work under this Item 657. “TEMPORARY FENCE” shall be the bid price per FOOT and shall be compensation for all labor, materials, and incidentals necessary to complete the work specified above. Compensation for work to adjust, relocate or remove and reset the temporary fence will not be paid separately but will be considered incidental to the cost of this item.

**ITEM 697.3 FLOATING TURBIDITY BARRIER FOOT**

Description
Work under this item includes the furnishing, installing, maintaining and removal of temporary floating turbidity barrier (FTB) as specified herein and shown on the drawings. Regular inspection of the barrier and removal and disposal of accumulated sediment is also included in this item.

Warranty
Provide copies of the manufacturer's warranty for the floating turbidity barrier.

Submittals
Prior to start of work, the Contractor shall submit to the Engineer, copies of manufacturer's data for all materials to be used in the floating turbidity barrier and recommended procedures for installation, maintenance and removal.

MATERIALS
The floating turbidity barrier shall be designed to prevent particulate materials from leaving the immediate area of construction in the water. The FTB shall be a continuous barrier within the limits indicated and shall be designed to operate in both standing water and low water flow conditions. The barrier shall extend from the water surface to the bottom of the waterbody in the indicated locations. Height of barrier shall be calculated based on a water surface elevation of ordinary high water.

The FTB and floatation materials shall be high visibility in color. Barrier material, flotation devices and bottom weighting system shall all be from the same manufacturer and shall be of a type appropriate for the application.

Sufficient flotation and bottom weighting shall be provided to maintain the proper function of the FTB. The FTB shall also be able to be anchored in place as needed to prevent excessive movement or system failure due to water flow during storm conditions.

CONSTRUCTION

General
The floating turbidity barrier shall be installed according to the manufacturer's listed procedures and recommendations or as directed. Turbidity Barrier shall be installed as indicated on the Drawings and prior to the start of excavation and filling area. The FTB shall be installed prior to other work in water occurring. Care shall be taken not to disturb or displace surface material or other particulate matter prior to, or during, the installation of the FTB.

Maintenance

The FTB shall be inspected daily to verify proper operation during active construction in or near the water and also following any rain event where over ½" of rainfall occurs. Any displacement of the FTB shall be corrected and any damage to the FTB shall be repaired prior to work in the water resuming.

Removal

Erosion and Turbidity control devices shall be maintained until all disturbed earth has been paved or vegetated, or interim work is completed at which time they shall be removed upon approval of the Engineer. Care shall be taken not to allow any accumulated sediments to become suspended in the water column during the removal process. Accumulated sediments shall be removed and disposed and any sediment that becomes suspended in the water column shall be allowed to settle prior to removal of the FTB.

## METHOD OF MEASUREMENT

Item 697.3, will be measured by the Foot installed, along the top of the flotation system, regardless of depth of barrier.

## BASIS OF PAYMENT

Item 697.3 will be paid at the Contract unit bid price per Foot which price shall be full compensation for all labor, materials, and incidentals necessary to complete the work specified above.

Following installation of the floating turbidity barrier, 75% of the contract value will be paid. The balance will be paid following removal of all accumulated sediments and removal of the FTB.

**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.

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.

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.

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 983.521 STREAMBED/BANK RESTORATION CUBIC YARD**

The work under this Item shall conform to the relevant provisions of Sections 150 and 983 of the Standard Specifications and the following:

Work under this item shall consist of furnishing and installing natural streambed material over the proposed Riprap under the bridge. The intent of this item is to ensure a natural streambed for aquatic organisms, and wildlife passage over the Riprap to provide fisheries and wildlife habitat enhancement as part of the reconstruction of Bridge No. T-01-024 (C5H).

Material

The streambed/bank construction material is to be placed on top of the proposed Riprap in the Snake River channel at the bridge as shown on the plans.

The streambed material shall be comprised of two primary components.

1. Stone 4 inches and under shall meet the following gradation:

| Sieve Opening | % Passing (by Mass) |
|---|---|
| 4” | 95 |
| 2” | 55 – 65 |
| ¾” | 30 – 45 |
| #4 | 0 – 5 |

2. Stone 6 inches to 2.5 feet in diameter:

| Stone Size | % Passing (by Mass) |
|---|---|
| 2.0’ | 80 |
| 1.5’ | 25 |
| 0.5’ | 0 |

The streambed/bank stone for all two components shall be native cobbles and boulders similar in shape and size of the streambed/bank stone adjacent to the work area. Partially angular rock is preferred over round, and shall be able to lock together to prevent movement during high flows. Crushed Stone will not be acceptable for any of the components. Any stone excavated from the existing streambed can be stockpiled and reused for streambed restoration, provided the excavated stone is characteristic of the existing stream material upstream and downstream of the work area, or meets the above criteria. Stockpiling for reuse shall be considered incidental to this Item. The elevations and conditions of the existing streambed shall be maintained to the maximum extent practicable.

Construction

Streambed

Components One and Two shall be pre-blended outside the project area at a volume ratio of 30% and 70% respectively. The pre-blending shall be done in a way that will prevent the mass from being contaminated by work-place soils. The pre-blended mass shall be placed over the areas of the proposed Riprap and Crushed Stone, as shown on the plans.

The placement of streambed/bank material under this item shall not begin until the Engineer approves the placement of Riprap and Crushed Stone.

METHOD OF MEASUREMENT

Streambed/Bank Restoration will be measured for payment per cubic yard of Natural Substrate material complete and in place.

BASIS OF PAYMENT

The work to be done under this item shall be paid for at the Contract Unit Price per Cubic Yard which Contract unit price bid shall be considered full compensation for all labor, tools, equipment, and materials necessary to rebuild the streambed.

**ITEM 994.01 TEMPORARY PROTECTIVE SHIELDING LUMP SUM**
**BRIDGE NO. T-01-024**

Work under this item shall consist of designing, furnishing, fabricating, erecting, maintaining, and subsequent removal of temporary underside and deck side protective shielding. The design shall be performed by a Professional Engineer registered in the Commonwealth of Massachusetts. Temporary deck underside and side protective shielding shall be utilized to provide for the protection of the River beneath the bridge from falling debris during the demolition of the superstructure. Protective shielding shall be placed beneath the existing superstructure prior to demolition of the superstructure.

The Contractor shall submit at the pre-construction meeting shop drawings, working drawings, and associated design calculations, stamped by a Professional Engineer registered in the Commonwealth of Massachusetts, of all proposed shielding to the Engineer for approval prior to installation. The drawings shall include all details of all connections, brackets, and fasteners. The protective shielding shall be designed to support all construction and dead loads safely, and to be sealed tightly at all joints. At the discretion of the Contractor, and as required by the Contractor's design, deck underside and side protective shielding may be constructed from timber, steel, aluminum or demolition fabrics. The shielding shall be placed in a manner as to prevent it from being blown out by the wind. If, in the opinion of the Engineer, the shielding is not secure, then the Contractor shall remove it and install it to the satisfaction of the Engineer at no additional cost to the State.

All shielding shall meet the following minimum requirements:

1. Protective shielding shall not be installed until the Engineer's review has been completed. No portion of the bridge deck shall be removed until the Protective Shielding is in place and complete.

2. The shielding shall extend a sufficient distance beyond the deck limits and have walls sufficient to contain any debris. The shielding shall extend the full length of the bridge span. The Contractor may use the existing abutments as supports for the protective shielding. All spaces along the perimeter of the shielding and at the seams shall be sealed to prevent dust and debris from escaping and falling into the River below.

3. Shielding shall be designed to safely withstand all loads it would be subjected to during construction. The design shall be in accordance with the 2020 AASHTO, Ninth Edition, LRFD Bridge Design Specifications. The design shall also include a complete description of the equipment and construction methods proposed for the deck removal and the maximum size of deck

area excavated. The shielding shall also be designed to withstand impact loads from the maximum size of concrete decking should it fall during removal.

4. The shielding shall be maintained and remain in place until the superstructure is completely removed. Shielding shall be removed only upon approval of the Engineer.

All materials used in the shielding systems, shall become the property of the Contractor and shall be properly removed from the site at the completion of the project.

BASIS OF PAYMENT

Item 994.01will be paid at the Contract Lump Sum Price Bid, which price shall include all labor, materials, equipment and incidental costs required for the satisfactory installation and subsequent removal of the Temporary Protective Shielding.

Payment of 75% of the Lump Sum Bid Price of these Items will be made upon complete installation to the satisfaction and approval of the Engineer. The remaining 25% of the Lump Sum Price Bid of this Item will be paid following proper removal and appropriate disposal of the shielding.

**ITEM M2.02.2** **DUMPED RIPRAP** **TON**
**BRIDGE NO. T-01-024**

Work under this item shall consist of furnishing and installing riprap material over the proposed foundations under the bridge. The intent of this item is to aid in scour protection for the bridge abutments and foundation.

Construction Methods

Stone for riprap shall be placed on the prepared slope or area in a manner which will produce a reasonably well graded mass of stone with the minimum practicable percentage of voids and minimum thickness of 2 ft. Riprap protection shall be placed to its full course thickness at one operation and in such a manner as to avoid displacing the underlying material. Placing of riprap protection in layers or by dumping into chutes or by similar methods likely to cause segregation will not be permitted.

The larger stones shall be well distributed, and the entire mass of stone shall conform approximately to the gradation specified in M2.02.2: Dumped Riprap. All material going into riprap Massachusetts Department of Transportation – Highway Division Standard Specifications for Highways and Bridges II.617 2022 Edition protection shall be so placed and distributed that there will be no large accumulations of either the larger or smaller sizes of stone.

It is the intent of these specifications to produce a fairly compact riprap protection in which all sizes of material are placed in their proper proportions. Hand placing or rearranging of individual stones by mechanical equipment may be required to the extent necessary to secure the results specified.

The riprap protection shall be placed in conjunction with the construction of the embankment with only sufficient lag in construction of the riprap protection as may be necessary to allow for proper construction of the portion of the embankment protected and to prevent mixture of embankment and riprap material.

In no case will the elevation of the embankment be greater than 5 ft above the elevation of the riprap material.

Material

Stone used for dumped riprap shall be hard, durable, angular in shape, resistant to weathering and shall meet the gradation requirement specified. Neither breadth nor thickness of a single stone should be less than one-third its length. Rounded stone or boulders will not be accepted.

Stone shall be free from overburden, spoil, shale, and organic material and shall meet the following gradation requirement specified:

***Table M2.02.2-1: Gradation Requirements for Dumped Riprap***

| Size of Stone (lb) | Maximum Percent of Total Weight Smaller Than Given Size |
|---|---|
| 400 | 100 |
| 300 | 80 |
| 200 | 50 |
| *25 | 10 |
| *No more than 5% by weight shall pass a 2 in. sieve. | |

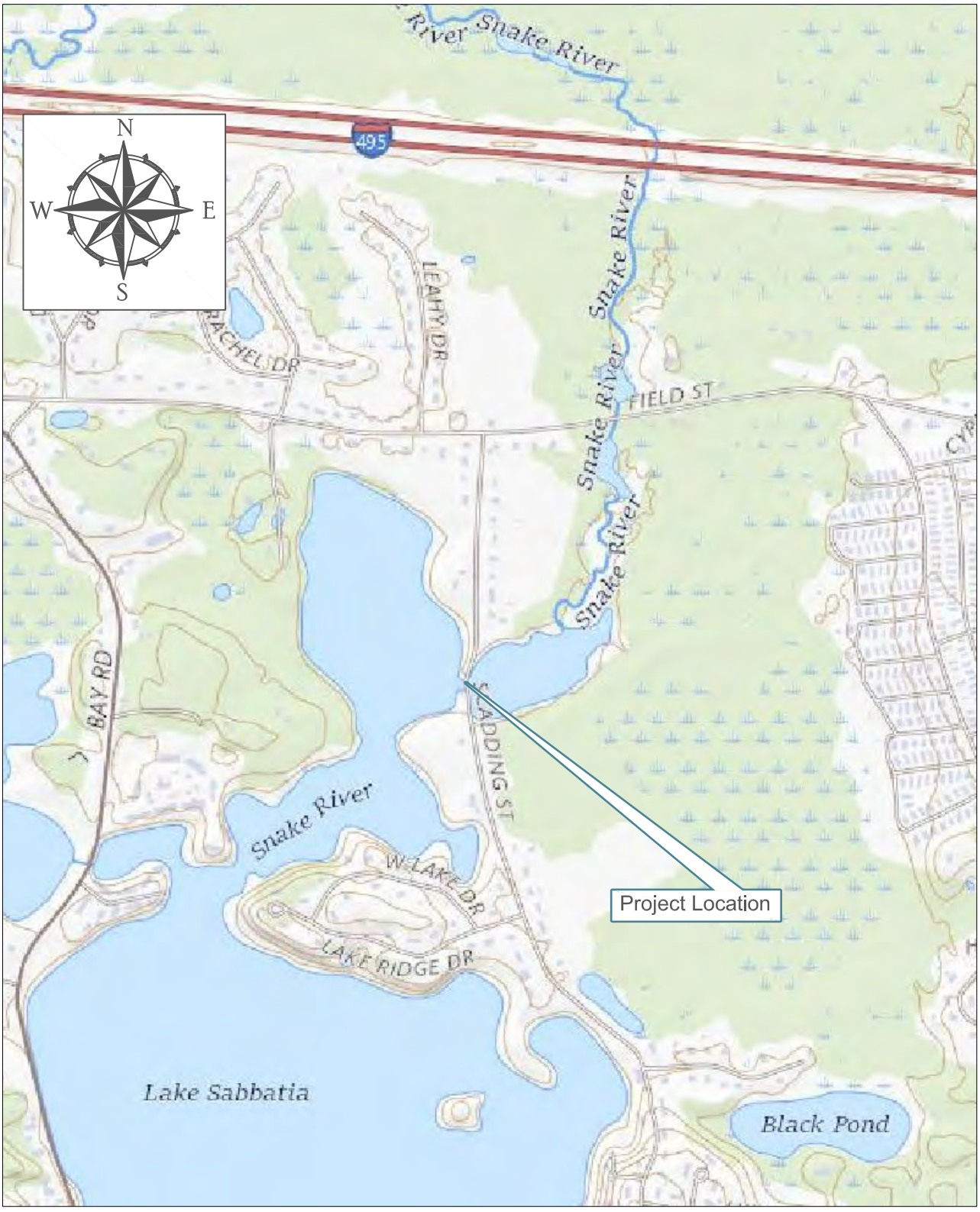
Each load of riprap shall be reasonably well graded from the smallest to the maximum size specified. Stones smaller than the specified 10% size and spalls will not be permitted in an amount exceeding 10% by weight of each load.

Control of gradation will be by visual inspection. The Contractor shall provide at the locations specified a mass of rock of at least 5 tons meeting the gradation for the class specified. The sample at the construction site may be a part of the finished riprap covering. At the quarry, an additional sample shall be provided. These samples shall be used as a frequent reference for judging the gradation of the riprap supplied. Any difference of opinion between the Engineer and the Contractor shall be resolved by dumping and checking the gradation of two random truckloads of stone. Mechanical equipment, a sorting site and labor needed to assist in checking gradation shall be provided by the Contractor at no additional cost to the Department.

BASIS OF PAYMENT

Item M2.02.2 will be paid at the per ton Price Bid, which price shall include all labor, materials, equipment and incidental costs required for the satisfactory installation of the riprap.

# Attachment B
# Project Locus - USGS




## GENERAL NOTES

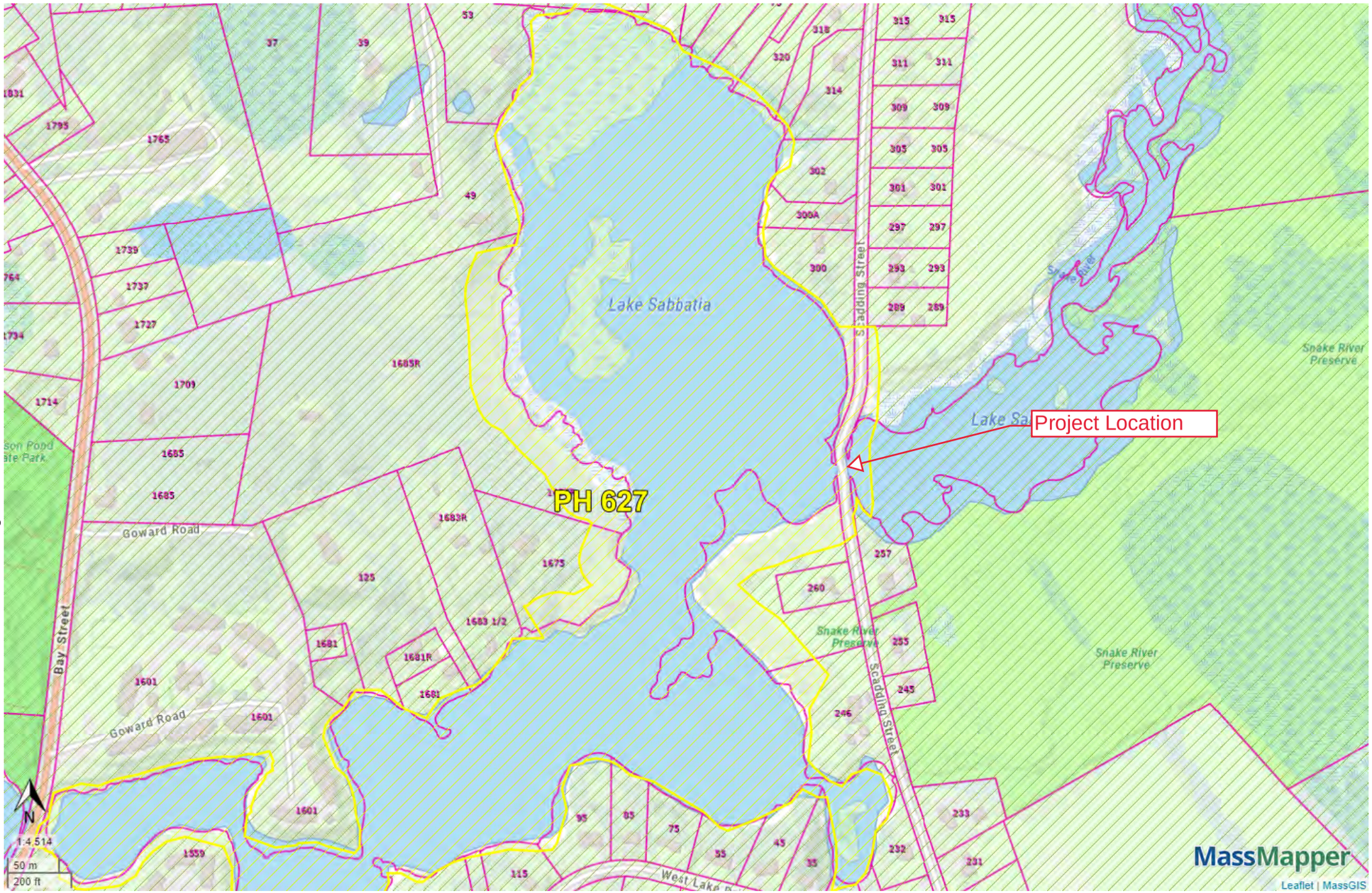
1. Locus map based on USGS 7.5x7.5 Grid US Topo Map of Taunton, MA from the USGS map webstore: http://www.store.usgs.gov
2. Locus map is not to scale

USGS Locus Map
SCADDING STREET - BRIDGE REPLACEMENT PROJECT
TAUNTON, MA

COMPREHENSIVE ENVIRONMENTAL INCORPORATED
41 MAIN STREET
BOLTON, MA 01740

# Attachment C
# Environmental Constraints

# Environmental Constraints - Scadding Street Bridge Replacement




NHESP Certified Vernal Pools

Outstanding Resource Waters
- ACEC
- Cape Cod National Seashore
- Protected Shoreline
- Public Water Supply Watershed
- Retired Public Water Supply
- Scenic/Protected River
- Wildlife Refuge

NHESP Priority Habitats of Rare Species

Areas of Critical Environmental Concern ACECs

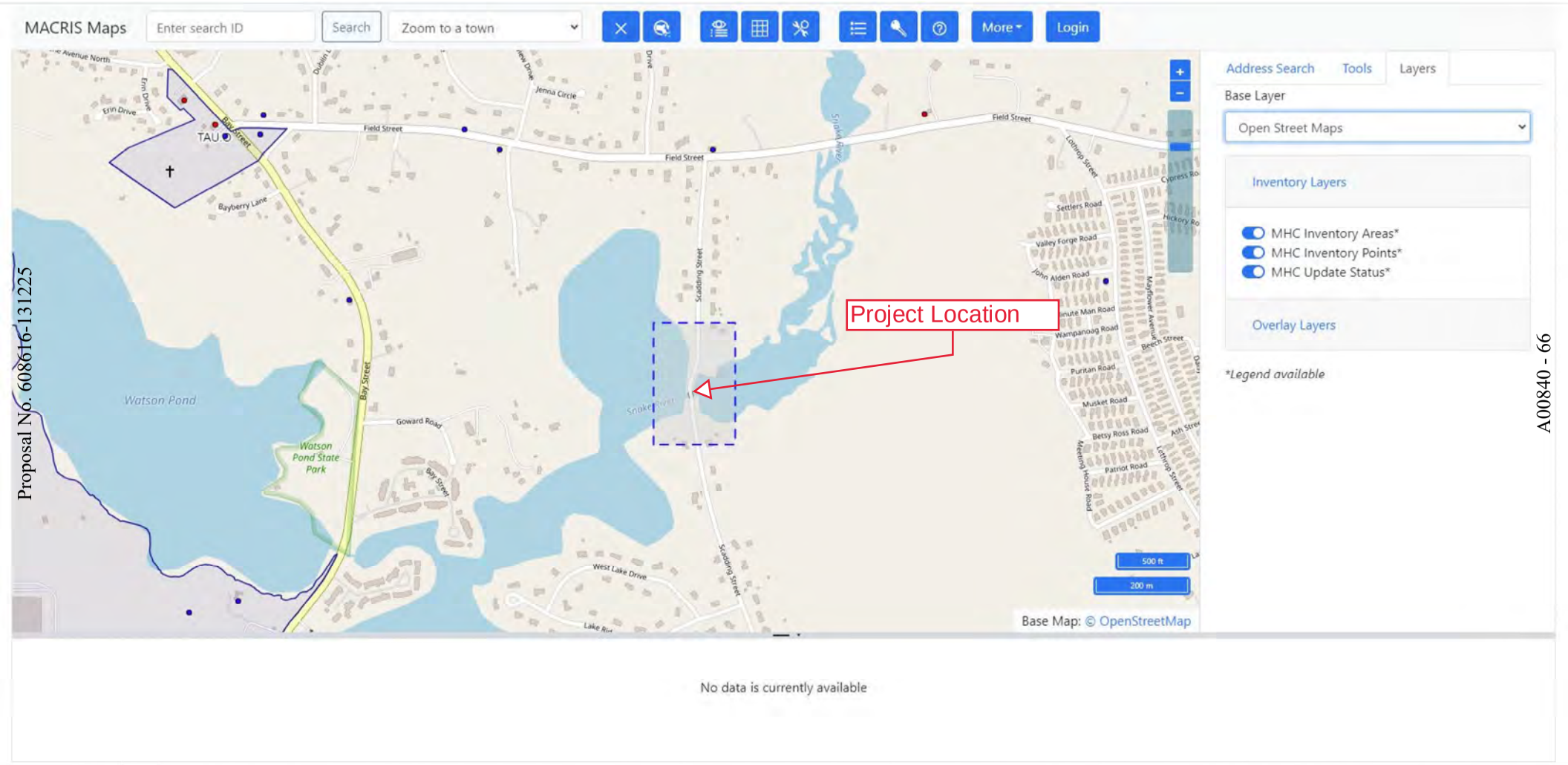
Areas of Critical Environmental Concern ACECs Boundaries
- ROAD/RAIL BASED
- RIVER BASED
- WETLAND BASED
- FLOODPLAIN BASED
- TIDAL BASED
- CONTOUR BASED
- POLITICAL BOUNDARY
- PROPERTY LINE BASED
- OTHER
- NOT DEFINED

Property Tax Parcels

Proposal No. 608616-131225

A00840 - 65

# Historical Properties Map




Proposal No. 608616-131225

# Attachment D
# Correspondences

# United States Department of the Interior

FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: March 09, 2023
Project code: 2023-0033659
Project Name: 608616 - TAUNTON- BRIDGE REPLACEMENT, T-01-024, SCADDING STREET OVER SNAKE RIVER

Subject: Concurrence verification letter for the '608616 - TAUNTON- BRIDGE REPLACEMENT, T-01-024, SCADDING STREET OVER SNAKE RIVER' project under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated March 09, 2023 to verify that the **608616 - TAUNTON- BRIDGE REPLACEMENT, T-01-024, SCADDING STREET OVER SNAKE RIVER** (Proposed Action) may rely on the concurrence provided in the February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action is within the scope and adheres to the criteria of the PBO, including the adoption of applicable avoidance and minimization measures, and may affect, but is not likely to adversely affect (NLAA) the endangered Indiana bat (*Myotis sodalis*) and/or the threatened Northern long-eared bat (*Myotis septentrionalis*). Consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) is required.

The Service has 14 calendar days to notify the lead Federal action agency or designated non-federal representative if we determine that the Proposed Action does not meet the criteria for a NLAA determination under the PBO. If we do not notify the lead Federal action agency or designated non-federal representative within that timeframe, you may proceed with the Proposed Action under the terms of the NLAA concurrence provided in the PBO. This verification period allows Service Field Offices to apply local knowledge to implementation of the PBO, as we may

identify a small subset of actions having impacts that were unanticipated. In such instances, Service Field Offices may request additional information that is necessary to verify inclusion of the proposed action under the PBO.

NOTE: The Service reclassified the NLEB as an endangered species on November 30, 2022. This ruling becomes effective on January 30, 2023. This NLAA determination does not require reinitiation. For projects requiring consultation after the effective date of January 30, 2023, please use the 2022 FHWA, FRA, FTA PBO.

**For Proposed Actions that include bridge/culvert or structure removal, replacement, and/or maintenance activities:** If your initial bridge/culvert or structure assessment documented signs of bat use or occupancy, or an assessment failed to detect Indiana bats and/or NLEBs, yet are later detected prior to, or during construction, please submit the Post Assessment Discovery of Bats at Bridge/Culvert or Structure Form (User Guide Appendix E) to this Service Office within 2 working days of any potential take. In these instances, potential incidental take of Indiana bats and/or NLEBs is covered under the Incidental Take Statement in the 2018 FHWA, FRA, FTA PBO (provided that the take is reported to the Service).

If the Proposed Action is modified, or new information reveals that it may affect the Indiana bat and/or Northern long-eared bat in a manner or to an extent not considered in the PBO, further review to conclude the requirements of ESA Section 7(a)(2) may be required. If the Proposed Action may affect any other federally-listed or proposed species, and/or any designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please contact this Service Office.

The following species may occur in your project area and **are not** covered by this determination:

- Monarch Butterfly *Danaus plexippus* Candidate

# PROJECT DESCRIPTION

The following project name and description was collected in IPaC as part of the endangered species review process.

## NAME

608616 - TAUNTON- BRIDGE REPLACEMENT, T-01-024, SCADDING STREET OVER SNAKE RIVER

## DESCRIPTION

608616 - TAUNTON- BRIDGE REPLACEMENT, T-01-024, SCADDING STREET OVER SNAKE RIVER
BRIDGE REPLACEMENT
Monarch Butterfly: Candidate Species only, no conservation measures at this time.

# DETERMINATION KEY RESULT

Based on your answers provided, this project(s) may affect, but is not likely to adversely affect the endangered Indiana bat and/or the threatened Northern long-eared bat, therefore, consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required. However, also based on your answers provided, this project may rely on the concurrence provided in the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

# QUALIFICATION INTERVIEW

1. Is the project within the range of the Indiana bat[1]?

   [1] See Indiana bat species profile

   **Automatically answered**
   *No*

2. Is the project within the range of the Northern long-eared bat[1]?

   [1] See Northern long-eared bat species profile

   **Automatically answered**
   *Yes*

3. Which Federal Agency is the lead for the action?

   *A) Federal Highway Administration (FHWA)*

4. Are *all* project activities limited to non-construction[1] activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)

   [1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting.

   *No*

5. Does the project include *any* activities that are **greater than** 300 feet from existing road/rail surfaces[1]?

   [1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

   *No*

6. Does the project include *any* activities **within** 0.5 miles of a known Indiana bat and/or NLEB hibernaculum[1]?

   [1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

   *No*

7. Is the project located **within** a karst area?

   *No*

8. Is there *any* suitable[1] summer habitat for Indiana Bat or NLEB **within** the project action area[2]? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

   [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

   [2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the User's Guide for the Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat.

   *Yes*

9. Will the project remove *any* suitable summer habitat[1] and/or remove/trim any existing trees **within** suitable summer habitat?

   [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

   *Yes*

10. Will the project clear more than 20 acres of suitable habitat per 5-mile section of road/rail?

    *No*

11. Have presence/probable absence (P/A) summer surveys[1][2] been conducted[3][4] **within** the suitable habitat located within your project action area?

    [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

    [2] Presence/probable absence summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate distance from hibernacula) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

    [3] For projects within the range of either the Indiana bat or NLEB in which suitable habitat is present, and no bat surveys have been conducted, the transportation agency will assume presence of the appropriate species. This assumption of presence should be based upon the presence of suitable habitat and the capability of bats to occupy it because of their mobility.

    [4] Negative presence/probable absence survey results obtained using the summer survey guidance are valid for a minimum of two years from the completion of the survey unless new information (e.g., other nearby surveys) suggest otherwise.

    *Yes*

***SUBMITTED DOCUMENTS***

- *MassDOT_Taunton_NLEB Memo-Final.pdf https://ipac.ecosphere.fws.gov/project/XXEVXTZM3ZCIVOS5AQ44GJ3CJE/projectDocuments/121138236*

12. Did the presence/probable absence (P/A) summer surveys detect Indiana bats and/or NLEB[1]?

    [1] P/A summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate home range) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

    *No*

13. Were the P/A summer surveys conducted **within** the fall swarming/spring emergence range of a documented Indiana bat hibernaculum[1]?

    [1] Contact the local Service Field Office for appropriate distance from hibernacula.

    *No*

14. Does the project include activities **within documented NLEB habitat**[1][2]?

    [1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

    [2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

    *No*

15. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors?

    *Yes*

16. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors occur?

    *C) During both the active and inactive seasons*

17. Will *any* tree trimming or removal occur **within** 100 feet of existing road/rail surfaces?

    *Yes*

18. Will *any* tree trimming or removal occur **between** 100-300 feet of existing road/rail surfaces?

    *No*

19. Are *all* trees that are being removed clearly demarcated?

    *Yes*

20. Will the removal of habitat or the removal/trimming of trees involve the use of **temporary** lighting?

    *Yes*

21. Will the removal of habitat or the removal/trimming of trees include installing new or replacing existing **permanent** lighting?

    *No*

22. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?

    *Yes*

23. Does the project include slash pile burning?

    *No*

24. Does the project include *any* bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)?

    *Yes*

25. Is there *any* suitable habitat[1] for Indiana bat or NLEB **within** 1,000 feet of the bridge? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

    [1] See the Service's current summer survey guidance for our current definitions of suitable habitat.

    *Yes*

26. Has a bridge assessment[1] been conducted **within** the last 24 months[2] to determine if the bridge is being used by bats?

    [1] See User Guide Appendix D for bridge/structure assessment guidance

    [2] Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Consultation, regardless of whether assessments have been conducted in the past. Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that bridge/structure in subsequent years.

    *No*

27. Is the bridge **within** a known maternity colony's home range[1]?

    [1] Contact your local FWS office for more information if you are uncertain about where the nearest known maternity colony is located.

    *No*

28. Have presence/probable absence (P/A) summer surveys[1][2] been conducted for this project with at least one survey point **within** suitable habitat and **within** 0.25 miles of the bridge[3][4]?

    [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

    [2] Presence/probable absence summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate distance from hibernacula) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

    [3] For projects within the range of either the Indiana bat or NLEB in which suitable habitat is present, and no bat surveys have been conducted, the transportation agency will assume presence of the appropriate species. This assumption of presence should be based upon the presence of suitable habitat and the capability of bats to occupy it because of their mobility.

    [4] Negative presence/probable absence survey results obtained using the summer survey guidance are valid for a minimum of two years from the completion of the survey unless new information (e.g., other nearby surveys) suggest otherwise.

    *Yes, P/A summer surveys were conducted within 0.25 miles of the bridge*

    ***SUBMITTED DOCUMENTS***

    - *MassDOT_Taunton_NLEB Memo-Final.pdf https://ipac.ecosphere.fws.gov/project/XXEVXTZM3ZCIVOS5AQ44GJ3CJE/projectDocuments/121138236*

29. Did the presence/probable absence (P/A) summer surveys detect Indiana bats and/or NLEB[1]?

    [1] P/A summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate home range) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

    *No, Indiana bats and/or NLEBs were not detected during the P/A surveys*

30. Did the local Service Field Office verify[1] that this presence/probable absence (P/A) summer survey can be used for determining Indiana bat and/or NLEB absence from the bridge?

    [1] Coordination with local US Fish and Wildlife Service Field Office regarding the applicability of P/A surveys for this use is required.

    *Yes, the local FWS office confirmed that this P/A survey can be used to assume Indiana bats and/or NLEBs are absent from the bridge*

31. Will the bridge removal, replacement, and/or maintenance activities include installing new or replacing existing **permanent** lighting?

    *No*

32. Does the project include the removal, replacement, and/or maintenance of *any* structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

    *No*

33. Will the project involve the use of *any* **temporary** lighting in addition to the lighting already indicated for habitat removal (including the removal or trimming of trees), or bridge/structure removal, replacement or maintenance activities?

    *Yes*

34. Is there *any* suitable habitat **within** 1,000 feet of the location(s) where **temporary** lighting (other than the lighting already indicated for habitat removal (including the removal or trimming of trees) or bridge/structure removal, replacement or maintenance activities) will be used?

    *Yes*

35. Will the project install new or replace existing **permanent** lighting?

    *No*

36. Does the project include percussives or other activities (**not including tree removal/ trimming or bridge/structure work**) that will increase noise levels above existing traffic/ background levels?

    *Yes*

37. Will the activities that use percussives (**not including tree removal/trimming or bridge/ structure work**) and/or increase noise levels above existing traffic/background levels be conducted *during* the active season[1]?

    [1] Coordinate with the local Service Field Office for appropriate dates.

    *Yes*

38. Will *any* activities that use percussives (**not including tree removal/trimming or bridge/ structure work**) and/or increase noise levels above existing traffic/background levels be conducted *during* the inactive season[1]?

    [1] Coordinate with the local Service Field Office for appropriate dates.

    *Yes*

39. Are *all* project activities that are **not associated with** habitat removal, tree removal/ trimming, bridge and/or structure activities, temporary or permanent lighting, or use of percussives, limited to actions that DO NOT cause any additional stressors to the bat species?

    Examples: lining roadways, unlighted signage , rail road crossing signals, signal lighting, and minor road repair such as asphalt fill of potholes, etc.

    *Yes*

40. Will the project raise the road profile **above the tree canopy**?

    *No*

41. Are the wetland or stream protection activities associated with compensatory wetland/ stream mitigation portion of this project consistent with a Not Likely to Adversely Affect determination in this key?

    **Automatically answered**
    *Yes, because your activities associated with compensatory wetland/stream mitigation activities do not clear suitable summer habitat and are not within 0.5 miles of Indiana bat or NLEB hibernaculum.*

42. Are the project activities that use percussives (not including tree removal/trimming or bridge/structure work) consistent with a Not Likely to Adversely Affect determination in this key?

    **Automatically answered**
    *Yes, because the activities are within 300 feet of the existing road/rail surface, greater than 0.5 miles from a hibernacula, and conducted during the active season within undocumented habitat.*

43. Are the project activities that use percussives (not including tree removal/trimming or bridge/structure work) and/or increase noise levels above existing traffic/background levels consistent with a No Effect determination in this key?

    **Automatically answered**
    *Yes, because the activities are within 300 feet of the existing road/rail surface, greater than 0.5 miles from a hibernacula, and conducted during the inactive season*

44. Is the location of this project consistent with a Not Likely to Adversely Affect determination in this key?

    **Automatically answered**
    *Yes, because no bats were detected during presence/probable absence surveys conducted during the summer survey season and outside of the fall swarming/spring emergence periods. Additionally, all activities were at least 0.5 miles from any hibernaculum.*

45. Is the bridge removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

    **Automatically answered**
    *Yes, because the bridge has been assessed using the criteria documented in the BA and no signs of bats were detected*

46. **General AMM 1**
    Will the project ensure *all* operators, employees, and contractors working in areas of known or presumed bat habitat are aware of *all* FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable Avoidance and Minimization Measures?

    *Yes*

# PROJECT QUESTIONNAIRE

1. Have you made a No Effect determination for *all* other species indicated on the FWS IPaC generated species list?

   *N/A*

2. Have you made a May Affect determination for *any* other species on the FWS IPaC generated species list?

   *N/A*

3. How many acres[1] of trees are proposed for removal between 0-100 feet of the existing road/rail surface?

   [1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   *0.4*

4. Please describe the proposed bridge work:

   *The project consists of demolition of the existing bridge structure and replacement of Bridge T-01-024, carrying Scadding Street over the Snake River and realignment/ improvement of the profile of Scadding Street. The proposed structure will be a precast concrete superstructure supported by cantilevered abutments. A sidewalk will be provided on the west side of the roadway and bridge in accordance with applicable design guides.*

5. Please state the timing of all proposed bridge work:

   *Summer 2025 - Summer 2026*

## AVOIDANCE AND MINIMIZATION MEASURES (AMMS)

This determination key result includes the committment to implement the following Avoidance and Minimization Measures (AMMs):

#### GENERAL AMM 1

Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs.

# DETERMINATION KEY DESCRIPTION: FHWA, FRA, FTA PROGRAMMATIC CONSULTATION FOR TRANSPORTATION PROJECTS AFFECTING NLEB OR INDIANA BAT

This key was last updated in IPaC on December 01, 2022. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which may require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the threatened **Northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should only be used to verify project applicability with the Service's February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects. The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

## IPAC USER CONTACT INFORMATION

Agency: Massachusetts Department of Transportation
Name: Hana Isihara
Address: 10 Park Plaza
City: Boston
State: MA
Zip: 02116
Email hana.l.isihara@dot.state.ma.us
Phone: 6178964454

## LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

January 04, 2024

Trevor Burns
Massachusetts Department of Transportation
10 Park Plaza
Boston, MA 02116

RE: Project Location: Scadding Street over the Snake River, Taunton
Project Description: Replace Bridge T-01-024
**NHESP File No.: 23-10975**
**Heritage Hub Form ID: RC-74769**

Dear Applicant:

Thank you for submitting the MESA Project Review Checklist, site plans (dated September 6, 2023) and other required materials to the Natural Heritage and Endangered Species Program of the MA Division of Fisheries & Wildlife (the "Division") for review pursuant to the Massachusetts Endangered Species Act (MESA) (MGL c.131A) and its implementing regulations (321 CMR 10.00).

Based on a review of the information that was provided and the information that is currently contained in our database, the Division has determined that this project, as currently proposed, **will not result in a prohibited Take** of state-listed rare species. This determination is a final decision of the Division of Fisheries & Wildlife pursuant to 321 CMR 10.18. Any changes to the proposed project or any additional work beyond that shown on the site plans may require an additional filing with the Division pursuant to the MESA. This project may be subject to further review if no physical work is commenced within five years from the date of issuance of this determination, or if there is a change to the project.

Please note that this determination addresses only the matter of state-listed species and their habitats. If you have any questions regarding this letter please contact Emily Holt, Endangered Species Review Assistant, at Emily.Holt@mass.gov, (508) 389-6385.

Sincerely,

Everose Schlüter, Ph.D.
Assistant Director

cc: Mass DOT
Trevor Burns
Taunton Conservation Commission
DEP Southeast Region

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

APPENDIX A
MASSACHUSETTS HISTORICAL COMMISSION
220 MORRISSEY BOULEVARD
BOSTON, MASS. 02125
617-727-8470, FAX: 617-727-5128

RECEIVED
OCT 17 2019
MASS. HIST. COMM
RC.67142

**PROJECT NOTIFICATION FORM**

**Project Name:** Bridge Replacement T-01-024 (MassDOT Project #608616)
**Location /Address:** Scadding Street over the Snake River
**City/Town:** Taunton

After review of MHC files and the materials you submitted, it has been determined that this project is unlikely to affect significant historic or archaeological resources.
RC.67142
Nadia Waski 11.13.19
Nadia Waski Date
Preservation Planner
Massachusetts Historical Commission

**Project Proponent**
**Name:** Massachusetts Department of Transportation
**Address:** 10 Park Plaza
**City/Town/Zip/Telephone:** Boston, MA 02116

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

| Agency Name | Type of License or funding (specify) |
|---|---|
| MassDOT | Federal Funding |
| USACOE | Permit |

**Project Description (narrative):**

The Massachusetts Department of Transportation proposes to replace Bridge T-01-024, which carries Scadding Street over the Snake River in Taunton. This bridge consists of a single-span precast reinforced concrete voided deck beam superstructure constructed in 1967, supported by mortared fieldstone abutments constructed in 1899 for an earlier bridge. The bridge width is 24'-0" curb-to-curb and 27'-0"out-to-out. The existing bridge is structurally deficient. The substructure exhibits significant deterioration and undermining due to scour, and the existing horizontal alignment significantly impedes traffic flow and affects safety. The roadway approaches for Bridge T-01-24 are 18'-0" wide with 9'-0" travel lanes in each direction without shoulders or sidewalks. Traffic and pedestrian safety will be addressed through the realignment of the bridge and the bridge approaches (200 ft. of approach roadway south of the bridge and 300 ft. of approach roadway north of the bridge) and the construction of sidewalk of the east side of the roadway.

The proposed structure will be 39'-3" in length and 35'-5" in width rail-to-rail with two 10' travel lanes, two 5' shoulders, and one 5'-5" sidewalk on the east side of the roadway. Additional project work includes: constructing Mechanically Stabilized Earth (MSE) walls to support the realigned causeway; placing rip-rap for scour protection; installing erosion controls (compost filter tubing; mulch); clearing and grubbing; removing 3 trees in the southeast quadrant; planting 3 new trees in the northeast quadrant; installing drainage improvements; pavement reconstruction and milling and overlay; reconstructing the existing boat ramp in the northeast quadrant; and removing and replacing guardrail

**Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.**

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**APPENDIX A (continued)**

N/A

**Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.**

N/A

**Does the project include new construction? If so, describe (attach plans and elevations if necessary).**

See plans

**To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.**

A review of the State/National Registers of Historic Places and the Inventory of Historic and Archaeological Assets of the Commonwealth revealed no listed properties or districts or inventoried areas, structures, or buildings in the vicinity of the project area. Kurt Jergensen, MassDOT Historic Bridge Specialist, reviewed the bridge and determined it to be ineligible for inclusion in the National Register. It is a standard mid-20th century design with standard engineering details, utilizing prefabricated superstructure elements placed on reused abutments.

A review of the MHC's archaeological maps revealed numerous recorded pre-contact sites associated with the Lake Sabbatia area. However, no archaeological sites are recorded within the project's direct area of potential effect (APE). Lake Sabbatia, also known historically as Scaddings Pond, was formed when the Morey's Bridge Dam was constructed in 1832 (reconstructed in 1923 and 1958, replaced ca. 2012 as part of MassDOT Project #603576) to impound the Mill River outlet at Bay Street, approximately 1.5 miles downstream. The Snake River inlets into Lake Sabbatia from the northeast and its wide watershed adjacent to the project area is maintained by dam. It is the opinion of the MassDOT Archaeologist that low archaeological sensitivity can be ascribed to the project's direct APE based the impacts of past roadway, causeway, bridge, utility, and drainage construction. The approaches for Scadding Street were constructed on causeway fill in order to carry the roadway through this wide, impounded section of the river. Most of the project impacts will be confined to this man-made causeway. The realignment the new bridge and roadway approaches will require shifting the causeway fill from the northwest quadrant to the northeast quadrant. MSE walls will be used to support the realigned roadways in the northwest and northeast quadrants.

**What is the total acreage of the project area?**

| | | | | | |
|---|---|---|---|---|---|
| Woodland | _____ | acres | Productive Resources: | | |
| Wetland | _____ | acres | Agriculture | _____ | acres |
| Floodplain | _____ | acres | Forestry | _____ | acres |
| Open Space | _____ | acres | Mining/Extraction | _____ | acres |
| Developed | _____ | acres | Total Project Acreage | _____ | acres |

**What is the acreage of the proposed new construction?** _____ acres

**950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH**

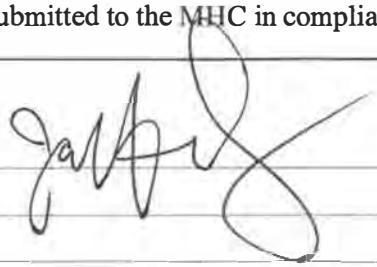
**APPENDIX A (continued)**

**What is the present land use of the project area?**

The bridge and the Scadding Street approach causeway are surrounded by the wide Snake River watershed.

**Please attach a copy of the section of the USGS quadrangle map which clearly marks the project location.**

This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.

**Signature of person submitting this form:**  **Date:** 10/11/19

**Name:** Jameson Harwood

**Address:** 10 Park Plaza

**City/Town/Zip:** Boston, MA 02717

**Telephone:** 857-368-8799

**REGULATORY AUTHORITY**

**950 CMR 71.00: M.G.L. c. 9, §§ 26-27C as amended by St. 1988, c. 254.**



CC Mashpee THPO, Aquinnah THPO, BUAR, SHPO
CC:

# CULTURAL RESOURCES PROJECT RECORD

| | | | | | |
|---|---|---|---|---|---|
| City/Town | Taunton | Project # | 608616 | Date Cleared | 10/11/2019 |
| Project Name | Bridge Replacement T-01-024 Scadding Street over the Snake River | Date Filed | 10/11/2019 | Finding Under Review | ☐ |
| | | FHWA to MHC | | | |
| Project Type | Bridge Replacement | Early Coord. Letter Sent: | ☑ | | |
| Review | Section 106 (PA) | Comment Received: | | Reviewer | JMH |
| Finding: | Appendix 1 | ☐ MHC ☐ LHC | | Consultant | |

Comment: 2023 update - Section 106 clearance still valid. PNFs to SHPO, BUAR, ATHPO, MTHPO, and NTHPO. SHPO stamped no concerns on PNF(although the 2013 Cops bridge exemption applies). BUAR responded no concerns. Certified mail receipt received from ATHPO but no comments. PNF emailed with delivery receipt to MTHPO and NTHPO.

Determination based on: ☑ Scope of Work ☑ Plan ☑ Inventory ☐ Site Visit ☐ Archaeological Survey

*Attach appropriate documentation for checked items*

## Projects Requiring No Massachusetts SHPO Review

### Programmatic Agreement, Appendix 1 (check all that apply) :

- ☐ 1) Interstate bridge or roadway projects
- ☑ 2) Resurfacing, repair existing roadways
- * ☑ 3) Reconstruction on existing roadway
- * ☐ 4) Roadway geometrics, intersections
- * ☑ 5) Curbs and sidewalks
- ☑ 6) Pavement markings, rumble strips, etc
- ☑ 7) Curbs, sidewalks (MAAB, ADA)
- * ☑ 8) Removal of trees
- ☐ 9) Landscaping
- ☑ 10) Utilities
- ☐ 11) Railroad crossing
- ☐ 12) Stream stabilization and restoration
- ☐ 13) Wetland mitigation area
- * ☑ 14) Bridge (NR "Not Eligible" or "Conditionally Not Eligible")
- * ☐ 15) Bridge (concrete slab post 1900, steel stringer)
- ☐ 16) Bridge (less than 20' span)
- * ☐ 17) Highway safety improvement
- ☑ 18) Drainage system element
- * ☐ 19) Traffic signal, safety improvement
- * ☐ 20) Intelligent Transportation System project
- ☐ 21) Rest area, maintenance facility
- * ☐ 22) Bicycle, pedestrian lane, path or facility
- ☐ 23) Lighting system
- ☐ 24) Sign
- ☐ 25) Hazardous waste
- ☑ 26) Highway fencing
- ☐ 27) Emergency repair
- ☑ 28) Erosion control
- ☐ 29) Noise barrier

* National Register eligibility evaluation required

**-OR-**

### No Historic Properties Affected
### Programmatic Agreement Stipulation V.B. (check one):

- ☐ No NR listed or -eligible properties within Area of Potential Effect
- ☐ No effect on National Register listed or -eligible properties

Reviewer's Initials: JMH

# CULTURAL RESOURCES PROJECT RECORD

## Summary of MassDOT Highway Division Finding
## (Appendix 1 and Section V.B. Projects only)

The Massachusetts Department of Transportation proposes to replace Bridge T-01-024, which carries Scadding Street over the Snake River in Taunton. This bridge consists of a single-span precast reinforced concrete voided deck beam superstructure constructed in 1967, supported by mortared fieldstone abutments constructed in 1899 for an earlier bridge. The bridge width is 24'-0" curb-to-curb and 27'-0"out-to-out. The existing bridge is structurally deficient. The substructure exhibits significant deterioration and undermining due to scour, and the existing horizontal alignment significantly impedes traffic flow and affects safety. The roadway approaches for Bridge T-01-024 are 18'-0" wide with 9'-0" travel lanes in each direction without shoulders or sidewalks. Traffic and pedestrian safety will be addressed through the realignment of the bridge and the bridge approaches (200 ft. of approach roadway south of the bridge and 300 ft. of approach roadway north of the bridge) and the construction of sidewalk on the east side of the roadway.

The proposed structure will be 39'-3" in length and 35'-5" in width rail-to-rail with two 10' travel lanes, two 5' shoulders, and one 5'-5" sidewalk on the east side of the roadway. Additional project work includes: constructing Mechanically Stabilized Earth (MSE) walls to support the realigned causeway; placing rip-rap for scour protection; installing erosion controls (compost filter tubing; mulch); clearing and grubbing; removing 3 trees in the southeast quadrant; planting 3 new trees in the northeast quadrant; installing drainage improvements; pavement reconstruction and milling and overlay; reconstructing the existing boat ramp in the northeast quadrant; and removing and replacing guardrail.

A review of the State/National Registers of Historic Places and the Inventory of Historic and Archaeological Assets of the Commonwealth revealed no listed properties or districts or inventoried areas, structures, or buildings in the vicinity of the project area. Kurt Jergensen, MassDOT Historic Bridge Specialist, reviewed the bridge and determined it to be ineligible for inclusion in the National Register. It is a standard mid-20th century design with standard engineering details, utilizing prefabricated superstructure elements placed on reused abutments.

A review of the MHC's archaeological maps revealed numerous recorded pre-contact sites associated with the Lake Sabbatia area. However, no archaeological sites are recorded within the project's direct area of potential effect (APE). Lake Sabbatia, also known historically as Scaddings Pond, was formed when the Morey's Bridge Dam was constructed in 1832 (reconstructed in 1923 and 1958, replaced ca. 2012 as part of MassDOT Project #603576) to impound the Mill River outlet at Bay Street, approximately 1.5 miles downstream. The Snake River inlets into Lake Sabbatia from the northeast and its wide watershed adjacent to the project area is maintained by dam. It is the opinion of the MassDOT Archaeologist that low archaeological sensitivity can be ascribed to the project's direct APE based the impacts of past roadway, causeway, bridge, utility, and drainage construction. The approaches for Scadding Street were constructed on causeway fill in order to carry the roadway through this wide, impounded section of the river. Most of the project impacts will be confined to this man-made causeway. The realignment the new bridge and roadway approaches will require shifting the causeway fill from the northwest quadrant to the northeast quadrant. MSE walls will be used to support the realigned roadways in the northwest and northeast quadrants.

An early coordination letter was forwarded to the Taunton Historical Commission on September 30, 2019. A copy was forwarded to the MHC. PNFs were forwarded to the MTHPO, the ATHPO, the SHPO, and the BUAR on October 11, 2019.

Reviewer's Initials: _____

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Ms. Bettina Washington, THPO
Wamparoag Tribe of Gay Head (Aquinnah)
20 Black Brook Road
Aquinnah, MA 02535

9590 9402 4258 8121 6553 15

2. Article Number (Transfer from service label)

7018 0680 0000 6910 5133

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

X [signature] ☐ Agent ☐ Addressee

B. Received by (Printed Name) [signature] C. Date of Delivery

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type

- ☐ Adult Signature
- ☐ Adult Signature Restricted Delivery
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- ☐ Certified Mail Restricted Delivery
- ☐ Collect on Delivery
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- ☐ ired Mail
- ☐ red Mail Restricted Delivery (over $500)
- ☐ Priority Mail Express®
- ☐ Registered Mail™
- ☐ Registered Mail Restricted Delivery
- ☐ Return Receipt for Merchandise
- ☐ Signature Confirmation™
- ☐ Signature Confirmation Restricted Delivery

PS Form 3811, July 2015 PSN 7530-02-000-9053 Domestic Return Receipt

USPS TRACKING #

9590 9402 4258 8121 6553 15

First-Class Mail
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Permit No. G-10

United States Postal Service

• Sender: Please print your name, address, and ZIP+4® in this box•

MassDOT
Environmental Services
10 Park Plaza, Room 4260
Boston, MA 02116
attn: Jameson Harwood

MassDOT 608616 → Taunton proj.

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Stephanie Pollack, Secretary & CEO
Jonathan L. Gulliver, Highway Administrator

MassDOT
Massachusetts Department of Transportation
Highway Division

October 11, 2019

Ms. Bettina Washington
Tribal Historic Preservation Officer
Wampanoag Tribe of Gay Head (Aquinnah)
20 Black Brook Road
Aquinnah, MA 02535

**RE: TAUNTON: MassDOT Project #608616**
**Bridge Replacement T-01-024 Scadding Street over the Snake River**
**Project Notification Form**

Dear Ms. Washington:

The enclosed project notification package has been submitted in accordance with the early notification requirements pertaining to Section 106.

MassDOT requests that the Tribe review the enclosed materials at its earliest convenience and solicit comments that it wishes to make regarding this project. Written comments should be submitted to: David White, Acting Director, Environmental Services, Massachusetts Department of Transportation, 10 Park Plaza, Room 4260, Boston, MA 02116, Attn: Jameson Harwood.

If you have any questions concerning the project, please feel free to me at (857.368.8799).

Sincerely,

Jameson Harwood
MassDOT Archaeologist
Environmental Services

atts: Project Plans/PNF
Locus map/Historic maps/MACRIS map
Project photos

Ten Park Plaza, Suite 4260, Boston, MA 02116
Tel: 857-368-4636, TTY: 857-368-0655
www.mass.gov/massdot

The COMMONWEALTH OF MASSACHUSETTS
BOARD OF UNDERWATER ARCHAEOLOGICAL RESOURCES
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
251 Causeway Street, Suite 800, Boston, MA 02114-2136
Tel. (617) 626-1014 Fax (617) 626-1240
www.mass.gov/orgs/board-of-underwater-archaeological-resources

October 21, 2019

David White
Acting Director
Environmental Services
Massachusetts Department of Transportation
10 Park Plaza, Room 4260
Boston, MA 02116
Attn: James Harwood

RE: MassDOT Project #608616, Bridge Replacement T-01-024 Scadding Street over the Snake River, Taunton, MA

Dear Mr. White,

The staff of the Massachusetts Board of Underwater Archaeological Resources has reviewed the above-referenced project's Massachusetts Historical Commission (MHC) Project Notification Form (PNF). We offer the following comments.

The Board has conducted a preliminary review of its files, the MHC's MACRIS archaeological site inventory geospatial database, and secondary literature sources to identify known and potential submerged cultural resources in the proposed project area. No record of any underwater archaeological resources was found. Based on the results of this review and the PNF-described disturbed nature of much of the project's proposed APE from the construction of the past roadway, causeway, bridge, utilities, and drainage construction, and the use of fill in order to carry the roadway through this section of the lake, the Board expects that this project is unlikely to impact submerged cultural resources.

However, the area is archaeologically sensitive. Although no archaeological sites are recorded within the project's direct area of potential effect, numerous pre-contact period archaeological sites are associated with the Lake Sabbatia area. Therefore, should heretofore-unknown submerged cultural resources be encountered during the course of the project, the Board expects that the project's sponsor will take steps to limit adverse effects and notify the Board and the Massachusetts Historical Commission, as well as other appropriate agencies, immediately, in accordance with the Board's *Policy Guidance for the Discovery of Unanticipated Archaeological Resources*.

The Board appreciates the opportunity to provide these comments as part of the review process. Should you have any questions regarding this letter, please do not hesitate to contact me at the address above, by email at david.s.robinson@mass.gov, or by telephone at (617) 626-1014.

Sincerely,

David S. Robinson
Director

/dsr

## Shrimpton, Jeffrey P. (DOT)

**From:** Harwood, Jameson (DOT)
**Sent:** Friday, October 11, 2019 10:32 AM
**To:** Robinson, David S (EEA)
**Subject:** MassDOT Project #608616: Taunton - Bridge T-01-024 Bridge replacement Scadding Street over the Snake River
**Attachments:** 20191011 PNF to BUAR.pdf; Plans.pdf

David,

Please find attached the project notification package for the above referenced project. Please contact me if you have any questions.

Thank you,
Jamie

*Jameson M. Harwood – MassDOT Archaeologist*
*Archaeology / Contracts*
*MassDOT Environmental*
*10 Park Plaza – Room 4260*
*Boston, MA 02116*
*857-368-8799*

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Stephanie Pollack, Secretary & CEO
Jonathan L. Gulliver, Highway Administrator

MassDOT
Massachusetts Department of Transportation
Highway Division

October 11, 2019

Mr. David S. Robinson
Chief Archaeologist/State Underwater Archaeologist
Board of Underwater Archaeological Resources
251 Causeway Street, Suite 800
Boston, MA 02114-2199

**RE: TAUNTON: MassDOT Project #608616**
**Bridge Replacement T-01-024 Scadding Street over the Snake River**
**Project Notification Form**

Dear Mr. Robinson:

The enclosed project notification package has been submitted in accordance with the U.S. Army Corps of Engineer permit requirements pertaining to Section 106.

MassDOT requests that the Board review the enclosed materials at its earliest convenience and solicit comments that it wishes to make regarding this project. Written comments should be submitted to: David White, Acting Director, Environmental Services, Massachusetts Department of Transportation, 10 Park Plaza, Room 4260, Boston, MA 02116, Attn: Jameson Harwood.

If you have any questions concerning the project, please feel free to contact me at (857.368.8799).

Sincerely,

Jameson Harwood
MassDOT Archaeologist
Environmental Services

atts: Project Plans/PNF
Locus map/Historic maps/MACRIS map
Project photos

Ten Park Plaza, Suite 4260, Boston, MA 02116
Tel: 857-368-4636, TTY: 857-368-0655
www.mass.gov/massdot

## Harwood, Jameson (DOT)

**From:** Microsoft Outlook
**To:** David Weeden (David.Weeden@mwtribe-nsn.gov)
**Sent:** Wednesday, December 20, 2023 8:12 AM
**Subject:** Relayed: MassDOT Project #608616 - Taunton: Bridge T-01-024

**Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:**

David Weeden (David.Weeden@mwtribe-nsn.gov) (David.Weeden@mwtribe-nsn.gov)

Subject: MassDOT Project #608616 - Taunton: Bridge T-01-024

## Harwood, Jameson (DOT)

**From:** Harwood, Jameson (DOT)
**Sent:** Wednesday, December 20, 2023 8:12 AM
**To:** David Weeden (David.Weeden@mwtribe-nsn.gov)
**Subject:** MassDOT Project #608616 - Taunton: Bridge T-01-024
**Attachments:** Taunton, T-01-024 (608616) PNF.pdf; Plans - 75%.pdf

David,

MassDOT is submitting information for the above-referenced project to the THPO to meet the Section 106 consultation requirements of FHWA (lead federal agency) and the US Army Corps of Engineers. Please submit any written comments or concerns regarding historic or archaeological properties that may be affected by this project to Carrie Lavallee, P.E., Chief Engineer, Massachusetts Department of Transportation, 10 Park Plaza, Boston, MA 02116-3973, Attn: Jameson Harwood.

You also may send comments, questions, or requests for more information by email to Jameson.Harwood@state.ma.us

Thank you,
Jamie

***Jameson M. Harwood, Cultural Resources Supervisor***
**Environmental Services Section**
***MassDOT* – Highway Division**
***10 Park Plaza***
***Boston, MA 02116***

## Shrimpton, Jeffrey P. (DOT)

**From:** Harwood, Jameson (DOT)
**Sent:** Friday, October 11, 2019 10:30 AM
**To:** David Weeden (David.Weeden@mwtribe-nsn.gov)
**Subject:** MassDOT Project #608616: Taunton - Bridge T-01-024 Bridge replacement Scadding Street over the Snake River
**Attachments:** 20191011 PNF to MTHPO.pdf; Plans.pdf

David,

Please find attached the project notification package for the above referenced project. Please contact me if you have any questions.

Thank you,
Jamie

*Jameson M. Harwood – MassDOT Archaeologist*
*Archaeology / Contracts*
*MassDOT Environmental*
*10 Park Plaza – Room 4260*
*Boston, MA 02116*
*857-368-8799*

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Stephanie Pollack, Secretary & CEO
Jonathan L. Gulliver, Highway Administrator

MassDOT
Massachusetts Department of Transportation
Highway Division

October 11, 2019

Mr. David Weeden
Tribal Historic Preservation Officer
Mashpee Wampanoag Tribe
483 Great Neck Road South
Mashpee, MA 02649

**RE: TAUNTON: MassDOT Project #608616**
**Bridge Replacement T-01-024 Scadding Street over the Snake River**
**Project Notification Form**

Dear Mr. Weeden:

The enclosed project notification package has been submitted in accordance with the early notification requirements pertaining to Section 106.

MassDOT requests that the Tribe review the enclosed materials at its earliest convenience and solicit comments that it wishes to make regarding this project. Written comments should be submitted to: David White, Acting Director, Environmental Services, Massachusetts Department of Transportation, 10 Park Plaza, Room 4260, Boston, MA 02116, Attn: Jameson Harwood.

If you have any questions concerning the project, please feel free to contact me at (857.368.8799).

Sincerely,

Jameson Harwood
MassDOT Archaeologist
Environmental Services

atts: Project Plans/PNF
Locus map/Historic maps/MACRIS map
Project photos

Ten Park Plaza, Suite 4260, Boston, MA 02116
Tel: 857-368-4636, TTY: 857-368-0655
www.mass.gov/massdot

## Harwood, Jameson (DOT)

**From:** Microsoft Outlook
**To:** Tashtesook@aol.com
**Sent:** Wednesday, December 20, 2023 8:13 AM
**Subject:** Relayed: MassDOT Project #608616 - Taunton: Bridge T-01-024

**Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:**

Tashtesook@aol.com (Tashtesook@aol.com)

Subject: MassDOT Project #608616 - Taunton: Bridge T-01-024

## Harwood, Jameson (DOT)

**From:** Harwood, Jameson (DOT)
**Sent:** Wednesday, December 20, 2023 8:13 AM
**To:** Tashtesook@aol.com
**Subject:** MassDOT Project #608616 - Taunton: Bridge T-01-024
**Attachments:** Taunton, T-01-024 (608616) PNF.pdf; Plans - 75%.pdf

Mr. Brown,

MassDOT is submitting information for the above-referenced project to the THPO to meet the Section 106 consultation requirements of FHWA (lead federal agency) and the US Army Corps of Engineers. Please submit any written comments or concerns regarding historic or archaeological properties that may be affected by this project to Carrie Lavallee, P.E., Chief Engineer, Massachusetts Department of Transportation, 10 Park Plaza, Boston, MA 02116-3973, Attn: Jameson Harwood.

You also may send comments, questions, or requests for more information by email to Jameson.Harwood@state.ma.us

Thank you,
Jamie

***Jameson M. Harwood, Cultural Resources Supervisor***
**Environmental Services Section**
***MassDOT* – Highway Division**
***10 Park Plaza***
***Boston, MA 02116***

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

APPENDIX A
MASSACHUSETTS HISTORICAL COMMISSION
220 MORRISSEY BOULEVARD
BOSTON, MASS. 02125
617-727-8470, FAX: 617-727-5128

## PROJECT NOTIFICATION FORM

**Project Name:** Bridge Replacement T-01-024 (MassDOT Project #608616)
**Location /Address:** Scadding Street over the Snake River
**City/Town:** Taunton

**Project Proponent**
**Name:** Massachusetts Department of Transportation
**Address:** 10 Park Plaza
**City/Town/Zip/Telephone:** Boston, MA 02116

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

| Agency Name | Type of License or funding (specify) |
|---|---|
| MassDOT | Federal Funding |
| USACOE | Permit |

**Project Description (narrative):**

The Massachusetts Department of Transportation proposes to replace Bridge T-01-024, which carries Scadding Street over the Snake River in Taunton. This bridge consists of a single-span precast reinforced concrete voided deck beam superstructure constructed in 1967, supported by mortared fieldstone abutments constructed in 1899 for an earlier bridge. The bridge width is 24'-0" curb-to-curb and 27'-0"out-to-out. The existing bridge is structurally deficient. The substructure exhibits significant deterioration and undermining due to scour, and the existing horizontal alignment significantly impedes traffic flow and affects safety. The roadway approaches for Bridge T-01-24 are 18'-0" wide with 9'-0" travel lanes in each direction without shoulders or sidewalks. Traffic and pedestrian safety will be addressed through the realignment of the bridge and the bridge approaches (200 ft. of approach roadway south of the bridge and 300 ft. of approach roadway north of the bridge) and the construction of sidewalk of the east side of the roadway.

The proposed structure will be 39'-3" in length and 35'-5" in width rail-to-rail with two 10' travel lanes, two 5' shoulders, and one 5'-5" sidewalk on the east side of the roadway. Additional project work includes: constructing Mechanically Stabilized Earth (MSE) walls to support the realigned causeway; placing rip-rap for scour protection; installing erosion controls (compost filter tubing; mulch); clearing and grubbing; removing 3 trees in the southeast quadrant; planting 3 new trees in the northeast quadrant; installing drainage improvements; pavement reconstruction and milling and overlay; reconstructing the existing boat ramp in the northeast quadrant; and removing and replacing guardrail

**Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.**

**950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH**

**APPENDIX A (continued)**

N/A

**Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.**

N/A

**Does the project include new construction? If so, describe (attach plans and elevations if necessary).**

See plans

**To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.**

A review of the State/National Registers of Historic Places and the Inventory of Historic and Archaeological Assets of the Commonwealth revealed no listed properties or districts or inventoried areas, structures, or buildings in the vicinity of the project area. Kurt Jergensen, MassDOT Historic Bridge Specialist, reviewed the bridge and determined it to be ineligible for inclusion in the National Register. It is a standard mid-20th century design with standard engineering details, utilizing prefabricated superstructure elements placed on reused abutments.

A review of the MHC's archaeological maps revealed numerous recorded pre-contact sites associated with the Lake Sabbatia area. However, no archaeological sites are recorded within the project's direct area of potential effect (APE). Lake Sabbatia, also known historically as Scaddings Pond, was formed when the Morey's Bridge Dam was constructed in 1832 (reconstructed in 1923 and 1958, replaced ca. 2012 as part of MassDOT Project #603576) to impound the Mill River outlet at Bay Street, approximately 1.5 miles downstream. The Snake River inlets into Lake Sabbatia from the northeast and its wide watershed adjacent to the project area is maintained by dam. It is the opinion of the MassDOT Archaeologist that low archaeological sensitivity can be ascribed to the project's direct APE based the impacts of past roadway, causeway, bridge, utility, and drainage construction. The approaches for Scadding Street were constructed on causeway fill in order to carry the roadway through this wide, impounded section of the river. Most of the project impacts will be confined to this man-made causeway. The realignment the new bridge and roadway approaches will require shifting the causeway fill from the northwest quadrant to the northeast quadrant. MSE walls will be used to support the realigned roadways in the northwest and northeast quadrants.

**What is the total acreage of the project area?**

| | | | Productive Resources: | | |
|---|---|---|---|---|---|
| Woodland | _____ | acres | | | |
| Wetland | _____ | acres | Agriculture | _____ | acres |
| Floodplain | _____ | acres | Forestry | _____ | acres |
| Open Space | _____ | acres | Mining/Extraction | _____ | acres |
| Developed | _____ | acres | Total Project Acreage | _____ | acres |

**What is the acreage of the proposed new construction?** _____ acres

**950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH**

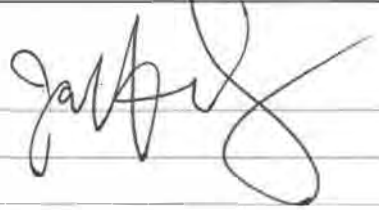
**APPENDIX A (continued)**

**What is the present land use of the project area?**

The bridge and the Scadding Street approach causeway are surrounded by the wide Snake River watershed.

**Please attach a copy of the section of the USGS quadrangle map which clearly marks the project location.**

This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.

**Signature of person submitting this form:**  **Date:** 10/11/19

**Name:** Jameson Harwood

**Address:** 10 Park Plaza

**City/Town/Zip:** Boston, MA 02717

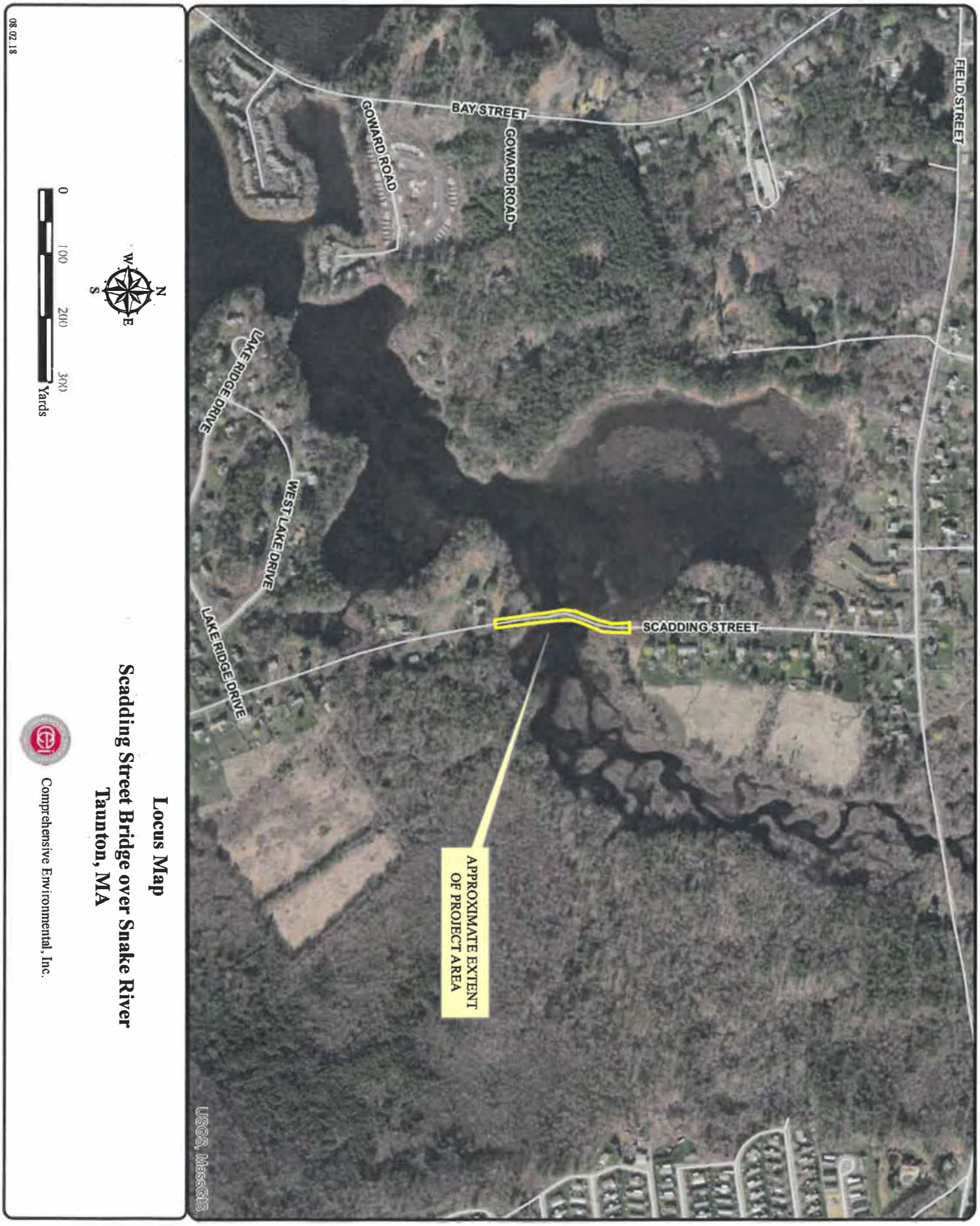
**Telephone:** 857-368-8799

**REGULATORY AUTHORITY**

**950 CMR 71.00: M.G.L. c. 9, §§ 26-27C as amended by St. 1988, c. 254.**



CC Mashpee THPO, Aquinnah THPO, BUAR, SHPO
CC:




**Locus Map**

**Scadding Street Bridge over Snake River**

**Taunton, MA**

Comprehensive Environmental, Inc.

08.02.18

(http://www.esri.com/) (http://www.usgs.gov/)

# USGS Historical Topographic Map Explorer

**Find** a place you want to explore, then
**Click** on a location to see its historical maps.

scadding street, taunton ma

Historical Map Scales

2 **Click** on maps in the timeline to view them in the main window.

Reset

Proposal No. 608616-131225

A00840 - 103

(http://www.esri.com/) (http://www.usgs.gov/)

# USGS Historical Topographic Map Explorer

**Find** a place you want to explore, then
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scadding street, taunton ma

Historical Map Scales

2 **Click** on maps in the timeline to view them in the main window.

Reset

Proposal No. 608616-131225

A00840 - 104

(http://www.esri.com/) (http://www.usgs.gov/)

# USGS Historical Topographic Map Explorer

**Find** a place you want to explore, then
**Click** on a location to see its historical maps.

scadding street, taunton ma

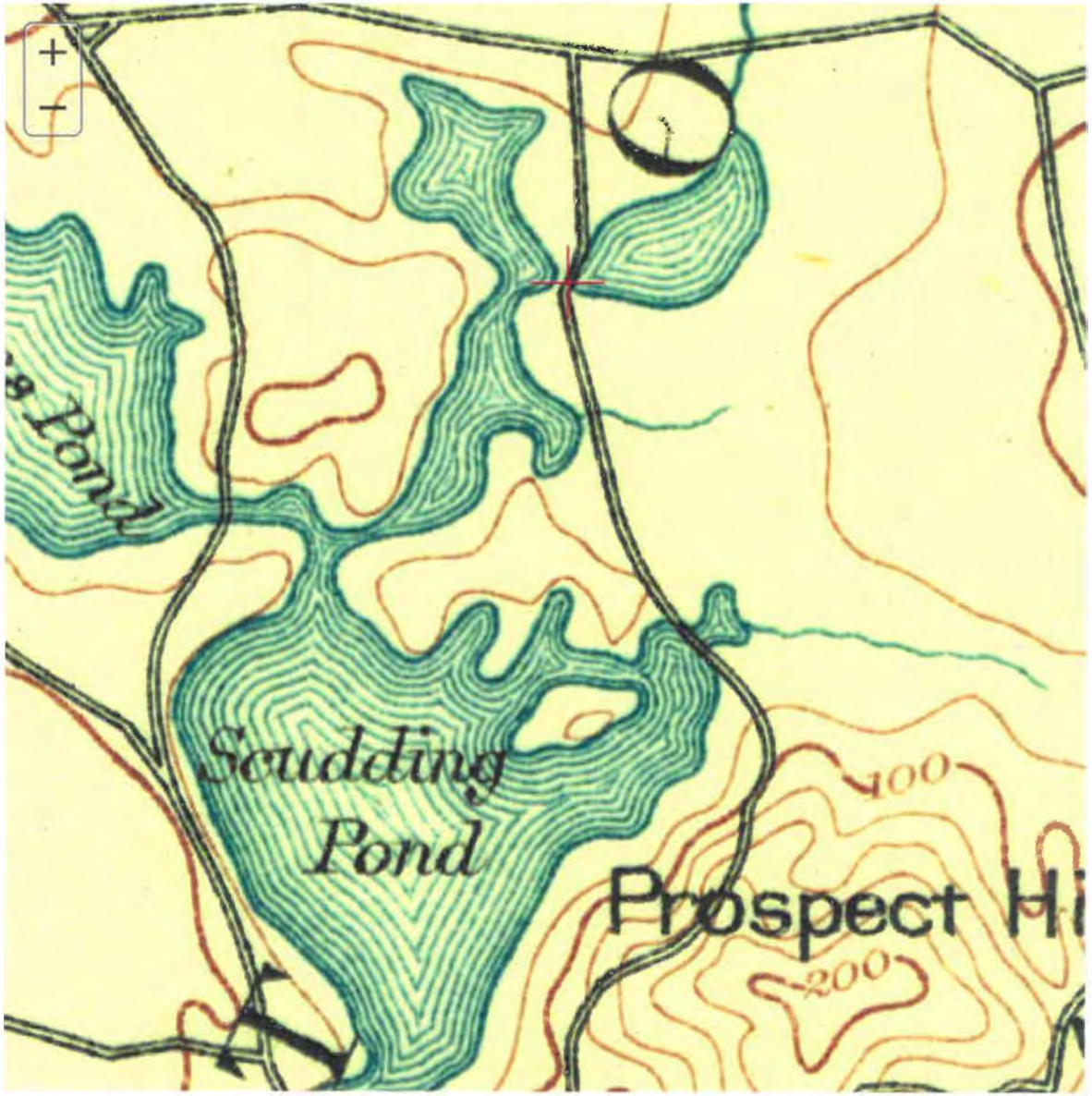
3 **Compare** maps using the transparency sliders, and **Reorder** maps by dragging them.

**Sign in** to save web maps to your ArcGIS Online account

X

**Taunton**
1888
download map (https://prd-

tnm.s3.amazonaws.com/StagedProducts/Maps/HistoricalTopo/G




Historical Map Scales

Reset

Proposal No. 608616-131225

A00840 - 105

(http://www.esri.com/) (http://www.usgs.gov/)

# USGS Historical Topographic Map Explorer

**Find** a place you want to explore, then
**Click** on a location to see its historical maps.

scadding street, taunton ma

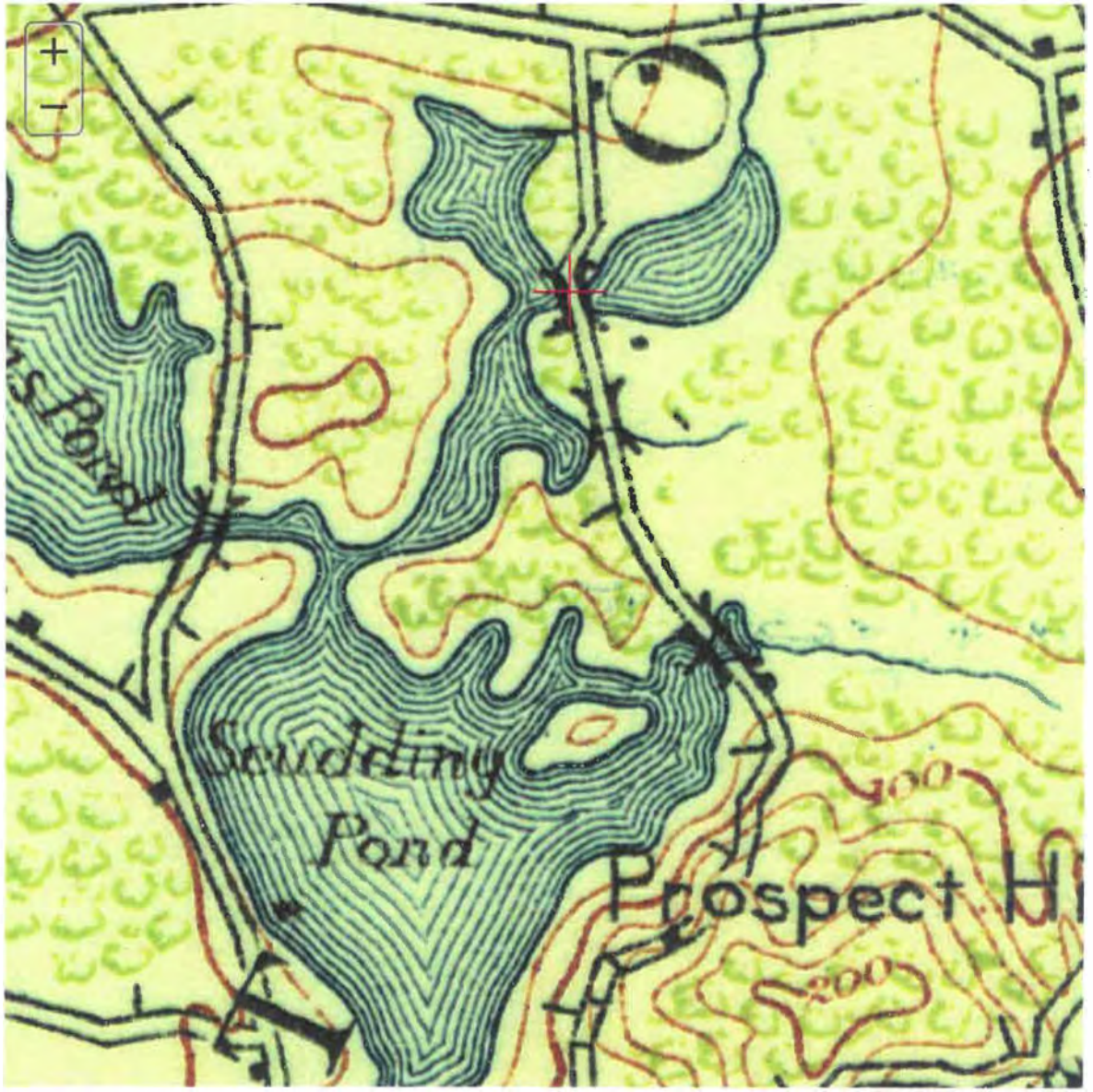
3 **Compare** maps using the transparency sliders, and **Reorder** maps by dragging them.

**Sign in** to save web maps to your ArcGIS Online account

X

**Taunton**
1918
download map (https://prd-

tnm.s3.amazonaws.com/StagedProducts/Maps/HistoricalTopo/G




Historical Map Scales

Reset

Proposal No. 608616-131225

A00840 - 106

(http://www.esri.com/) (http://www.usgs.gov/)

# USGS Historical Topographic Map Explorer

**Find** a place you want to explore, then
**Click** on a location to see its historical maps.

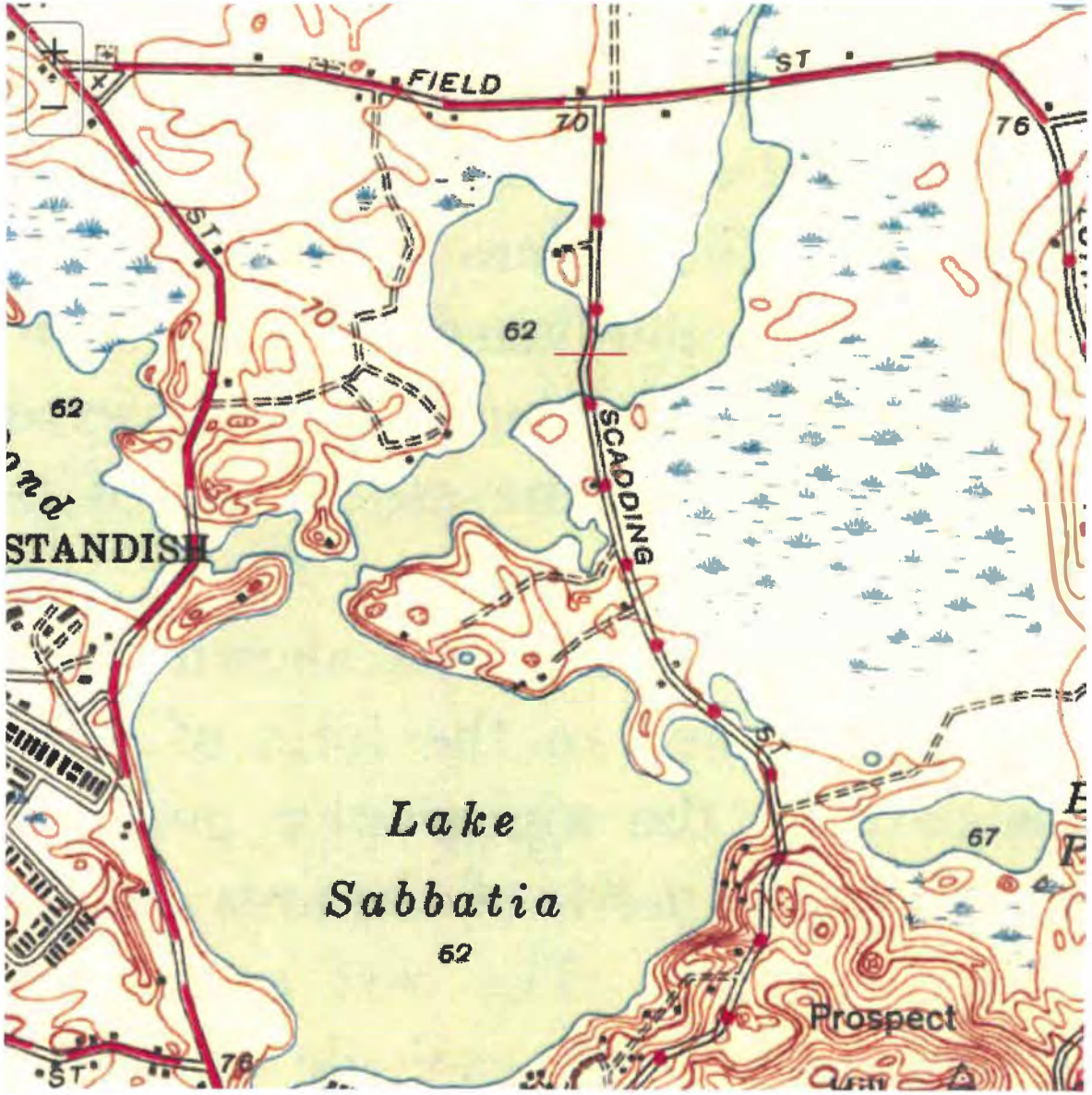
scadding street, taunton ma

3 **Compare** maps using the transparency sliders, and **Reorder** maps by dragging them.

**Sign in** to save web maps to your ArcGIS Online account

**Taunton**
1944
download map (https://prd-

tnm.s3.amazonaws.com/StagedProducts/Maps/HistoricalTopo/G




Historical Map Scales

Reset

Proposal No. 608616-131225

A00840 - 107

(http://www.esri.com/) (http://www.usgs.gov/)

# USGS Historical Topographic Map Explorer

**Find** a place you want to explore, then
**Click** on a location to see its historical maps.

scadding street, taunton ma

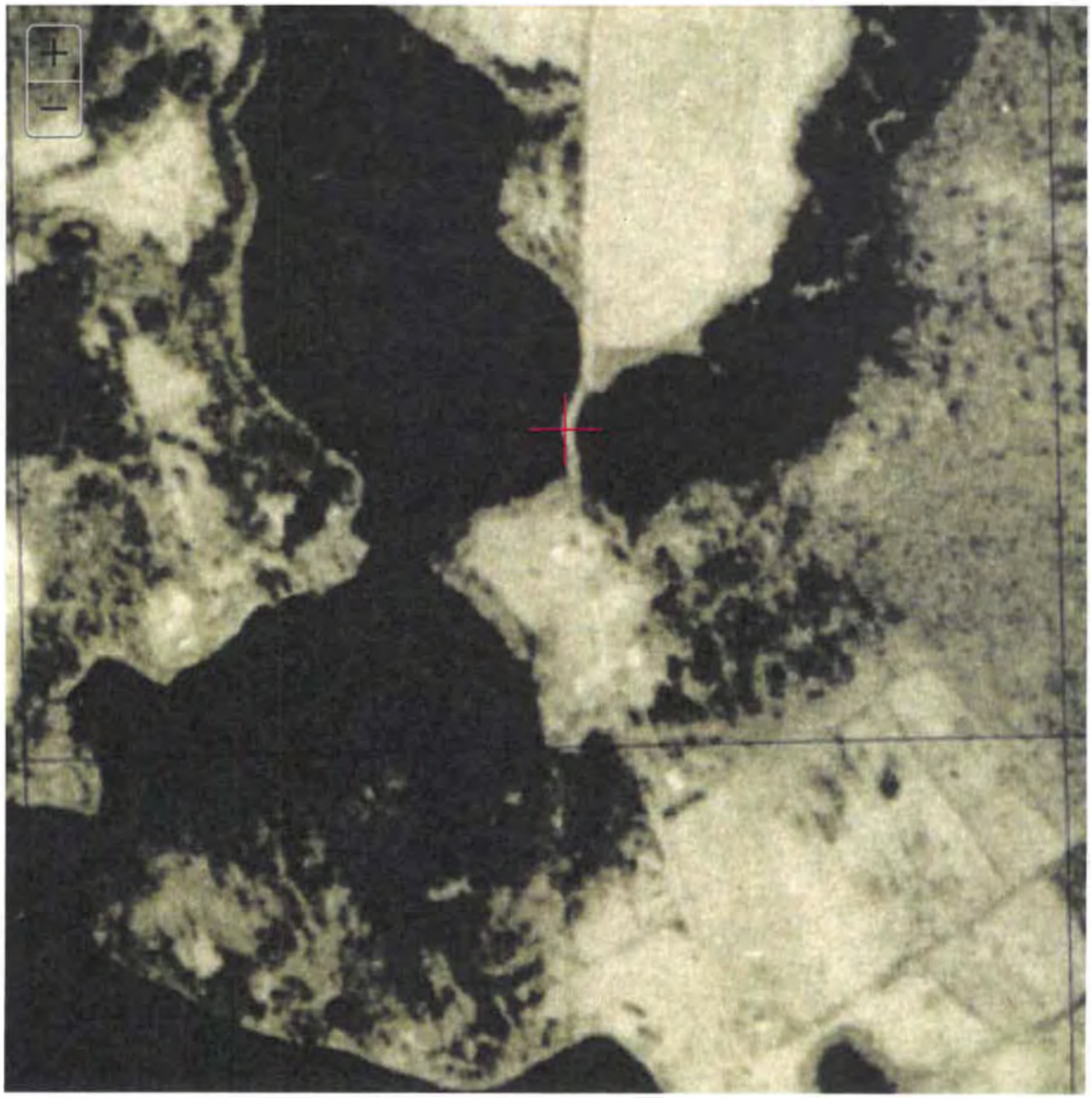
3 **Compare** maps using the transparency sliders, and **Reorder** maps by dragging them.

**Sign in** to save web maps to your ArcGIS Online account

X

**Taunton**
1977
download map (https://prd-

tnm.s3.amazonaws.com/StagedProducts/Maps/HistoricalTopo/G



Historical Map Scales

Reset

Proposal No. 608616-131225

A00840 - 108

MACRIS MAPS 2.0 beta

About || Help || Disclaimer

Address or MHC# Search

Bing MassDOT Street View

**Available Layers**

- Base Layer
- Archaeology Layers
- Inventory Layers
- MassGIS Layers

**Legend**

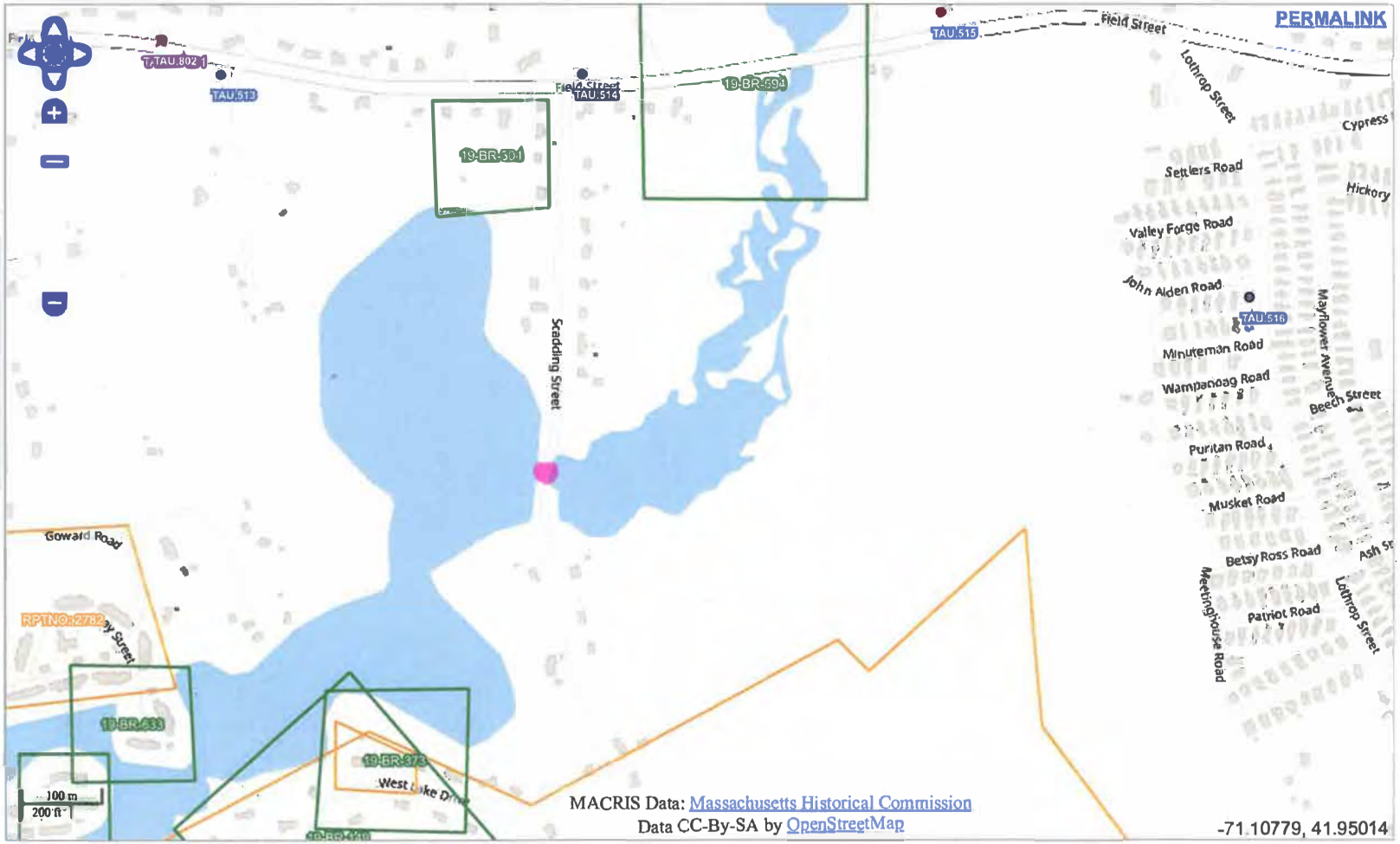
**MHC Inventory Points**

- Nat'l Register of Historic Places
- Preservation Restriction
- Local Historic District
- NRHP and LHD
- Inventoried Property

**Archaeology Login**

Logout

MACRIS Maps Last Updated 09/20/2019




Proposal No. 608616-131225

A00840 - 109

**PHOTO 1: NORTH APPROACH LOOKING SOUTH**

**PHOTO 2: SOUTH APPROACH LOOKING NORTH**

**1- Scadding Street- Looking South Toward Bridge**

**2- Gravel Boat Launch at NE Quadrant**

**3- Scadding Street- Bridge Approach Looking South**

**4- Scadding Street- On Bridge Looking North**

**5- Scadding Street- On Bridge Looking South**

**6- Scadding Street- Bridge Approach Looking North**

**7- Scadding Street- Looking North Toward Bridge**

**8 – NE Bank**

**9- SE Bank**

**10- SW bank**

**11- NW Bank**

**12- Downstream Bridge Elevation From NW Bank**

**13- Looking East Upstream From Bridge (Snake River)**

**14- Looking West Downstream From Bridge (Lake Sabbatia)**

**5- Scadding Street- On Bridge Looking South**

**6- Scadding Street- Bridge Approach Looking North**

**7- Scadding Street- Looking North Toward Bridge**

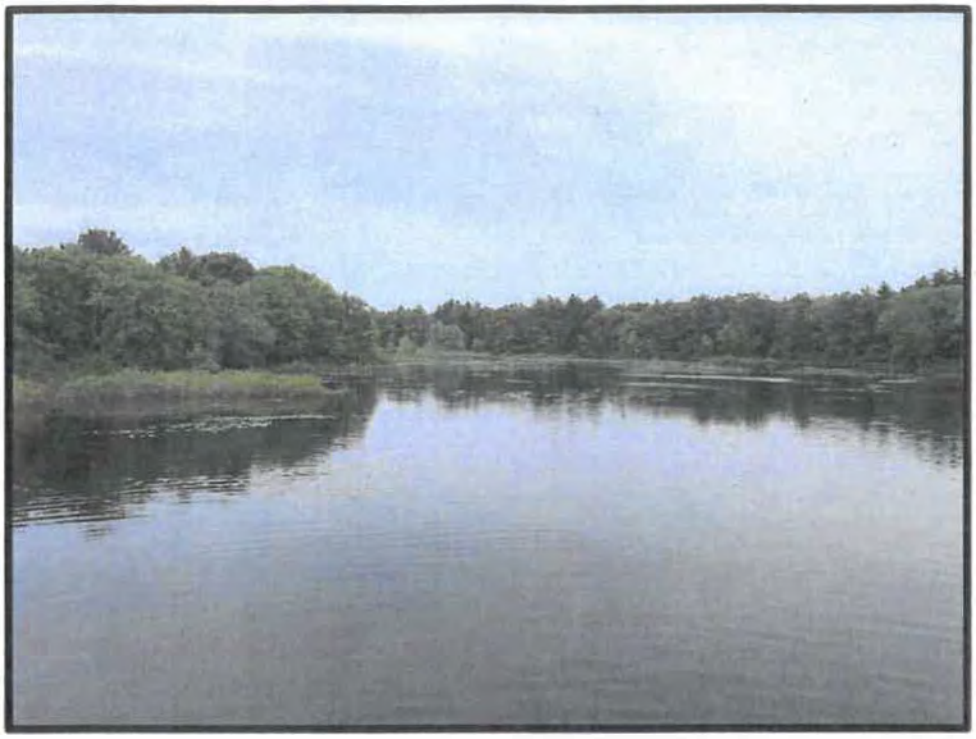
**8 – NE Bank**

**9- SE Bank**

**10- SW bank**

**11- NW Bank**

**12- Downstream Bridge Elevation From NW Bank**



**13- Looking East Upstream From Bridge (Snake River)**

**14- Looking West Downstream From Bridge (Lake Sabbatia)**

COMPREHENSIVE
ENVIRONMENTAL
INCORPORATED

- Engineering
- Design
- Construction
- Inspection

Responsive service, cost-effective solutions, technical excellence

- Drainage & Flooding
- Energy & Sustainability
- Hazardous Waste
- Permitting & NEPA
- Stormwater & LID
- Transportation
- Water & Wastewater
- Watershed Restoration

September 30, 2019

Historic Commission
City of Taunton
141 Oak Street
Taunton, MA 02780

RE: TAUNTON BRIDGE REPLACEMENT, T-01-024
SCADDING STREET OVER SNAKE RIVER
CITY OF TAUNTON, MASSACHUSETTS
MASSDOT PROJECT NO. 608616

To Whom It May Concern,

The Massachusetts Department of Transportation, Highway Division (MassDOT Highway Division) proposes to realign approximately six hundred feet (600') of Scadding Street, including replacement of the bridge over the Snake River.

According to the most recent bridge inspection report, the existing bridge is structurally deficient. The substructure of the current bridge exhibits significant deterioration and undermining due to scour, and the existing horizontal alignment significantly impedes traffic flow and affects safety. Due to the age and degree of deterioration of the existing structure, the entire bridge will be replaced. Also, due to the poor existing horizontal alignment, the roadway will be realigned for approximately 600'.

The MassDOT Highway Division requests that pertinent City of Taunton officials review the enclosed materials at their earliest convenience, and solicit any comments that they wish to make regarding this project. Written comments should be submitted to: Patricia Leavenworth, P.E., Chief Engineer, MassDOT Highway Division, 10 Park Plaza, Boston, MA 02116, Attn: Hema P Bhatt, Project Manager. Please include the six-digit MassDOT project number on all correspondence.

If you have any questions concerning the enclosed project information, please feel free to contact Matthew Lundsted at 800-725-2250 ext. 305 or via email at mlundsted@ceiengineers.com.

Sincerely,

COMPREHENSIVE ENVIRONMENTAL INC

Nick Cristofori PE,
Principal

atts:
Scope of Work
Locus Plan

41 Main Street, Bolton, MA 01752 | 508-281-5160 | Fax: 508-281-5136
21 Depot Street, Merrimack, NH 03054 | 603-424-8444 | Fax: 603-424-8441
Gateway Crossings Suite 227 One Hartford Square-East, New Britain, CT 06052 | 860-620-3673
www.ceiengineers.com

**Locus Map**

**Scadding Street Bridge over Snake River**
**Taunton, MA**

N W E S

0 100 200 300
Yards

Comprehensive Environmental, Inc.

08.02.18

## SCOPE OF WORK

The existing bridge (MassDOT Br. No. T-01-024), constructed in 1967, consists of a single span, 33’-8” center-to-center at the bearings, with no skew. The main load carrying elements are seventeen inch (17”) deep precast concrete voided slabs. The superstructure is supported on dry-laid stone gravity abutments with mortar filled joints. The bridge width is 24’-0” curb-to-curb and 27’-0”out-to-out. According to the most recent bridge inspection report, the existing bridge is structurally deficient, the substructure exhibits significant deterioration and undermining due to scour and the existing horizontal alignment significantly impedes traffic flow and safety. Due to the age and degree of deterioration of the existing structure, the entire bridge will be replaced. Also, due to the poor existing horizontal alignment, the roadway will be realigned and profile improved for approximately six hundred feet (600’) to improve sight distances and safety.

The work to be done under the Contract consists of furnishing all necessary labor, materials, equipment, and services to replace Bridge T-01-024 over the Snake River and re-align/improve the profile of Scadding Street. Work will be performed at the project site in the City of Taunton within District 5 of the Massachusetts Department of Transportation. Work for this project will include, road re-alignment, embankment construction, bridge replacement, pavement placement and related items of work.

# Attachment E
# Photos

*Figure 1: East Side of Scadding Street Bridge*

*Figure 2: West Side of Scadding Street Bridge*

*Figure 3: Upstream*

*Figure 4: Culvert Interior*

*Figure 5: Roadway Approach Looking North*

*Figure 6: Roadway Approach Looking South*

# Attachment F
# O&M and LTPPP

# *Scadding Street over Snake River – T-01-024 (3LY)*

## Stormwater Management System Operation and Maintenance Plan and Long-Term Pollution Prevention Plan

*Taunton, MA*

PREPARED FOR

massDOT

10 Park Plaza
Boston, MA 02116

PREPARED BY

*Comprehensive Environmental Inc.*
*41 Main Street*
*Bolton, MA, 01740*

*February 20, 2024*

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1 **Stormwater Management System Operation and Maintenance (O&M) Plan .....1**

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1.2 Inspection and Maintenance Measures and Record-Keeping ..... 1
1.3 Erosion and Sediment Control Measures during Maintenance Activities ..... 4
1.4 O&M Budget ..... 4

2 **Long-Term Pollution Prevention Plan .....5**

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2.1.1 Litter Pick-up ..... 5
2.1.2 Inspection and Maintenance of Stormwater Assets ..... 5
2.1.3 Maintenance of Landscaped Areas ..... 6
2.1.4 Snow and Ice Management ..... 6
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2.1.6 Prohibition of Illicit Discharges ..... 6
2.1.7 Spill Prevention and Response ..... **Error! Bookmark not defined.**

# 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 Scadding Street over the Snake River (T-01-024) in Taunton, MA. 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

The City of Taunton, MA will be responsible for the operation and maintenance of all stormwater management systems within the project area. Questions or concerns regarding activities associated with this O&M Plan should be address to The City of Taunton – Department of Public Works located at 90 Ingell Street, Taunton, MA 02780, phone (508) 821-1431.

## 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
- Drainage Manholes
- Vegetated Swales

A frequency-based inspection and maintenance program is to be used for SCMs and catch basins. For SCMs, the overall approach is to inspect SCMs and perform routine maintenance to preserve functionality. The overall goal is to perform maintenance at an interval that maintains the functionality of each installed SCM. For catch basins and drainage manholes,

sediment shall not reach 50% of the sump. For vegetated swales, no invasive species shall be present, proper / healthy vegetation shall be installed, and the level of sediment and erosion shall be minimal.

The O&M program is to be frequency driven. Inspections and maintenance are to be done on a quarterly basis to document sediment accumulation, maintenance action performed, and follow-up actions needed.

The table below summarizes data that is generally collected for each asset type during a routine inspection.

| Inspection Form | Applicable Stormwater Assets | Information Collected |
|---|---|---|
| Inlets | › Catch basins<br>› Drainage Manholes | › Sediment accumulation<br>› Trash/Debris accumulation<br>› Signs of contamination<br>› Frame and grate condition<br>› Overall structure condition |
| SCMs | › Vegetated Swales | › SCM accessibility<br>› Presence of standing water<br>› Level of erosion<br>› Sediment accumulation<br>› Trash/Debris accumulation<br>› Vegetation condition<br>› Overall SCM condition |
| Storm Discharge Points | › Outlets to Catch Basins and Drainage Manholes | › Presence of flow<br>› Signs of contaminated flow<br>› Sediment accumulation<br>› Level of erosion<br>› Pipe condition<br>› Scour protection condition<br>› Overall structure condition |

Inspection and maintenance records can be made available with request through the Taunton Department of Public Works. Records shall be kept for at least three years. Representatives of the Taunton Conservation Commission(s), MassDEP, and US EPA may obtain access to these records, upon request. Additionally, the City of Taunton 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 for each SCM are being followed.

Maintenance actions is to be performed on a quarterly basis in line with the routine inspections. If the Taunton Department of Public Works notes, through inspection, that maintenance is not needed quarterly to ensure the proper function of each SCM, then the Taunton Department of Public Works may adjust the frequency at which maintenance is

performed. Maintenance to be performed on the stormwater system is shown in the following table:

| *Stormwater Feature* | *Potential Maintenance Actions* | |
|---|---|---|
| *Vegetated Swale* | • *Remove and properly dispose of accumulated material (e.g., sediment, trash, leaf litter, debris)*<br>• *Mow vegetated areas and remove and dispose of grass clippings*<br>• *Regrade areas that show signs of unwanted ponding and channelization*<br>• *Stabilize or reconstruct eroded areas and reseed*<br>• *Replace stones/soil and/or replant vegetation* | • *Remove woody growth*<br>• *Treat invasive plants according to MassDOT Landscape Design Section*<br>• *Infiltration and bioretention SCMs only:*<br>o *Address issues of standing water*<br>o *Drain and reconstruct SCM*<br>o *If rehabilitation is not possible, then retrofit to be a wet SCM while considering safety implications* |
| *Catch Basins and Drainage Manholes* | • *Remove and properly dispose of trash, sediment, debris, and root intrusions*<br>• *Clean out sumps at an interval to maintain functionality (less than 50% full of sediment)*<br>• *Jet and repair pipes* | • *Rehabilitate filtering and infiltration materials (e.g., geotextile fabric, crushed stone)*<br>• *Stabilize and replace deteriorated structures*<br>• *Perform evaluations (e.g., test pits) to evaluate subsurface conditions* |
| *Inlets and Outlets to Catch Basins and Drainage Manholes* | • *Clear inlet and remove and properly dispose of sediment, trash, leaf litter, debris, and vegetation*<br>• *Regrade areas that show signs of ponding and channelization*<br>• *Repair or replace structural components*<br>• *Repair damaged or eroded areas* | • *Provide or rehabilitate erosion control at the outlet*<br>• *Regrade and replace the channel materials*<br>• *Remove woody growth*<br>• *Stabilize or reconstruct eroded areas*<br>• *Treat invasive plants according to MassDOT Vegetation Management Plan* |

Based on the results of the inspection, repairs will be made in accordance with the Taunton Department of Public Works 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.

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

The City of Taunton performs maintenance for stormwater management systems as part of their routine operation and maintenance budget for roadways and bridges. Budgets vary by fiscal year, depending on funding sources.

# 2

# Long-Term Pollution Prevention Plan

This Long-Term Pollution Prevention Plan (LTPPP) describes the approach for pollution prevention and related maintenance activities for Scadding Street over the Snake River (T-01-024) in Taunton, MA. 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.

- routine inspections and maintenance of SCMs;
- maintenance of lawns, gardens, and other landscaped areas;
- proper management of deicing chemicals and snow.

### 2.1.1 Litter Pick-up

Taunton DPW will conduct litter pick-up from the stormwater management facilities in conjunction with routine road maintenance activities.

### 2.1.2 Inspection and Maintenance of Stormwater Assets

Taunton DPW 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 within SCMs. SCM basin bottoms and embankments designed to impound water should be mowed as required to prevent establishment of woody vegetation.

Except in rare circumstances, the use fertilizers, herbicides, and pesticides should not be used for the maintenance of facilities. Exceptions include using fertilizer to ensure the survival of new plantings and herbicides to control invasive plants.

### 2.1.4 Snow and Ice Management

Snow and Ice Management will be conducted consistent with the standard practices performed by the Taunton DPW.

### 2.1.5 Street Sweeping

Routine roadway cleaning, with a brush-type street sweeper, will be conducted. 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
- Rising groundwater
- Diverted stream flows
- 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
- 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 Scadding Street over Snake River (T-01-024) project.

# Attachment G
# Project Plans

# TAUNTON
# MASSDOT

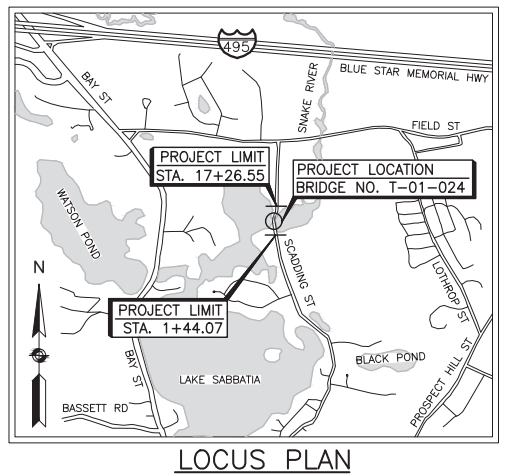
## SCADDING STREET BRIDGE REPLACEMENT: T-01-024 (C5H)

IN THE CITY/TOWN OF

TAUNTON

BRISTOL COUNTY

## PERMITTING PLANS




LOCUS PLAN
SCALE: 1" = 1000'

INDEX OF DRAWINGS


| SHEET | TITLE |
|---|---|
| 1. | KEY PLAN, LOCUS, AND PROFILES |
| 2. | CONSTRUCTION PLAN |
| 3. | ROAD PROFILE |
| 4. | ROAD PROFILE |
| 5. | PERMITTING PLAN |
| 6. | DREDGING AREAS |


DESIGN:
IN ACCORDANCE WITH THE 2020 AASHTO, NINTH EDITION, LRFD BRIDGE DESIGN SPECIFICATIONS FOR HL-93 LOADING.

SURVEY:
FIELD SURVEY PERFORMED IN JUNE 2017 BY NITSCH ENGINEERING IN ACCORDANCE WITH MASSDOT GUIDELINES.

HYDRAULIC DESIGN DATA
DRAINAGE AREA: 38.7 SQUARE MILES
DESIGN FLOOD DISCHARGE: 1,000 CUBIC FEET PER SECOND
DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 10% (10 YEARS)
DESIGN FLOOD VELOCITY: 1.07 FEET PER SECOND
DESIGN FLOOD ELEVATION: 60.8 FEET, NAVD

BASE (100-YEAR) FLOOD DATA
BASE FLOOD DISCHARGE: 1,840 CUBIC FEET PER SECOND
BASE FLOOD ELEVATION: 63.1 FEET, NAVD

DESIGN AND CHECK SCOUR DATA
SCOUR DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 4% (25 YRS)
DESIGN FLOOD ABUTMENT SCOUR DEPTH: 4.76 FEET
SCOUR CHECK FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 2% (50 YRS)
CHECK FLOOD ABUTMENT SCOUR DEPTH: 5.94 FEET

FLOOD OF RECORD
DISCHARGE: UNKNOWN
FREQUENCY: UNKNOWN
MAXIMUM ELEVATION: UNKNOWN
DATE: UNKNOWN

HISTORY OF ICE FLOES: NONE DOCUMENTED
EVIDENCE OF SCOUR & EROSION: NONE DOCUMENTED


COMPREHENSIVE ENVIRONMENTAL INC.
41 MAIN STREET
BOLTON, MA 01740

Dewberry
99 SUMMER ST.,
SUITE 700
BOSTON, MA 02110
(617) 695-3400
(617) 695-3310


ISSUED FOR CONSTRUCTION

massDOT Highway Division

PROPOSED BRIDGE REPLACEMENT
TAUNTON
SCADDING SCREET
OVER SNAKE RIVER

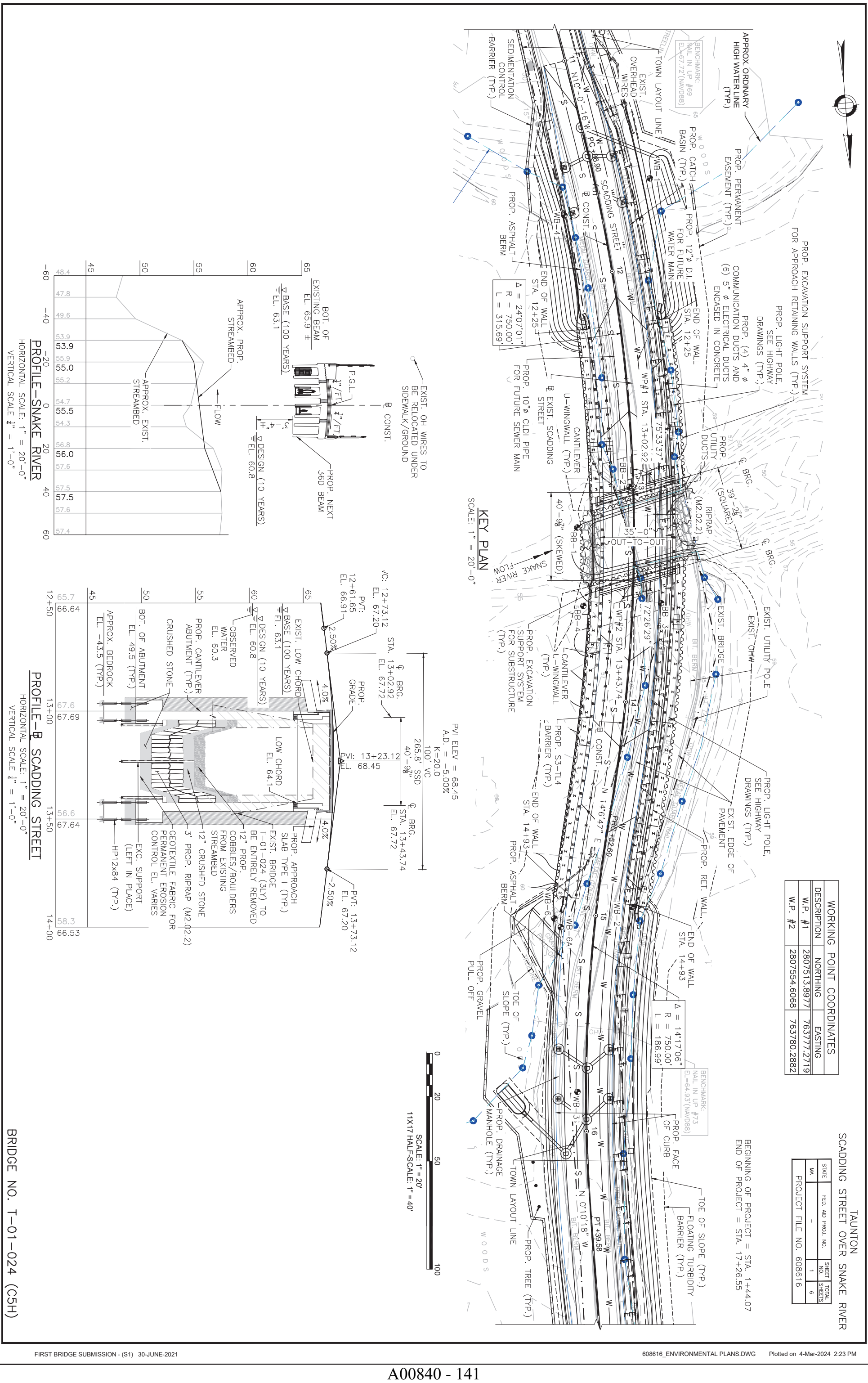
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
10 PARK PLAZA BOSTON, MASS

TITLE: _____ CHIEF ENGINEER _____

BRIDGE NO. T-01-024 (C5H)

FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021


608616_ENVIRONMENTAL PLANS.DWG Plotted on 4-Mar-2024 2:23 PM
Proposal No. 608616-131225
A00840 - 140




| WORKING POINT COORDINATES | | |
|---|---|---|
| DESCRIPTION | NORTHING | EASTING |
| W.P. #1 | 2807513.8977 | 763777.2719 |
| W.P. #2 | 2807554.6068 | 763780.2882 |

TAUNTON
SCADDING STREET OVER SNAKE RIVER

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | – | 1 | 6 |
| PROJECT FILE NO. 608616 | | | |




BRIDGE NO. T-01-024 (C5H)

FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021

608616_HD8&7 - CONSTRUCTION PLAN & PROFILE.DWG Plotted on 4-Mar-2024 2:24 PM

BRIDGE NO. T-01-024 (CSH)

SCALE: 1" = 20'
11X17 HALF-SCALE: 1" = 40'

NOTES.

1. FOR PROFILE, SEE PROFILE SHEETS.
2. TEMPORARY FLOATING TURBIDITY BARRIER SHALL BE APPROVED BY THE ENGINEER AND INSTALLED PRIOR TO ANY WORK IN THE WATER.
3. PROPOSED TREES TO BE BIRCH - RIVER HERITAGE, 12-14 FOOT CLUMP.

HIGHWAY GUARD DETAILS

STEEL W BEAM HWY GUARD TRAILING ANCHORAGE STA 11+11 LT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 11+21 TO STA 11+90 LT
STEEL W BEAM HWY GUARD TRANSITION TO BRIDGE RAIL STA 11+90 TO 12+24 LT

STEEL W BEAM HWY GUARD TO TRANSITION TO BRIDGE RAIL STA 14+95 TO STA 15+29 LT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 15+29 TO 18+04 LT
STEEL W BEAM HWY GUARD TANGENT END STA 18+04 LT

STEEL W BEAM TANGENT END STA 11+65 RT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 11+59 TO 11+90 RT
STEEL W BEAM HWY GUARD TO TRANSITION TO BRIDGE RAIL STA 11+90 TO STA 12+24 RT

PROP VEGETATED SWALE, L= 23'± (TYP.)
PROPOSED (3) TREES
STA. 16+13.27 OFF: 25.23
STA. 16+23.82 OFF: 24.42
STA. 16+33.31 OFF: 23.59
PROPOSED PAVEMENT MILLING MULCH
PROPOSED HOT MIX ASPHALT DRIVEWAY APRON
SAWCUT BIT PVMT
PROPOSED HOT MIX ASPHALT PAVEMENT TYPE A MODIFIED BERM
CITY LAYOUT LINE OF 1894
SAWCUT BIT PVMT
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
PROPOSED GRAVEL PULL-OFF (SEE SHEET 53)
PROPOSED PAVEMENT MILLING MULCH ON PULL-OFF SHOULDER
PROPOSED WALL (TYP) (SEE BRIDGE PLANS)
PROPOSED COFFERDAM SHEETING (SEE BRIDGE PLANS)
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS) (TYP.)
BEGIN PROP GRANITE CURB (TYPE VB) STA 11+28.05
PROPOSED PAVEMENT MILLING MULCH
RETAIN (2)
SAWCUT BIT PVMT
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
LIMITS OF MICROMILL & OVERLAY
CITY LAYOUT LINE OF 1894
FILL GAP BETWEEN PCR AND DRIVEWAY WITH HMA
PROP PEDESTRIAN CURB RAMP (PCR) (TYP)
PROTECT TREE
R&D EXISTING GUARDRAIL
R&D EX BIT PVMT (TYP)
PROP VEGETATED SWALE, L= 23'± (TYP.)
BEGIN FULL DEPTH CONSTRUCTION END MICROMILL & OVERLAY STA. 11+00.00
LIMIT OF WORK BEGIN MICROMILLING & OVERLAY STA. 10+25.90 N 2807239.2470 E 763807.1412
SEDIMENT CONTROL BARRIER (TYP)
ORDINARY HIGH WATER LINE (TYP.)
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED ON JULY 13TH AND 19TH, 2017. RE-ASSESSED ON JULY 11TH, 2023. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
EDGE OF WATER AS LOCATED ON 6/26/2017
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
PROP BRIDGE NO. T-01-024
RIPRAP COVER WITH NATURAL STREAMBED MATERIAL (SEE BRIDGE PLANS) (M2.02.2)
EXISTING ℄ OF SCADDING STREET
PROPOSED CONSTRUCTION BL
EXISTING EDGE OF PAVEMENT (TYP)
PROPOSED EASEMENT (TYP)
TRANSITION 6" TO 8" CURB REVEAL
PROP CONC SW (TYP)
PROP GRANITE CURB
LIMIT OF GRADING (TYP)
TRANSITION 6" TO 8" CURB REVEAL
R&D EX GUARDRAIL
PROP GRANITE CURB
PROP CONC SW
R&D EX CLF
PROPOSED EDGE OF PAVEMENT
SEDIMENT CONTROL BARRIER (TYP)
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER
LIMIT OF WORK END MICROMILLING & OVERLAY STA. 18+80.00 N 2808087.2692 E 763821.0038
BEGIN MICROMILL & OVERLAY END FULL DEPTH CONSTRUCTION STA. 18+50
SAWCUT BIT PVMT
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
PROPOSED GRAVEL PULL-OFF (SEE SHEET 53)
PROPOSED PAVEMENT MILLING MULCH ON PULL-OFF SHOULDER
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
6"-3" CURB TRANSITION PIECE; TRANSITION TO GRANITE CURB TYPE VA6
PROPOSED END POST (TYP) (SEE BRIDGE PLANS)
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED ON JULY 13TH AND 19TH, 2017. RE-ASSESSED ON JULY 11TH, 2023. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
EDGE OF WATER AS LOCATED ON 6/26/2017
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
PROP BRIDGE NO. T-01-024
RIPRAP COVER WITH NATURAL STREAMBED MATERIAL (SEE BRIDGE PLANS) (M2.02.2)
EXISTING EDGE OF PAVEMENT (TYP)
PROPOSED EASEMENT (TYP)
TRANSITION 6" TO 8" CURB REVEAL
R=750.00'
L=186.98'
T=93.98'
Δ=14°17'05"
R=750.00'
L=315.70'
T=160.22'
Δ=24°07'03"
EDGE OF GRADING (TYP)
PROP CONC SW (TYP)
PROP GRANITE CURB
PROP BRIDGE NO. T-01-024
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
PROPOSED EXISTING EDGE OF PAVEMENT
PROPOSED EASEMENT (TYP)
TRANSITION 6" TO 8" CURB REVEAL
MATCH LINE STA. 15+56
PROPOSED GRAVEL PULL-OFF (SEE SHEET 53)
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
PROPOSED PAVEMENT MILLING MULCH ON PULL-OFF SHOULDER
PROPOSED WALL (TYP) (SEE BRIDGE PLANS)
PROPOSED COFFERDAM SHEETING (SEE BRIDGE PLANS)
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS) (TYP.)
PROPOSED EDGE OF PAVEMENT
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
PROPOSED END POST (TYP) (SEE BRIDGE PLANS)
6"-3" CURB TRANSITION PIECE; TRANSITION TO GRANITE CURB TYPE VA6
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
PROPOSED PAVEMENT MILLING MULCH ON PULL-OFF SHOULDER
PROPOSED GRAVEL PULL-OFF (SEE SHEET 53)
SAWCUT BIT PVMT
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
PROPOSED HOT MIX ASPHALT DRIVEWAY APRON
SAWCUT BIT PVMT
PROPOSED HOT MIX ASPHALT PAVEMENT TYPE A MODIFIED BERM
CITY LAYOUT LINE OF 1894
PROPOSED PAVEMENT MILLING MULCH
PROPOSED (3) TREES
STA. 16+13.27 OFF: 25.23
STA. 16+23.82 OFF: 24.42
STA. 16+33.31 OFF: 23.59
PROP VEGETATED SWALE, L= 23'± (TYP.)

TRAFFIC SIGNAL CONDUIT
NONE

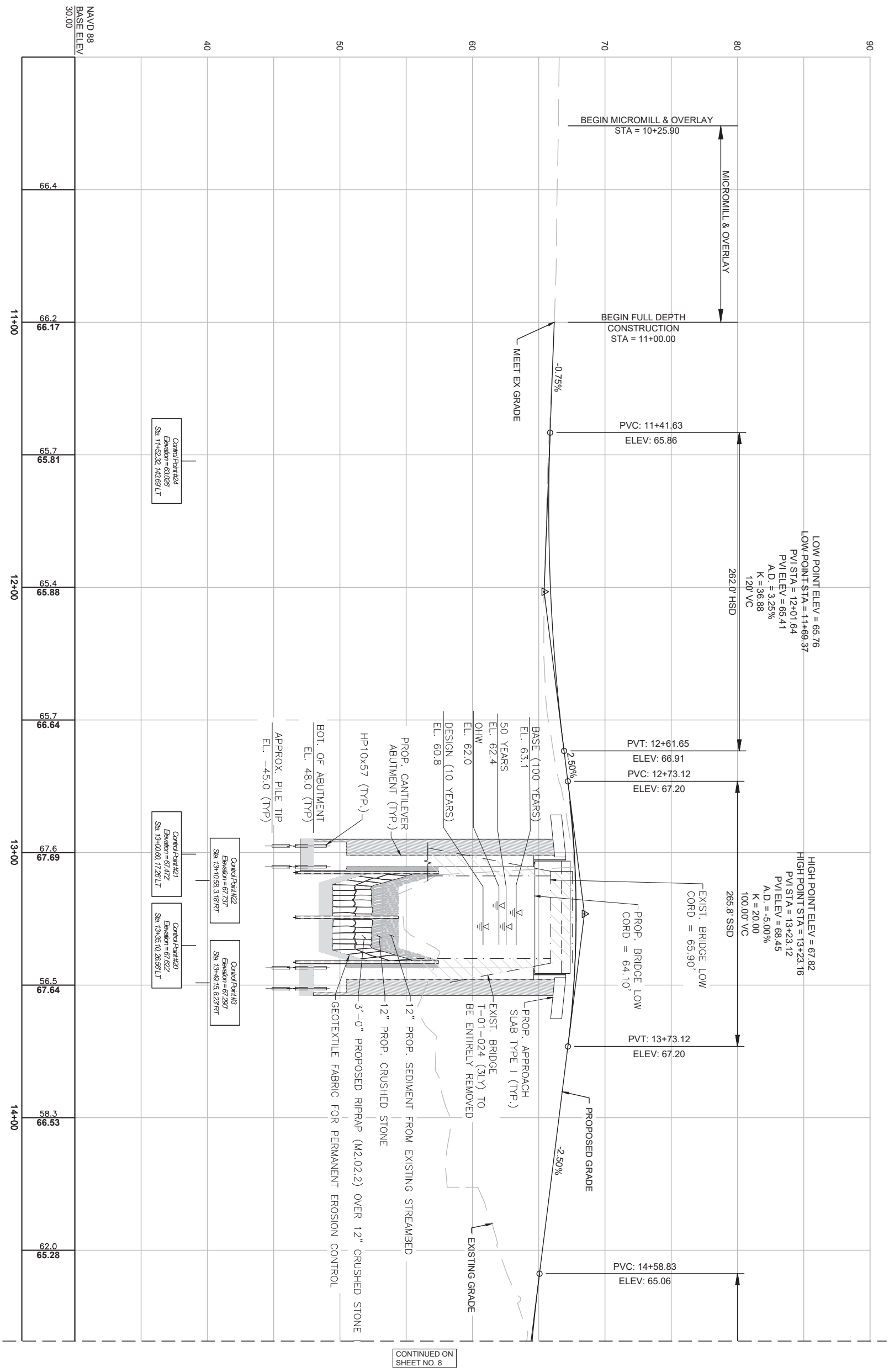
WATER SUPPLY DETAILS
SEE UTILITY PLAN

DRAINAGE DETAILS
SEE UTILITY PLAN

CONSTRUCTION PLAN

| PROJECT FILE NO. | 608616 | | |
|---|---|---|---|
| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
| MA | - | 2 | 6 |

TAUNTON
SCADDING STREET




**TAUNTON**
**SCADDING STREET**

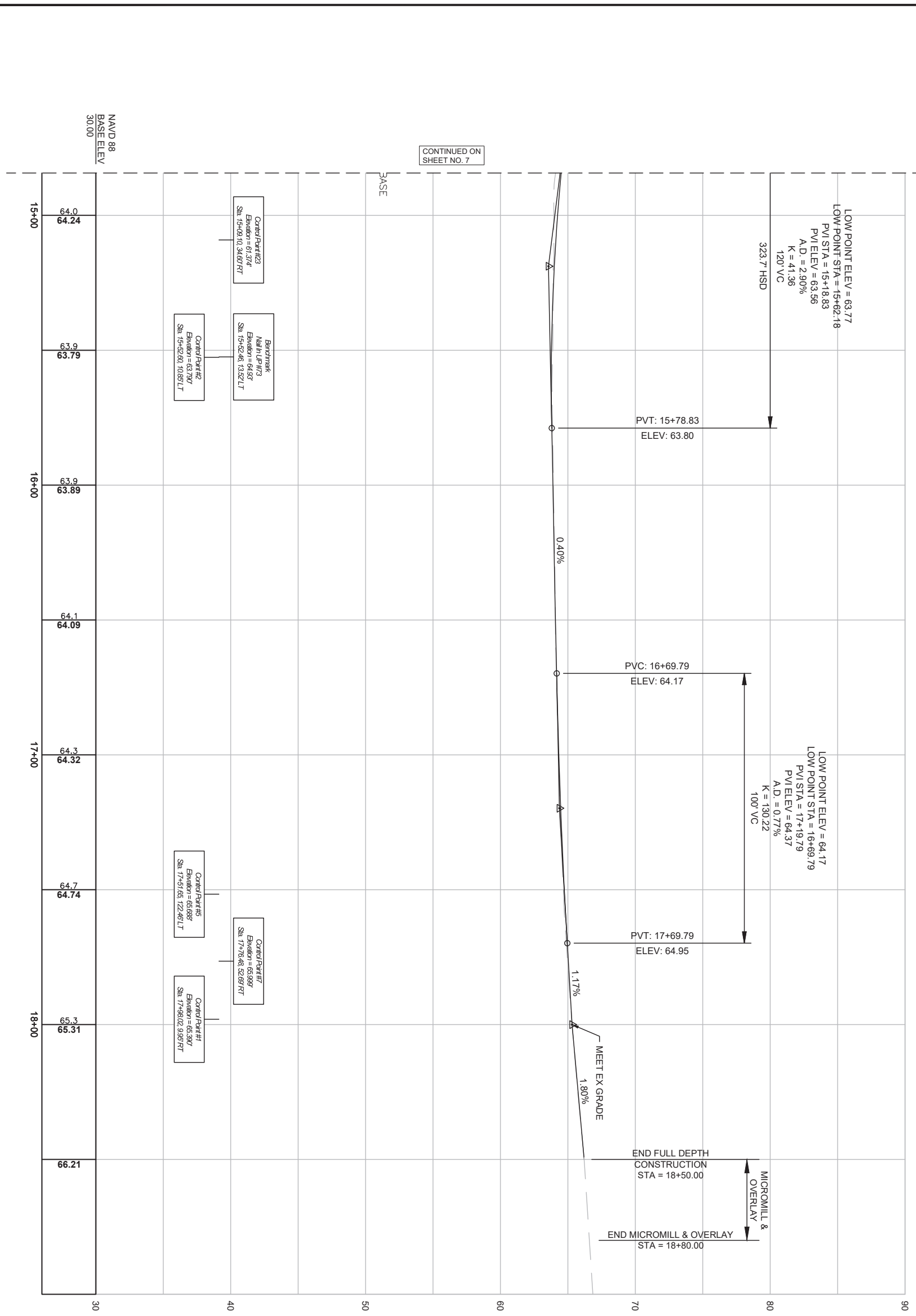
**PROFILE**
**(SHEET 1 OF 2)**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | - | 3 | 6 |
| PROJECT FILE NO. 608616 | | | |

HOR. SCALE IN FEET 20 0 20 40
VER. SCALE IN FEET 4 0 4 8

HOR. SCALE IN FEET 40 0 40 80
VER. SCALE IN FEET 8 0 8 16
11"x17" HALF-SCALE

BRIDGE NO. T-01-024 (C5H)




**TAUNTON**
**SCADDING STREET**

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | - | 4 | 6 |
| PROJECT FILE NO. 608616 | | | |

**PROFILE**
**(SHEET 2 OF 2)**

HOR. SCALE IN FEET
0 20 40
VER. SCALE IN FEET
0 4 8

HOR. SCALE IN FEET
0 20 40
VER. SCALE IN FEET
0 4 8
11"x17" HALF-SCALE
0 40 80
0 8 16

BRIDGE NO. T-01-024 (C5H)

TEMPORARY IMPACTS
BORDERING VEGETATED WETLAND (0 SF)
LAND UNDER WATERS OF THE US (15,823 SF)
LINEAR BANK (117 LF)

PERMANENT IMPACTS
BORDERING VEGETATED WETLAND (0 SF)
LAND UNDER WATERS OF THE US (9,107 SF)
LINEAR BANK (959 LF)

PROPOSED ALTERATION
TOTAL = 0 SF
TOTAL = 24,930 SF
TOTAL = 1,076 LF

LUW GAINED
LAND UNDER WATERS OF THE US GAINED FROM CUTTING (2,460 SF)

SCALE: 1" = 20'
11X17 HALF-SCALE: 1" = 40'
0 20 50 100

BRIDGE NO. T-01-024 (C5H)

N

ORDINARY HIGH WATER LINE (TYP.)

LIMIT OF WORK
BEGIN MICROMILLING & OVERLAY
STA. 10+25.90
N 2807239.2470
E 763807.1412

BEGIN FULL DEPTH CONSTRUCTION
END MICROMILL & OVERLAY
STA. 11+00.00

LIMIT OF WORK
END MICROMILLING & OVERLAY
STA. 18+80.00
N 2808087.2692
E 763821.0038

BEGIN MICROMILL & OVERLAY
END FULL DEPTH CONSTRUCTION
STA. 18+50

WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED ON JULY 13TH AND 19TH, 2023. JULY 11TH, 2017. RE-ASSESSED ON JULY 11TH, 2023. FLAGS NOT LOCATED BY NITSCH ENGINEERING.

MATCH LINE STA. 15+56

SNAKE RIVER FLOW

EDGE OF WATER AS LOCATED ON 6/26/2017

APPROXIMATE LOCATION OF SEPTIC SYSTEM AND LEACHING AREA AS PER AS-BUILT PLAN BY THE TAUNTON HOUSING AUTHORITY

TAUNTON
SCADDING STREET
PERMITTING PLAN

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | - | 5 | 6 |
| PROJECT FILE NO. 608616 | | | |

DREDGE AREA
DREDGE AREA ≈ 3,800 SF
(DREDGE VOLUME ≈ 215 CY)

SCALE: 1" = 20'
11X17 HALF-SCALE: 1" = 40'
0 20 50 100

N

ORDINARY HIGH WATER LINE (TYP.)

LIMIT OF WORK
BEGIN MICROMILLING & OVERLAY
STA. 10+25.90
N 2807239.2470
E 763807.1412

BEGIN FULL DEPTH CONSTRUCTION
END MICROMILL & OVERLAY
STA. 11+00.00

OFFSET: 9.64 LT +25.90

10135' 10.03'

+36.95

WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED ON JULY 13TH AND 19TH, 2023. RE-ASSESSED ON JULY 11TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.

EDGE OF WATER AS LOCATED ON 6/26/2017

METAL GUARD RAIL

BOS

SNAKE RIVER FLOW

MATCH LINE
STA. 15+56

14' 12'

+69.16 13.43'

LIMIT OF WORK
END MICROMILLING & OVERLAY
STA. 18+80.00
N 2808087.2692
E 763821.0038

BEGIN MICROMILL
END FULL DEPTH CONSTRUCTION
STA. 18+50

10.1' 9.0'

APPROXIMATE LOCATION OF SEPTIC SYSTEM AND LEACH FIELD AS PER AS-BUILT PLANS BY THE TAUNTON DEPT. OF PUBLIC WORKS

BRIDGE NO. T-01-024 (C5H)

TAUNTON
SCADDING STREET
DREDGE AREAS

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | - | 6 | 6 |
| PROJECT FILE NO. 608616 | | | |

# Attachment H
# Wetland Data Forms

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Scadding St City/County: Taunton Sampling Date: 7/11/2023

Applicant/Owner: MassDOT State: MA Sampling Point: WF-2

Investigator(s): I. Church (CEI) Section, Township, Range:

Landform (hillside, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-3

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 41.952052 Long: -71.103986 Datum: WGS 84

Soil Map Unit Name: 256A- Deerfield loamy fine sand, 0-3% slopes 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.)
Data sheet for Flags 1 through 3 and flags 19 through 21 represent BVW boundary. Remaining flags of representative of a bank delineation using indicators of mean high mark. Data sheet represents upland area 10' upgradient from flag WF-2.

### 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 ____ | No X | Depth (inches): | |

**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: WF-2

| Tree Stratum (Plot size: 30' ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. red maple *(Acer rubrum)* | 38 | Yes | FAC |
| 2. Black cherry *(Prunus serotina)* | 38 | Yes | FACU |
| 3. red oak *(Quercus rubra)* | 10 | No | FACU |
| 4. white pine *(Pinus strobus)* | 3 | No | FACU |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 89 | =Total Cover | |
| Sapling/Shrub Stratum (Plot size: 15' ) | | | |
| 1. Multiflora rose *(Rosa multiflora)* | 38 | Yes | FACU |
| 2. eastern red cedar *(Juniperus virgiana)* | 3 | No | FACU |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 41 | =Total Cover | |
| Herb Stratum (Plot size: 5' ) | | | |
| 1. raspberry *(Rubus idaeus)* | 21 | Yes | FACU |
| 2. common plantain *(Plantago major)* | 3 | No | FACU |
| 3. common mullein *(Verbascum thapsus)* | 3 | No | UPL |
| 4. white meadowsweet *(Spiraea alba)* | 3 | No | FACW |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 30 | =Total Cover | |
| Woody Vine Stratum (Plot size: 30' ) | | | |
| 1. fox grape *(Vitis labrusca)* | 21 | Yes | FACU |
| 2. poison ivy *(Toxicodendron radicans)* | 11 | Yes | FAC |
| 3. Asian bittersweet *(Celastrus orbiculatus)* | 3 | No | UPL |
| 4. Virginia creeper *(Parthenocissus quinquefolia)* | 3 | No | FACU |
| | 38 | =Total Cover | |

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 3 | x 2 = | 6 |
| FAC species | 49 | x 3 = | 147 |
| FACU species | 140 | x 4 = | 560 |
| UPL species | 6 | x 5 = | 30 |
| Column Totals: | 198 (A) | | 743 (B) |

Prevalence Index = B/A = 3.75

**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: WF-2

**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 |
| 0-14 | 10YR 4/3 | 100 | | | | | Sandy | |
| 14-18+ | 10YR 6/6 | 100 | | | | | Sandy | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

[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)

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Scadding St City/County: Taunton Sampling Date: 7/11/2023

Applicant/Owner: MassDOT State: MA Sampling Point: WF-2

Investigator(s): I. Church (CEI) Section, Township, Range:

Landform (hillside, terrace, etc.): Lake plain Local relief (concave, convex, none): None Slope (%): 0-3

Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 41.952052 Long: -71.103986 Datum: WGS 84

Soil Map Unit Name: 52A- Freetown muck, 0-1% slopes NWI classification: Freshwater Emergent Wetland

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.)
Data sheet for Flags 1 through 3 and flags 19 through 21 represent BVW boundary. Remaining flags of representative of a bank delineation using indicators of mean high mark. Data sheet represents wetland area 10' downgradient from flag WF-2.

### HYDROLOGY

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

| | | |
|---|---|---|
| ____ Surface Water (A1) | ____ Water-Stained Leaves (B9) | ____ Surface Soil Cracks (B6) |
| X High Water Table (A2) | ____ Aquatic Fauna (B13) | ____ Drainage Patterns (B10) |
| X Saturation (A3) | ____ Marl Deposits (B15) | ____ Moss Trim Lines (B16) |
| X Water Marks (B1) | ____ Hydrogen Sulfide Odor (C1) | ____ Dry-Season Water Table (C2) |
| ____ Sediment Deposits (B2) | ____ Oxidized Rhizospheres on Living Roots (C3) | ____ Crayfish Burrows (C8) |
| ____ Drift Deposits (B3) | ____ Presence of Reduced Iron (C4) | ____ Saturation Visible on Aerial Imagery (C9) |
| ____ Algal Mat or Crust (B4) | ____ Recent Iron Reduction in Tilled Soils (C6) | ____ Stunted or Stressed Plants (D1) |
| X Iron Deposits (B5) | ____ Thin Muck Surface (C7) | ____ Geomorphic Position (D2) |
| ____ Inundation Visible on Aerial Imagery (B7) | ____ Other (Explain in Remarks) | ____ Shallow Aquitard (D3) |
| X Sparsely Vegetated Concave Surface (B8) | | ____ Microtopographic Relief (D4) |
| | | X FAC-Neutral Test (D5) |

Secondary Indicators (minimum of two required)

**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): 0 | **Wetland Hydrology Present?** **Yes** X **No** ____ |

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Water saturated soil and free water in soil test hole. Depressions in surrounding area with standing water and sparse vegetation.

**VEGETATION** – Use scientific names of plants. Sampling Point: WF-2

| Tree Stratum (Plot size: 30' ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. Red maple *(Acer rubrum)* | 38 | Yes | FAC |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 38 | =Total Cover | |
| **Sapling/Shrub Stratum** (Plot size: 15' ) | | | |
| 1. Highbush blueberry *(Vaccinium corymbosum)* | 63 | Yes | FACW |
| 2. Sweet pepperbush *(Clethra alnifolia)* | 11 | No | FAC |
| 3. White pine *(Pinus strobus)* | 3 | No | FACU |
| 4. Smooth arrowwood *(Viburnam dentatum)* | 3 | No | FAC |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| | 80 | =Total Cover | |
| **Herb Stratum** (Plot size: 5' ) | | | |
| 1. Skunk cabbage *(Symplocarpus foetidus)* | 21 | Yes | OBL |
| 2. Sensitive fern *(Onoclea sensibilis)* | 11 | Yes | FACW |
| 3. Cinnamon fern *(Osmundastrum cinnamomeum)* | 11 | Yes | FACW |
| 4. Poison ivy *(Toxicodendron radicans)* | 3 | No | FACW |
| 5. Fox grape *(Vitis labrusca)* | 3 | No | FACU |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| 11. | | | |
| 12. | | | |
| | 49 | =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: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 21 | x 1 = | 21 |
| FACW species | 88 | x 2 = | 176 |
| FAC species | 52 | x 3 = | 156 |
| FACU species | 6 | x 4 = | 24 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 167 (A) | | 377 (B) |

Prevalence Index = B/A = 2.26

**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: WF-2

**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 |
| 0-8 | 10YR 2/1 | 100 | | | | | Mucky Loam/Clay | |
| 8-18+ | 10YR 5/4 | 80 | 7.5YR 6/8 | 20 | C | M | Mucky Loam/Clay | Prominent redox concentrations |

[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)
- _X_ 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** _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)

# Attachment I
# Sediment Sampling Plan

| | |
|---|---|
| **From:** | Davis, Heidi (DEP) |
| **To:** | Abouzeid, Kylie A. (DOT) |
| **Cc:** | Walker, Courtney L. (DOT); Nick Shaw; Marshall, Caitlin A. (DOT); Hale, Ryan (DEP) |
| **Subject:** | RE: Taunton Sediment Sampling Plan |
| **Date:** | Tuesday, March 26, 2024 3:19:11 PM |
| **Attachments:** | image001.png |

Thank you, Kylie. The revised sediment sampling plan is now (for real) approved.
Best, Heidi

**From:** Abouzeid, Kylie A. (DOT) <Kylie.A.Abouzeid@dot.state.ma.us>
**Sent:** Tuesday, March 26, 2024 9:36 AM
**To:** Davis, Heidi (DEP) <heidi.davis@mass.gov>
**Cc:** Walker, Courtney L. (DOT) <Courtney.L.Walker@dot.state.ma.us>; Nick Shaw <nshaw@ceiengineers.com>; Marshall, Caitlin A. (DOT) <Caitlin.A.Marshall@dot.state.ma.us>; Hale, Ryan (DEP) <Ryan.Hale@mass.gov>
**Subject:** Re: Taunton Sediment Sampling Plan

Hi Heidi,

Please find attached the revised sampling plan which includes PAHs.

Thanks,

**Kylie Abouzeid**

Environmental Analyst I

MassDOT Highway Division

10 Park Plaza, Boston, MA 02116

(857) 330-2468

**From:** Davis, Heidi (DEP) <heidi.davis@mass.gov>
**Sent:** Monday, March 25, 2024 2:41 PM
**To:** Abouzeid, Kylie A. (DOT) <Kylie.A.Abouzeid@dot.state.ma.us>
**Cc:** Walker, Courtney L. (DOT) <Courtney.L.Walker@dot.state.ma.us>; Nick Shaw <nshaw@ceiengineers.com>; Marshall, Caitlin A. (DOT) <Caitlin.A.Marshall@dot.state.ma.us>; Hale, Ryan (DEP) <Ryan.Hale@mass.gov>
**Subject:** RE: Taunton Sediment Sampling Plan

Good afternoon, Kylie –

My apologies, my previous email was sent in error. The sampling plan may be approved once it is revised to include Polycyclic Aromatic Hydrocarbons (PAHs) per 310 CMR 9.07(2)(b)6.

Please reach out with any questions –

Best, Heidi

---

**From:** Davis, Heidi (DEP)
**Sent:** Monday, March 25, 2024 1:10 PM
**To:** Abouzeid, Kylie A. (DOT) <Kylie.A.Abouzeid@dot.state.ma.us>
**Cc:** Walker, Courtney L. (DOT) <Courtney.L.Walker@dot.state.ma.us>; Nick Shaw <nshaw@ceiengineers.com>; Marshall, Caitlin A. (DOT) <Caitlin.A.Marshall@dot.state.ma.us>; Hale, Ryan (DEP) <Ryan.Hale@mass.gov>
**Subject:** RE: Taunton Sediment Sampling Plan

Good afternoon, Kylie –

Thank you for forwarding the proposed sediment sampling plan for the Scadding Street over the Snake River project in Taunton. Via this correspondence, MassDEP approves this sediment sampling plan.

Best, Heidi

Heidi M. Davis
Senior Wetland Analyst
Highway Unit Supervisor
Wetlands Program, Boston Office
MassDEP
339-225-2332

---

**From:** Abouzeid, Kylie A. (DOT) <Kylie.A.Abouzeid@dot.state.ma.us>
**Sent:** Friday, March 22, 2024 1:18 PM
**To:** Davis, Heidi (DEP) <heidi.davis@mass.gov>; Hale, Ryan (DEP) <Ryan.Hale@mass.gov>; Lewis, Tyler (DEP) <Tyler.Lewis@mass.gov>
**Cc:** Walker, Courtney L. (DOT) <Courtney.L.Walker@dot.state.ma.us>; Nick Shaw <nshaw@ceiengineers.com>; Marshall, Caitlin A. (DOT) <Caitlin.A.Marshall@dot.state.ma.us>
**Subject:** Re: Taunton Sediment Sampling Plan

Hi Heidi,

I'm just following up on the status of review/approval for this sediment sampling plan?

Thanks,

**Kylie Abouzeid**

Environmental Analyst I

MassDOT Highway Division

10 Park Plaza, Boston, MA 02116

(857) 330-2468

---

**From:** Abouzeid, Kylie A. (DOT)
**Sent:** Thursday, February 22, 2024 11:44 AM
**To:** Davis, Heidi (DEP) <heidi.davis@mass.gov>; Hale, Ryan (DEP) <Ryan.Hale@mass.gov>; Morrison, Ryan (DEP) <Ryan.Morrison@mass.gov>
**Cc:** Walker, Courtney L. (DOT) <Courtney.L.Walker@dot.state.ma.us>; Nick Shaw <nshaw@ceiengineers.com>; Marshall, Caitlin A. (DOT) <Caitlin.A.Marshall@dot.state.ma.us>
**Subject:** Taunton Sediment Sampling Plan

Hello,

Please find attached the proposed sediment sampling plan for the MassDOT project #608616 in Taunton. The project is a bridge replacement on Scadding Street over the Snake River. Please let me know if you have any questions or concerns regarding the sampling plan.

Thanks,

**Kylie Abouzeid**

Environmental Analyst I

MassDOT Highway Division

10 Park Plaza, Boston, MA 02116

(857) 330-2468

# Scadding Street over Snake River (Bridge No. T-01-024)
# Taunton, MA
# Environmental Sediment Sampling Plan
# MassDOT Project No. 608616
# March 26, 2024

## 1.0 – Introduction and Purpose

The Massachusetts Department of Transportation (MassDOT) Highway Division is planning the replacement of the existing Scadding Street bridge structure over Snake River, due to alignment, safety and structural concerns.

As part of the project, Comprehensive Environmental Inc. (CEI) has been tasked with obtaining a Water Quality Certification (WQC) for the sediments expected to be disturbed. CEI will be tasked with collecting up to two (2) sediment samples via hand-auguring for one (1) day in late March. **Figure 1** depicts the locations of the two (2) proposed exploratory sediment coring locations. A CEI environmental engineer will characterize the soil, record field screening, and collect sediment samples at the bottom of exploration. Samples will be submitted to a Massachusetts Certified Laboratory, New England Testing Laboratory (NETLab) for the analysis of:

- Metals (Arsenic, Cadmium, Chromium, Copper, Lead, Nickel, Mercury, Zinc)
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Polychlorinated Biphenyls (PCB's)
- Pesticides
- Extractable Petroleum Hydrocarbons (EPH)
- Semi-Volatile Organic Compounds (SVOCs)
- Total Organic Compounds (TOCs)
- Percent Water
- Grain Size

A Due Diligence Review has been conducted on the site and surrounding area. No reportable sites are located within 500 feet of the project area. The purpose of this plan is to provide the scope of work for the environmental sampling and guidance to the field staff regarding proper sediment sampling and observation and notification procedures in the event of "suspect" contamination.

## 2.0 – Sampling Equipment & Additional Materials Required

The following equipment/materials will be utilized by CEI during the assessment:

- Camera
- Sample glassware, labels, chains of custody
- PID
- Sampling gloves
- Field book
- Boring log sheets
- Quart/gallon size zip-lock bags
- Sampling Plan

## 3.0 – Site Contacts

Comprehensive Environmental Inc.
Matt Lundsted – 800-725-2550 x305
Nick Shaw – 800-725-2550 x324

In the event of "suspect" contamination or previously unknown conditions, contact the Project Manager.

## 5.0 – Health and Safety

The Site has is located adjacent to a frequently used public road and within a body of water. CEI will take all necessary precautionary measures to assure safety during the duration of work. The site is located within the Snake River in Taunton, MA.

## 6.0 Sediment Sampling Oversight

The following is the proposed scope of work for the environmental assessment:

- Two (2) sediment cores will be progressed in late March. The sediment cores will be advanced via hand augur down to the anticipated depth of dredging, a depth of two (2) feet below ground surface as shown on **Figure 1**. When the bottom of exploration is reached, the sediment cores will be terminated. The following bottom of exploration for sediment coring locations is as follows:
  - "S-1" (western sample location) at 2 feet below the ground surface
  - "S-2" (eastern sample location) at 2 below the ground surface
- A CEI environmental engineer will oversee the sediment coring and:
  - Photo-document the sediment conditions for each sample location
  - Prepare field notes documenting the sediment coring activities, sediment descriptions, visual/olfactory observations, and any instances of "suspect" contamination.
  - Observe and screen sediment with a PID at 1-ft intervals

### *6.1 "Suspect" Contamination Observation Procedures*

Considering the nature of the work and limited exposure duration during sediment coring activities, the risk to non- construction and professional personnel is low. However, not all parts of the Site were sampled and it is crucial for all personnel to be aware of "suspect" contamination.

**If "suspect" contamination observed**, CEI will notify the LSP immediately to determine appropriate steps moving forward.

## 7.0 Sampling Plan

The following sampling procedures are guidelines to be followed during the sediment sampling program to assist with determining where (location and depth) to collect sediment samples for analyses. **Please discuss any changes from the sampling procedures with the Project Manager before proceeding with the change.**

### *7.1 Sampling Procedure*

The sampling procedures contained herein refer to confirmation sampling. **If contaminated soils are observed, call the Project Manager to confirm additional sampling needs.**

At **each** location, samples will be collected and submitted for analysis of EPHs, PAHs, PCBs, SVOCs, Metals, Pesticides, TOC, Percent water and grain size. Volatile Organic Compounds (VOCs) will be analyzed for soils exhibiting PID readings >10 ppm or strong solvent odors.

Augur will be advanced to depths of two (2) feet below the ground surface. Sampling will be performed in the following manner. If obstructions prohibit advancement to 2 feet below the ground surface, set the augur aside and advance up to three additional nearby cores until reaching end depth. Record all coring strata information (S-XA, XB, XC, etc.).

#### *7.1.1 Composite Samples (Metals, PAHs, SVOCs, EPH, PCBs, Pesticides, TOC, % Water, and Grain Size)*

Composite samples will consist of no more than two (2) grab samples, either vertically or horizontally. Composite sampling shall be completed in the following manner:

- At each location, place soils from similar strata into baggies or jars noting location and depth on the container.
- If no "suspect" material is present, collect a composite sample of the suspect material using two (2) grab samples from the same boring, as applicable.
- Composite samples will not to be submitted for VOCs.

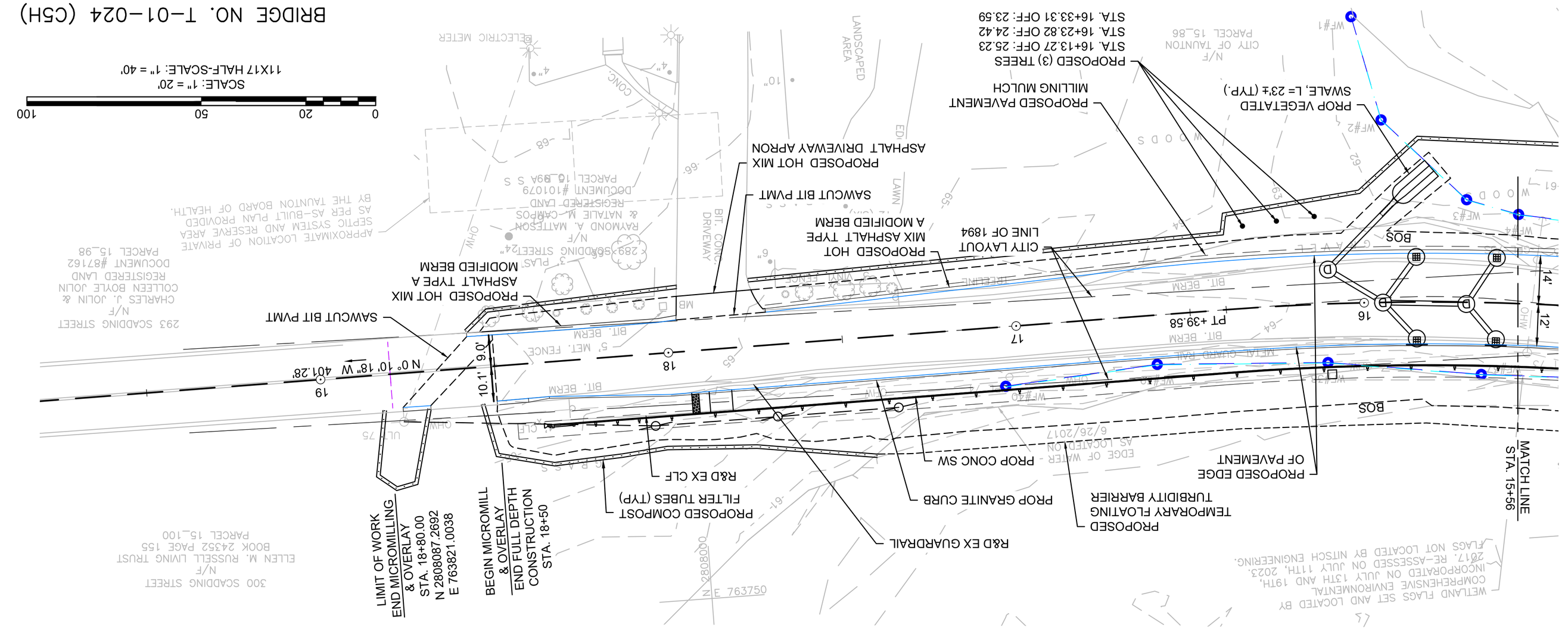
#### *7.1.2 Grab Samples (VOCs)*

VOCs

- Each soil strata with PID readings > 10 ppm or highest reading will be selected for VOC analysis via USEPA Method 8260.
- Samples for VOCs should only be collected as a grab sample from the interval displaying the highest PID reading (not to exceed 6 inches).

**FIGURES**

# BRIDGE NO. T-01-024 (CSH)


SCALE: 1" = 20'
11X17 HALF-SCALE: 1" = 40'
0
20
50
100
NOTES.
1. FOR PROFILE, SEE PROFILE SHEETS.
2. TEMPORARY FLOATING TURBIDITY BARRIER SHALL BE APPROVED BY THE ENGINEER AND INSTALLED PRIOR TO ANY WORK IN THE WATER.
3. PROPOSED TREES TO BE BIRCH - RIVER HERITAGE, 12-14 FOOT CLUMP.
HIGHWAY GUARD DETAILS
STEEL W BEAM HWY GUARD TRAILING ANCHORAGE STA 11+11 LT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 11+21 TO STA 11+90 LT
STEEL W BEAM HWY GUARD TRANSITION TO BRIDGE RAIL STA 11+90 TO 12+24 LT
STEEL W BEAM HWY GUARD TO TRANSITION TO BRIDGE RAIL STA 14+95 TO STA 15+29 LT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 15+29 TO 18+04 LT
STEEL W BEAM HWY GUARD TANGENT END STA 18+04 LT
STEEL W BEAM TANGENT END STA 11+65 RT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 11+59 TO 11+90 RT
STEEL W BEAM HWY GUARD TO TRANSITION TO BRIDGE RAIL STA 11+90 TO STA 12+24 RT
PROP VEGETATED SWALE, L= 23'± (TYP.)
PROPOSED (3) TREES
STA. 16+13.27 OFF: 25.23
STA. 16+23.82 OFF: 24.42
STA. 16+33.31 OFF: 23.59
PROPOSED PAVEMENT MILLING MULCH
PROPOSED HOT MIX ASPHALT DRIVEWAY APRON
SAWCUT BIT PVMT
CITY LAYOUT LINE OF 1894
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
SAWCUT BIT PVMT
BOS
PT +39.58
MATCH LINE STA. 15+56
PROPOSED EDGE OF PAVEMENT
R&D EX GUARDRAIL
PROP GRANITE CURB
PROP CONC SW
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER
PROPOSED COMPOST FILTER TUBES (TYP)
R&D EX CLF
LIMIT OF WORK END MICROMILLING & OVERLAY STA. 18+80.00 N 2808087.2692 E 763821.0038
BEGIN MICROMILL & OVERLAY END FULL DEPTH CONSTRUCTION STA. 18+50
N 0° 10' 18" W 401.28'
9.0'
10.1'
5' MEL. FENCE
BIT. BERM
293 SCADDING STREET
CHARLES J. JOLIN & COLLEEN BOYLE JOLIN
REGISTERED LAND
DOCUMENT #871162
PARCEL 15_98
300 SCADDING STREET
N/F
ELLEN M. RUSSELL LIVING TRUST
BOOK 24352 PAGE 155
PARCEL 15_100
APPROXIMATE LOCATION OF PRIVATE SEPTIC SYSTEM AND RESERVE AREA AS PER AS-BUILT PLAN PROVIDED BY THE TAUNTON BOARD OF HEALTH.
289 SCADDING STREET
3 PLAS
RAYMOND A. MATTESON & NATALIE M. CAMPOS
REGISTERED LAND
DOCUMENT #101079
PARCEL 15_89A
ELECTRIC METER
LANDSCAPED AREA
BIT. CONC. DRIVEWAY
CONC.
LAWN
EDGE OF WATER AS LOCATED ON 6/26/2017
WETLAND FLAGS SET AND LOCATED BY INCORPORATED ON JULY 13TH AND 19TH, 2017. RE-ASSESSED ON JULY 11TH, 2023. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
N.E. 763750
N.E. 2808000
TAUNTON
SCADDING STREET
PROPOSED CONSTRUCTION PLAN
PROJECT FILE NO. 608616
STATE: MA
FED. AID PROJ. NO.: -
SHEET NO.: 2
TOTAL SHEETS: 6
TRAFFIC SIGNAL CONDUIT: NONE
WATER SUPPLY DETAILS: SEE UTILITY PLAN
DRAINAGE DETAILS: SEE UTILITY PLAN
PROP BRIDGE NO. T-01-024
R&D EX GUARDRAIL
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
RIPRAP COVER WITH NATURAL STREAMBED MATERIAL (SEE BRIDGE PLANS)
EXISTING EDGE OF PAVEMENT (TYP)
PROPOSED CONSTRUCTION BL
EXISTING ℄ OF SCADDING STREET
PROPOSED EASEMENT (TYP)
TRANSITION 6" TO 8" CURB REVEAL
L=186.98'
R=750.00'
Δ=14°17'05"
T=93.98'
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
PROPOSED PAVEMENT MILLING MULCH ON PULL-OFF SHOULDER
PROPOSED GRAVEL PULL-OFF (SEE SHEET 53)
PROPOSED WALL (TYP) (SEE BRIDGE PLANS)
PROPOSED COFFERDAM SHEETING (SEE BRIDGE PLANS)
SNAKE RIVER FLOW
Dredge Sample: S-2
Dredge Sample: S-1
EDGE OF FOUNDATION (TYP)
R&D EXISTING GUARDRAIL
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS) (TYP.)
PROPOSED PAVEMENT MILLING MULCH
BEGIN PROP GRANITE CURB (TYPE VB) STA 11+28.05
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
6"-3" CURB TRANSITION PIECE; TRANSITION TO GRANITE CURB TYPE VA6
PROPOSED END POST (TYP) (SEE BRIDGE PLANS)
WETLAND FLAGS SET AND LOCATED BY INCORPORATED ON JULY 13TH AND 19TH, 2017. RE-ASSESSED ON JULY 11TH, 2023. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
RETAIN (2)
SAWCUT BIT PVMT
CITY LAYOUT LINE OF 1894
LIMITS OF MICROMILL & OVERLAY
FILL GAP BETWEEN PCR AND DRIVEWAY WITH HMA
PROP PEDESTRIAN CURB RAMP (PCR) (TYP)
PROTECT TREE
R&D EXISTING GUARDRAIL
R&D EX BIT PVMT (TYP)
PROP VEGETATED SWALE, L= 23'± (TYP.)
BEGIN FULL DEPTH CONSTRUCTION MICROMILL END MICROMILL & OVERLAY STA. 11+00.00
LIMIT OF WORK BEGIN MICROMILLING & OVERLAY STA. 10+25.90 N 2807239.2470 E 763807.1412
ORDINARY HIGH WATER LINE (TYP.)
PROPOSED COMPOST FILTER TUBES (TYP)
N 10° 00' 16" W 236.90'
PC +06.90
PRC +62.60
MATCH LINE STA. 15+56
TRANSITION 6" TO 8" CURB REVEAL
PROPOSED EASEMENT (TYP)
L=315.70'
R=750.00'
Δ=24°07'03"
T=160.22'
EXISTING EDGE OF PAVEMENT (M2.02.2)
LIMIT OF GRADING (TYP)
PROP CONC SW (TYP)
PROP GRANITE CURB
PROP BRIDGE NO. T-01-024
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
PROPOSED EDGE OF PAVEMENT
R&D EX GUARDRAIL
PROP GRANITE CURB
PROP CONC SW
PROPOSED COMPOST FILTER TUBES (TYP)
R&D EX CLF
LIMIT OF WORK END MICROMILLING & OVERLAY STA. 18+80.00 N 2808087.2692 E 763821.0038
BEGIN MICROMILL & OVERLAY END FULL DEPTH CONSTRUCTION STA. 18+50
N 0° 10' 18" W 401.28'
9.0'
10.1'
5' MEL. FENCE
BIT. BERM
SAWCUT BIT PVMT
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
PROPOSED HOT MIX ASPHALT DRIVEWAY APRON
SAWCUT BIT PVMT
CITY LAYOUT LINE OF 1894
PROPOSED HOT MIX ASPHALT MIX A MODIFIED BERM
PT +39.58
BOS
MATCH LINE STA. 15+56
PROPOSED EDGE OF PAVEMENT
R&D EX GUARDRAIL
PROP GRANITE CURB
PROP CONC SW
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER
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R&D EX CLF
LIMIT OF WORK END MICROMILLING & OVERLAY STA. 18+80.00 N 2808087.2692 E 763821.0038
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N 0° 10' 18" W 401.28'
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CHARLES J. JOLIN & COLLEEN BOYLE JOLIN
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DOCUMENT #101079
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LANDSCAPED AREA
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N.E. 2808000
TAUNTON
SCADDING STREET
PROPOSED CONSTRUCTION PLAN
PROJECT FILE NO. 608616
STATE: MA
FED. AID PROJ. NO.: -
SHEET NO.: 2
TOTAL SHEETS: 6
TRAFFIC SIGNAL CONDUIT: NONE
WATER SUPPLY DETAILS: SEE UTILITY PLAN
DRAINAGE DETAILS: SEE UTILITY PLAN
PROP BRIDGE NO. T-01-024
R&D EX GUARDRAIL
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
RIPRAP COVER WITH NATURAL STREAMBED MATERIAL (SEE BRIDGE PLANS)
EXISTING EDGE OF PAVEMENT (M2.02.2)
EXISTING ℄ OF SCADDING STREET
PROPOSED CONSTRUCTION BL

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

July 3, 2024

Massachusetts Department of Transportation Highway Division
Ten Park Plaza, Room 7360
Boston, MA 02116
ATTN: Courtney Walker

RE: 401 WATER QUALITY CERTIFICATION
Administrative Completeness and Technical Deficiency Review
401 WQC Transmittal No: 24-WW26-0036-APP

AT: Scadding Street Bridge Replacement (Bridge No. T-01-024)
Lake Sabbatia
Taunton, MA

Dear Ms. Walker:

MassDEP has completed its Administrative Review of the application for the above-referenced application and notes that the application still requires proof of public notice to be administratively complete.

MassDEP has also completed its Technical Review of the above-referenced application and requests that you submit the following additional information:

1. MassDEP considers the waterbody crossed by the existing and proposed bridges to be Lake Sabbatia rather than the Snake River; therefore, the Stream Crossing Standards do not apply.
2. In accordance with 314 CMR 9.06 (1) an alternative should be provided "...that would have less adverse impact on the aquatic ecosystem". Please evaluate extending the retaining walls further to avoid and minimize fill in LUW.

This information is available in alternate format. Please contact Melixza Esenyie at 617-626-1282.
TTY# MassRelay Service 1-800-439-2370
MassDEP Website: www.mass.gov/dep

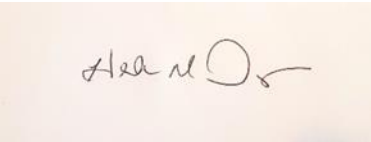
Printed on Recycled Paper

3. Construction Sequence number 13 states: “Cut cofferdam sheeting below mudline.” Please evaluate removing these sheets entirely, especially those proposed for the centerline of the stream.
4. The construction sequencing refers to plans with plantings and seeding that are not within the application. Please provide these planting plans.
5. There appears to be no proposed wetland replication for permanent impacts to BVW. 314 CMR 9.06(2)(a) states: “For discharges to bordering or isolated vegetated wetlands, such steps shall include a minimum of 1:1 restoration or replication.” Please provide plans and details of where and how BVW replication will occur.
6. A full Stormwater Report with a signed and stamped stormwater checklist must be provided.
7. Details and specifications are needed for the proposed vegetated swales. If practicable, they need to be designed to be a Water Quality Swale or other SCM in accordance with the Stormwater Handbook. Grading at the end of the swales should be pulled back out of LUW/BVWs.

Upon receipt of all requested supplemental information, MassDEP has 30 calendar days in which to issue or deny a certification.

Should you have any questions relative to this letter, please contact me at heidi.davis@mass.gov and Tyler Lewis at tyler.lewis@mass.gov.

Sincerely,



Heidi M. Davis
Highway Unit Supervisor

Ecc: DEP SERO – Maissoun Reda
USACE – Dan Vasconcelos
MassDOT – Melissa Lenker
MassDOT – Kylie Abouzeid
Comprehensive Environmental Inc. – Nicholas Shaw - nshaw@ceiengineers.co
Taunton Conservation Commission – Michele Restino

COMPREHENSIVE
ENVIRONMENTAL
INCORPORATED

41 Main Street
Bolton, MA 01740
508.281.5160

December 17, 2024

Heidi M. Davis
Highway Unit Supervisor
MassDEP
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: 401 WATER QUALITY CERTIFICATION
Response to Comments (RTC)
Administrative Completeness and Technical
Deficiency Review 401 WQC Transmittal No:
24-WW26-0036-APP

AT: Scadding Street Bridge Replacement (Bridge No. T-01-024)
Lake Sabbatia
Taunton, MA

Dear Ms. Davis:

The Department has reviewed your letter dated July 3, 2024 presenting the results of MassDEP's Administrative Review of the above-referenced application. We offer the following responses (following each of your comments which are shown *in italics* and numbered below).

1. *The application still requires proof of public notice to be administratively complete.*

   Proof of public notice was sent to your office via email on September 10, 2024 (see attached pdf Attachment 1 entitled "1.0 WQC PN Taunton Daily Gazette 04.07.24".)

2. *MassDEP considers the waterbody crossed by the existing and proposed bridges to be Lake Sabbatia rather than the Snake River; therefore, the Stream Crossing Standards do not apply.*

   Thank you, acknowledged.

3. *In accordance with 314 CMR 9.06 (1) an alternative should be provided "...that would have less adverse impact on the aquatic ecosystem". Please evaluate extending the retaining walls further to avoid and minimize fill in LUW.*

   The current retaining wall design has the least adverse impact of all the wall/embankment alternatives considered earlier in the design process. Walls were originally longer with 2:1 slopes proposed in front of them, running downslope to the water's edge. Geotechnical, slope stability and vegetative cover considerations resulted in these slopes becoming 3:1 which increased LUW impacts because toe-of-slope extended further into the resource. Where feasible due to height and alignment considerations, in order to reduce those increased impacts to LUW, the walls were shortened.

4. *Construction Sequence number 13 states: "Cut cofferdam sheeting below mudline." Please evaluate removing these sheets entirely, especially those proposed for the centerline of the stream.*

   The concern with completely pulling sheet piles which are close to the proposed abutments and wall foundations is that the effort will disturb foundation soils which can lead to settlement issues. We understand that the area with the most concern is the immediate channel area where the Snake River enters Lake Sabbatia at the bridge. The cofferdam running along the centerline of the channel can be removed completely following the completion of the second new abutment before beams are placed. The upstream channel cofferdam can also be removed. The downstream cofferdam should not be removed fully because there is a massive scour hole just downstream that buried scour protection and new stream substrate will slough into if not retained. We note the stream channel experiences lower velocities and subsequent less sediment transport because it is impounded with Lake Sabbatia. We understand that on previous projects cutting the sheets to a depth of 2' below the surface has been approved and we propose to do that with the downstream cofferdam abutting the scour hole (see Plan Sheet 2 of 9).

5. *The construction sequencing refers to plans with plantings and seeding that are not within the application. Please provide these planting plans.*

   The construction sequence inadvertently referred to "plantings". There are no proposed plantings except seeding. In locations where seeding is proposed for roadside and slope restoration, please see attached proposed seed mix specification in Attachment 2 entitled "5.0 Slope Seed Mix_Item 765.442".

6. *There appears to be no proposed wetland replication for permanent impacts to BVW. 314 CMR 9.06(2)(a) states: "For discharges to bordering or isolated vegetated wetlands, such steps shall include a minimum of 1:1 restoration or replication." Please provide plans and details of where and how BVW replication will occur.*

   Please see Attachment 3 Permitting Plans entitled "6.0 608616 Permitting Plans" Sheet 9 of 9. The proposed area is approximately 275 square feet to mitigate the 106 square foot loss of BVW. We note the following that will be specified for Construction if this proposal is acceptable to MassDEP:

   a) Use of a wetland seed mixture is appropriate for a wetland replication area of this size, and the vegetation community developed from the seed mix will be consistent with the predominantly herbaceous wetland in the area of impact. The wetland seed mixture will have a diverse assemblage of species, allowing for successful establishment under a range of typical hydrology conditions (i.e., the species that grow best in the initial growing season will "self-select" based on relative wetness of the site at that time). See Attachment 4.

   b) Final grading will incorporate some microtopography, with a + and – of about 6 inches from the final base grade noted in the sketch.

   c) We will propose a minimum 6 inches of topsoil with 8-10% organic content for disturbed access and regraded areas (we don't propose to re-use the topsoil currently in that area since it looks like dumped fill).

   We would also note that due to comments received from USACE impacts have changed from those depicted on the plans included in our original submittal. Due to clarifications in the delineations between Ordinary High Water (OHW) and BVW and the type of work proposed there are now less permanent BVW impacts (now 106 s.f. versus 278 s.f.), slightly more bank impacts (now 976 l.f. versus 952 l.f.) as well as less temporary impacts to land under water (now 5,123 s.f. versus 12,557 s.f.). These changes are depicted in the plans noted above.

7. *A full Stormwater Report with a signed and stamped stormwater checklist must be provided.*

   Please see Stormwater Report including stamped checklist Attachment 5 entitled "7.0 608616 Stormwater Management Report".

8. *Details and specifications are needed for the proposed vegetated swales. If practicable, they need to be designed to be a Water Quality Swale or other SCM in accordance with the Stormwater Handbook. Grading at the end of the swales should be pulled back out of LUW/BVWs.*

   Because the majority of the project area is along a narrow embankment section for a long distance and the topography is challenging (short embankment/side-slopes), there is not adequate space to design water quality swales meeting the Stormwater Handbook's requirements. As shown in Attachment 3 "6.0 608616 Permitting Plans" we propose to re-align the outfall pipe, eliminate the swale at STA 16+00 Right and provide a level spreader. Building the swale at the original location appears that it would result in the loss of two mature trees and two mature high-bush blueberry bushes which were identified to remain and be protected during construction at our September 18, 2024 site walk with your staff.

Thank you for your attention to this matter and please do not hesitate to contact me at 800.725.2550x305 or mlundsted@ceiengineers.com.

Sincerely,

COMPREHENSIVE ENVIRONMENTAL INC.

Matthew Lundsted, PE, CFM
Principal

Ecc: MassDOT- Courtney Walker
MassDOT – Melissa Lenker
MassDOT – Kylie Abouzeid
DEP SERO – Maissoun Reda
USACE – Dan Vasconcelos
Taunton Conservation Commission – Michele Restino, Agent
Dewberry Engineers Inc.- Adam Zysk, PE

# Attachment 1

# 1.0 WQC PN Taunton Daily Gazette 04.07.24

Proposal No. 608616-131225



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### Govt Public Notices

128 & 130 MYRICKS STREET
LEGAL NOTICE
TOWN OF BERKLEY
MASSACHUSETTS
ZONING BOARD OF APPEALS

In accordance with Massachusetts General Laws Chapter 40A, as amended, the Berkley Zoning Board of Appeals (ZBA) will hold a public hearing on:

TUESDAY APRIL 23, 2024

At 6:10pm at the Berkley Town Hall 1 North Main Street
Berkley, MA in the Moitoza-Pettey Hearing Room. The purpose is on the application, presented by the Current owners(s).

Sardinha Family Trust & 130 Myricks St., LLC-Owner
Sardinha Family Trust-Applicant
(Owner/ Tenant/ Applicant)

The applicant is seeking a variance for parking.

Article 21 Sec 4.3.3
(Reason for filing appeal)

The location of the property is known as Map 23 Lots 4 & 5
Located at

***128 & 130 Myricks Street ***

Any person(s) interested or wishing to be heard on this matter should attend this hearing. Individuals with disabilities who require special assistance or arrangements to participate in the hearing may contact The Board of Selectmen at 508-824-9286. Please provide ten (10) days' notice of request to accommodate.

Board of Appeals
Tony Carmo-Chairman

#10044086
TDG 4/7, 4/14/24

### Public Notices

LEGAL NOTICE
Notice of Closed Waiting List

Taunton Gardens will be closing its Waiting List for the 1, 2, and 3-bedroom Section 8 affordable waitlists on April 30, 2024. Applications received until April 30, 2024 will be placed on the waitlist based on date and time of application receipt. Applications received after April 30, 2024 will not be accepted. Applications may be picked up in person from the Management Office located at 26 Winslow Dr., Taunton, MA 02780 between 9:00 a.m. - 5:00 p.m. You may also request an application by phone 508-822-2501 TTY/TTD Relay #711 or email at info@TauntonGardensApts.com. For more information or for reasonable accommodations, contact Taunton Gardens at 508-822-2501 TTY/TTD Relay #711.
Taunton Gardens Team

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AD#10035964
Taunton 04/05,04/07/2024

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### Public Notices

BRIDGE NO. T-01-024
LEGAL NOTICE
PUBLIC NOTICE

Massachusetts Department of Environmental Protection
Division of Wetlands and Waterways
100 Cambridge Street, Suite 900
Boston, MA 02114

Pursuant to 33 U.S.C. 1341 and M.G.L. c. 21 §43 and 33 U.S.C. 1341 M.G.L. c. 21 §§ 26 - 53, notice is given of a 401 Water Quality Certification application for the replacement of Bridge No. T-01-024 carrying Scadding Street over the Snake River in the Town of Taunton by the Massachusetts Department of Transportation – Highway Division, 10 Park Plaza, Room 7360, Boston, MA 02116. The project includes bridge replacement due to alignment, safety and structural concerns. The proposed replacement will be widened to include sidewalks. Additional information may be obtained from the Massachusetts Department of Transportation – Highway Division at the above address, Attention Melissa Lenker or by emailing melissa.lenker@state.ma.us. Written comments should be sent to Heidi Davis, Mass-DEP Wetlands Program, 100 Cambridge Street, Suite 900, Boston, MA 02114 or heidi.davis@mass.gov within 21 days of this notice.

Any group of ten persons, any aggrieved person, or any governmental body or private organization with a mandate to protect the environment who submits written comments within 21 days of this notice may appeal the Department's Certification. Failure to submit written comments before the end of the public comment period may result in the waiver of any right to an adjudicatory hearing.

#10042445
TDG 4/7/24

Submit a Legal Public Notice
tauntongazette.com/public-notices

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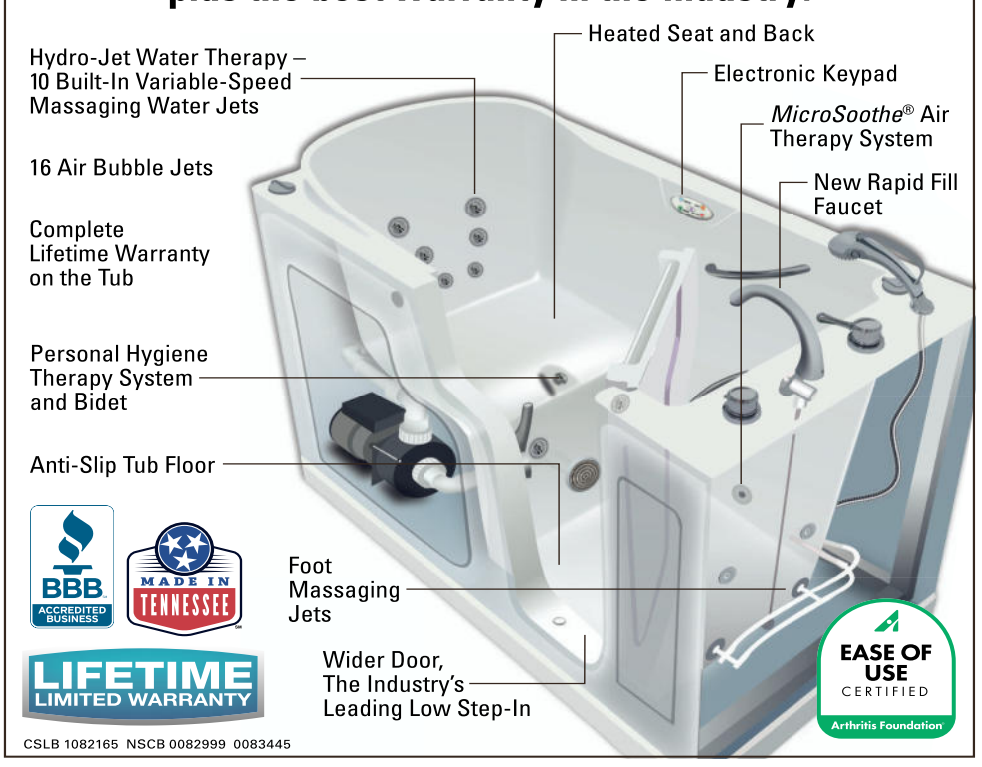


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# Attachment 2

# 5.0 Slope Seed Mix_Item 765.442

**ITEM 765.442 SEEDING – ROADSIDE RIVERBANK – PART SHADE 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

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.

| | Botanical Name | Common Name | % PLS By Weight |
|---|---|---|---|
| Grass | | | |
| | Elymus virginicus | Virginia Wild Rye | 25.00% |
| | Elymus canadensis | Canada Wild Rye | 20.00% |
| | Schizachyrium scoparium 'Albany Pine' | Little Bluestem 'Albany Pine' | 20.00% |
| | Festuca rubra | Creeping Red Fescue | 12.00% |
| | Dichanthelium clandestinum 'Tioga' | Deertongue grass 'Tioga' | 8.00% |
| | Agrostis perennans | Upland Bentgrass | 6.00% |
| | Carex vulpinoidea | Fox Sedge | 2.00% |
| | Juncus tenuis | Path Rush | 2.00% |
| | Juncus effusus | Soft Rush | 0.10% |
| | | | 95.10% |

| | | | |
|---|---|---|---|
| Herb/Forb | | | |
| | Penstemon digitalis | Beard-tongue | 2.00% |
| | Aster novae-angliae | New England Aster | 1.00% |
| | Solidago caesia | Woodland Goldenrod | 0.50% |
| | Aster cordifolius | Blue Wood Aster | 0.50% |
| | Eupatorium maculatum | Joe-pye Weed | 0.30% |
| | Geum canadense | White Avens | 0.30% |
| | Solidago rigida | Rigid Goldenrod | 0.20% |
| | Rudbeckia hirta | Black-eyed Susan | 0.10% |
| | | | 4.90% |
| | | | 100.00% |

**Application Rate**

Apply this mix at 20 lbs/acre PLS. In addition, apply 30 pounds of cover crop (grain oats or grain rye) as appropriate to the season.

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 765.442 will be measured for payment by the pound of Pure Live Seed delivered and complete in place.

Item765.442 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 735.635 Native Seeding and Establishment.

## *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.*

## *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):

# Attachment 3

# 6.0 608616 Permitting Plans

Proposal No. 608616-131225

# TAUNTON
# MASSDOT

## SCADDING STREET BRIDGE REPLACEMENT: T-01-024 (C5H)

IN THE CITY/TOWN OF

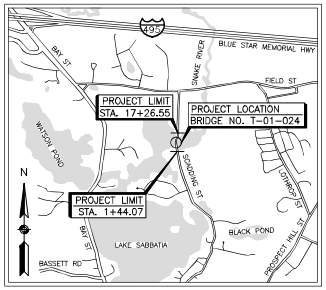
TAUNTON

BRISTOL COUNTY

## PERMITTING PLANS

INDEX OF DRAWINGS

| SHEET | TITLE |
|---|---|
| 1. | KEY PLAN, LOCUS, AND PROFILES |
| 2. | CONSTRUCTION PLAN |
| 3. | ROAD PROFILE |
| 4. | ROAD PROFILE |
| 5. | PERMITTING PLAN |
| 6. | DREDGING AREAS |
| 7. | IMPERVIOUS AREA DEVELOPMENT |
| 8. | SPECIAL AQUATIC SITES (SAS) IMPACTS |
| 9. | WETLAND REPLICATION PLAN |




LOCUS PLAN
SCALE: 1" = 1000'

HYDRAULIC DESIGN DATA

DRAINAGE AREA: 38.7 SQUARE MILES
DESIGN FLOOD DISCHARGE: 1,000 CUBIC FEET PER SECOND
DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 10% (10 YEARS)
DESIGN FLOOD VELOCITY: 1.07 FEET PER SECOND
DESIGN FLOOD ELEVATION: 60.8 FEET, NAVD

BASE (100-YEAR) FLOOD DATA

BASE FLOOD DISCHARGE: 1,840 CUBIC FEET PER SECOND
BASE FLOOD ELEVATION: 63.1 FEET, NAVD

DESIGN AND CHECK SCOUR DATA

SCOUR DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 4% (25 YRS)
DESIGN FLOOD ABUTMENT SCOUR DEPTH: 4.76 FEET
SCOUR CHECK FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 2% (50 YRS)
CHECK FLOOD ABUTMENT SCOUR DEPTH: 5.94 FEET

FLOOD OF RECORD

DISCHARGE: UNKNOWN
FREQUENCY: UNKNOWN
MAXIMUM ELEVATION: UNKNOWN
DATE: UNKNOWN

HISTORY OF ICE FLOES: NONE DOCUMENTED
EVIDENCE OF SCOUR & EROSION: NONE DOCUMENTED

DESIGN:

IN ACCORDANCE WITH THE 2020 AASHTO, NINTH EDITION, LRFD BRIDGE DESIGN SPECIFICATIONS FOR HL-93 LOADING.

SURVEY:

FIELD SURVEY PERFORMED IN JUNE 2017 BY NITSCH ENGINEERING IN ACCORDANCE WITH MASSDOT GUIDELINES.

ISSUED FOR CONSTRUCTION


COMPREHENSIVE ENVIRONMENTAL INC.
41 MAIN STREET
BOLTON, MA 01740

Dewberry
99 SUMMER ST.,
SUITE 700
BOSTON, MA 02110
(617) 695-3400
(617) 695-3310


massDOT Highway Division

PROPOSED BRIDGE REPLACEMENT
TAUNTON
SCADDING SCREET
OVER SNAKE RIVER

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
10 PARK PLAZA BOSTON, MASS

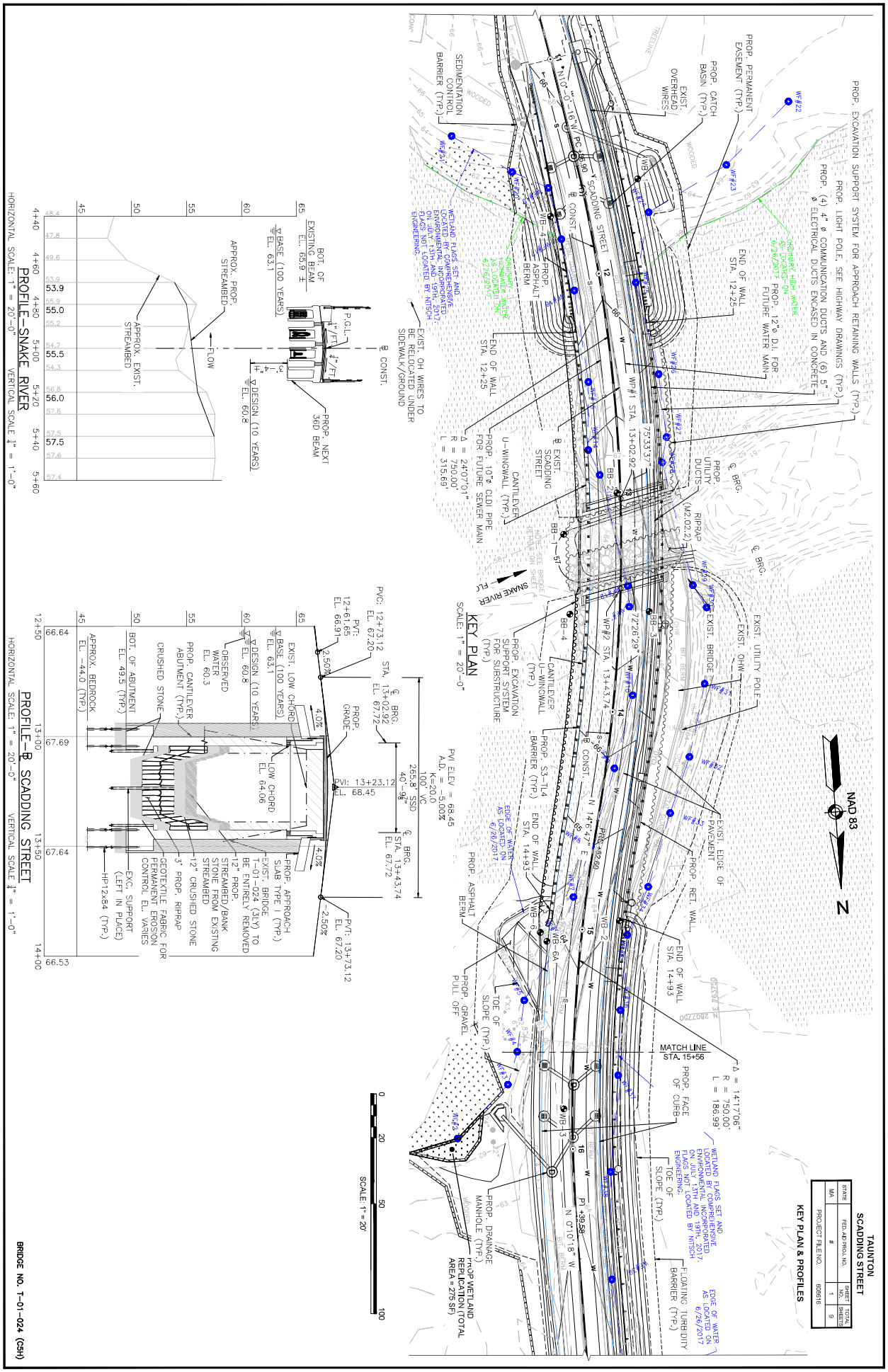
TITLE: _____ CHIEF ENGINEER

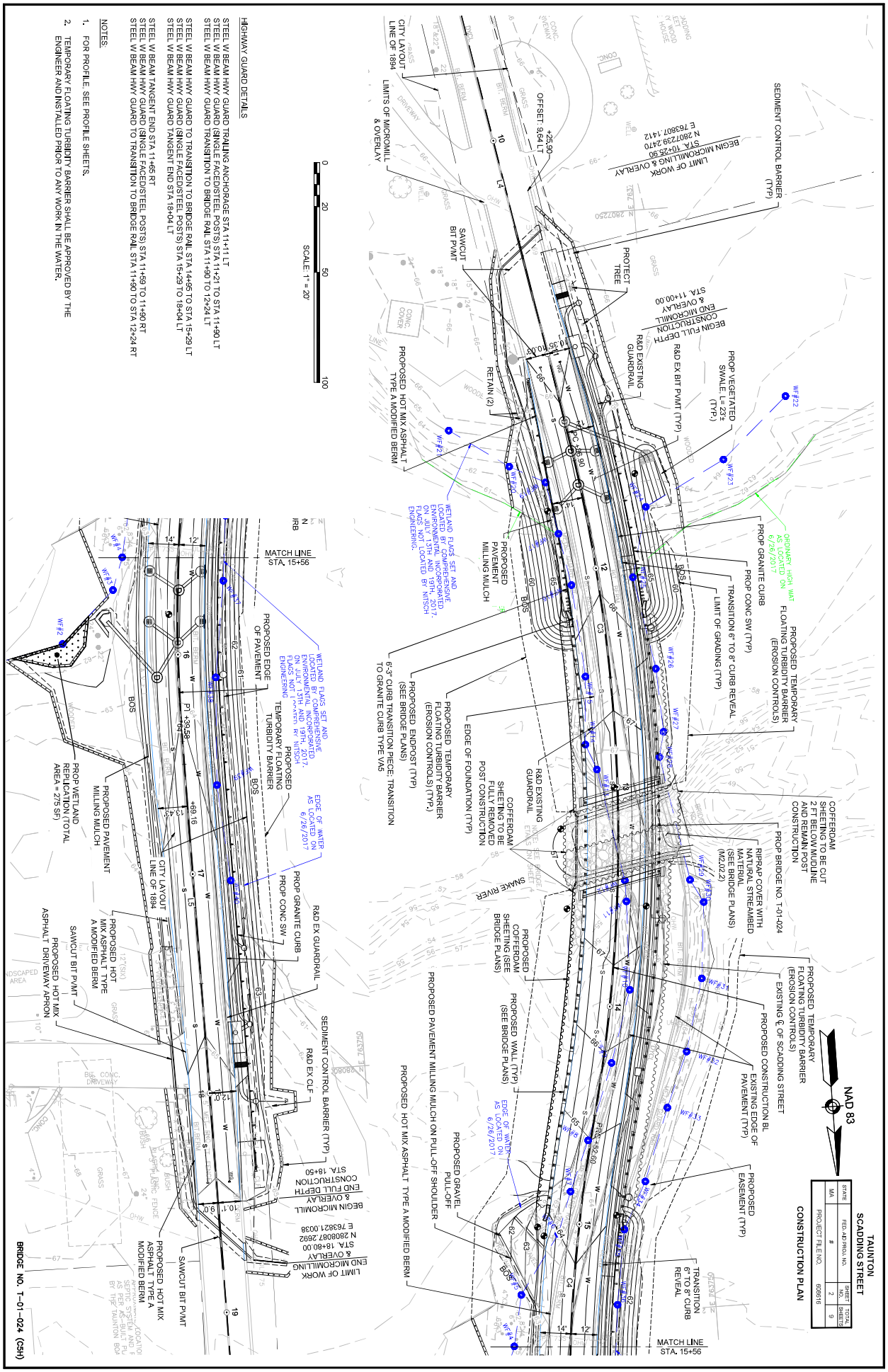
BRIDGE NO. T-01-024 (C5H)

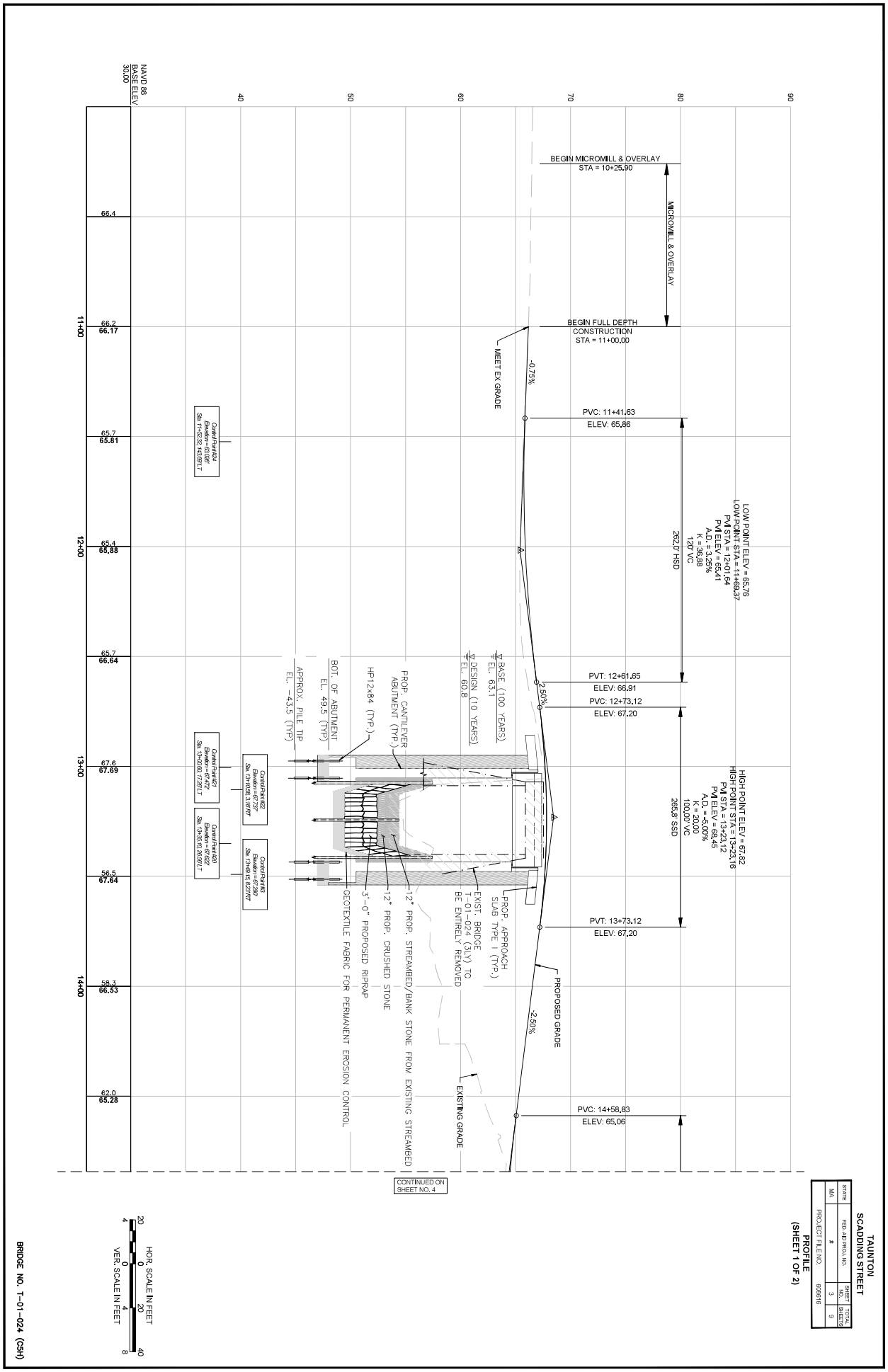
608616_PERMITTING PLANS.DWG Plotted on 17-Dec-2024 8:15 AM

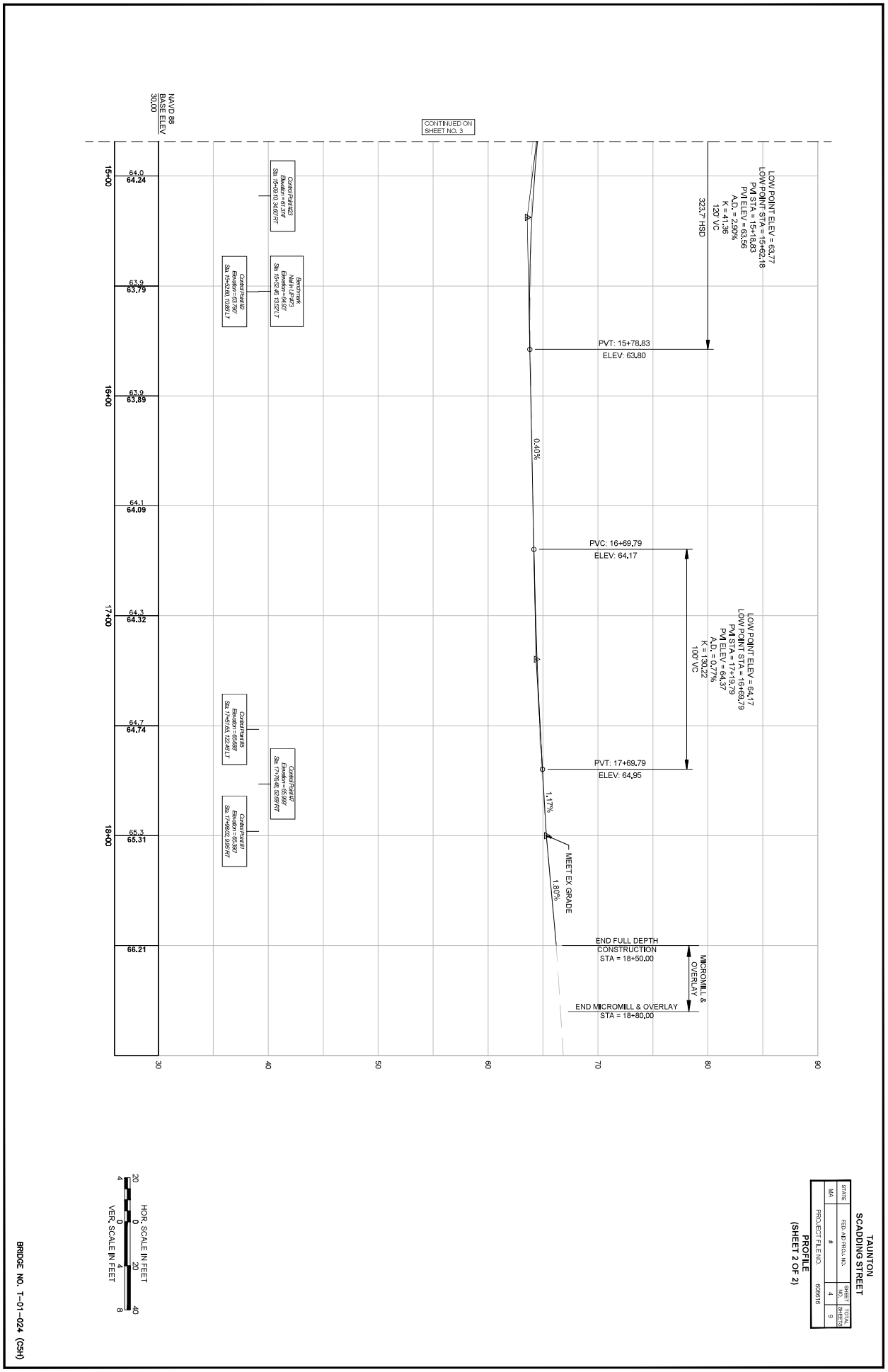
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021

A00840 - 178


PROP. EXCAVATION SUPPORT SYSTEM FOR APPROACH RETAINING WALLS (TYP.)
PROP. LIGHT POLE, SEE HIGHWAY DRAWINGS (TYP.)
PROP. (4) 4" ø COMMUNICATION DUCTS AND (6) 5" ø ELECTRICAL DUCTS ENCASED IN CONCRETE
PROP. PERMANENT EASEMENT (TYP.)
PROP. CATCH BASIN (TYP.)
EXIST. OVERHEAD WIRES
SEDIMENTATION CONTROL BARRIER (TYP.)
PROP. 12"ø D.I. FOR FUTURE WATER MAIN
END OF WALL STA. 12+25
PROP. ASPHALT BERM
PROP. UTILITY DUCTS
RIPRAP (M2.02.2)
CANTILEVER U-WINGWALL (TYP.)
PROP. 10"ø CLDI PIPE FOR FUTURE SEWER MAIN
EXIST. SCADDING STREET
EXIST. UTILITY POLE
EXIST. QHW
EXIST. BRIDGE
PROP. EXCAVATION SUPPORT SYSTEM FOR SUBSTRUCTURE (TYP.)
PROP. S3-TL4 BARRIER (TYP.)
EXIST. EDGE OF PAVEMENT
PROP. RET. WALL
END OF WALL STA. 14+93
PROP. GRAVEL PULL OFF
TOE OF SLOPE (TYP.)
MATCH LINE STA. 15+56
PROP. FACE OF CURB
PROP. DRAINAGE MANHOLE (TYP.)
PROP. WETLAND REPLICATION TOTAL AREA = 275 SF
FLOATING TURBIDITY BARRIER (TYP.)
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED ON JULY 13TH AND 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
EDGE OF WATER AS LOCATED ON 6/26/2017
ORDINARY HIGH WATER AS LOCATED ON 6/26/2017
WETLAND FLAGS SET AND LOCATED BY ENVIRONMENTAL INCORPORATED ON JULY 13TH AND 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
EDGE OF WATER AS LOCATED ON 6/26/2017
NAD 83
N
SCALE: 1" = 20'
0
20
50
100
KEY PLAN
SCALE: 1" = 20'-0"
SNAKE RIVER FLT
PROFILE—SNAKE RIVER
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE 1" = 1'-0"
BOT. OF EXISTING BEAM EL. 63.9 ±
BASE (100 YEARS) EL. 63.1
DESIGN (10 YEARS) EL. 60.8
APPROX. PROP. STREAMBED
APPROX. EXIST. STREAMBED
FLOW
P.G.L.
PROP. NEXT 36D BEAM
EXIST. OH WIRES TO BE RELOCATED UNDER SIDEWALK/GROUND
CONST.
PROFILE—℄ SCADDING STREET
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE 1" = 1'-0"
PVC: 12+73.12
EL. 67.20
PVI: 12+61.65
EL. 66.91
PVT: 13+73.12
EL. 67.20
STA. 13+02.92
EL. 67.72
PVI ELEV = 68.45
A.D. = 5.00%
K=20.0
100' VC
265.8' SSD
40'-9⅜"
STA. 13+43.74
EL. 67.72
PVI: 13+23.12
EL. 68.45
4.0%
-2.50%
EXIST. LOW CHORD
BASE (100 YEARS) EL. 63.1
DESIGN (10 YEARS) EL. 60.8
OBSERVED WATER EL. 60.3
PROP. CANTILEVER ABUTMENT (TYP.)
CRUSHED STONE
BOT. OF ABUTMENT EL. 49.5 (TYP.)
APPROX. BEDROCK EL. ~44.0 (TYP.)
LOW CHORD EL. 64.06
PROP. APPROACH SLAB TYPE I (TYP.)
EXIST. BRIDGE T-01-024 (31Y) TO BE ENTIRELY REMOVED
12" PROP. STREAMBED/BANK STONE FROM EXISTING STREAMBED
12" CRUSHED STONE
3" PROP. RIPRAP
GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL EL. VARIES
EXC. SUPPORT (LEFT IN PLACE)
HP12x84 (TYP.)
TAUNTON
SCADDING STREET
KEY PLAN & PROFILES
EXATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
1
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS.DWG
Plotted on 17-Dec-2024 8:16 AM


TAUNTON
SCADDING STREET
CONSTRUCTION PLAN
NAD 83
SCALE: 1" = 20'
0
20
50
100
HIGHWAY GUARD DETAILS
STEEL W BEAM HWY GUARD TRAILING ANCHORAGE STA 11+11 LT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 11+21 TO STA 11+90 LT
STEEL W BEAM HWY GUARD TRANSITION TO BRIDGE RAIL STA 11+90 TO 12+24 LT
STEEL W BEAM HWY GUARD TO TRANSITION TO BRIDGE RAIL STA 14+95 TO STA 15+29 LT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 15+29 TO 18+04 LT
STEEL W BEAM HWY GUARD TANGENT END STA 18+04 LT
STEEL W BEAM TANGENT END STA 11+65 RT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 11+69 TO 11+90 RT
STEEL W BEAM HWY GUARD TO TRANSITION TO BRIDGE RAIL STA 11+90 TO STA 12+24 RT
NOTES:
1. FOR PROFILE, SEE PROFILE SHEETS.
2. TEMPORARY FLOATING TURBIDITY BARRIER SHALL BE APPROVED BY THE ENGINEER AND INSTALLED PRIOR TO ANY WORK IN THE WATER.
BRIDGE NO. T-01-024 (C5H)
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
SNAKE RIVER
PROPOSED BRIDGE NO. T-01-024
PROPOSED CONSTRUCTION BL
EXISTING EDGE OF PAVEMENT (TYP)
EXISTING ℄ OF SCADDING STREET
PROPOSED EASEMENT (TYP)
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
RIPRAP COVER WITH NATURAL STREAMBED MATERIAL (SEE BRIDGE PLANS) (M2.02.2)
PROPOSED COFFERDAM SHEETING (SEE BRIDGE PLANS)
PROPOSED WALL (TYP) (SEE BRIDGE PLANS)
PROPOSED PAVEMENT MILLING MULCH ON PULL-OFF SHOULDER
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
PROPOSED GRAVEL PULL-OFF
TRANSITION 6" TO 8" CURB REVEAL
PROP GRANITE CURB
PROP CONC SW (TYP)
TRANSITION 6" TO 8" CURB REVEAL
LIMIT OF GRADING (TYP)
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
PROPOSED PAVEMENT MILLING MULCH
PROPOSED ENDPOST (TYP) (SEE BRIDGE PLANS)
6'-3" CURB TRANSITION PIECE: TRANSITION TO GRANITE CURB TYPE VA6
EDGE OF FOUNDATION (TYP)
R&D EXISTING GUARDRAIL
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
PROP VEGETATED SWALE L= 23'± (TYP.)
R&D EX BIT PVMT (TYP)
BEGIN FULL DEPTH CONSTRUCTION END MICROMILL & OVERLAY STA. 11+00.00
PROTECT TREE
SAWCUT BIT PVMT
SEDIMENT CONTROL BARRIER (TYP)
LIMIT OF WORK BEGIN MICROMILLING & OVERLAY STA. 10+25.90 N 2807239.2470 E 763807.1412
OFFSET: 9.04' LT
+25.90
CITY LAYOUT LINE OF 1894
LIMITS OF MICROMILL & OVERLAY
RETAIN (2)
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
ORDINARY HIGH WAT ASCERTAINED ON 6/26/2017
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED, ON JULY 13TH, 2017. FLAGS LOCATED BY NITSCH ENGINEERING.
EDGE OF WATER AS LOCATED ON 6/26/2017
PROP WETLAND REPLICATION (TOTAL AREA = 275 SF)
PROPOSED EDGE OF PAVEMENT
TEMPORARY FLOATING TURBIDITY BARRIER
PROPOSED PAVEMENT MILLING MULCH
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
SAWCUT BIT PVMT
PROPOSED HOT MIX ASPHALT DRIVEWAY APRON
PROP GRANITE CURB
PROP CONC SW
R&D EX GUARDRAIL
SEDIMENT CONTROL BARRIER (TYP)
R&D EX CLF
BEGIN MICROMILL & OVERLAY END FULL DEPTH CONSTRUCTION STA. 18+50
N 2806087.2692 E 763821.0038
STA. 18+80.00
END MICROMILLING & OVERLAY
LIMIT OF WORK
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
SAWCUT BIT PVMT
PROJECT FILE NO. 608616
SHEET NO. 2
TOTAL SHEETS 9
FED. AID PROJ. NO.
MA
EXA'E
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS.DWG
Plotted on 17-Dec-2024 8:16 AM


NAVD 88
BASE ELEV.
30.00
40
50
60
70
80
90
11+00
12+00
13+00
14+00
66.4
66.2
66.17
65.7
65.81
65.4
65.88
65.7
66.64
67.6
67.69
56.5
67.64
58.3
66.53
62.0
65.28
BEGIN MICROMILL & OVERLAY
STA = 10+25.90
MICROMILL & OVERLAY
BEGIN FULL DEPTH
CONSTRUCTION
STA = 11+00.00
MEET EX GRADE
-0.75%
PVC: 11+41.63
ELEV: 65.86
LOW POINT ELEV = 65.76
LOW POINT STA = 11+69.37
PVI STA = 12+01.64
PVI ELEV = 65.41
A.D. = -3.25%
K = 36.88
120' VC
262.0' HSD
PVT: 12+61.65
ELEV: 66.91
2.50%
PVC: 12+73.12
ELEV: 67.20
HIGH POINT ELEV = 67.82
HIGH POINT STA = 13+23.16
PVI STA = 13+23.12
PVI ELEV = 68.45
A.D. = +5.00%
K = 20.00
100.00' VC
265.8' SSD
PVT: 13+73.12
ELEV: 67.20
PROPOSED GRADE
-2.50%
PVC: 14+58.83
ELEV: 65.06
EXISTING GRADE
BASE (100 YEARS)
EL. 63.1
DESIGN (10 YEARS)
EL. 60.8
PROP. CANTILEVER
ABUTMENT (TYP.)
HP12x84 (TYP.)
BOT. OF ABUTMENT
EL. 49.5 (TYP.)
APPROX. PILE TIP
EL. -43.5 (TYP.)
PROP. APPROACH
SLAB TYPE I (TYP.)
EXIST. BRIDGE
T-01-024 (3LY) TO
BE ENTIRELY REMOVED
12" PROP. STREAMBED/BANK STONE FROM EXISTING STREAMBED
12" PROP. CRUSHED STONE
3'-0" PROPOSED RIPRAP
GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL
Corner Point#24
Elevation=60.00ft
Sta 11+52.32, 14.69Lt
Corner Point#23
Elevation=67.47ft
Sta 13+26.60, 17.28Lt
Corner Point#22
Elevation=67.62ft
Sta 13+26.19, 26.39Lt
Corner Point#21
Elevation=67.73ft
Sta 13+10.58, 3.19Rt
Corner Point#20
Elevation=67.39ft
Sta 13+49.19, 9.27Rt
CONTINUED ON
SHEET NO. 4
HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8
BRIDGE NO. T-01-024 (CSH)
TAUNTON
SCADDING STREET
PROFILE
(SHEET 1 OF 2)
STATE
MA
FED. AID PROJ. NO.
#
SHEET NO.
3
TOTAL SHEETS
9
PROJECT FILE NO.
608616
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS.DWG
Plotted on 17-Dec-2024 8:16 AM




HOR. SCALE IN FEET
4 0 4 20 40
VER. SCALE IN FEET
4 0 4 20 40 8

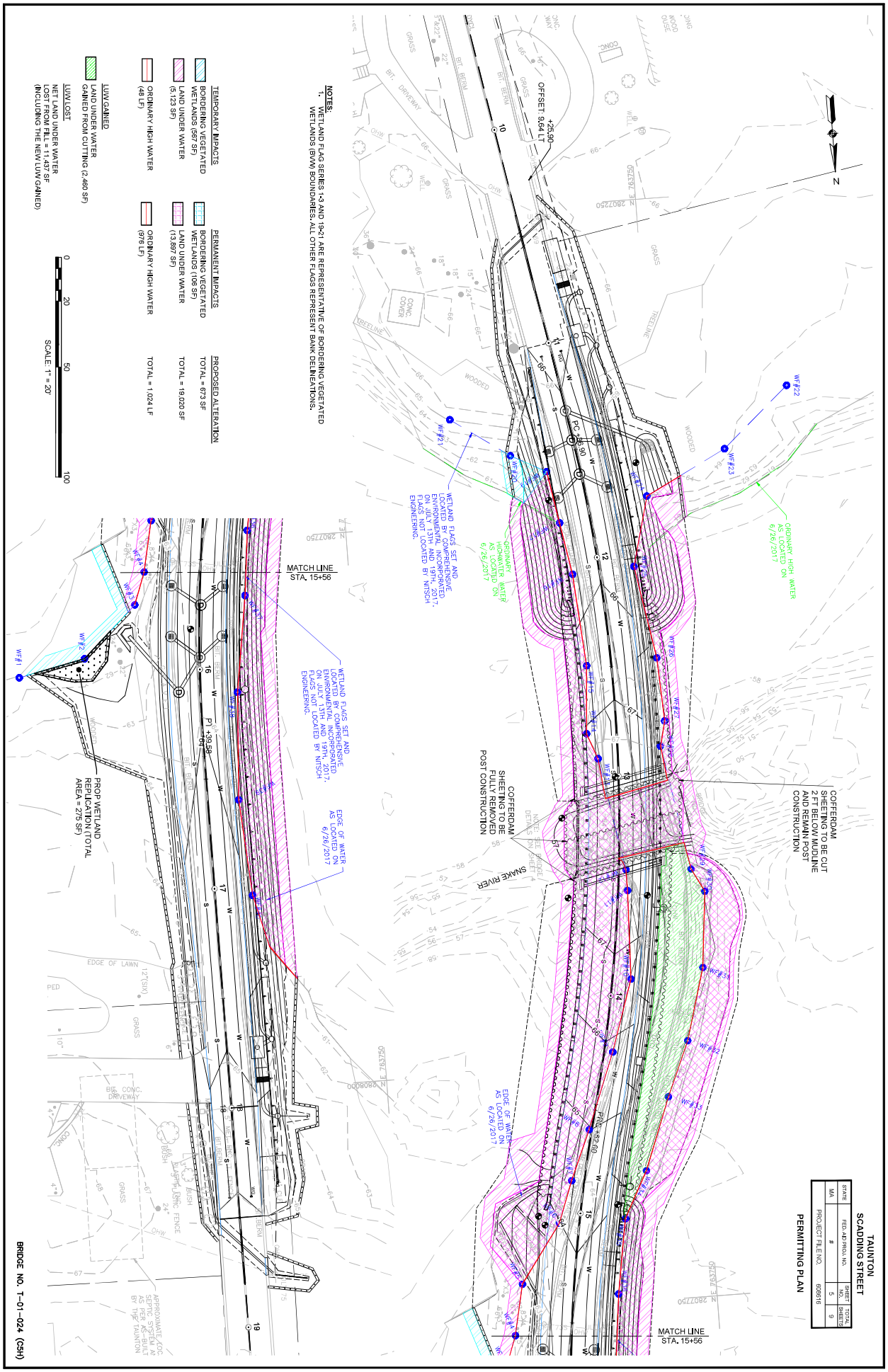
BRIDGE NO. T-01-024 (C5H)

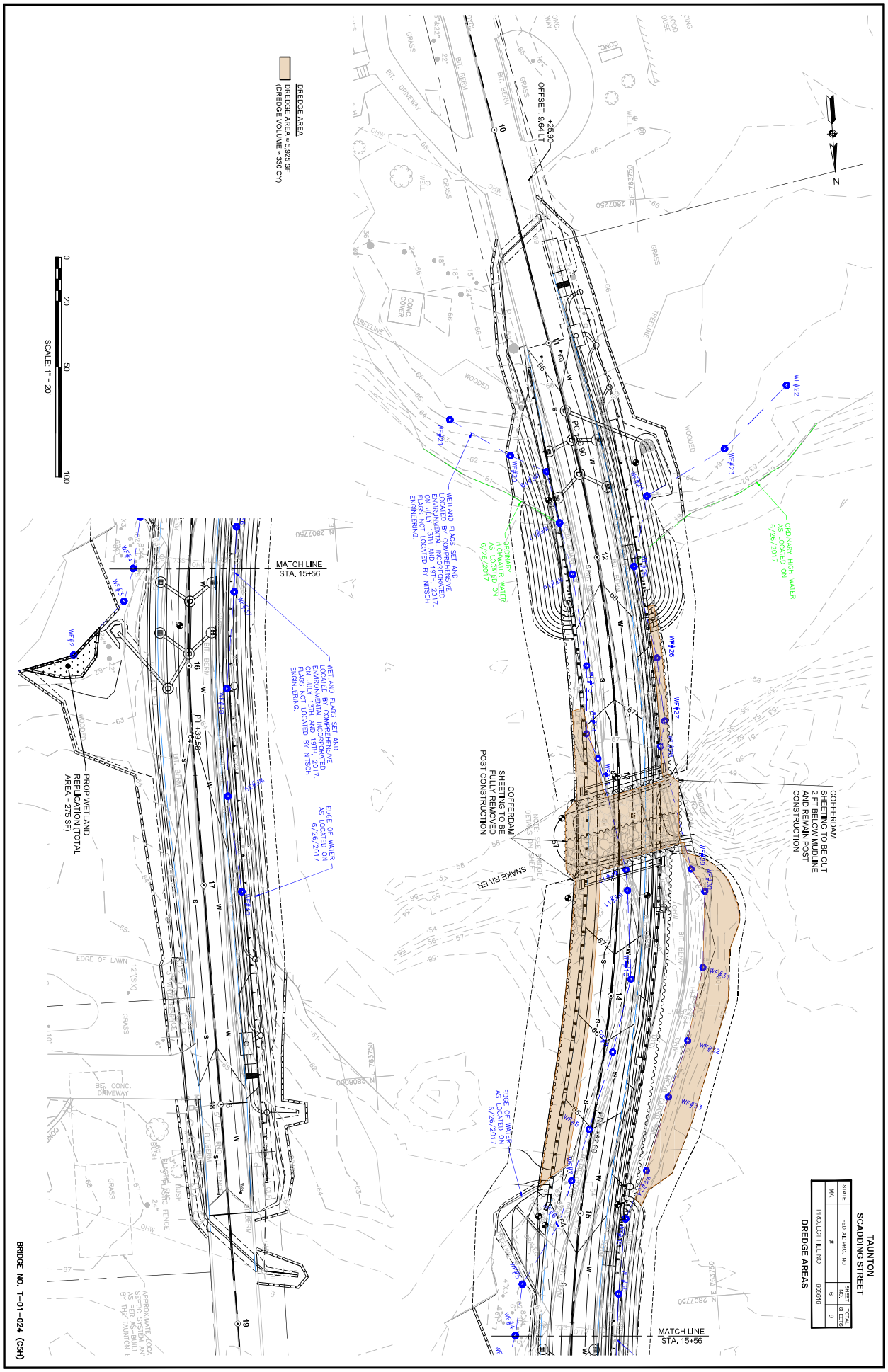
TAUNTON
SCADDING STREET
PROFILE
(SHEET 2 OF 2)

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | # | 4 | 9 |
| PROJECT FILE NO. | 608616 | | |

FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021

608616_PERMITTING PLANS.DWG Plotted on 17-Dec-2024 8:17 AM


NOTES:
1. WETLAND FLAG SERIES 1-9 AND 19-21 ARE REPRESENTATIVE OF BORDERING VEGETATED WETLANDS (BVW) BOUNDARIES. ALL OTHER FLAGS REPRESENT BANK DELINEATIONS.
TEMPORARY IMPACTS
BORDERING VEGETATED WETLANDS (667 SF)
LAND UNDER WATER (5,123 SF)
ORDINARY HIGH WATER (48 LF)
PERMANENT IMPACTS
BORDERING VEGETATED WETLANDS (106 SF)
LAND UNDER WATER (13,887 SF)
ORDINARY HIGH WATER (978 LF)
PROPOSED ALTERATION
TOTAL = 673 SF
TOTAL = 19,020 SF
TOTAL = 1,024 LF
LUW GAINED
LAND UNDER WATER GAINED FROM CUTTING (2,460 SF)
LUW LOST
NET LAND UNDER WATER LOST FROM FILL = 11,437 SF (INCLUDING THE NEW LUW GAINED)
SCALE: 1" = 20'
0
20
50
100
N
OFFSET 9.64 LT
+25.90
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED ON JULY 13TH AND 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED ON JULY 13TH AND 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 6/26/2017
ORDINARY HIGH WATER AS LOCATED ON 6/26/2017
EDGE OF WATER AS LOCATED ON 6/26/2017
EDGE OF WATER AS LOCATED ON 6/26/2017
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
PROP WETLAND REPLICATION (TOTAL AREA = 275 SF)
SNAKE RIVER
TAUNTON
SCADDING STREET
PERMITTING PLAN
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
5
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS.DWG
Plotted on 17-Dec-2024 8:17 AM


DREDGE AREA
DREDGE AREA = 5,625 SF
(DREDGE VOLUME = 330 CY)
SCALE: 1" = 20'
0
20
50
100
N
OFFSET 9.64 LT
MATCH LINE
STA. 15+56
MATCH LINE
STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED, ON JULY 13TH AND 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 6/26/2017
EDGE OF WATER AS LOCATED ON 6/26/2017
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
PROP WETLAND REPLICATION (TOTAL AREA = 275 SF)
SNAKE RIVER
TAUNTON
SCADDING STREET
DREDGE AREAS
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
6
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
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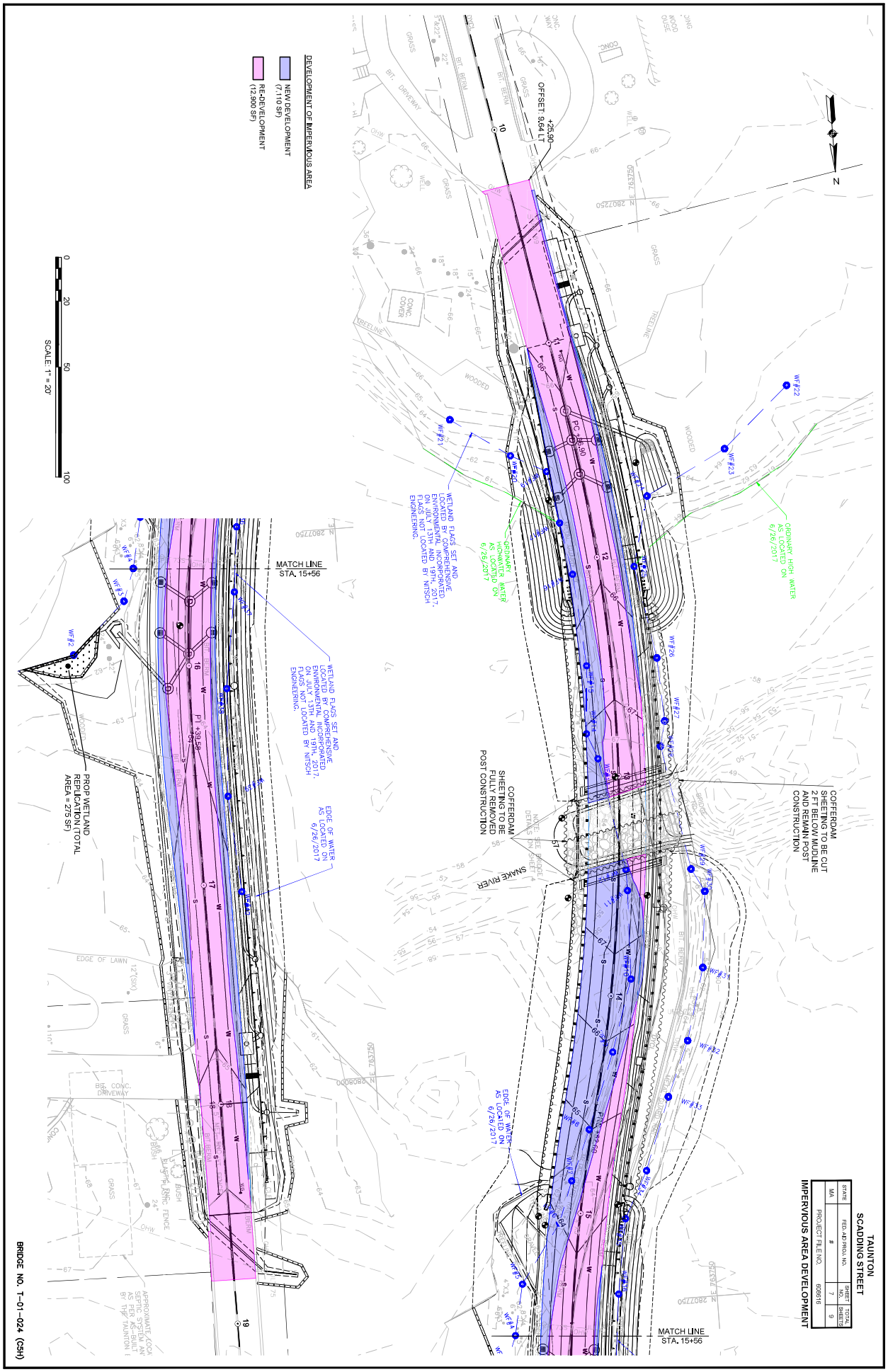
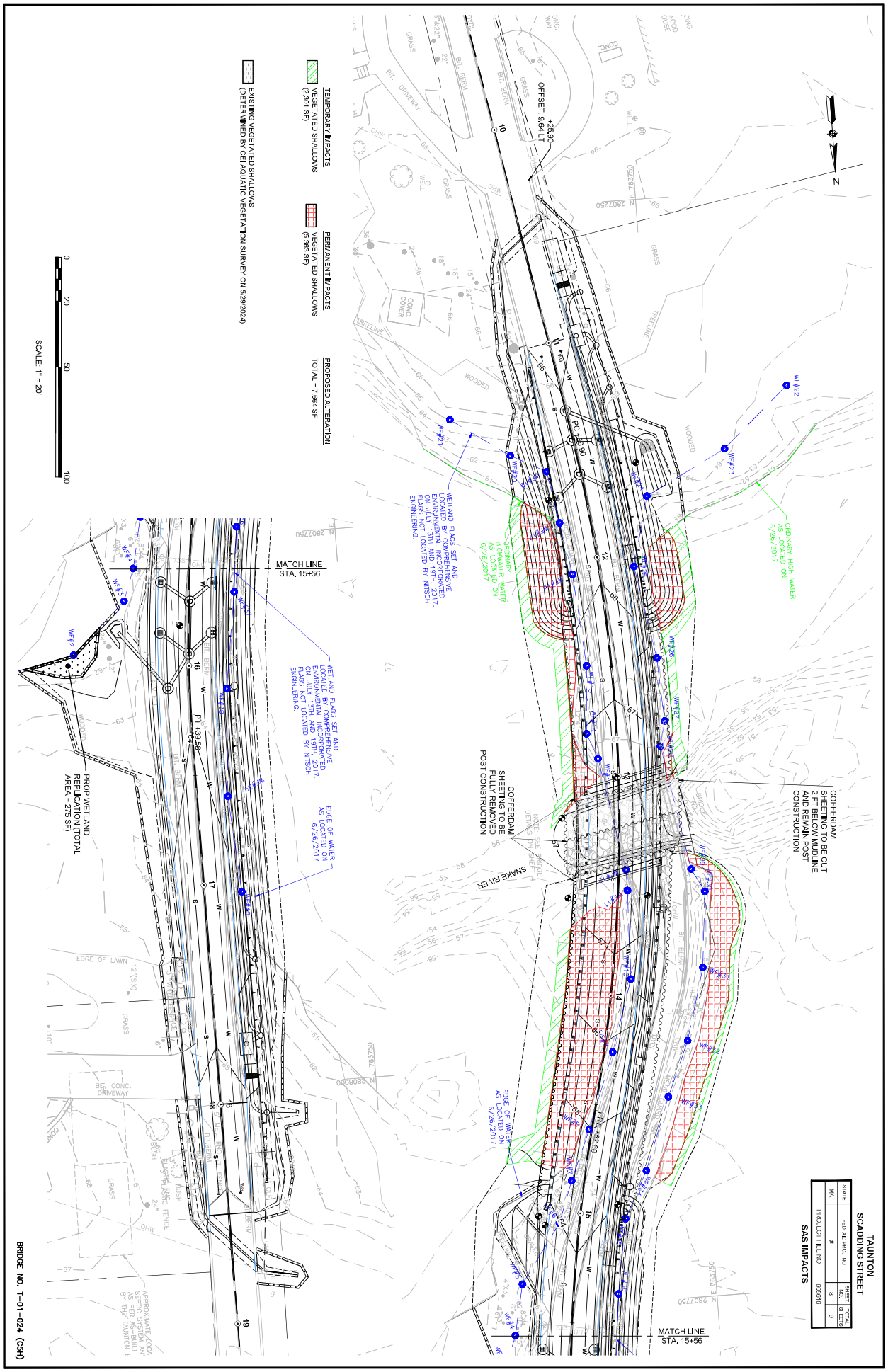
Plotted on 17-Dec-2024 8:18 AM


DEVELOPMENT OF IMPERVIOUS AREA
NEW DEVELOPMENT (7,110 SF)
RE-DEVELOPMENT (12,305 SF)
SCALE: 1" = 20'
0
20
50
100
N
OFFSET: +25.90 LT
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
PROP WETLAND REPLICATION (TOTAL AREA = 275 SF)
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
EDGE OF WATER AS LOCATED ON 6/26/2017
ORDINARY HIGH WATER AS LOCATED ON 6/26/2017
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
SNAKE RIVER
TAUNTON
SCADDING STREET
IMPERVIOUS AREA DEVELOPMENT
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS.DWG
Plotted on 17-Dec-2024 8:18 AM


TEMPORARY IMPACTS
VEGETATED SHALLOWS (2,301 SF)
PERMANENT IMPACTS
VEGETATED SHALLOWS (5,363 SF)
PROPOSED ALTERATION
TOTAL = 7,664 SF
EXISTING VEGETATED SHALLOWS (DETERMINED BY CEI AQUATIC VEGETATION SURVEY ON 5/29/2024)
SCALE: 1" = 20'
0
20
50
100
N
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 13TH AND 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 13TH AND 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 6/26/2017
ORDINARY HIGH WATER AS LOCATED ON 6/26/2017
EDGE OF WATER AS LOCATED ON 6/26/2017
EDGE OF WATER AS LOCATED ON 6/26/2017
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
PROP WETLAND REPLICATION (TOTAL AREA = 275 SF)
SNAKE RIVER
OFFSET: 9.64 LT
+25.90
PC
PI +39.58
TAUNTON
SCADDING STREET
SAS IMPACTS
STATE
MA
FED. AID PROJ. NO.
PROJECT FILE NO.
608616
SHEET NO.
8
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS.DWG
Plotted on 17-Dec-2024 8:19 AM

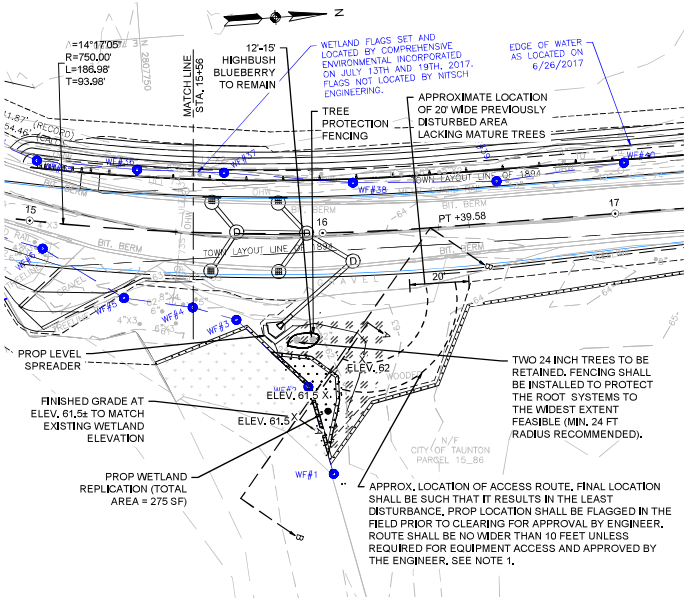
Proposal No. 608616-131225

A00840 - 187

TAUNTON
SCADDING STREET

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | # | 9 | 9 |
| PROJECT FILE NO. | 608616 | | |

WETLAND REPLICATION PLAN




WETLAND REPLICATION PLAN VIEW

0 20 50 100

SCALE: 1" = 20'

NOTES:

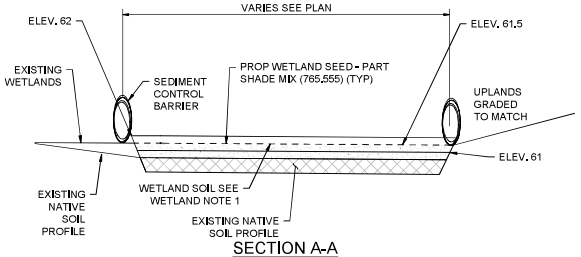
1. CONTRACTOR CAN ACCESS THE REPLICATION AREA USING A MAXIMUM 10' WIDE ACCESS PATH WITHIN THE 20' WIDE PREVIOUSLY DISTURBED AREA USING CUTTING ONLY.
2. EXISTING STONE PARKING AREA TO ACT AS TRACKING PAD.
3. ACCESS ROUTE SHALL BE FLAGGED FOR APPROVAL BY THE ENGINEER PRIOR TO SITE DISTURBANCE. ONCE APPROVED, VEGETATION SHALL BE CUT FLUSH TO THE GROUND. IF REQUIRED TO REPAIR EXPOSED SOILS AT THE COMPLETION OF WORK, THE ACCESS ROUTE SHALL BE SCARIFIED FOR DECOMPACTION AND SEEDED WITH THE UPLAND SEED MIX.

LEGEND:

EXISTING WETLAND

REPLICATION

UPLAND SEED



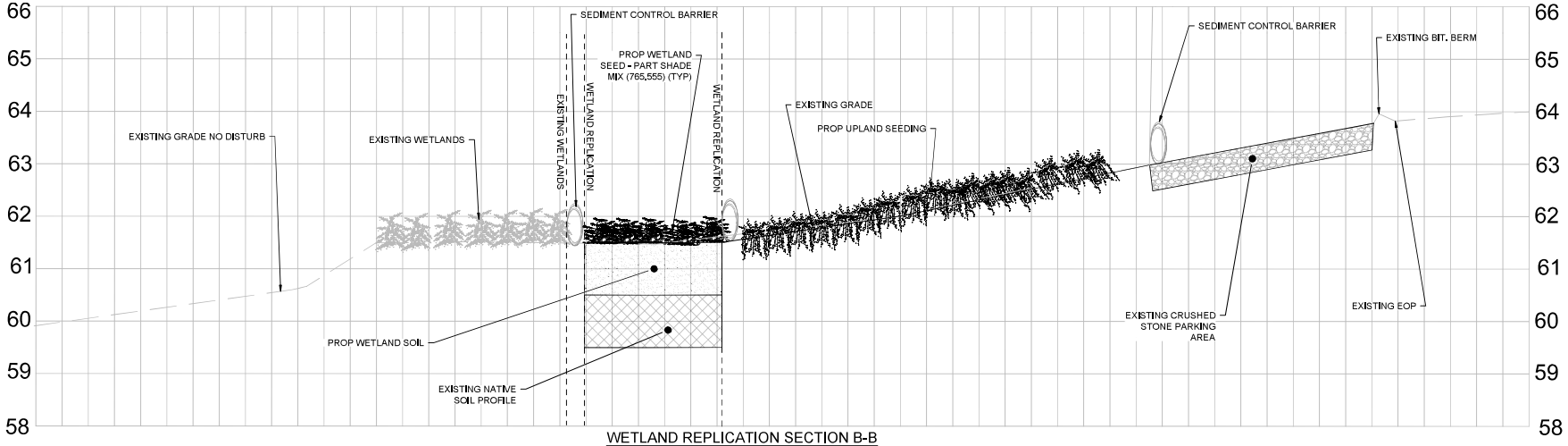

SECTION A-A

WETLAND REPLICATION DETAIL

NOT TO SCALE

WETLAND NOTES:

1. WETLAND REPLICATION AREA SHALL BE CONSTRUCTED IN ACCORDANCE WITH ITEM 755.35 OF THE SPECIAL PROVISIONS. EXCAVATE EXISTING SOIL TO TARGET ELEVATIONS. IF EXISTING SUBSOIL IS DETERMINED TO BE UNSUITABLE FOR PLANTING, EXCAVATE TO DEPTH NECESSARY FOR PLANTING AND BACKFILL WITH APPROPRIATE MANUFACTURED SOIL. BACKFILL SHALL BE INSTALLED AS PER MASSDOT STANDARD SPECIFICATIONS.
2. WETLAND SEED SHALL BE PART SHADE MIX AND PER THE WETLAND SPECIFICATIONS.
3. UPLAND SEED SHALL BE THE UPLAND MIX AND PER THE NATIVE SEEDING SPECIFICATIONS AND SHALL BE APPLIED TO ALL DISTURBED AREA ADJACENT TO THE WETLAND MITIGATION WORK.




WETLAND REPLICATION SECTION B-B

HOR. SCALE IN FEET

4 0 4 8

VER. SCALE IN FEET

1 0 1 2

WETLAND REPLICATION PLAN.DWG Plotted on 13-Dec-2024 12:46 PM

FIRST BRIDGE SUBMISSION - (91) 30-JUNE-2021

# Attachment 4

# 6.0 608616 Wetland Replication Seed Mix

**Mix 765.555 Wetland Mix – Part Shade Mix**

Shade-tolerant mix of native species for areas that are shaded by trees. Good for bioengineering sites.

| | Botanical Name | Common Name | % PLS By Weight |
|---|---|---|---|
| Grass | | | |
| | Poa palustris | Fowl Bluegrass | 25.00% |
| | Elymus riparius | Riverbank Wild Rye | 19.00% |
| | Carex lurida | Shallow Sedge | 17.00% |
| | Carex vulpinoidea | Fox Sedge | 10.00% |
| | Cinna arundinacea | Sweet Woodreed | 5.00% |
| | Sparganium eurycarpum | Giant Bur Reed Eco PA | 4.00% |
| | Carex scoparia | Broom sedge | 4.00% |
| | Carex lupulina | Hop Sedge | 4.00% |
| | Scirpus polyphyllus | Many Leaved Bulrush | 3.00% |
| | Juncus effusus | Soft Rush | 2.50% |
| | Carex intumescens | Bladder Sedge | 2.00% |
| | Sparganium americanum | Burrweed | 2.00% |
| | Scirpus cyperinus | Woolgrass | 1.00% |
| | Carex crinita | Fringed Sedge | 1.00% |
| | Juncus tenuis | Path Rush | 0.50% |
| | | | 100.00% |

Seeding Rate:
Species ecotype shall be as native to New England region as possible. Apply this mix at 20 lbs PLS/acre.

# Attachment 5

# 7.0 608616 Stormwater Management Report

| | |
|---|---|
| To: MassDOT | Date: *August 14, 2024* |
| | Project: 608616 |
| From: Dewberry Engineers Inc. | Re: Scadding Street over Snake River |

This Stormwater Management Memorandum has been prepared to show compliance with the Massachusetts Stormwater Management Standards in accordance with the Massachusetts Water Quality Certification Regulations (314 CMR 9.00) to support the Project's Section 401 Water Quality Certificate Application.

## Project Description

The Applicant, MassDOT, is proposing Project 608616 to construct a bridge replacement (the Project) located in the City of Taunton, MA. As proposed, the Project consists of replacement of the existing bridge carrying Scadding Street over the Snake River and associated roadway approach work, safety improvements, drainage and utility improvements.

## Existing and Proposed Drainage Conditions

Existing

The existing road is a hot mix asphalt (HMA) City street that runs in a north-south orientation from Field Street to the north to Bay Street to the south. Within the project limits the road varies in width from 15.5 feet to 21.5 feet (26.7 feet at the bridge) and is edged by HMA berms. There are no existing sidewalks or bike lanes. The majority of the road within the project limits is a causeway between the Snake River to the east and Lake Sabbatia to the west with private residences at either end of the project limits. The road is bordered by existing guardrail for a majority of its length within the project and the existing ground slopes steeply down to the water surface outside of the rail. The areas outside of the guardrail are a mix of weeds, shrubs and scrub trees.

Horizontally, this section of the road forms a sharp "S" curve. The profile peaks at the bridge and drops several feet to low points on either side before rising again to meet the off-causeway ground elevations.

There is an existing narrow pull off area and a gravel access ramp to the river immediately northeast of the existing bridge.

There is no existing drainage infrastructure or stormwater control measures within the project limits. Runoff flows along the existing berm to the low points, ponds, and spills over the berm and down the slopes to Snake River (east side of road) or Lake Sabbatia (west side of road). Gutter flow may also exit through any gaps in the existing berm before reaching the low points.

There is approximately 20,375 square feet of impervious area in the existing condition.

Proposed

The Project consists of construction of the new bridge and a new, consistent width HMA roadway with a new cement concrete sidewalk along the west side of the road. Retaining walls will extend from all corners of the bridge to minimize the footprint to reduce impacts to the water bodies along either side of the causeway. The sharp "S" curve will be lengthened and larger curve radii will be constructed.

The new road will have a standardized width of 26 feet plus one 6-foot wide sidewalk for most of the project length. There will be approximately 27,746 square feet of impervious area in the post construction condition for an increase of 7,371 square feet.

The proposed vertical geometry will be similar to the existing except the low points will be slightly farther away from the high point at the bridge.

The addition of vertical curbing in the proposed condition requires installation of a drainage system to remove runoff from the low points. Deep sump catch basins are proposed for both sides of the road at each low point and also approximately 25 feet upslope towards the bridge. Runoff from each of the four (4) basins at/near the low points will be piped to grass swales to provide water quality treatment prior to discharging to the waterbodies. Drainage collected south of the bridge will be directed west to the lake and drainage collected north of the bridge will be directed east to the river. Riprap splash pads approximately five to six feet (5'-6') long will be placed at the pipe outlets to provide velocity reduction prior to the runoff entering the swales.

The grass swales are designed to carry runoff through the bordering vegetated wetlands (BVW) located along the waterways in a controlled manner and will terminate at or beyond the edges of the resource areas.

## Massachusetts Department of Environmental Protection (MassDEP) – Stormwater Management Standards

As described below, the proposed Project complies with the MassDEP Stormwater Management Standards (the Standards). Under the Stormwater Management Standards, the Project is considered a redevelopment project since it involves maintenance and improvement of an existing roadway. This project meets the definition of a "footprint bridge" project which means it replaces an existing bridge with a bridge of similar size and alignment without increasing the number of travel lanes. The Project has been designed to meet the Stormwater Management Standards to the maximum extent practicable and to improve upon existing conditions.

### Standard 1: No New Untreated Discharges

*No new stormwater conveyance (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

The Project has been designed to comply with Standard 1.

The two (2) new outfalls are each designed with a riprap velocity check at the pipe outlet before entering grass swales to provide water quality treatment and to limit erosion to the Snake River and Lake Sabbatia.

See Standard 4 for the water quality treatment provided by the 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.*

The Project has been designed to comply with Standard 2 to the maximum extent practicable. Table 1 includes a summary of impervious cover impacts, which can be used as a metric to understand impacts to peak discharge rates following development.

Pre- and post-construction drainage was analyzed for a 10 year, 24-hour storm event using HydroCAD v10.20-4b. Soil information was obtained from the USDA Web Soil Survey and City of Boston rainfall curves were used. See Appendix C.

While the existing road is a narrow winding road with no sidewalks and minimal shoulders, design requirements necessitated creating a wider road with a sidewalk along one side. This increased the overall impervious area within the project (see below). However, the proposed project will improve the existing conditions by collecting surface runoff and directing it to water quality Best Management Practices (BMPs). In addition, the new bridge will have a much wider opening than the existing bridge and the potential for road flooding due to overtopping has been minimized.

**Table 1: Existing and proposed impervious cover**

| Outlet Location | Existing Impervious Area (SF) | Proposed Impervious Area (SF) | Change in Impervious Area (SF) | Percent Change in Impervious Area (%) |
|---|---|---|---|---|
| SW of bridge | 6,286 | 8,726 | + 2,440 | + 39% |
| NE of Bridge | 14,089 | 19,020 | + 4,931 | + 35% |

**Standard 3: Stormwater Recharge**

*Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater 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 types. 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 has been designed to comply with Standard 3 to the maximum extent practicable. The purpose of this standard is to replenish groundwater by ensuring that the infiltration volume of precipitation into the ground under post-development conditions is at least as much as the infiltration volume under pre-development conditions.

Since the existing roadway is mostly on a causeway with limited vertical clearance from the existing edge of water, there is limited non-impervious existing ground to provide infiltration. The proposed condition will also provide limited infiltration as one of the guiding elements of the project was to minimize impacts to Land Under Water (LUW). Therefore, there is minimal non-impervious area in the post-construction condition. The road tapers to meet the existing pavement at the limits of work where there is more opportunity for infiltration. These areas will not be negatively impacted by the project and existing recharge levels will remain.

**Standard 4: Water Quality**

*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:*

a) *Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;*
b) *Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and*
c) *Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.*

The Project has been designed to comply with Standard 4 to the maximum extent practicable.

The attached Total Suspended Solids (TSS) worksheets (see Appendix C) indicate that the combination of water quality measures will provide over 50% TSS removal from runoff prior to entering the water bodies.

The addition of the drainage systems will prevent erosion of the embankments by collecting the runoff and outletting it at a much more gradual slope than in the current conditions. In addition, the use of the riprap and grass swale will provide velocity reduction prior to discharge.

Due to the configuration of the bridge approaches as causeways with limited vertical elevation above the surrounding water surface, there is no area to institute additional treatment measures without reducing the area of LUW and the road and bridge design is intended to limit LUW impacts from the new road. In addition, due to the limited vertical elevation changes, the inclusion of many approved water quality measures at this site is impractical.

In addition to the water quality measures described above, the City of Taunton has a formal stormwater management policy (see Appendix B) which includes public interface and educational components along with a number of Best Management Practices (BMPs) which include street sweeping twice a year and catch basin cleaning so their catch basins remain less than 50% full at all times.

The city's stormwater management plan includes a Long-Term Pollution Prevention Plan (LTPPP) in compliance with Standard 4.

**Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)**

*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 LUHPPLs 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.*

Standard 5 does not apply to the Project. There are no Land Uses with Higher Potential Pollutant Loads within the project area.

**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.*

Standard 6 does not apply to the Project. There are no Critical Areas near the project area.

**Standard 7: Redevelopments and Other Projects Subject to the Standards only to the Maximum Extent Practicable**

*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 considered a redevelopment and has been designed to comply with the Stormwater Management Standards to the maximum extent practicable.

**Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Controls**

*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 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 sediment control barriers such as compost filter tubes along the base of all slopes. Floating turbidity barriers will be installed along all areas where work will be performed at the edge of water or in the water.

Subsurface bridge work will be performed within cofferdams to limit the impacts to the surrounding areas and minimize water quality degradation. Control of water within the cofferdams will be performed in accordance with Section 991.1 of the Special Provisions.

**Standard 9: Operation and Maintenance Plan**

*A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

Scadding Street is under the jurisdiction of the City of Taunton and is not owned by MassDOT. The City's O&M Plan will be implemented following acceptance of the project. Appendix B includes the municipal stormwater management plan which will be modified as needed to include the new drainage infrastructure included in this project.

Long-term pollution prevention for the Project includes litter pick-up, inspection and maintenance of stormwater assets, maintenance of landscaped areas, snow and ice management, street sweeping, catch basin cleaning, prohibition of illicit discharges, and spill prevention and response.

**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.

Attachments:
Appendix A – Stormwater Checklist
Appendix B – City of Taunton Stormwater Management Plan
Appendix C – HydroCAD Pre-and Post-construction analysis

# Appendix A

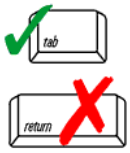
Stormwater Checklist

**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.

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[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.

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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.

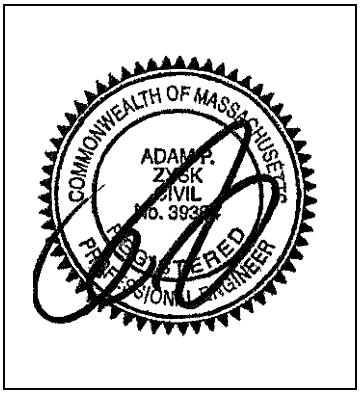
*Note:* Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that 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




10/01/2024
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

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# 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:

- ☐ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☒ 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**

- ☐ 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.

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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.

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# 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**
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# 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.

N/A **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.

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# 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

City of Taunton - Stormwater Management Plan

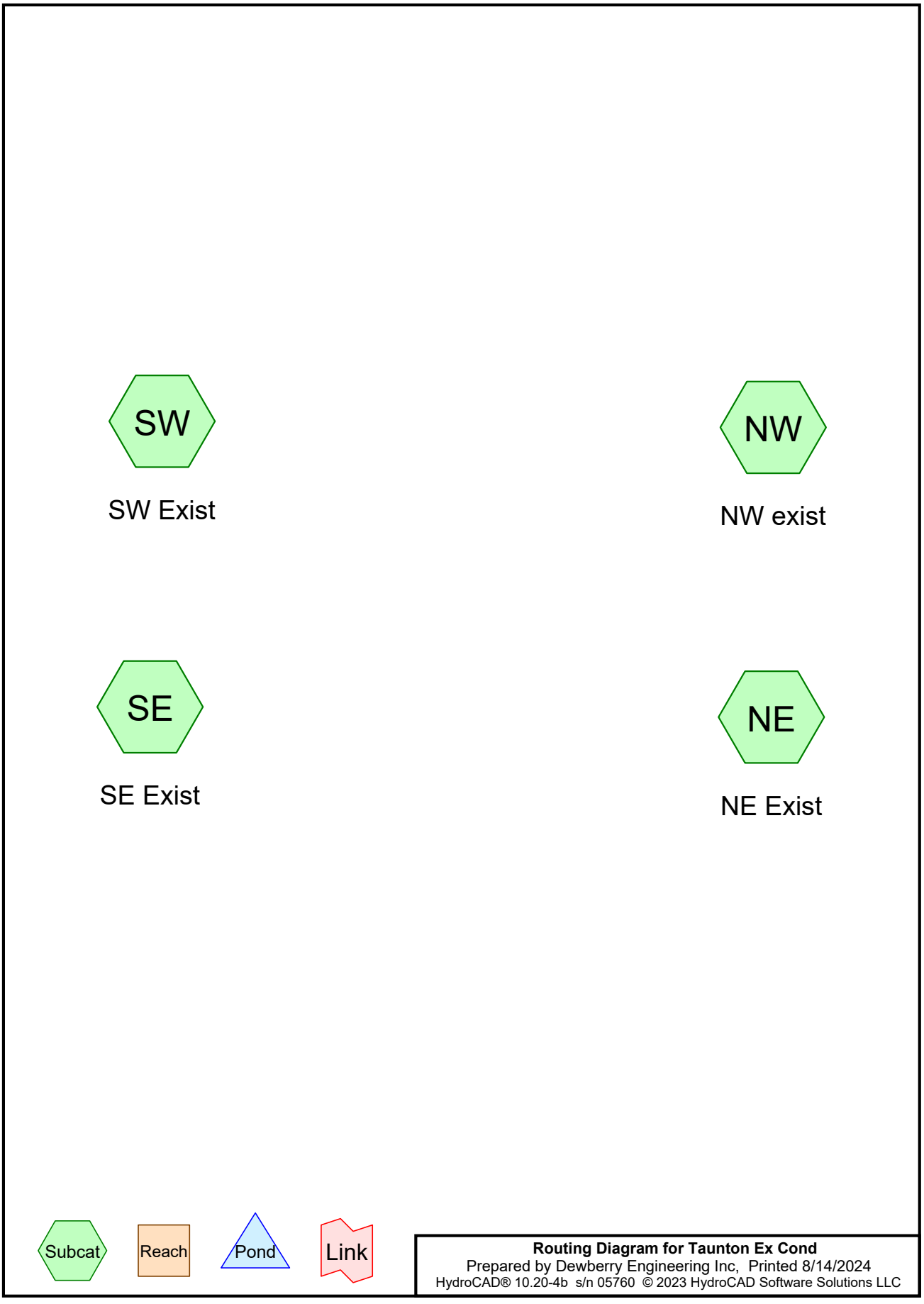
## Appendix C

Pre- and Post-Construction Drainage Analysis

Web Soil Survey data

TSS Removal worksheet – SW outlet

TSS Removal Worksheet – NE outlet


SW
SW Exist
NW
NW exist
SE
SE Exist
NE
NE Exist
Subcat
Reach
Pond
Link
Routing Diagram for Taunton Ex Cond
Prepared by Dewberry Engineering Inc, Printed 8/14/2024
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**Taunton Ex Cond**
Prepared by Dewberry Engineering Inc
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## Rainfall Events Listing (selected events)

| Event# | Event Name | Storm Type | Curve | Mode | Duration (hours) | B/B | Depth (inches) | AMC |
|---|---|---|---|---|---|---|---|---|
| 1 | 10 Yr storm | Type II 24-hr | | Default | 24.00 | 1 | 5.40 | 2 |

**Taunton Ex Cond**
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## Area Listing (all nodes)

| Area (sq-ft) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 7,194 | 61 | >75% Grass cover, Good, HSG B (NE) |
| 6,244 | 48 | Brush, Good, HSG B (NE, NW, SE, SW) |
| 1,621 | 98 | Paved parking, HSG B (NE) |
| 18,754 | 98 | Paved roads w/curbs & sewers, HSG B (NE, NW, SE, SW) |
| 976 | 98 | Water Surface, 0% imp, HSG B (NE) |
| **34,789** | **81** | **TOTAL AREA** |

Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**SubcatchmentNE: NE Exist** Runoff Area=17,897 sf 43.72% Impervious Runoff Depth>3.04"
Flow Length=263' Tc=16.4 min CN=78 Runoff=1.54 cfs 4,538 cf

**SubcatchmentNW: NW exist** Runoff Area=8,431 sf 74.31% Impervious Runoff Depth>3.74"
Flow Length=368' Slope=0.0070 '/' Tc=4.2 min CN=85 Runoff=1.29 cfs 2,626 cf

**SubcatchmentSE: SE Exist** Runoff Area=3,840 sf 84.38% Impervious Runoff Depth>4.25"
Flow Length=195' Slope=0.0050 '/' Tc=3.2 min CN=90 Runoff=0.66 cfs 1,360 cf

**SubcatchmentSW: SW Exist** Runoff Area=4,621 sf 65.92% Impervious Runoff Depth>3.34"
Flow Length=198' Slope=0.0050 '/' Tc=3.2 min CN=81 Runoff=0.67 cfs 1,286 cf

**Total Runoff Area = 34,789 sf Runoff Volume = 9,810 cf Average Runoff Depth = 3.38"**
**41.43% Pervious = 14,414 sf 58.57% Impervious = 20,375 sf**

## Summary for Subcatchment NE: NE Exist

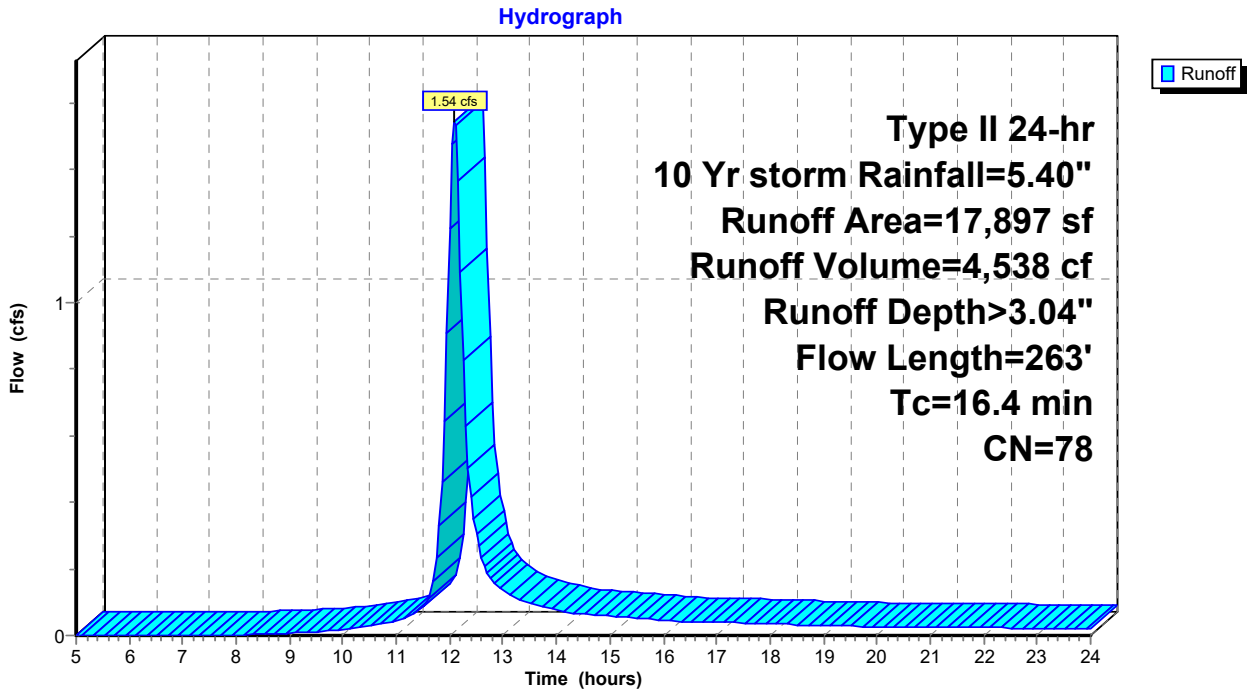
Runoff = 1.54 cfs @ 12.09 hrs, Volume= 4,538 cf, Depth> 3.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 Yr storm Rainfall=5.40"

| Area (sf) | CN | Description |
|---|---|---|
| 2,495 | 98 | Paved roads w/curbs & sewers, HSG B |
| 3,708 | 98 | Paved roads w/curbs & sewers, HSG B |
| 1,621 | 98 | Paved parking, HSG B |
| 2,872 | 61 | >75% Grass cover, Good, HSG B |
| 4,322 | 61 | >75% Grass cover, Good, HSG B |
| 1,903 | 48 | Brush, Good, HSG B |
| 976 | 98 | Water Surface, 0% imp, HSG B |
| 17,897 | 78 | Weighted Average |
| 10,073 | | 56.28% Pervious Area |
| 7,824 | | 43.72% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 0.3 | 25 | 0.0400 | 1.56 | | **Sheet Flow, Driveway** Smooth surfaces n= 0.011 P2= 4.10" |
| 14.5 | 113 | 0.0180 | 0.13 | | **Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 4.10" |
| 1.6 | 125 | 0.0040 | 1.28 | | **Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps |
| 16.4 | 263 | Total | | | |

## Subcatchment NE: NE Exist



## Summary for Subcatchment NW: NW exist

[49] Hint: Tc<2dt may require smaller dt

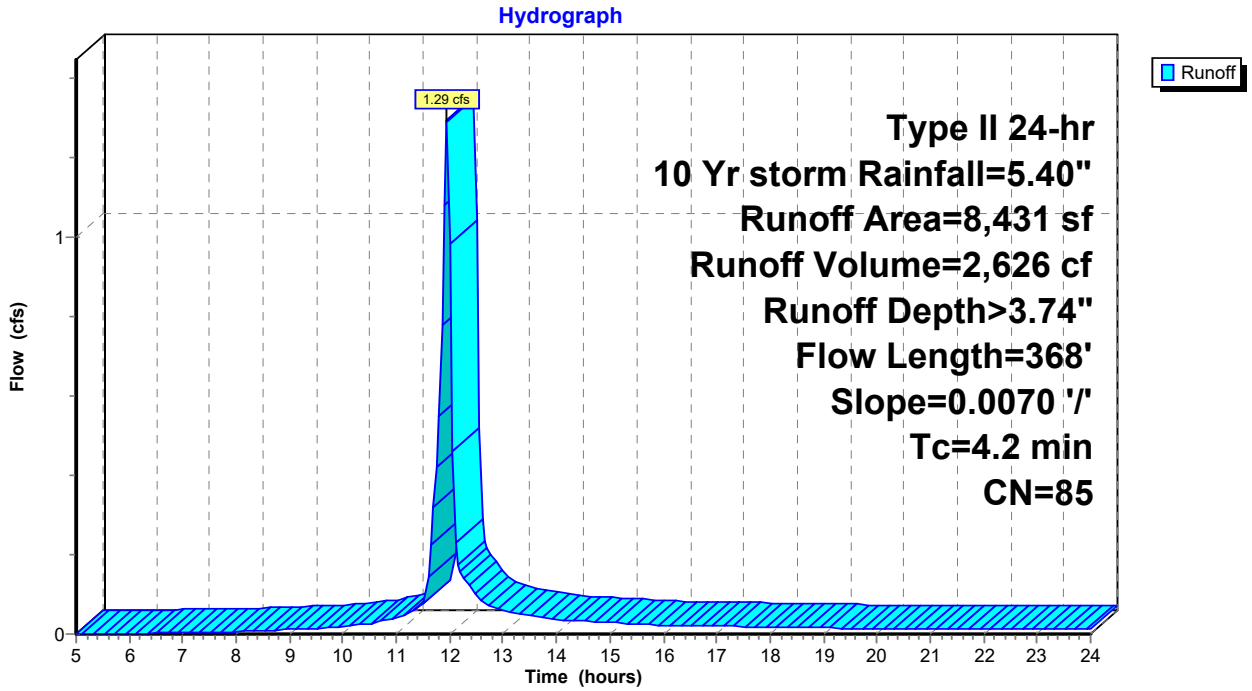
Runoff = 1.29 cfs @ 11.95 hrs, Volume= 2,626 cf, Depth> 3.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 Yr storm Rainfall=5.40"

| Area (sf) | CN | Description |
|---|---|---|
| 2,420 | 98 | Paved roads w/curbs & sewers, HSG B |
| 3,845 | 98 | Paved roads w/curbs & sewers, HSG B |
| 2,166 | 48 | Brush, Good, HSG B |
| 8,431 | 85 | Weighted Average |
| 2,166 | | 25.69% Pervious Area |
| 6,265 | | 74.31% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.6 | 100 | 0.0070 | 1.02 | | **Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.10" |
| 2.6 | 268 | 0.0070 | 1.70 | | **Shallow Concentrated Flow, Gutter flow** Paved Kv= 20.3 fps |
| 4.2 | 368 | Total | | | |

## Subcatchment NW: NW exist



## Summary for Subcatchment SE: SE Exist

[49] Hint: Tc<2dt may require smaller dt

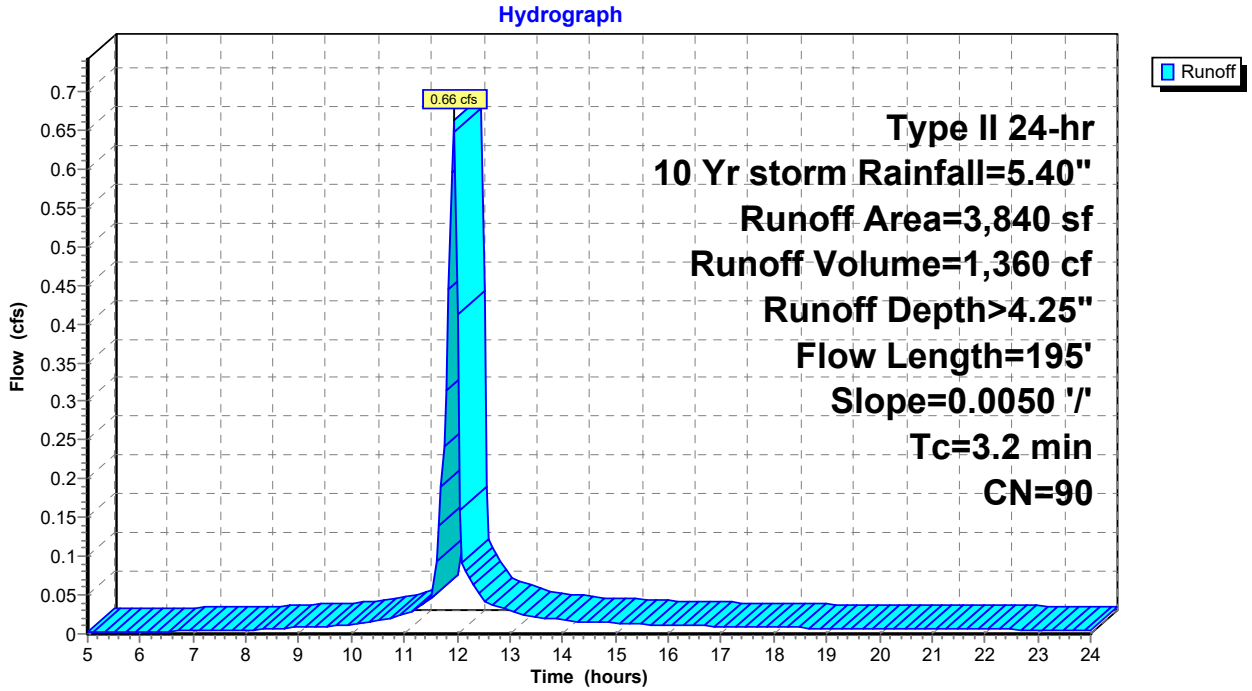
Runoff = 0.66 cfs @ 11.93 hrs, Volume= 1,360 cf, Depth> 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 Yr storm Rainfall=5.40"

| Area (sf) | CN | Description |
|---|---|---|
| 2,022 | 98 | Paved roads w/curbs & sewers, HSG B |
| 1,218 | 98 | Paved roads w/curbs & sewers, HSG B |
| 600 | 48 | Brush, Good, HSG B |
| 3,840 | 90 | Weighted Average |
| 600 | | 15.63% Pervious Area |
| 3,240 | | 84.38% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 3.2 | 195 | 0.0050 | 1.02 | | **Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.10" |

## Subcatchment SE: SE Exist



## Summary for Subcatchment SW: SW Exist

[49] Hint: Tc<2dt may require smaller dt

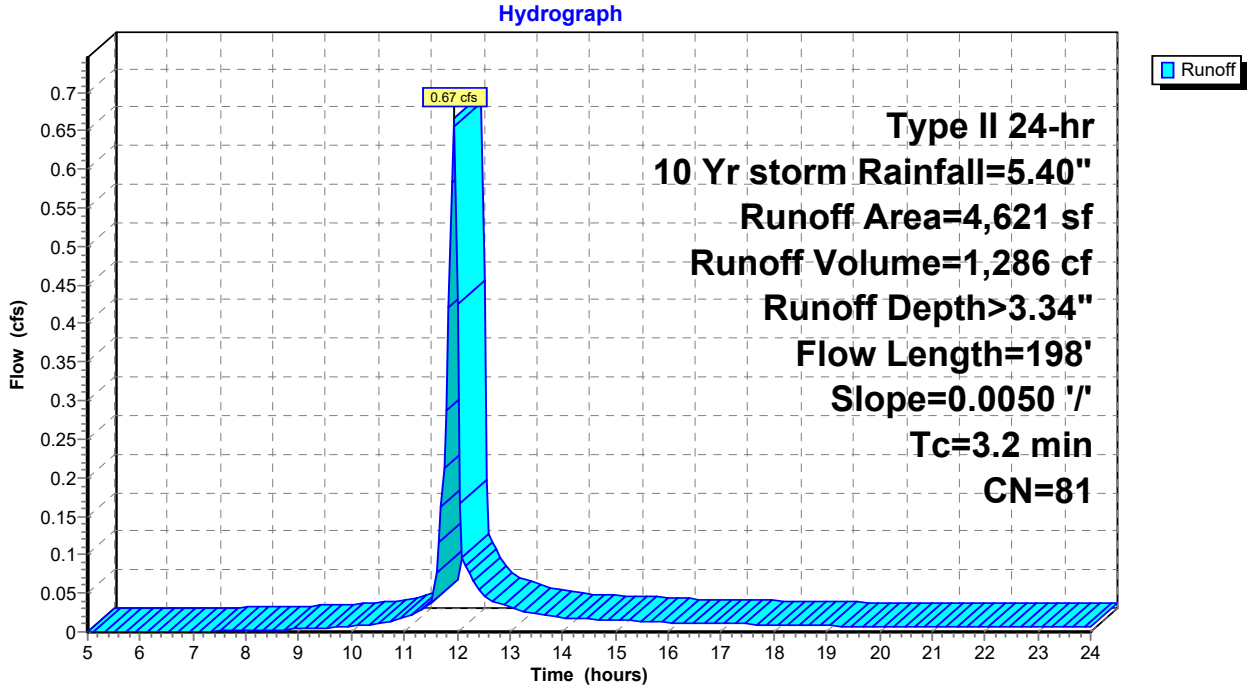
Runoff = 0.67 cfs @ 11.94 hrs, Volume= 1,286 cf, Depth> 3.34"

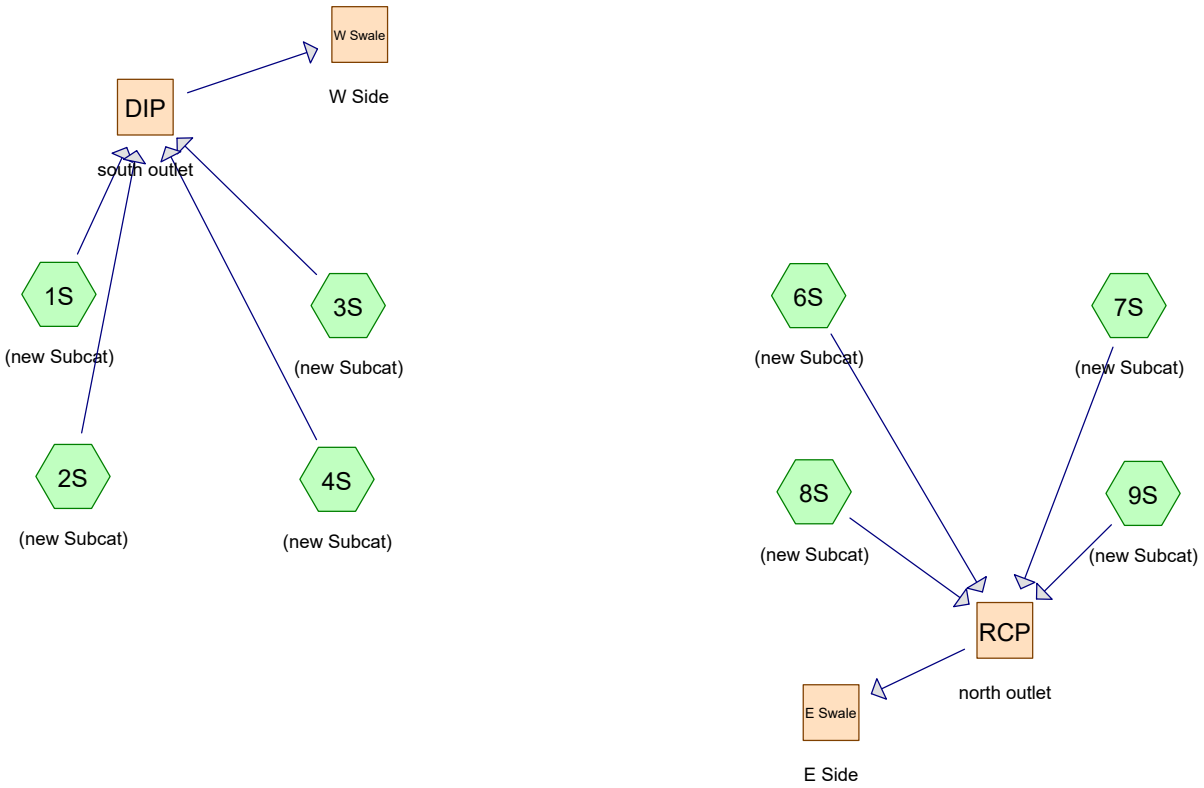
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 Yr storm Rainfall=5.40"

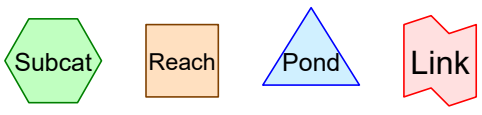
| Area (sf) | CN | Description |
|---|---|---|
| 1,977 | 98 | Paved roads w/curbs & sewers, HSG B |
| 1,069 | 98 | Paved roads w/curbs & sewers, HSG B |
| 1,180 | 48 | Brush, Good, HSG B |
| 395 | 48 | Brush, Good, HSG B |
| 4,621 | 81 | Weighted Average |
| 1,575 | | 34.08% Pervious Area |
| 3,046 | | 65.92% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 3.2 | 198 | 0.0050 | 1.03 | | **Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.10" |

## Subcatchment SW: SW Exist






**Routing Diagram for swale design**
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**swale design**
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Printed 8/15/2024
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## Area Listing (all nodes)

| Area (sq-ft) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 6,998 | 61 | >75% Grass cover, Good, HSG B (9S) |
| 1,649 | 98 | Paved parking, HSG B (9S) |
| 26,097 | 98 | Paved roads w/curbs & sewers, HSG B (1S, 2S, 3S, 4S, 6S, 7S, 8S, 9S) |
| **34,744** | **91** | **TOTAL AREA** |

Time span=1.00-24.00 hrs, dt=0.05 hrs, 461 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: (new Subcat)** Runoff Area=1,806 sf 100.00% Impervious Runoff Depth>5.16"
Flow Length=122' Slope=0.0060 '/' Tc=2.0 min CN=98 Runoff=0.24 cfs 777 cf

**Subcatchment2S: (new Subcat)** Runoff Area=1,309 sf 100.00% Impervious Runoff Depth>5.16"
Flow Length=120' Slope=0.0060 '/' Tc=2.0 min CN=98 Runoff=0.17 cfs 563 cf

**Subcatchment3S: (new Subcat)** Runoff Area=3,190 sf 100.00% Impervious Runoff Depth>5.16"
Flow Length=178' Tc=2.1 min CN=98 Runoff=0.42 cfs 1,372 cf

**Subcatchment4S: (new Subcat)** Runoff Area=2,421 sf 100.00% Impervious Runoff Depth>5.16"
Flow Length=172' Tc=2.0 min CN=98 Runoff=0.32 cfs 1,041 cf

**Subcatchment6S: (new Subcat)** Runoff Area=4,306 sf 100.00% Impervious Runoff Depth>5.16"
Flow Length=239' Slope=0.0170 '/' Tc=2.3 min CN=98 Runoff=0.57 cfs 1,852 cf

**Subcatchment7S: (new Subcat)** Runoff Area=5,563 sf 100.00% Impervious Runoff Depth>5.16"
Flow Length=438' Tc=4.5 min CN=98 Runoff=0.69 cfs 2,392 cf

**Subcatchment8S: (new Subcat)** Runoff Area=3,675 sf 100.00% Impervious Runoff Depth>5.16"
Flow Length=239' Slope=0.0170 '/' Tc=2.3 min CN=98 Runoff=0.48 cfs 1,581 cf

**Subcatchment9S: (new Subcat)** Runoff Area=12,474 sf 43.90% Impervious Runoff Depth>2.95"
Flow Length=237' Tc=15.4 min CN=77 Runoff=0.74 cfs 3,069 cf

**Reach DIP: south outlet** Avg. Flow Depth=0.44' Max Vel=3.50 fps Inflow=1.15 cfs 3,753 cf
12.0" Round Pipe n=0.011 L=35.0' S=0.0049 '/' Capacity=2.93 cfs Outflow=1.14 cfs 3,753 cf

**Reach E Swale: E Side** Avg. Flow Depth=0.59' Max Vel=1.37 fps Inflow=2.12 cfs 8,893 cf
n=0.035 L=9.0' S=0.0033 '/' Capacity=5.35 cfs Outflow=2.10 cfs 8,892 cf

**Reach RCP: north outlet** Avg. Flow Depth=0.63' Max Vel=4.05 fps Inflow=2.13 cfs 8,894 cf
12.0" Round Pipe n=0.011 L=25.0' S=0.0048 '/' Capacity=2.92 cfs Outflow=2.12 cfs 8,893 cf

**Reach W Swale: W Side** Avg. Flow Depth=0.44' Max Vel=1.07 fps Inflow=1.14 cfs 3,753 cf
n=0.035 L=18.0' S=0.0028 '/' Capacity=4.89 cfs Outflow=1.13 cfs 3,752 cf

**Total Runoff Area = 34,744 sf Runoff Volume = 12,648 cf Average Runoff Depth = 4.37"**
**20.14% Pervious = 6,998 sf 79.86% Impervious = 27,746 sf**

## Summary for Subcatchment 1S: (new Subcat)

[49] Hint: Tc<2dt may require smaller dt

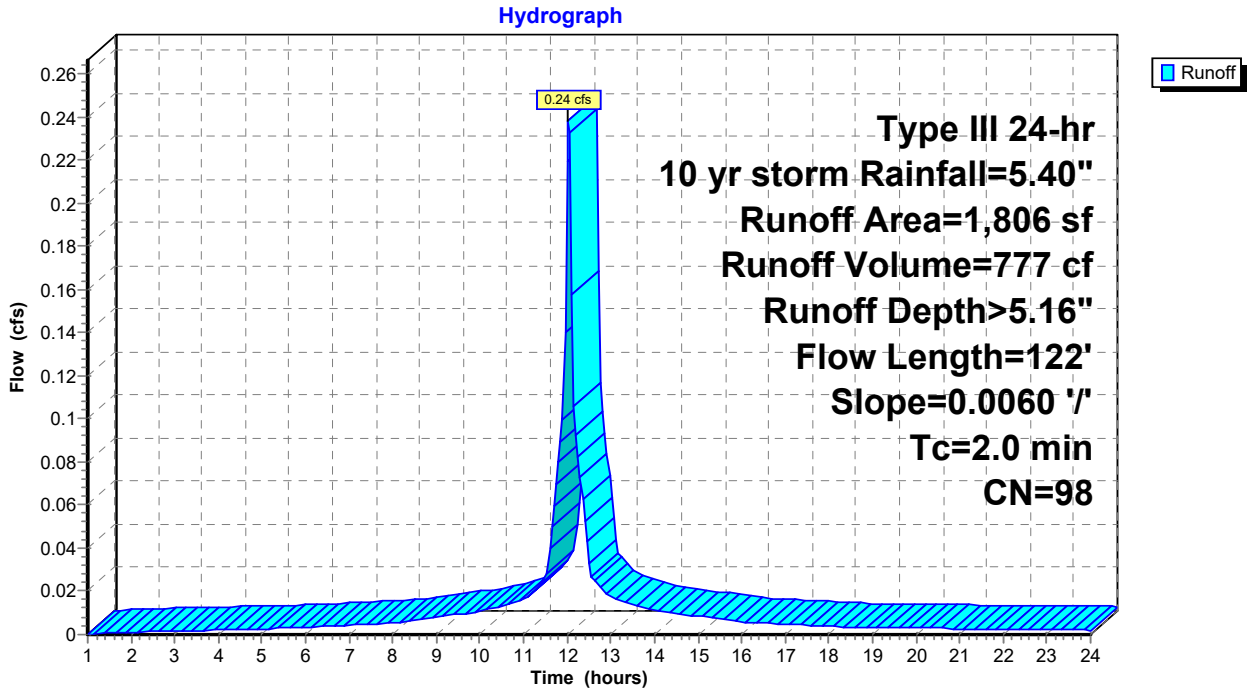
Runoff = 0.24 cfs @ 12.03 hrs, Volume= 777 cf, Depth> 5.16"
Routed to Reach DIP : south outlet

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr storm Rainfall=5.40"

| Area (sf) | CN | Description |
|---|---|---|
| 1,806 | 98 | Paved roads w/curbs & sewers, HSG B |
| 1,806 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 2.0 | 122 | 0.0060 | 1.00 | | **Sheet Flow, pvmt**<br>Smooth surfaces n= 0.011 P2= 4.10" |

## Subcatchment 1S: (new Subcat)



## Summary for Subcatchment 2S: (new Subcat)

[49] Hint: Tc<2dt may require smaller dt

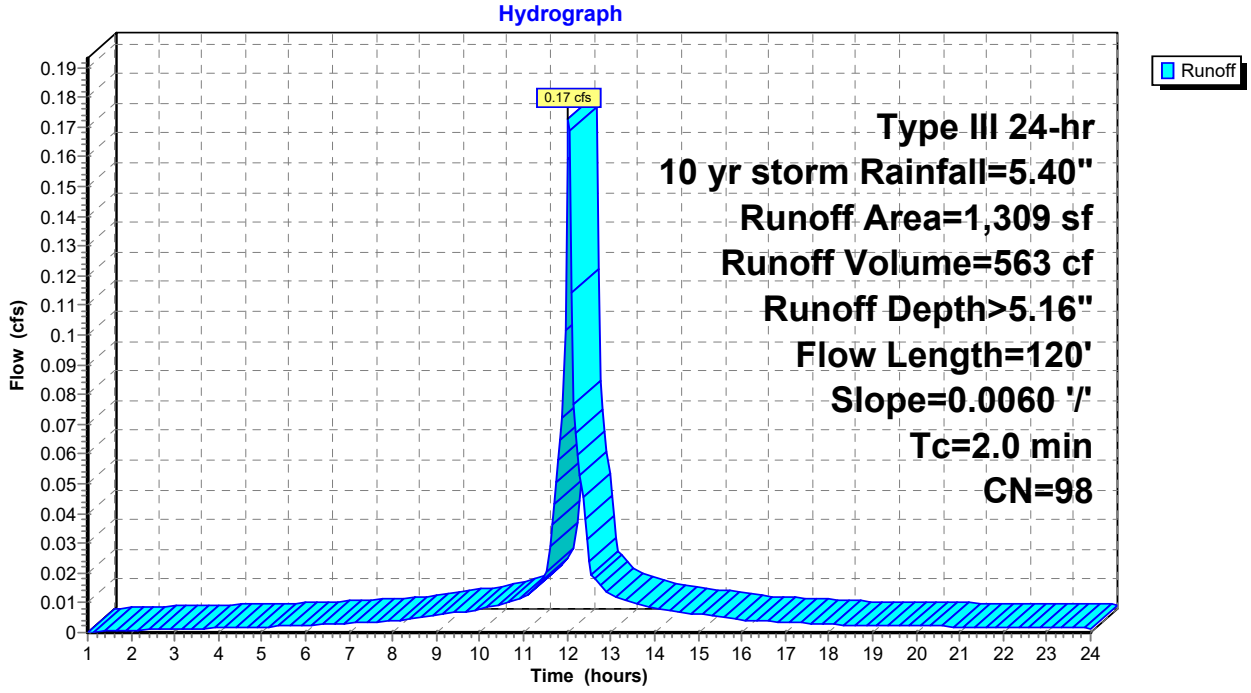
Runoff = 0.17 cfs @ 12.03 hrs, Volume= 563 cf, Depth> 5.16"
Routed to Reach DIP : south outlet

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr storm Rainfall=5.40"

| Area (sf) | CN | Description |
|---|---|---|
| 1,309 | 98 | Paved roads w/curbs & sewers, HSG B |
| 1,309 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 2.0 | 120 | 0.0060 | 1.00 | | **Sheet Flow, pvmt**<br>Smooth surfaces n= 0.011 P2= 4.10" |

## Subcatchment 2S: (new Subcat)



## Summary for Subcatchment 3S: (new Subcat)

[49] Hint: Tc<2dt may require smaller dt

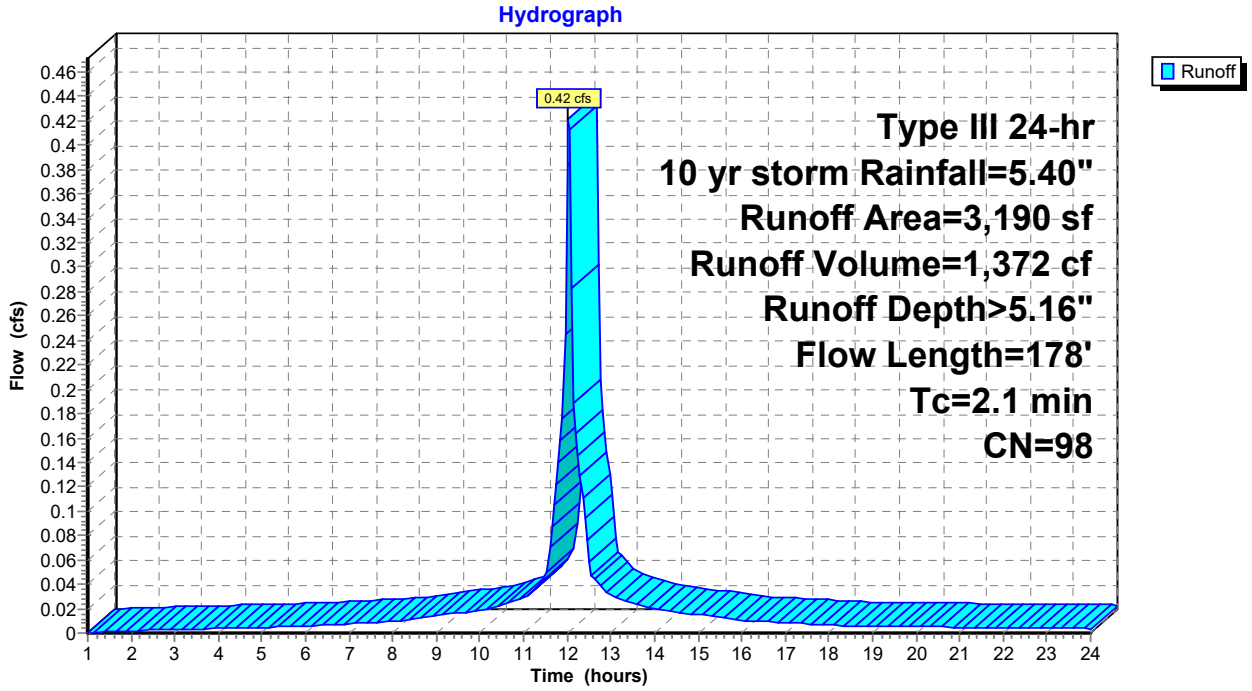
Runoff = 0.42 cfs @ 12.03 hrs, Volume= 1,372 cf, Depth> 5.16"
Routed to Reach DIP : south outlet

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr storm Rainfall=5.40"

| Area (sf) | CN | Description |
|---|---|---|
| 391 | 98 | Paved roads w/curbs & sewers, HSG B |
| 2,799 | 98 | Paved roads w/curbs & sewers, HSG B |
| 3,190 | 98 | Weighted Average |
| 3,190 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.8 | 156 | 0.0130 | 1.43 | | **Sheet Flow, pvmt** Smooth surfaces n= 0.011 P2= 4.10" |
| 0.3 | 22 | 0.0030 | 1.11 | | **Shallow Concentrated Flow, Gutter flow** Paved Kv= 20.3 fps |
| 2.1 | 178 | Total | | | |

## Subcatchment 3S: (new Subcat)



## Summary for Subcatchment 4S: (new Subcat)

[49] Hint: Tc<2dt may require smaller dt

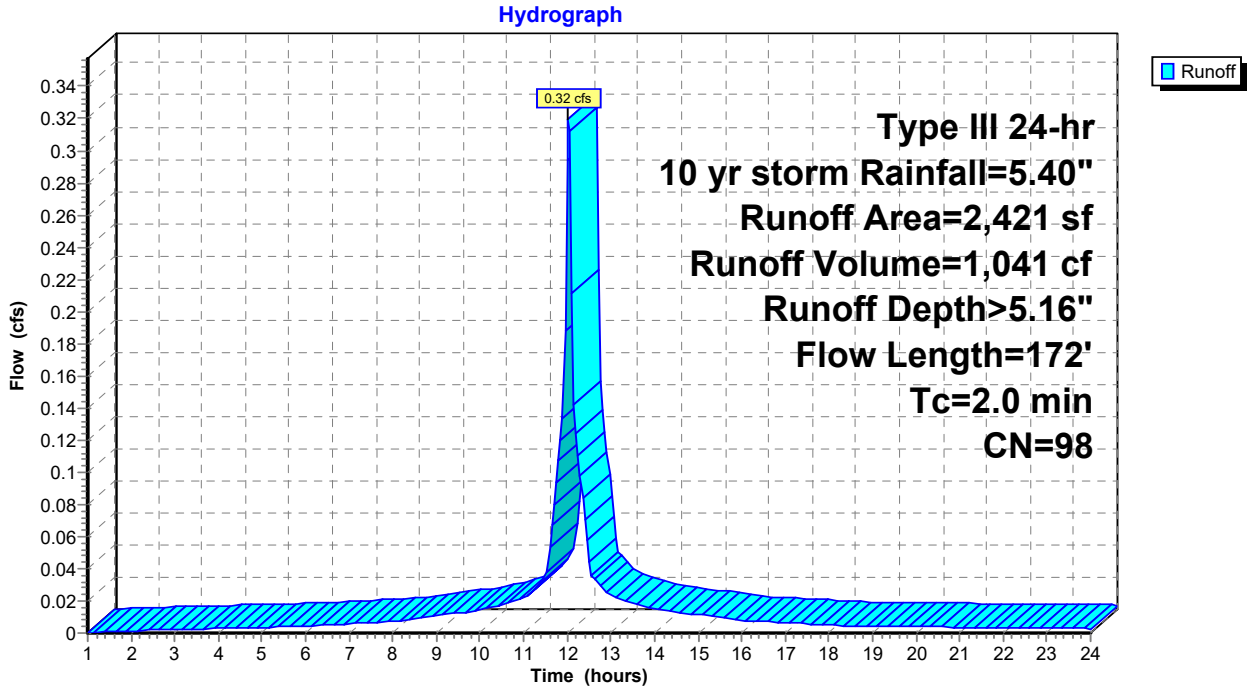
Runoff = 0.32 cfs @ 12.03 hrs, Volume= 1,041 cf, Depth> 5.16"
Routed to Reach DIP : south outlet

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr storm Rainfall=5.40"

| Area (sf) | CN | Description |
|---|---|---|
| 2,124 | 98 | Paved roads w/curbs & sewers, HSG B |
| 297 | 98 | Paved roads w/curbs & sewers, HSG B |
| 2,421 | 98 | Weighted Average |
| 2,421 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 1.7 | 150 | 0.0140 | 1.46 | | **Sheet Flow, pvmt** Smooth surfaces n= 0.011 P2= 4.10" |
| 0.3 | 22 | 0.0030 | 1.11 | | **Shallow Concentrated Flow, Gutter flow** Paved Kv= 20.3 fps |
| 2.0 | 172 | Total | | | |

## Subcatchment 4S: (new Subcat)



## Summary for Subcatchment 6S: (new Subcat)

[49] Hint: Tc<2dt may require smaller dt

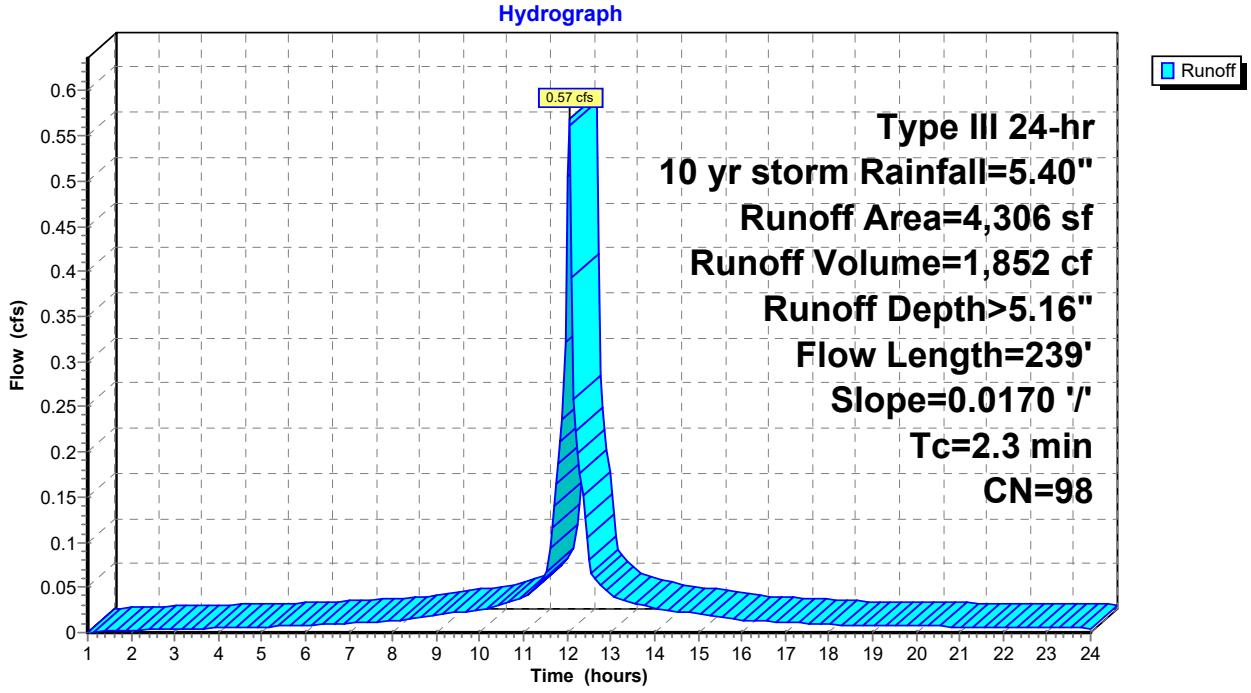
Runoff = 0.57 cfs @ 12.04 hrs, Volume= 1,852 cf, Depth> 5.16"
Routed to Reach RCP : north outlet

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr storm Rainfall=5.40"

| Area (sf) | CN | Description |
|---|---|---|
| 4,306 | 98 | Paved roads w/curbs & sewers, HSG B |
| 4,306 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 2.3 | 239 | 0.0170 | 1.74 | | **Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.10" |

## Subcatchment 6S: (new Subcat)



## Summary for Subcatchment 7S: (new Subcat)

[49] Hint: Tc<2dt may require smaller dt

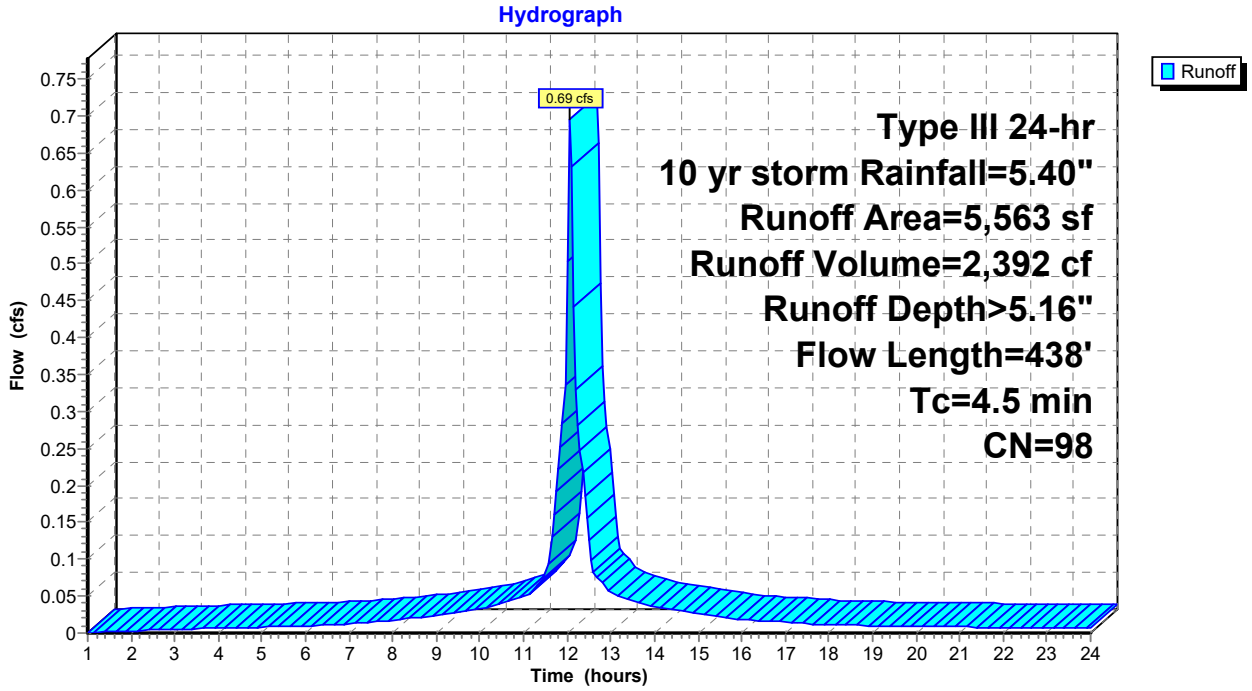
Runoff = 0.69 cfs @ 12.06 hrs, Volume= 2,392 cf, Depth> 5.16"
Routed to Reach RCP : north outlet

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr storm Rainfall=5.40"

| Area (sf) | CN | Description |
|---|---|---|
| 5,152 | 98 | Paved roads w/curbs & sewers, HSG B |
| 411 | 98 | Paved roads w/curbs & sewers, HSG B |
| 5,563 | 98 | Weighted Average |
| 5,563 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 2.7 | 300 | 0.0180 | 1.86 | | **Sheet Flow, pvmt** Smooth surfaces n= 0.011 P2= 4.10" |
| 1.8 | 138 | 0.0040 | 1.28 | | **Shallow Concentrated Flow, gutter** Paved Kv= 20.3 fps |
| 4.5 | 438 | Total | | | |

## Subcatchment 7S: (new Subcat)



## Summary for Subcatchment 8S: (new Subcat)

[49] Hint: Tc<2dt may require smaller dt

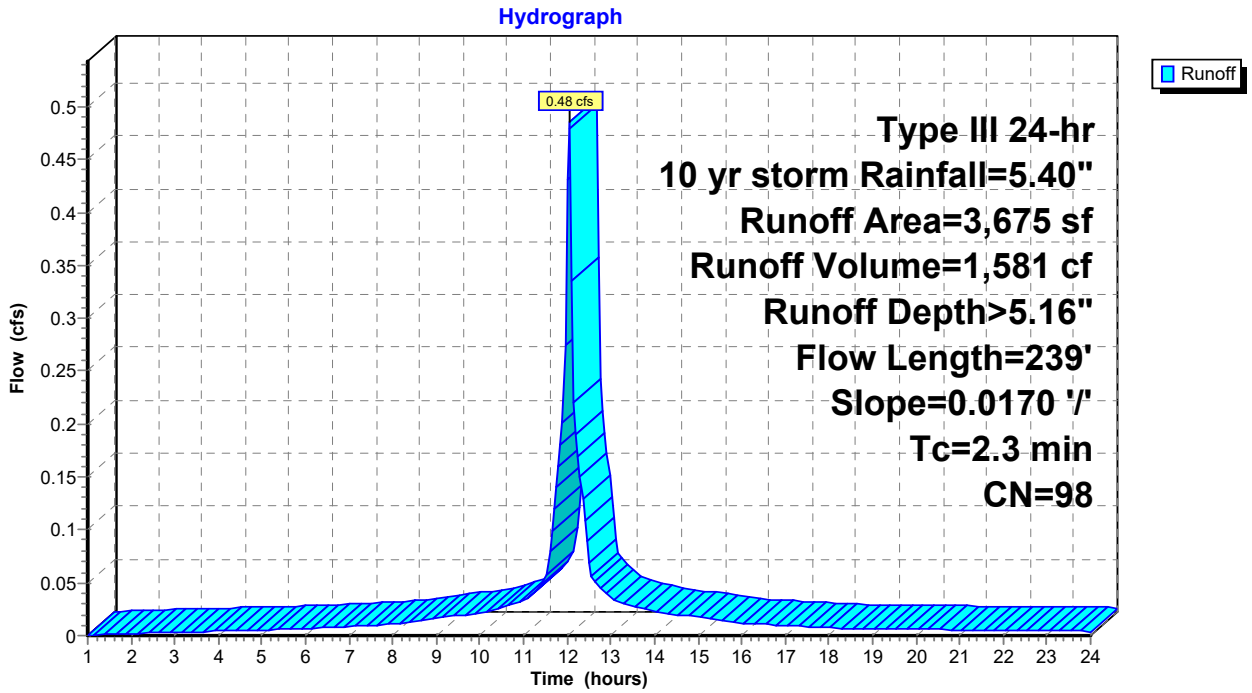
Runoff = 0.48 cfs @ 12.04 hrs, Volume= 1,581 cf, Depth> 5.16"
Routed to Reach RCP : north outlet

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr storm Rainfall=5.40"

| Area (sf) | CN | Description |
|---|---|---|
| 3,357 | 98 | Paved roads w/curbs & sewers, HSG B |
| 318 | 98 | Paved roads w/curbs & sewers, HSG B |
| 3,675 | 98 | Weighted Average |
| 3,675 | | 100.00% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 2.3 | 239 | 0.0170 | 1.74 | | **Sheet Flow, Pavement** Smooth surfaces n= 0.011 P2= 4.10" |

## Subcatchment 8S: (new Subcat)



## Summary for Subcatchment 9S: (new Subcat)

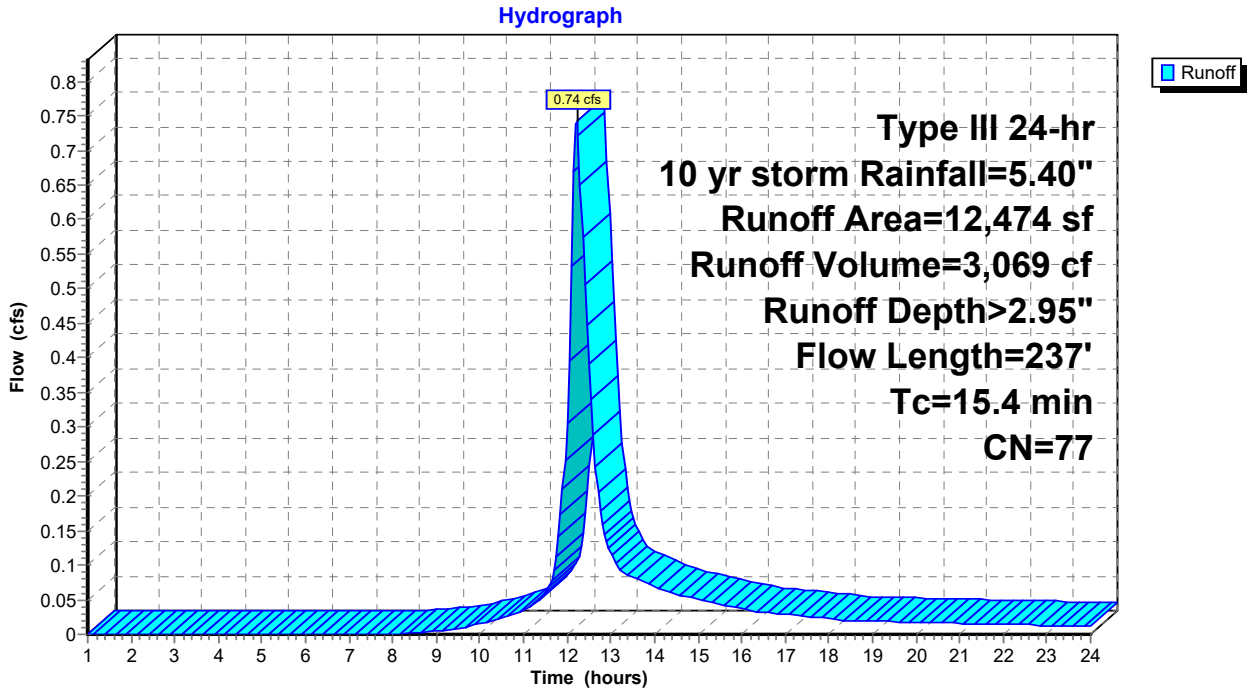
Runoff = 0.74 cfs @ 12.21 hrs, Volume= 3,069 cf, Depth> 2.95"
Routed to Reach RCP : north outlet

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 yr storm Rainfall=5.40"

| Area (sf) | CN | Description |
|---|---|---|
| 3,827 | 98 | Paved roads w/curbs & sewers, HSG B |
| 1,649 | 98 | Paved parking, HSG B |
| 4,335 | 61 | >75% Grass cover, Good, HSG B |
| 2,663 | 61 | >75% Grass cover, Good, HSG B |
| 12,474 | 77 | Weighted Average |
| 6,998 | | 56.10% Pervious Area |
| 5,476 | | 43.90% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 0.3 | 25 | 0.0400 | 1.56 | | **Sheet Flow, Driveway** Smooth surfaces n= 0.011 P2= 4.10" |
| 13.8 | 109 | 0.0190 | 0.13 | | **Sheet Flow, Lawn** Grass: Dense n= 0.240 P2= 4.10" |
| 1.3 | 103 | 0.0040 | 1.28 | | **Shallow Concentrated Flow, Gutter flow** Paved Kv= 20.3 fps |
| 15.4 | 237 | Total | | | |

## Subcatchment 9S: (new Subcat)



## Summary for Reach DIP: south outlet

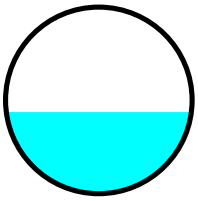
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 8,726 sf,100.00% Impervious, Inflow Depth > 5.16" for 10 yr storm event
Inflow = 1.15 cfs @ 12.03 hrs, Volume= 3,753 cf
Outflow = 1.14 cfs @ 12.04 hrs, Volume= 3,753 cf, Atten= 1%, Lag= 0.3 min
Routed to Reach W Swale : W Side

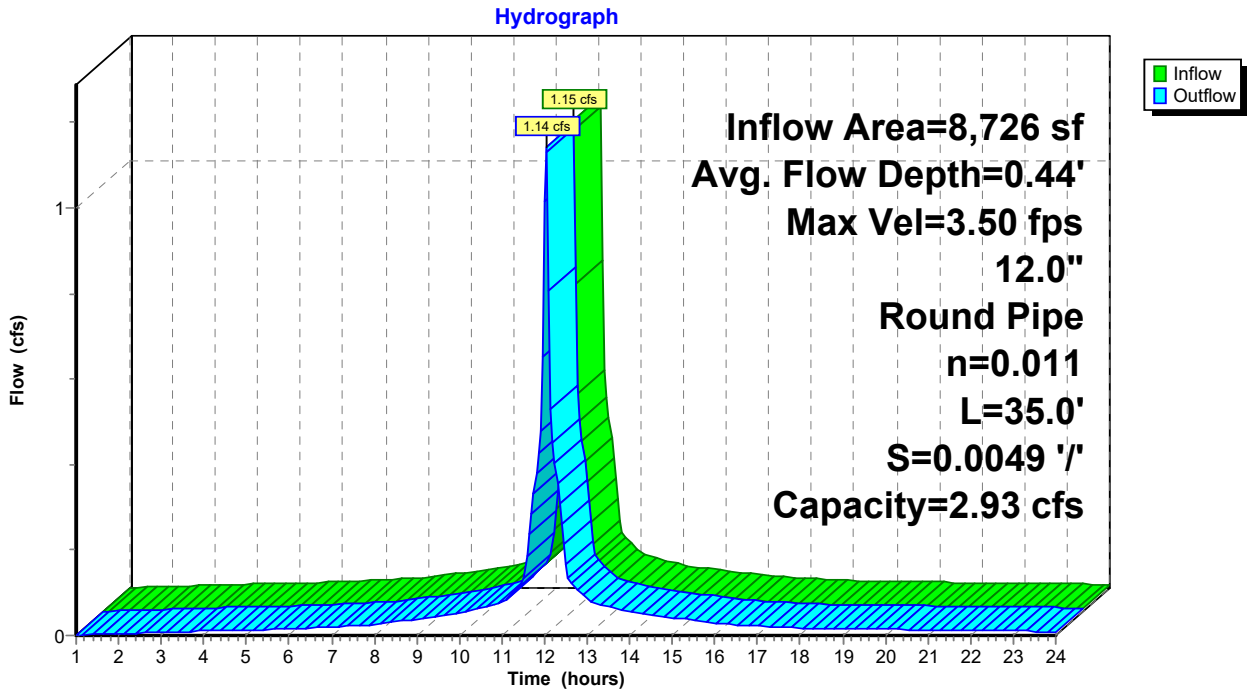
Routing by Stor-Ind+Trans method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.50 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.16 fps, Avg. Travel Time= 0.5 min

Peak Storage= 12 cf @ 12.04 hrs
Average Depth at Peak Storage= 0.44' , Surface Width= 0.99'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.93 cfs

12.0" Round Pipe
n= 0.011 Steel, smooth
Length= 35.0' Slope= 0.0049 '/'
Inlet Invert= 62.86', Outlet Invert= 62.69'



## Reach DIP: south outlet



## Summary for Reach E Swale: E Side

[61] Hint: Exceeded Reach RCP outlet invert by 0.59' @ 12.05 hrs

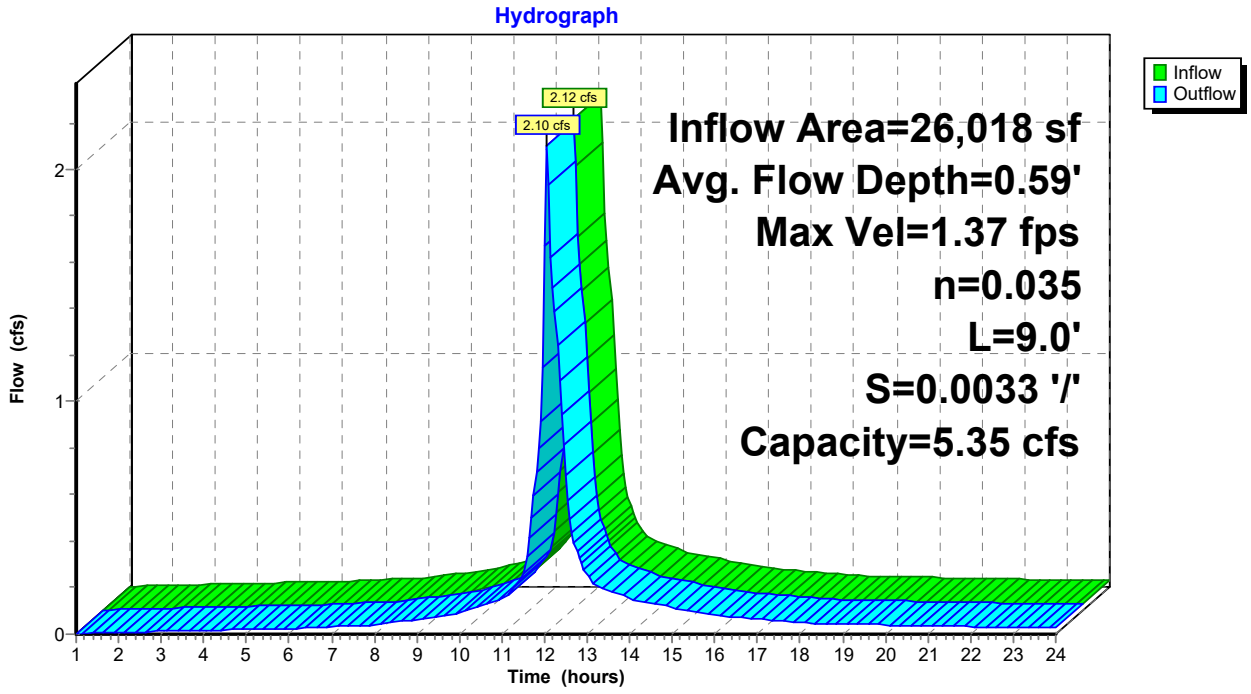
Inflow Area = 26,018 sf, 73.10% Impervious, Inflow Depth > 4.10" for 10 yr storm event
Inflow = 2.12 cfs @ 12.06 hrs, Volume= 8,893 cf
Outflow = 2.10 cfs @ 12.06 hrs, Volume= 8,892 cf, Atten= 1%, Lag= 0.2 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.37 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 0.41 fps, Avg. Travel Time= 0.4 min

Peak Storage= 14 cf @ 12.06 hrs
Average Depth at Peak Storage= 0.59' , Surface Width= 3.19'
Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 5.35 cfs

2.00' x 1.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 1.0 '/' Top Width= 4.00'
Length= 9.0' Slope= 0.0033 '/'
Inlet Invert= 60.68', Outlet Invert= 60.65'

## Reach E Swale: E Side



## Summary for Reach RCP: north outlet

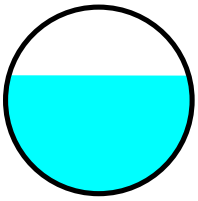
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 26,018 sf, 73.10% Impervious, Inflow Depth > 4.10" for 10 yr storm event
Inflow = 2.13 cfs @ 12.06 hrs, Volume= 8,894 cf
Outflow = 2.12 cfs @ 12.06 hrs, Volume= 8,893 cf, Atten= 0%, Lag= 0.2 min
Routed to Reach E Swale : E Side

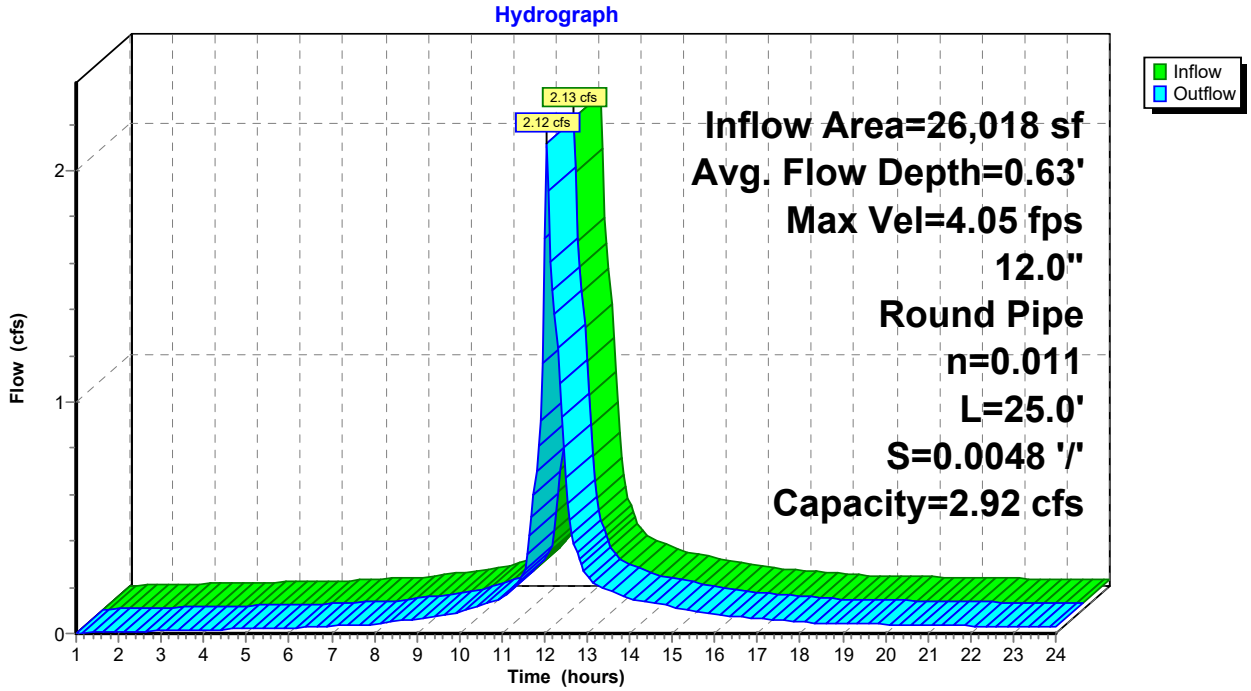
Routing by Stor-Ind+Trans method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.05 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.47 fps, Avg. Travel Time= 0.3 min

Peak Storage= 13 cf @ 12.06 hrs
Average Depth at Peak Storage= 0.63' , Surface Width= 0.96'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.92 cfs

12.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 25.0' Slope= 0.0048 '/'
Inlet Invert= 60.80', Outlet Invert= 60.68'



## Reach RCP: north outlet



## Summary for Reach W Swale: W Side

[62] Hint: Exceeded Reach DIP OUTLET depth by 0.01' @ 12.10 hrs

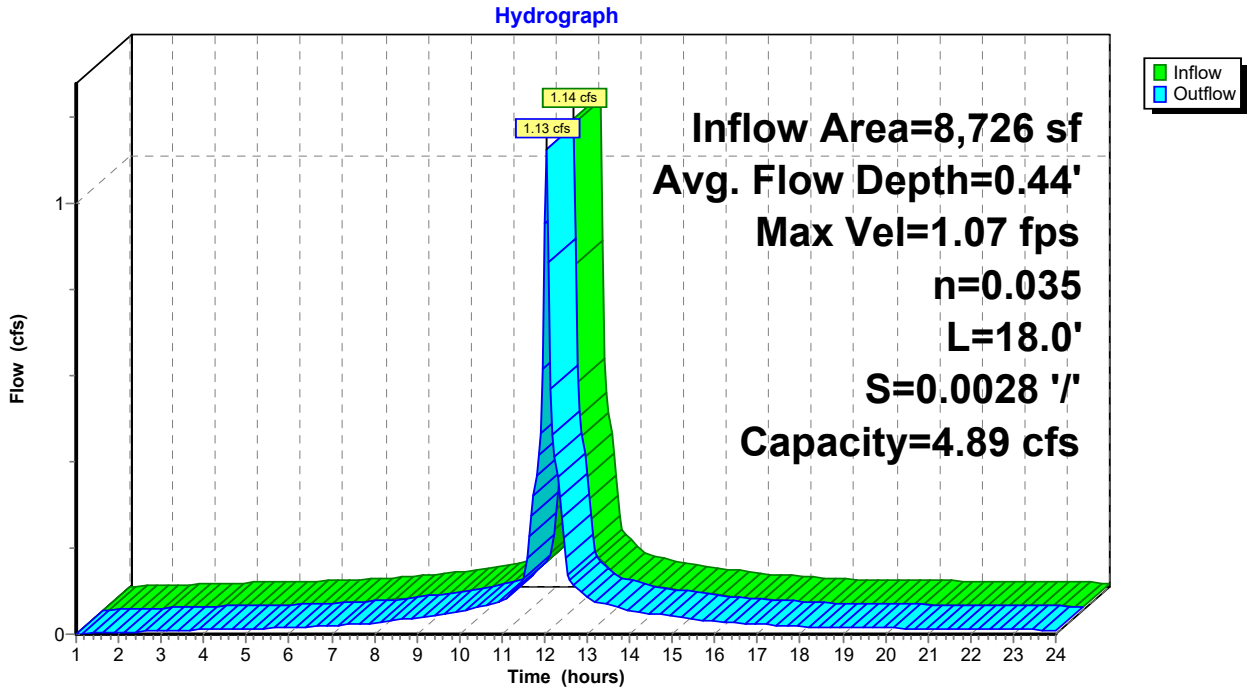
Inflow Area = 8,726 sf,100.00% Impervious, Inflow Depth > 5.16" for 10 yr storm event
Inflow = 1.14 cfs @ 12.04 hrs, Volume= 3,753 cf
Outflow = 1.13 cfs @ 12.04 hrs, Volume= 3,752 cf, Atten= 1%, Lag= 0.4 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.07 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 0.28 fps, Avg. Travel Time= 1.1 min

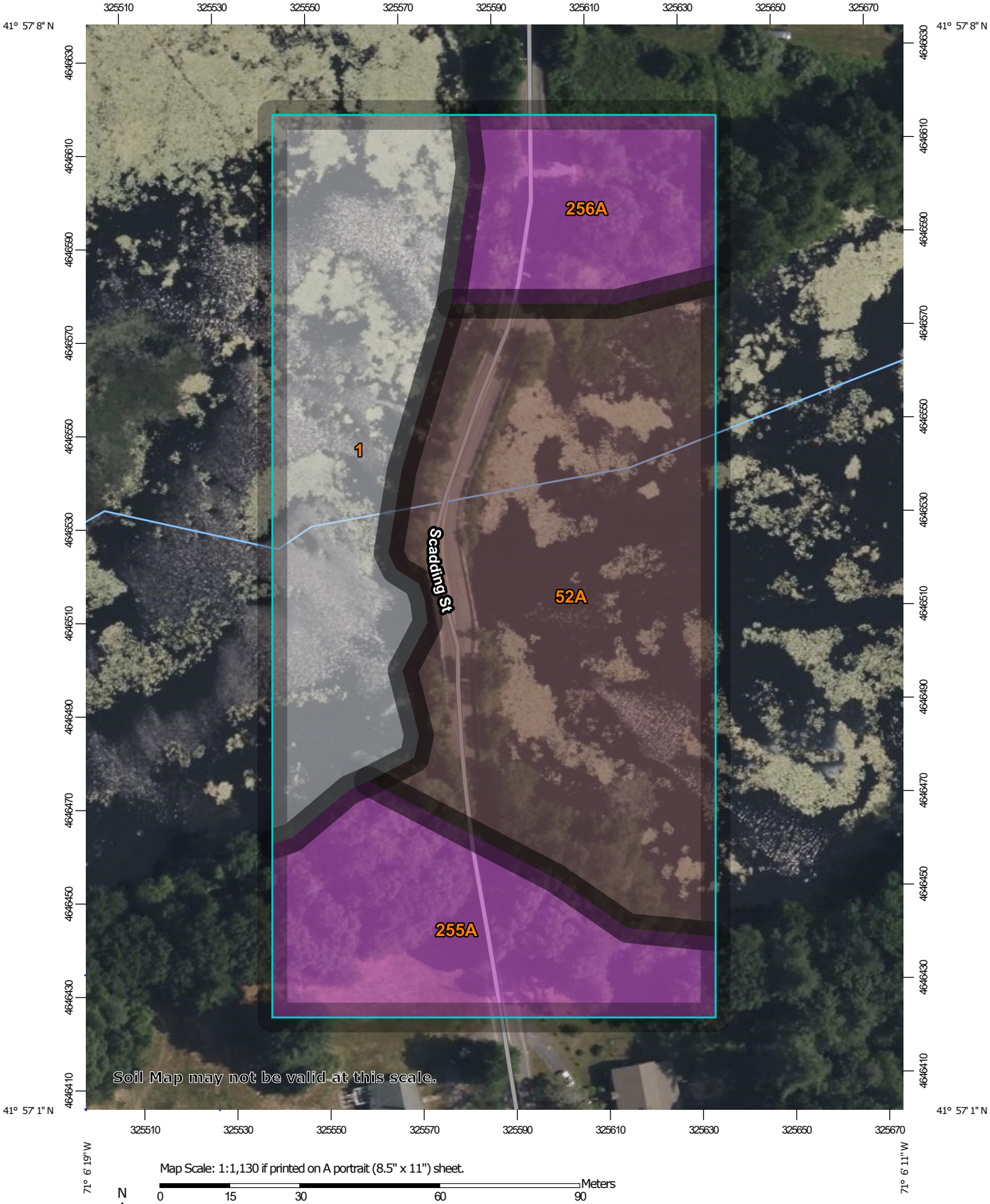
Peak Storage= 19 cf @ 12.04 hrs
Average Depth at Peak Storage= 0.44' , Surface Width= 2.88'
Bank-Full Depth= 1.00' Flow Area= 3.0 sf, Capacity= 4.89 cfs

2.00' x 1.00' deep channel, n= 0.035 Earth, dense weeds
Side Slope Z-value= 1.0 '/' Top Width= 4.00'
Length= 18.0' Slope= 0.0028 '/'
Inlet Invert= 62.69', Outlet Invert= 62.64'

## Reach W Swale: W Side



Hydrologic Soil Group—Bristol County, Massachusetts, Northern Part
(Taunton - Scadding Street)




Map Scale: 1:1,130 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 19N WGS84

Proposal No. 608616-131225

A00840 - 235

## 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 1:20,000.

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: Bristol County, Massachusetts, Northern Part
Survey Area Data: Version 16, Sep 10, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 14, 2022—Jul 1, 2022

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 |
|---|---|---|---|---|
| 1 | Water | | 1.2 | 26.6% |
| 52A | Freetown muck, 0 to 1 percent slopes | B/D | 2.0 | 44.1% |
| 255A | Windsor loamy sand, 0 to 3 percent slopes | A | 0.8 | 17.6% |
| 256A | Deerfield loamy fine sand, 0 to 3 percent slopes | A | 0.5 | 11.6% |
| **Totals for Area of Interest** | | | **4.6** | **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

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: Scadding Street, Taunton - SW outlet

## TSS Removal Calculation Worksheet

| B<br>BMP[1] | C<br>TSS Removal Rate[1] | D<br>Starting TSS Load* | E<br>Amount Removed (C*D) | F<br>Remaining Load (D-E) |
|---|---|---|---|---|
| Street Sweeping - 10% | 0.10 | 1.00 | 0.10 | 0.90 |
| Deep Sump and Hooded Catch Basin | 0.25 | 0.90 | 0.23 | 0.68 |
| Grass Channel | 0.50 | 0.68 | 0.34 | 0.34 |
| | 0.00 | 0.34 | 0.00 | 0.34 |
| | 0.00 | 0.34 | 0.00 | 0.34 |

**Total TSS Removal =** 66%

**Separate Form Needs to be Completed for Each Outlet or BMP Train**

Project: Scadding Street Bridge Replacement

Prepared By: Dewberry Engineers Inc.

Date: August, 2024

*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



Proposal No. 608616-131225

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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: Scadding Street, Taunton - NE outlet

## TSS Removal Calculation Worksheet

| B<br>BMP[1] | C<br>TSS Removal Rate[1] | D<br>Starting TSS Load* | E<br>Amount Removed (C*D) | F<br>Remaining Load (D-E) |
|---|---|---|---|---|
| Street Sweeping - 10% | 0.10 | 1.00 | 0.10 | 0.90 |
| Deep Sump and Hooded Catch Basin | 0.25 | 0.90 | 0.23 | 0.68 |
| Grass Channel | 0.50 | 0.68 | 0.34 | 0.34 |
| | 0.00 | 0.34 | 0.00 | 0.34 |
| | 0.00 | 0.34 | 0.00 | 0.34 |

**Total TSS Removal =** 66%

**Separate Form Needs to be Completed for Each Outlet or BMP Train**

Project: Scadding Street Bridge Replacement

Prepared By: Dewberry Engineers Inc.

Date: August, 2024

*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



Proposal No. 608616-131225

A00840 - 239

Maura Healey, Governor
Kimberley Driscoll, Lieutenant Governor
Monica Tibbits-Nutt, Secretary and CEO
Jonathan L. Gulliver, Highway Administrator

massDOT
Massachusetts Department of Transportation
Highway Division

April 4, 2024

Heidi Davis
Massachusetts Department of Environmental Protection
Wetlands Program
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: 401 Water Quality Certification
Taunton - Bridge Replacement (T-01-024)
Scadding Street over Snake River
MassDOT Project #608616
MassDEP 24-WW26-0036-APP - Fill and Dredge

Dear Ms. Davis,

MassDOT would like to request an Amendment for the 401 Water Quality Certification for the bridge replacement on Scadding Street over the Snake River in Taunton, MA (MassDEP - 24-WW26-0036-APP). Through the United States Army Corps of Engineers review process MassDOT received comments from Army Corps via email on April 23, 2024, January 3, 2025, and February 24, 2025. The comments required changes to the Wetland Resource Area impacts which include Bordering Vegetated Wetlands, Land Under Water/Waters of the U.S., Bank/Ordinary High Water, and Special Aquatic Sites. The impact changes are as follows:

| Resource Area | Bordering Vegetated Wetlands (BVW) | Land Under Water (LUW)/Waters of the U.S. (WOTUS) | Bank/Ordinary High Water (OHW) | Special Aquatic Sites (SAS) |
|---|---|---|---|---|
| Submission Date: 12/31/24 | 567 SF (temp)<br>106 SF (perm) | 5,123 SF (temp)<br>13,897 SF (perm) | 48 LF (temp)<br>976 LF (perm) | 2,301 SF (temp)<br>5,363 SF (perm) |
| Submission Date: 2/14/25 | 0 SF (temp)<br>633 SF (perm) | 0 SF (temp)<br>11,379 (perm) | 0 LF (temp)<br>950 LF (perm) | 2,301 SF (temp)<br>5,363 SF (perm) |
| Submission Date: 3/5/2025 | 0 SF (temp)<br>633 SF (perm) | 0 SF (temp)<br>9,741 SF (perm) | 0 LF (temp)<br>950 LF (perm) | 3,803 SF (temp)<br>4,053 SF (perm) |
| Total Impacts Proposed as of 3/5/2025 | **633 SF** | **9,741 SF** | **950 LF** | **7,856 SF** |

Additionally, since the proposed permanent Bordering Vegetated Wetland impacts are now 633 SF, the wetland replication area size has changed to 700 SF. Given these impact changes, MassDOT is requesting an amended 401 Water Quality Certification to reflect the updates.

If you have any questions or would like to discuss further, please contact me (857)-262-0757 or by email at courtney.l.walker@dot.state.ma.us.

Courtney Walker

Sincerely,
Courtney Walker
Wetlands and Water Resources Coordinator
MassDOT Highway Division – Environmental Services

Cc: Melissa Lenker, MassDOT
Caitlin Marshall, MassDOT
Tyler Lewis, MassDEP
Matt Lundsted, CEI
Adam Zysk, Dewberry
Dan Vasconcelos, USACE
Kevin Newton, USACE

Attachments:
Updated Permitting Plans

Ten Park Plaza, Suite 4160, Boston, MA 02116
Tel: 857-368-4636, TTY: 857-368-0655
mass.gov/massdot

# TAUNTON
# MASSDOT

## SCADDING STREET BRIDGE REPLACEMENT: T-01-024 (C5H)

IN THE CITY/TOWN OF

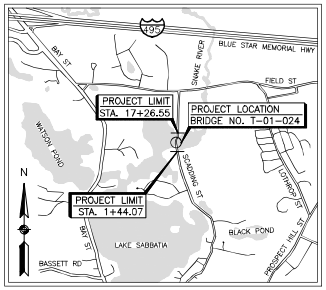
TAUNTON

BRISTOL COUNTY

## PERMITTING PLANS

INDEX OF DRAWINGS

| SHEET | TITLE |
|---|---|
| 1. | KEY PLAN, LOCUS, AND PROFILES |
| 2. | CONSTRUCTION PLAN |
| 3. | ROAD PROFILE |
| 4. | ROAD PROFILE |
| 5. | PERMITTING PLAN |
| 6. | DREDGING AREAS |
| 7. | IMPERVIOUS AREA DEVELOPMENT |
| 8. | SPECIAL AQUATIC SITES (SAS) IMPACTS |
| 9. | WETLAND REPLICATION PLAN |




LOCUS PLAN
SCALE: 1" = 1000'

HYDRAULIC DESIGN DATA

DRAINAGE AREA: 38.7 SQUARE MILES
DESIGN FLOOD DISCHARGE: 1,000 CUBIC FEET PER SECOND
DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 10% (10 YEARS)
DESIGN FLOOD VELOCITY: 1.07 FEET PER SECOND
DESIGN FLOOD ELEVATION: 60.8 FEET, NAVD

BASE (100-YEAR) FLOOD DATA

BASE FLOOD DISCHARGE: 1,840 CUBIC FEET PER SECOND
BASE FLOOD ELEVATION: 63.1 FEET, NAVD

DESIGN AND CHECK SCOUR DATA

SCOUR DESIGN FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 4% (25 YRS)
DESIGN FLOOD ABUTMENT SCOUR DEPTH: 4.76 FEET
SCOUR CHECK FLOOD ANNUAL CHANCE (RETURN FREQUENCY): 2% (50 YRS)
CHECK FLOOD ABUTMENT SCOUR DEPTH: 5.94 FEET

FLOOD OF RECORD

DISCHARGE: UNKNOWN
FREQUENCY: UNKNOWN
MAXIMUM ELEVATION: UNKNOWN
DATE: UNKNOWN

HISTORY OF ICE FLOES: NONE DOCUMENTED
EVIDENCE OF SCOUR & EROSION: NONE DOCUMENTED

DESIGN:

IN ACCORDANCE WITH THE 2020 AASHTO, NINTH EDITION, LRFD BRIDGE DESIGN SPECIFICATIONS FOR HL-93 LOADING.

SURVEY:

FIELD SURVEY PERFORMED IN JUNE 2017 BY NITSCH ENGINEERING IN ACCORDANCE WITH MASSDOT GUIDELINES.


COMPREHENSIVE ENVIRONMENTAL INC.
41 MAIN STREET
BOLTON, MA 01740

Dewberry
99 SUMMER ST.,
SUITE 700
BOSTON, MA 02110
(617) 695-3400
(617) 695-3310


ISSUED FOR CONSTRUCTION

massDOT Highway Division

PROPOSED BRIDGE REPLACEMENT
TAUNTON
SCADDING SCREET
OVER SNAKE RIVER

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
10 PARK PLAZA BOSTON, MASS

TITLE: _____ CHIEF ENGINEER

BRIDGE NO. T-01-024 (C5H)

608616_PERMITTING PLANS_REV01.DWG Plotted on 27-Feb-2025 2:28 PM

FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021

Proposal No. 608616-131225

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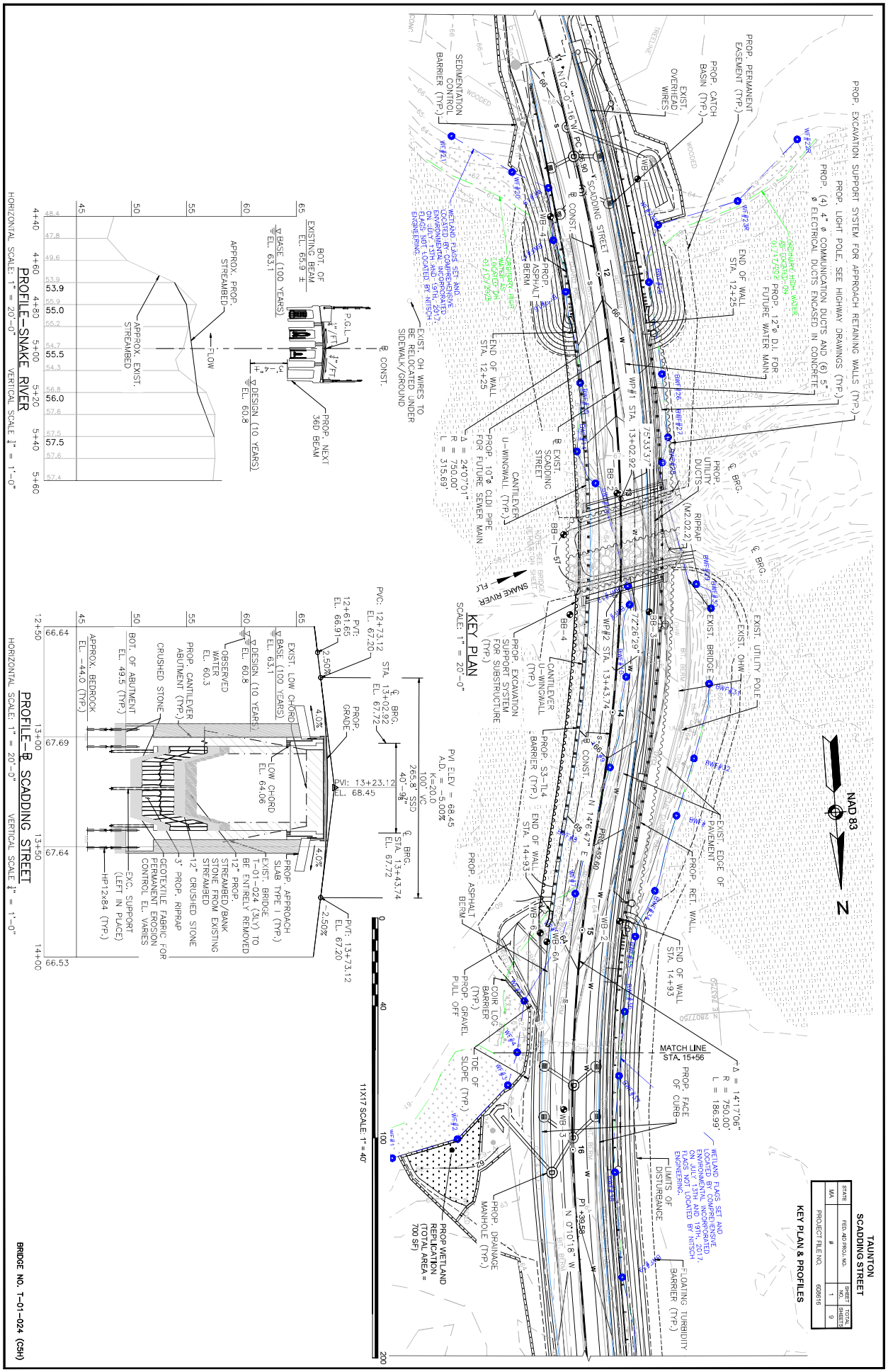
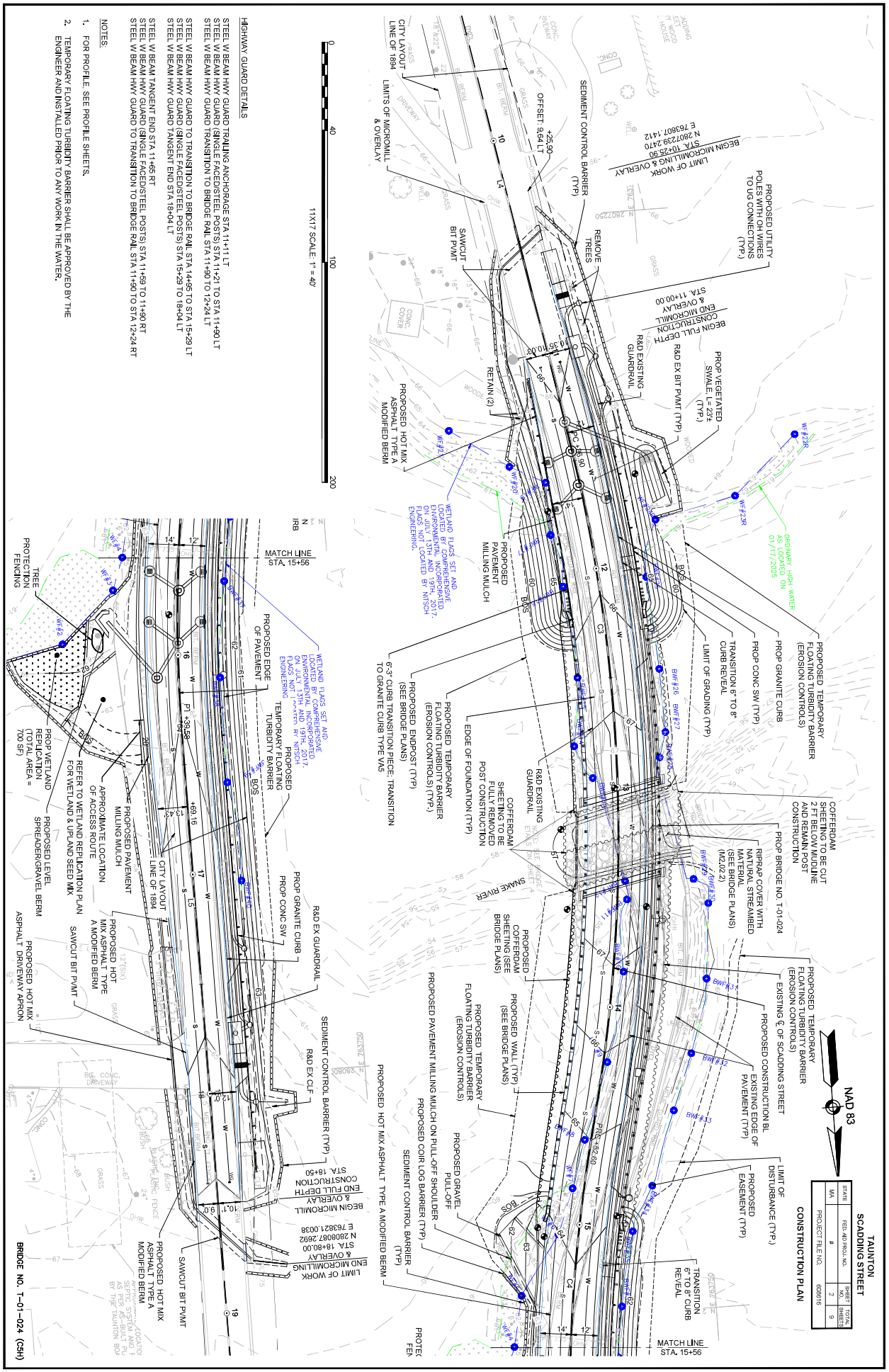

KEY PLAN
SCALE: 1" = 20'-0"
NAD 83
N
SNAKE RIVER FLR
PROP. EXCAVATION SUPPORT SYSTEM FOR APPROACH RETAINING WALLS (TYP.)
PROP. LIGHT POLE, SEE HIGHWAY DRAWINGS (TYP.)
PROP. (4) 4" ø COMMUNICATION DUCTS AND (6) 5" ø ELECTRICAL DUCTS ENCASED IN CONCRETE
PROP. PERMANENT EASEMENT (TYP.)
PROP. CATCH BASIN (TYP.)
EXIST. OVERHEAD WIRES
SEDIMENTATION CONTROL BARRIER (TYP.)
PROP. 12"ø D.I. FOR FUTURE WATER MAIN
END OF WALL STA. 12+25
PROP. ASPHALT BERM
PROP. UTILITY DUCTS
RIPRAP (M2.02.2)
EXIST. SCADDING STREET
CANTILEVER U-WINGWALL (TYP.)
PROP. 10"ø CLDI PIPE FOR FUTURE SEWER MAIN
Δ = 24°07'01"
R = 750.00'
L = 315.69'
WP#1 STA. 13+02.92
WP#2 STA. 13+43.74
WP#3 STA. 14+93
EXIST. BRIDGE
EXIST. UTILITY POLE
EXIST. EDGE OF PAVEMENT
PROP. RET. WALL
PROP. S3-TL4 BARRIER (TYP.)
PROP. EXCAVATION SUPPORT SYSTEM FOR SUBSTRUCTURE (TYP.)
PROP. ASPHALT BERM
END OF WALL STA. 14+93
MATCH LINE STA. 15+56
PROP. FACE OF CURB
Δ = 14°17'06"
R = 750.00'
L = 186.99'
PROP. GRAVEL PULL OFF
COIR LOG BARRIER (TYP.)
TOE OF SLOPE (TYP.)
PROP. DRAINAGE MANHOLE (TYP.)
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
LIMITS OF DISTURBANCE
FLOATING TURBIDITY BARRIER (TYP.)
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 13TH AND 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 13TH AND 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 01/07/2025
PROP. 36D BEAM
EXIST. OH WIRES TO BE RELOCATED UNDER SIDEWALK/GROUND
EXISTING BERM EL. 65.9 ±
BASE (100 YEARS) EL. 63.1
DESIGN (10 YEARS) EL. 60.8
APPROX. PROP. STREAMBED
APPROX. EXIST. STREAMBED
FLOW
PROFILE—SNAKE RIVER
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 1'-0"
PROFILE—℄ SCADDING STREET
HORIZONTAL SCALE: 1" = 20'-0"
VERTICAL SCALE: 1" = 1'-0"
EXIST. LOW CHORD
OBSERVED WATER EL. 60.3
PROP. CANTILEVER ABUTMENT (TYP.)
CRUSHED STONE
BOT. OF ABUTMENT EL. 49.5 (TYP.)
APPROX. BEDROCK EL. ~44.0 (TYP.)
PROP. APPROACH SLAB TYPE I (TYP.)
EXIST. BRIDGE T-01-024 (3Ly) TO BE ENTIRELY REMOVED
12" PROP. STREAMBED/BANK STONE FROM EXISTING STREAMBED
12" CRUSHED STONE
3" PROP. RIPRAP
GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL EL. VARIES
EXC. SUPPORT (LEFT IN PLACE)
HP12x84 (TYP.)
PVC: 12+73.12 EL. 67.20
PVI: 12+61.65 EL. 66.91
PVT: 13+73.12 EL. 67.20
STA. ℄ 13+02.92 EL. 67.72
STA. ℄ 13+43.74 EL. 67.72
PVI ELEV = 68.45 A.D. K=20.0
265.8' SSD
100' VC
40'-9⅜"
Vi: 13+23.12 EL. 68.45
4.0%
-2.50%
11X17 SCALE: 1" = 40'
TAUNTON
SCADDING STREET
KEY PLAN & PROFILES
PROJECT FILE NO. 608616
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
Plotted on 27-Feb-2025 2:28 PM


TAUNTON
SCADDING STREET
CONSTRUCTION PLAN
NAD 83
EXA'E
MA
FED. AID PROJ. NO.
#
SHEET NO.
2
TOTAL SHEETS
9
PROJECT FILE NO.
608616
0
40
100
200
11X17 SCALE: 1" = 40'
HIGHWAY GUARD DETAILS
STEEL W BEAM HWY GUARD TRAILING ANCHORAGE STA 11+11 LT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 11+21 TO STA 11+90 LT
STEEL W BEAM HWY GUARD TRANSITION TO BRIDGE RAIL STA 11+90 TO 12+24 LT
STEEL W BEAM HWY GUARD TO TRANSITION TO BRIDGE RAIL STA 14+95 TO STA 15+29 LT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 15+29 TO 18+04 LT
STEEL W BEAM HWY GUARD TANGENT END STA 18+04 LT
STEEL W BEAM TANGENT END STA 11+65 RT
STEEL W BEAM HWY GUARD (SINGLE FACED/STEEL POSTS) STA 11+69 TO 11+90 RT
STEEL W BEAM HWY GUARD TO TRANSITION TO BRIDGE RAIL STA 11+90 TO STA 12+24 RT
NOTES:
1. FOR PROFILE, SEE PROFILE SHEETS.
2. TEMPORARY FLOATING TURBIDITY BARRIER SHALL BE APPROVED BY THE ENGINEER AND INSTALLED PRIOR TO ANY WORK IN THE WATER.
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
PROP GRANITE CURB
PROP CONC SW (TYP)
TRANSITION 6" TO 8" CURB REVEAL
LIMIT OF GRADING (TYP)
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
PROP BRIDGE NO. T-01-024
RIPRAP COVER WITH NATURAL STREAMBED MATERIAL (SEE BRIDGE PLANS) (M2.02.2)
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
EXISTING ℄ OF SCADDING STREET
PROPOSED CONSTRUCTION BL
EXISTING EDGE OF PAVEMENT (TYP)
PROPOSED EASEMENT (TYP)
LIMIT OF DISTURBANCE (TYP.)
TRANSITION 6" TO 8" CURB REVEAL
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
SEDIMENT CONTROL BARRIER (TYP)
PROPOSED COIR LOG BARRIER (TYP)
PROPOSED GRAVEL PULL-OFF
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
PROPOSED PAVEMENT MILLING MULCH ON PULL-OFF SHOULDER
PROPOSED WALL (TYP) (SEE BRIDGE PLANS)
PROPOSED COFFERDAM SHEETING (SEE BRIDGE PLANS)
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS)
SNAKE RIVER
R&D EX GUARDRAIL
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
EDGE OF FOUNDATION (TYP)
PROPOSED ENDPOST (TYP) (SEE BRIDGE PLANS)
6'-3" CURB TRANSITION PIECE; TRANSITION TO GRANITE CURB TYPE VA6
PROPOSED TEMPORARY FLOATING TURBIDITY BARRIER (EROSION CONTROLS) (TYP)
R&D EXISTING GUARDRAIL
PROPOSED PAVEMENT MILLING MULCH
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
RETAIN (2)
R&D EX BIT PVMT (TYP)
PROP VEGETATED SWALE; L=2.5% (TYP.)
R&D EXISTING GUARDRAIL
BEGIN FULL DEPTH CONSTRUCTION MICROMILL END MICROMILL & OVERLAY STA. 11+00.00
PROPOSED UTILITY POLES WITH OH WIRES TO UG CONNECTIONS (TYP.)
REMOVE TREES
SAWCUT BIT PVMT
SEDIMENT CONTROL BARRIER (TYP)
OFFSET 9.64 LT
+25.90
LIMIT OF MICROMILL & OVERLAY
CITY LAYOUT LINE OF 1894
LIMIT OF WORK BEGIN MICROMILLING & OVERLAY STA. 10+25.50 N 2807239.2470 E 7638071.4112
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED, ON JULY 13TH AND 14TH, 2017. FLAGS LOCATED BY NITSCH ENGINEERING.
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
PROPOSED EDGE OF PAVEMENT
TEMPORARY FLOATING TURBIDITY BARRIER
PROPOSED TURBIDITY BARRIER
PROP CONC SW
PROP GRANITE CURB
R&D EX GUARDRAIL
SEDIMENT CONTROL BARRIER (TYP)
R&D EX CLF
BEGIN MICROMILL & OVERLAY STA. 18+50
PROPOSED PAVEMENT MILLING MULCH
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
SAWCUT BIT PVMT
PROPOSED HOT MIX ASPHALT DRIVEWAY APRON
PROPOSED LEVEL SPREADER/GRAVEL BERM
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
REFER TO WETLAND REPLICATION PLAN FOR WETLAND & UPLAND SEED MIX
APPROXIMATE LOCATION OF ACCESS ROUTE
TREE PROTECTION FENCING
LIMIT OF WORK END MICROMILLING & OVERLAY STA 18+80.00 N 2806087.2692 E 7638211.0038
PROPOSED HOT MIX ASPHALT TYPE A MODIFIED BERM
SAWCUT BIT PVMT
BRIDGE NO. T-01-024 (CSH)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
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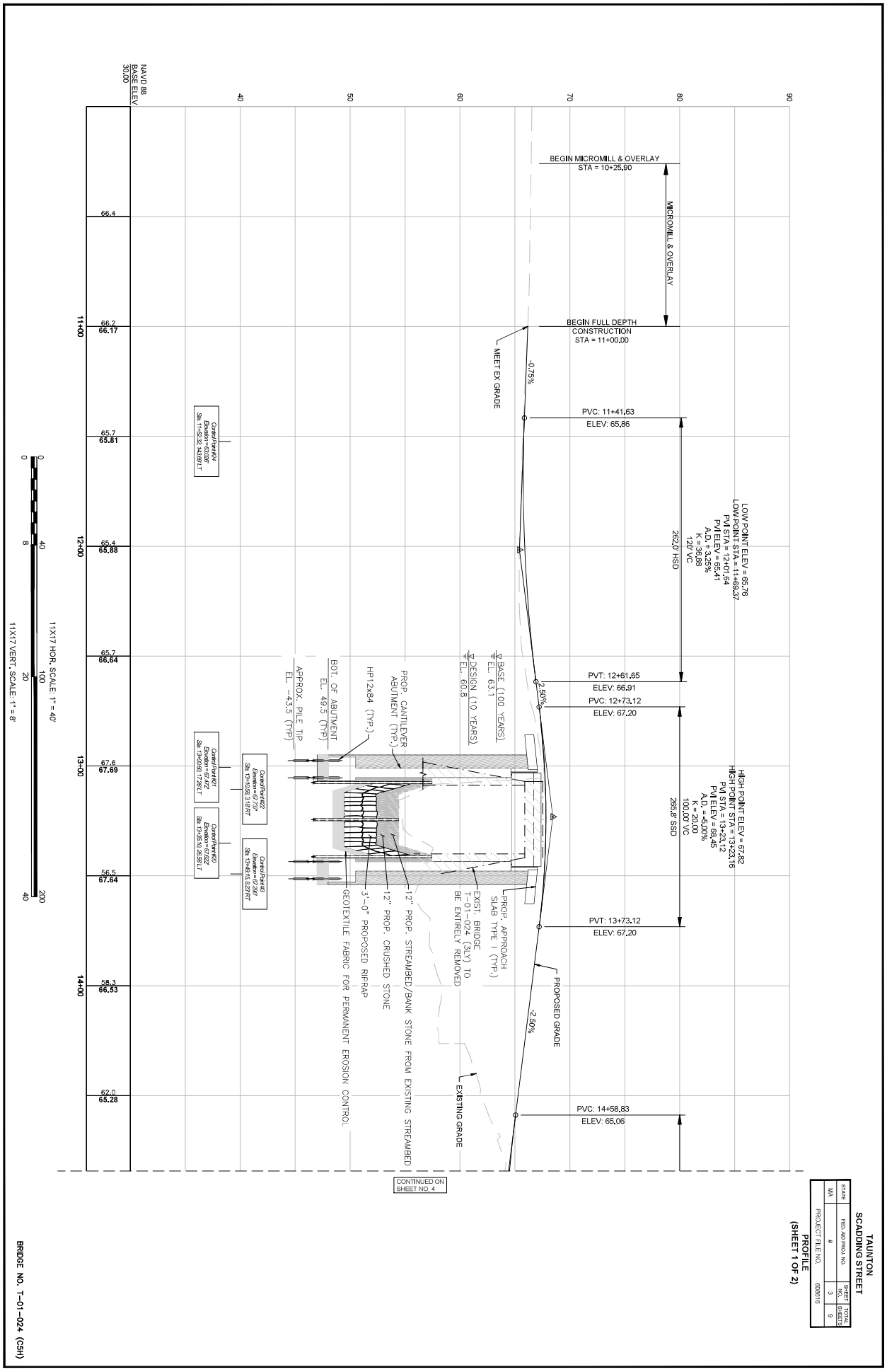
NAVD 88
BASE ELEV.
30.00
40
50
60
70
80
90
66.4
66.2
66.17
65.7
65.81
65.4
65.88
65.7
66.64
67.6
67.69
56.5
67.64
58.3
66.53
62.0
65.28
11+00
12+00
13+00
14+00
BEGIN MICROMILL & OVERLAY
STA = 10+25.90
MICROMILL & OVERLAY
BEGIN FULL DEPTH
CONSTRUCTION
STA = 11+00.00
MEET EX GRADE
-0.75%
PVC: 11+41.63
ELEV: 65.86
LOW POINT ELEV = 65.76
LOW POINT STA = 11+69.37
PVI STA = 12+01.64
PVI ELEV = 65.41
A.D. = -3.25%
K = 36.88
120' VC
262.0' HSD
PVT: 12+61.65
ELEV: 66.91
2.50%
PVC: 12+73.12
ELEV: 67.20
HIGH POINT ELEV = 67.82
HIGH POINT STA = 13+23.16
PVI STA = 13+23.12
PVI ELEV = 68.45
A.D. = +5.00%
K = 20.00
100.00' VC
265.8' SSD
PVT: 13+73.12
ELEV: 67.20
PROPOSED GRADE
-2.50%
PVC: 14+58.83
ELEV: 65.06
EXISTING GRADE
BASE (100 YEARS)
EL. 63.1
DESIGN (10 YEARS)
EL. 60.8
PROP. CANTILEVER
ABUTMENT (TYP.)
HP12x84 (TYP.)
BOT. OF ABUTMENT
EL. 49.5 (TYP.)
APPROX. PILE TIP
EL. -43.5 (TYP.)
PROP. APPROACH
SLAB TYPE I (TYP.)
EXIST. BRIDGE
T-01-024 (3LY) TO
BE ENTIRELY REMOVED
12" PROP. STREAMBED/BANK STONE FROM EXISTING STREAMBED
12" PROP. CRUSHED STONE
3'-0" PROPOSED RIPRAP
GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL
CONTINUED ON
SHEET NO. 4
0
40
8
0
200
40
20
100
11X17 HOR. SCALE: 1" = 40'
11X17 VERT. SCALE: 1" = 8'
BRIDGE NO. T-01-024 (CSH)
TAUNTON
SCADDING STREET
PROFILE
(SHEET 1 OF 2)
STATE
FED. AID PROJ. NO.
MA
#
PROJECT FILE NO.
608616
SHEET NO.
3
TOTAL SHEETS
9
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
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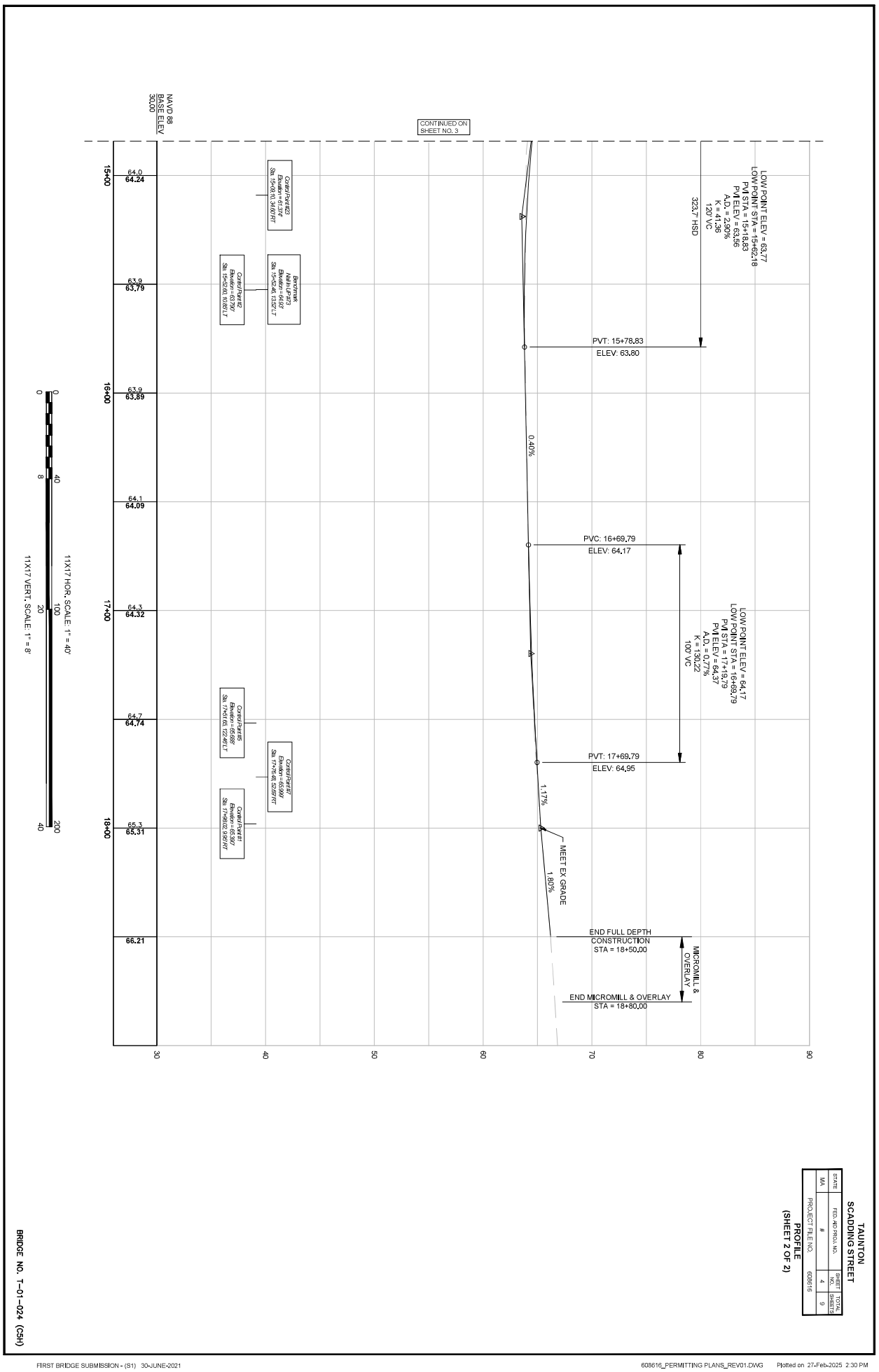



TAUNTON
SCADDING STREET
PROFILE
(SHEET 2 OF 2)

| STATE | | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | # | 4 | 9 |
| PROJECT FILE NO. | 608616 | FED. AID PROJ. NO. | |

BRIDGE NO. T-01-024 (C5H)

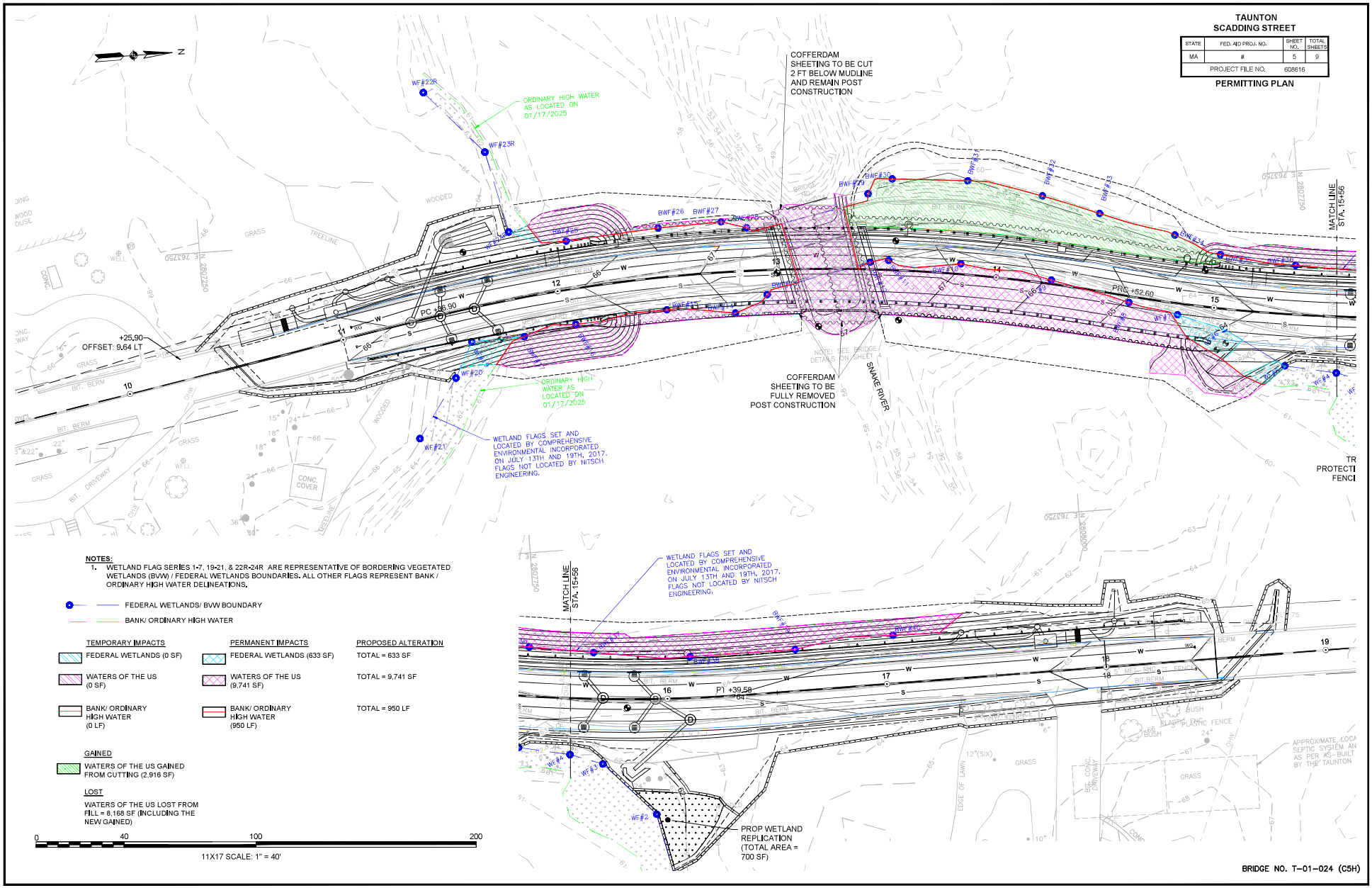
Proposal No. 608616-131225

A00840 - 247

TAUNTON
SCADDING STREET

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | # | 5 | 9 |
| PROJECT FILE NO. | 608616 | | |

PERMITTING PLAN




NOTES:

1. WETLAND FLAG SERIES 1-7, 19-21, & 22R-24R ARE REPRESENTATIVE OF BORDERING VEGETATED WETLANDS (BVW) / FEDERAL WETLANDS BOUNDARIES. ALL OTHER FLAGS REPRESENT BANK / ORDINARY HIGH WATER DELINEATIONS.

FEDERAL WETLANDS/ BVW BOUNDARY

BANK/ ORDINARY HIGH WATER

| TEMPORARY IMPACTS | PERMANENT IMPACTS | PROPOSED ALTERATION |
|---|---|---|
| FEDERAL WETLANDS (0 SF) | FEDERAL WETLANDS (633 SF) | TOTAL = 633 SF |
| WATERS OF THE US (0 SF) | WATERS OF THE US (9,741 SF) | TOTAL = 9,741 SF |
| BANK/ ORDINARY HIGH WATER (0 LF) | BANK/ ORDINARY HIGH WATER (950 LF) | TOTAL = 950 LF |

GAINED

WATERS OF THE US GAINED FROM CUTTING (2,916 SF)

LOST

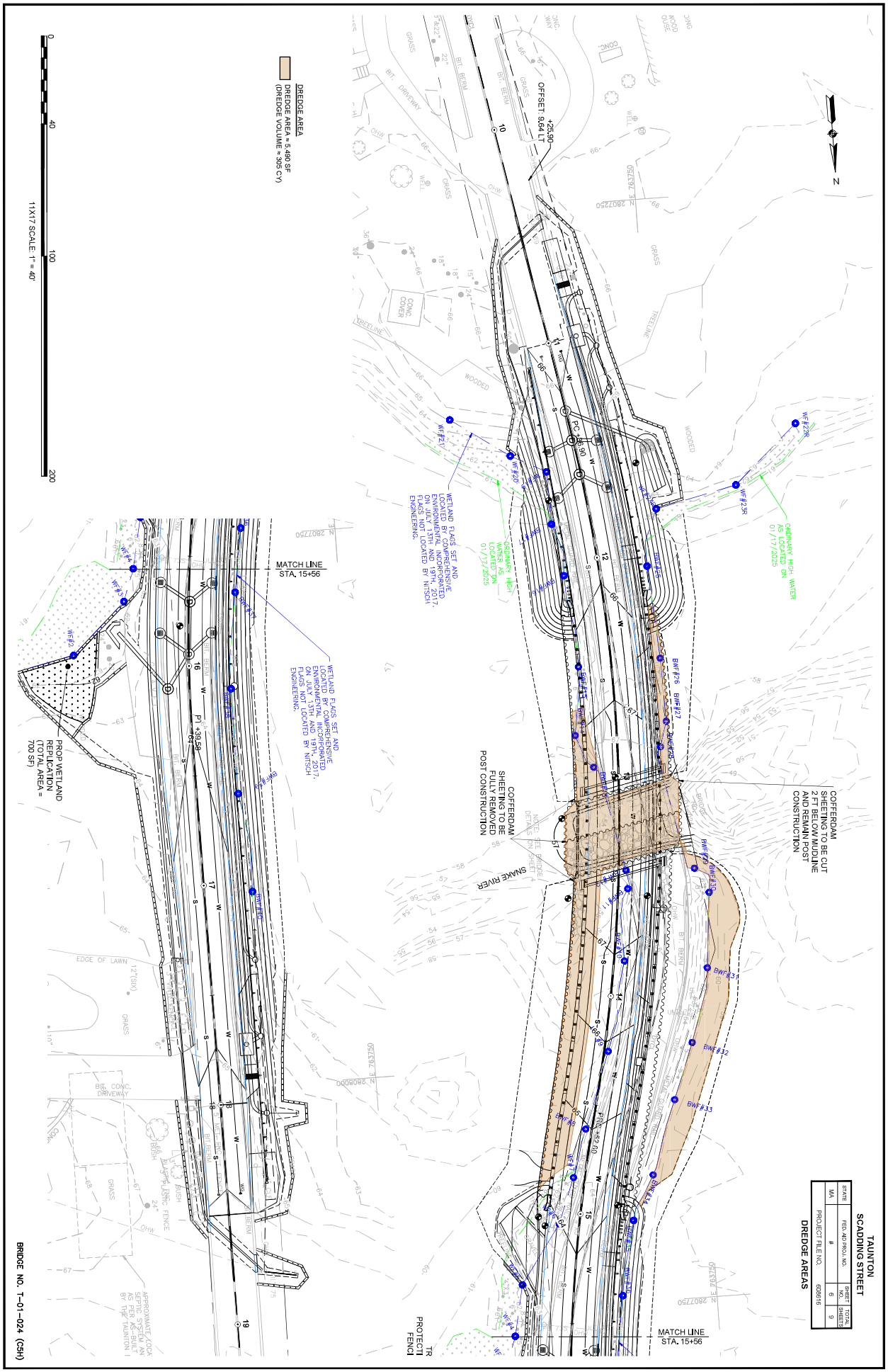
WATERS OF THE US LOST FROM FILL = 8,168 SF (INCLUDING THE NEW GAINED)

0 40 100 200

11X17 SCALE: 1" = 40'

608616_PERMITTING PLANS_REV01.DWG Plotted on 27-Feb-2025 2:31 PM

FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021


DREDGE AREA
DREDGE AREA = 5,490 SF
(DREDGE VOLUME = 305 CY)
0
40
100
200
11X17 SCALE: 1" = 40'
N
OFFSET: 9.64' LT
MATCH LINE
STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATERS LOCATED ON 01/17/2025
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
SNAKE RIVER
EDGE OF LAWN
BIT. DRIVEWAY
CONC. DRIVEWAY
TAUNTON
SCADDING STREET
DREDGE AREAS
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
6
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
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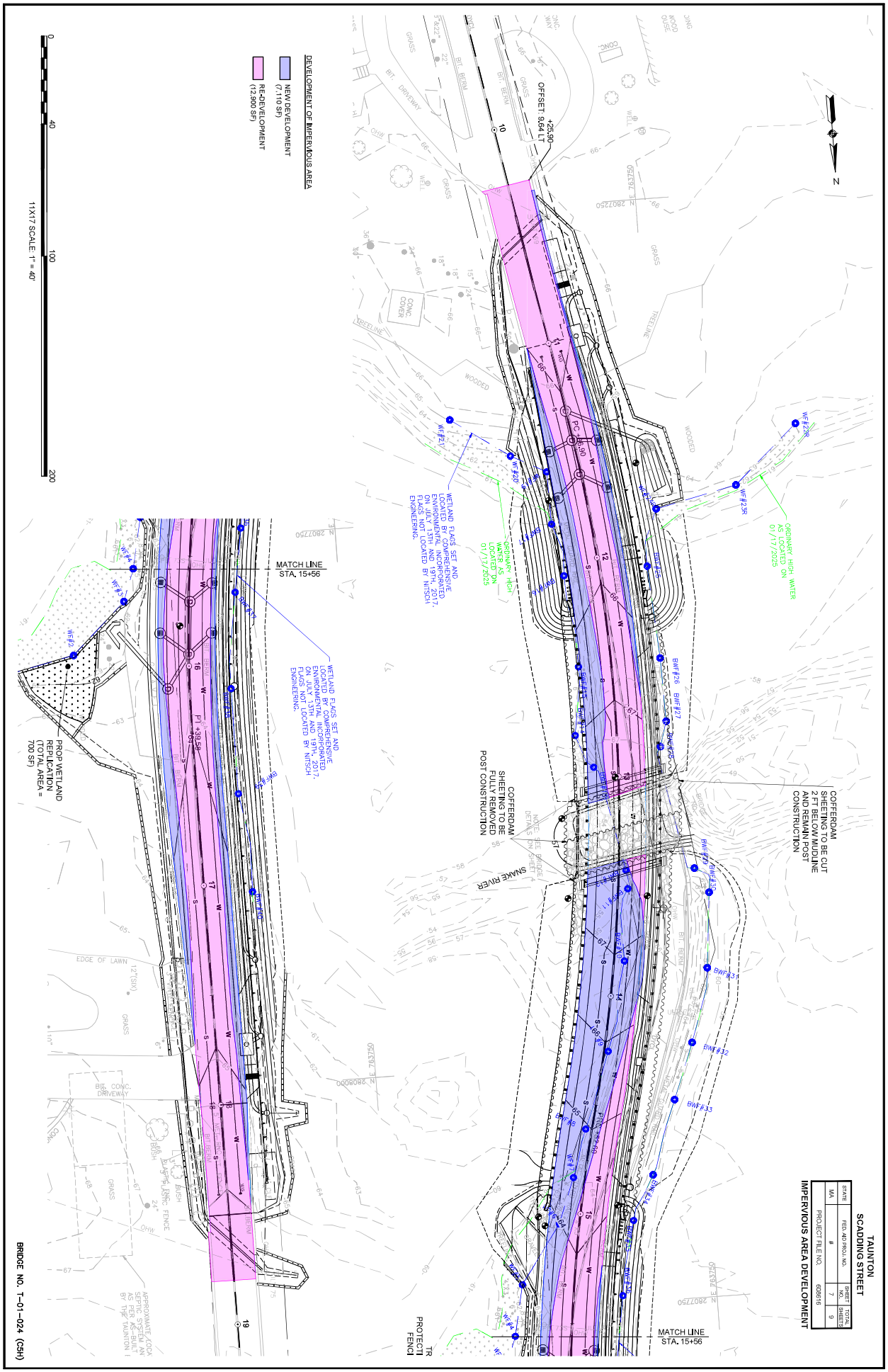
DEVELOPMENT OF IMPERVIOUS AREA
NEW DEVELOPMENT (7,110 SF)
RE-DEVELOPMENT (12,305 SF)
0
40
100
200
11X17 SCALE: 1" = 40'
N
OFFSET: 9.64 LT
+25.90
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
SNAKE RIVER
EDGE OF LAWN
BIT. CONC. DRIVEWAY
APPROXIMATE LOCATION OF SEPTIC SYSTEM AS PER AS-BUILT BY TYPE TAUNTON
TR PROTECT FENCI
TAUNTON
SCADDING STREET
IMPERVIOUS AREA DEVELOPMENT
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
7
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
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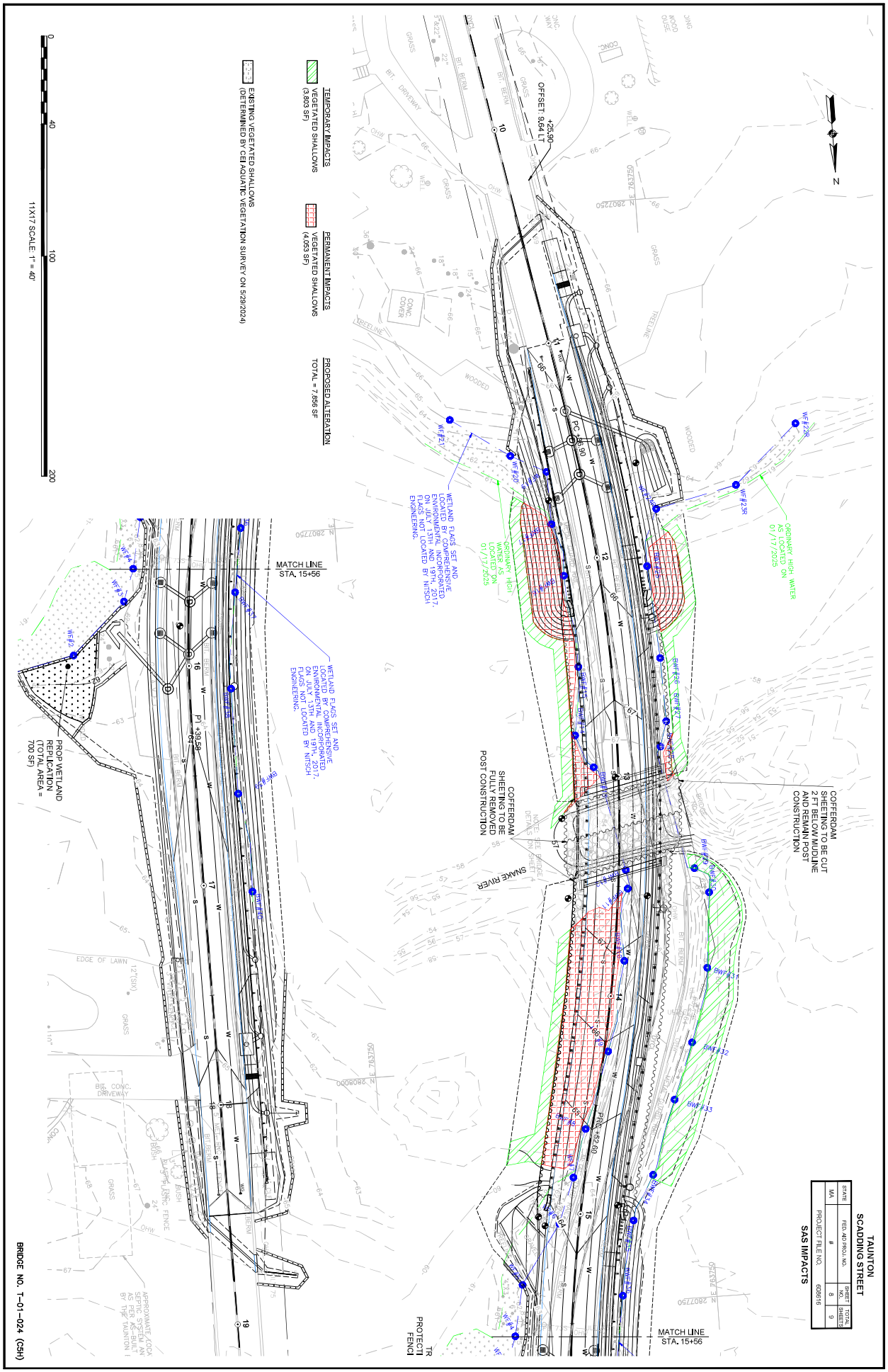

TEMPORARY IMPACTS
VEGETATED SHALLOWS (3,803 SF)
PERMANENT IMPACTS
VEGETATED SHALLOWS (4,053 SF)
PROPOSED ALTERATION
TOTAL = 7,856 SF
EXISTING VEGETATED SHALLOWS (DETERMINED BY CEI AQUATIC VEGETATION SURVEY ON 5/29/2024)
0
40
100
200
11X17 SCALE: 1" = 40'
N
MATCH LINE STA. 15+56
MATCH LINE STA. 15+56
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
WETLAND FLAGS SET AND LOCATED BY COMPREHENSIVE ENVIRONMENTAL INCORPORATED. ON JULY 19TH, 2017. FLAGS NOT LOCATED BY NITSCH ENGINEERING.
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
ORDINARY HIGH WATER AS LOCATED ON 01/17/2025
COFFERDAM SHEETING TO BE CUT 2 FT BELOW MUDLINE AND REMAIN POST CONSTRUCTION
COFFERDAM SHEETING TO BE FULLY REMOVED POST CONSTRUCTION
PROP WETLAND REPLICATION (TOTAL AREA = 700 SF)
SNAKE RIVER
EDGE OF LAWN
BIT. DRIVEWAY
CONC. DRIVEWAY
TAUNTON
SCADDING STREET
SAS IMPACTS
STATE
MA
FED. AID PROJ. NO.
#
PROJECT FILE NO.
608616
SHEET NO.
8
TOTAL SHEETS
9
BRIDGE NO. T-01-024 (C5H)
FIRST BRIDGE SUBMISSION - (S1) 30-JUNE-2021
608616_PERMITTING PLANS_REV01.DWG
Plotted on 27-Feb-2025 2:33 PM

Proposal No. 608616-131225

A00840 - 251

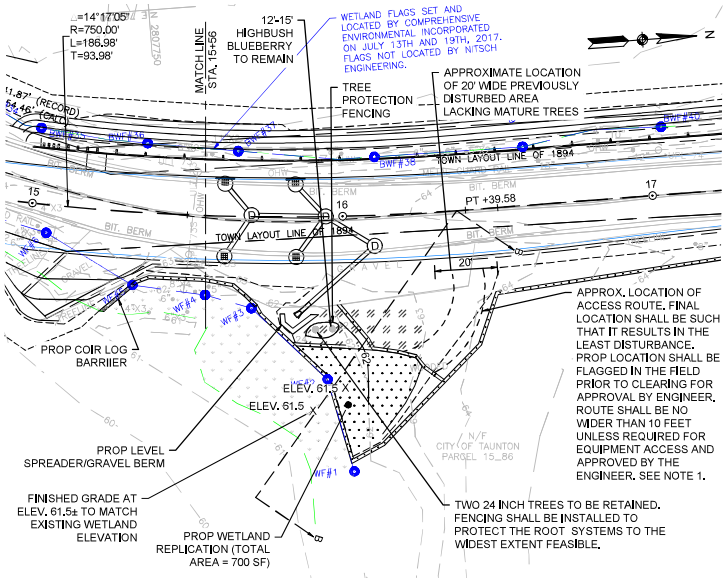
WETLAND REPLICATION PLAN_1.DWG Plotted on 13-Feb-2025 3:11 PM

FIRST BRIDGE SUBMISSION - (91) 30-JUNE-2021

TAUNTON
SCADDING STREET

| STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS |
|---|---|---|---|
| MA | # | 9 | 9 |
| PROJECT FILE NO. | 608616 | | |

WETLAND REPLICATION PLAN




WETLAND REPLICATION PLAN VIEW

0 40 100 200

11X17 SCALE: 1" = 40'

NOTES:

1. CONTRACTOR CAN ACCESS THE REPLICATION AREA USING A MAXIMUM 10' WIDE ACCESS PATH WITHIN THE 20' WIDE PREVIOUSLY DISTURBED AREA USING CUTTING ONLY.
2. EXISTING STONE PARKING AREA TO ACT AS TRACKING PAD.
3. ACCESS ROUTE SHALL BE FLAGGED FOR APPROVAL BY THE ENGINEER PRIOR TO SITE DISTURBANCE. ONCE APPROVED, VEGETATION SHALL BE CUT FLUSH TO THE GROUND. IF REQUIRED TO REPAIR EXPOSED SOILS AT THE COMPLETION OF WORK, THE ACCESS ROUTE SHALL BE SCARIFIED FOR DECOMPACTION AND SEEDED WITH THE UPLAND SEED MIX.

LEGEND:

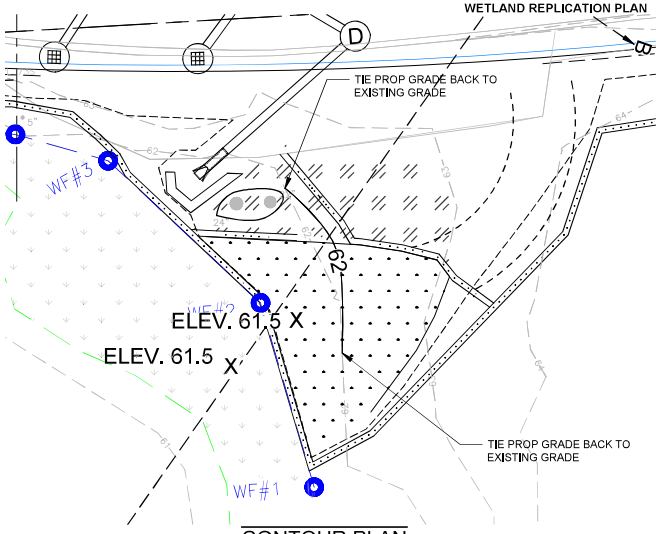
EXISTING WETLAND

REPLICATION

UPLAND SEED

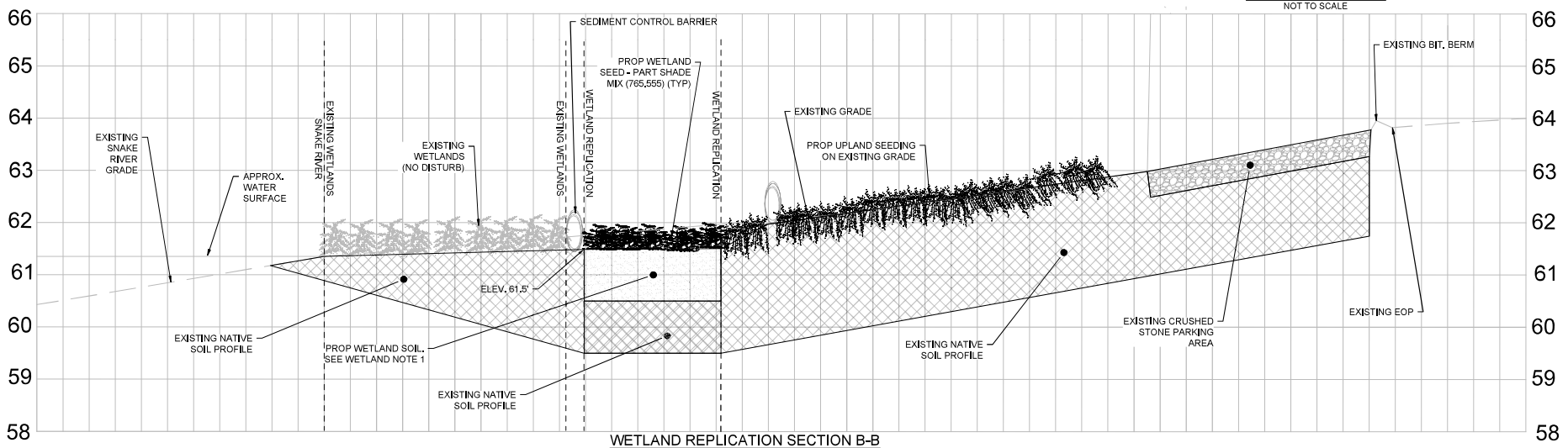
WETLAND NOTES:

1. WETLAND REPLICATION AREA SHALL BE CONSTRUCTED IN ACCORDANCE WITH ITEM 755.35 OF THE SPECIAL PROVISIONS. EXCAVATE EXISTING SOIL TO TARGET ELEVATIONS. IF EXISTING SUBSOIL IS DETERMINED TO BE UNSUITABLE FOR PLANTING, EXCAVATE TO DEPTH NECESSARY FOR PLANTING AND BACKFILL WITH APPROPRIATE MANUFACTURED SOIL. BACKFILL SHALL BE INSTALLED AS PER MASSDOT STANDARD SPECIFICATIONS.
2. WETLAND SEED SHALL BE PART SHADE MIX AND PER THE WETLAND SPECIFICATIONS.
3. UPLAND SEED SHALL BE THE UPLAND MIX AND PER THE NATIVE SEEDING SPECIFICATIONS AND SHALL BE APPLIED TO ALL DISTURBED AREA ADJACENT TO THE WETLAND MITIGATION WORK.




CONTOUR PLAN

NOT TO SCALE




WETLAND REPLICATION SECTION B-B

HOR. SCALE IN FEET

11X17 SCALE: 8 0 12 32

2 0 3 8

VER. SCALE IN FEET

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DOCUMENT A00841

# MASSACHUSETTS
# Department of Environmental Protection

# Water Quality Certificate

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Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

January 28, 2025

Massachusetts Department of Transportation
Highway Division
10 Park Plaza
Boston, MA 02116
ATTN: Courtney Walker

RE: 401 WATER QUALITY CERTIFICATION
BRP WW 10, Major Fill Project
BRP WW 08, Minor Dredge
Scadding Street Bridge Replacement (Bridge T-01-024)
Lake Sabbatia
Taunton, MA

401 WQC Transmittal No: 24-WW26-0036-APP
USACE Application Number: NAE-2024-00894
DOT Project File Number: 608616

Dear Ms. Walker:

The Massachusetts Department of Environmental Protection (MassDEP) has reviewed your application for a Water Quality Certification (WQC), as referenced above; this application was deemed complete on December 31, 2024. In accordance with the provisions of MGL Ch. 21, §§26-53 and Section 401 of the Federal Clean Water Act as amended (33 U.S.C. §1251 et seq.), it has been determined there is reasonable assurance the proposed project will be conducted in a manner which will not violate applicable water quality standards (314 CMR 4.00) and other applicable requirements of state law.

The proposed project consists of the realignment of Scadding Street which traverses a causeway through Lake Sabbatia, as well as the replacement of bridge T-01-024, installation of scour protection, stormwater improvements, and streambed restoration. This work is proposed to address structural concerns regarding the bridge as well as safety concerns with the existing alignment of the roadway.

The existing bridge was constructed in 1967 and is a two-lane, single span bridge; the bridge span has a length of 30 feet and a width of 24 feet. The bridge superstructure has spalling and cracked concrete and rusted bridge rails. Scour is occurring at the base of both abutments and the slopes adjacent to the abutments are beginning to erode. The bridge is located within the Canoe River Aquifer Area of Critical Environmental Concern (ACEC) and Natural Heritage and Endangered Species Program (NHESP) habitats

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MassDEP Website: www.mass.gov/dep

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for Tidewater Mucket and Eastern Pondmussel. In a letter from the MA Division of Fisheries and Wildlife, it was determined that this project will not result in a prohibited Take. The project is within the Federal Emergency Management Agency 1% annual chance of flooding zone (Zone AE).

The project will replace the existing bridge in the same location with a new structure that has a greater span and width. The new bridge will have a span of 38 feet and width of 35 feet to allow for wider travel lanes and a sidewalk along the roadway. New integral concrete abutments, concrete wingwalls, scour protection, bank stabilization, and streambed material will also be installed. Scour protection will consist of a one-foot layer of crushed stone, a three-foot layer of riprap, and a one-foot layer of natural streambed material on top. Scadding Street will be re-aligned to reduce the "S" curve which will improve traffic safety. Realignment will require that the northeast side of the existing embankment be cut and balanced by fill on the southeast side of the existing embankment. Full depth roadway reconstruction is proposed for approximately 383 feet north of the bridge and 260 feet south of the bridge. The total length of the project is 683 feet.

In total, 673 square feet (sf) (567 sf temporary and 106 sf permanent) of Bordering Vegetated Wetland (BVW) impacts, and 19,020 square sf (5,123 sf temporary and 13,897 sf permanent) of Land Under Water (LUW) impacts are required for the project. Impacts to BVW are primarily from the roadway realignment. Temporary impacts to LUW are primarily due to dewatering within a cofferdam to remove the existing substructure and install the new banks. The permanent impacts to LUW are a result of the installation of riprap for scour protection and installation and the north approach of the newly realigned roadway. Due to the realignment of the roadway, 2,460 sf of LUW will be created on the northwest side of the bridge. A total of 330 cubic yards (cy) of dredging in Lake Sabbatia is required for the installation of riprap below ordinary high water, streambed restoration, and bank stabilization. To mitigate the permanent impacts to BVW on site, a 275-sf wetland replication area will be installed on the northeast portion of the project. Land Under Water/Waters of the U.S. will be restored with streambed/bank material to be placed on top of the proposed riprap prior to the completion of construction. Cofferdams will be removed to the extent possible as described in Special Condition 28.

The project will result in a 7,371 sf increase in impervious surface. 12,900 sf of the proposed roadway qualifies as redevelopment and 7,110 sf of the proposed roadway is considered new development as defined at 314 CMR 9.02. The increase in impervious is due to the widening of the bridge and roadway on each approach, adding the sidewalk, and adjusting the alignment of the roadway. As the project locus is on a causeway with a narrow embankment, stormwater management opportunities are limited. Two catch basin systems will be installed at each end of the project and will consist of eight deep sump catch basins that direct flow to two vegetated swales that eventually discharge to Lake Sabbatia. Existing conditions will be improved by installing the deep sump catch basins and vegetated swales to treat what was originally country drainage. These improvements will allow the project to fully comply with MA Stormwater Management Standard 1, and Standards 2, 3, and 4 to the Maximum Extent Practicable.

Sediment sample analytical results were compared to the Reportable Concentration (RC) S-1 criteria of the Massachusetts Contingency Plan (MCP). Results of the sediment samples analyzed indicated there are no compounds that exceed the RC S-1 reporting criteria under the MCP. Excavated sediment will be disposed of at an approved off-site facility to be determined or used to backfill dredge areas.

An alternatives analysis was completed in accordance with 314 CMR 9.00. Given the poor condition of the existing bridge and the dangerous alignment of the Scadding Street approaches in both directions, the no-build alternative is not a viable option. Adverse impacts to Land Under Water have been minimized through the use of proposed retaining walls.

Based on a review of information provided by the applicant, MassDEP finds that this project complies with the standards described under 314 CMR 9.06. Public notice was provided in the Taunton Daily Gazette on April 7, 2024. No comment letters were received during the public comment period.

Therefore, based on information currently in the record, MassDEP grants a WQC for this project subject to the following conditions to maintain water quality, to minimize impact on waters and wetlands, and to ensure compliance with appropriate state law. The Department further certifies in accordance with 314 CMR 9.00 that there is reasonable assurance the project or activity will be conducted in a manner which will not violate applicable water quality standards (314 CMR 4.00) and other applicable requirements of state law. Finally, the Department has determined that upon satisfying the conditions and mitigation requirements of this approval, the project provides a level of water quality necessary to protect existing uses and accordingly finds that the project to be implemented satisfies the Surface Water Quality Standards at 314 CMR 4.00.

Pursuant to 314 CMR 9.09(1)(d); 314 CMR 9.06(6)(a); 310 CMR 9.06(2); 314 CMR 9.07; 314 CMR 9.07(1); 314 CMR 9.09(7)(5)(c); 314 CMR 9.11; and 314 CMR 9.09(1)(e), the following Special Conditions are necessary to ensure that construction practices and stormwater controls are implemented in such a manner as to prevent degradation to wetlands and waters; ensure that practicable steps have been taken which will avoid and minimize impacts to wetlands and waters; minimize turbidity and sediment caused by construction activities; ensure that water quality is not degraded, and that biology of the waters are not negatively impacted by potential discharges; and/or maintain a record of the dredged material for reference and to ensure accountability in its transportation.

**Those Special Conditions that require direct submittals to MassDEP for either review, or review and approval, are denoted by the following notation (Submittal) at the end of the condition and are summarized in Attachment A. In addition, those conditions with the (Submittal) designation shall be included in the Special Provisions and, as applicable, reviewed at the Pre-Construction Meeting.**

1. All work shall be performed in accordance with the following documents and plans:

    - NARRATIVE for the Water Quality Certification Application: MassDOT Project No. 608616 Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA. Prepared by Comprehensive Environmental Incorporated on behalf of MassDOT. Dated June 6, 2024.
    - PERMITTING PLANS for the Water Quality Certification Application: MassDOT Project No. 608616 Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA. Prepared by Comprehensive Environmental Incorporated on behalf of MassDOT. Dated June 6, 2024.
    - Online Application WW26 - Combined Licenses/Permits for Waterways and Water Quality Certification Application. Dated June 12, 2024.

- AQUATIC VEGETATION SURVEY for the Water Quality Certification Application: MassDOT Project No. 608616 Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA. Prepared by Comprehensive Environmental Incorporated on behalf of MassDOT. Dated June 6, 2024.
- HYDRAULIC STUDY REPORT for the Water Quality Certification Application: MassDOT Project No. 608616 Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA. Prepared by Comprehensive Environmental Incorporated on behalf of MassDOT. Dated January 11, 2019.
- CULTURAL RESOURCE PROJECT DOCUMENTS for the Water Quality Certification Application: MassDOT Project No. 608616 Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA. Prepared by Comprehensive Environmental Incorporated on behalf of MassDOT. Dated October 17, 2024.
- STORMWATER MANAGEMENT SYSTEM OPERATIONS AND MAINTENANCE PLAN AND LONG-TERM POLLUTION PREVENTION PLAN for the Water Quality Certification Application: MassDOT Project No. 608616 Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA. Prepared by Comprehensive Environmental Incorporated on behalf of MassDOT. Dated February 20, 2024.
- PROJECT ENVIRONMENTAL SPECIFICATIONS for the Water Quality Certification Application: MassDOT Project No. 608616 Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA.
- Determination Letter from U.S. Fish and Wildlife Service, dated March 9, 2023.
- Letter from Everose Schluter of the MA Division of Fisheries and Wildlife, dated January 4, 2024.
- 401 WATER QUALITY CERTIFICATION Response to Comments (RTC) Administrative Completeness and Technical Deficiency Review 401 WQC Transmittal No: 24-WW26-0036-APP. Prepared by Comprehensive Environmental Incorporated on behalf of MassDOT. Dated December 17, 2024.

**Pre-Construction**

2. A qualified **Wetland Scientist** (WS) with a minimum of five years of relevant professional experience with wetland and stream replacement and restoration projects shall be employed to oversee all BVW and LUW replication and restoration activities as proposed in the application, including but not limited to grading, placement of substrate, and seeding. The name, contact information, and qualifications of the WS shall be provided to MassDEP for approval prior to the Pre-Construction Meeting required in Condition 4. The name and contact information of the approved WS shall be provided to the Taunton Conservation Commission prior to the start of work. **(Submittal)**

3. Prior to the Pre-Construction Meeting required in Condition 4, the applicant shall provide MassDEP with the name and contact information of the Resident Engineer (RE) responsible for ensuring that all work complies with the conditions of this WQC. **(Submittal)**

4. A minimum of 21 days prior to the start of work, MassDOT shall contact MassDEP to schedule an onsite Pre-Construction Meeting to review the approved plans and terms and conditions of this WQC. The RE, the construction contractor, and a representative from the MassDOT Environmental Section and/or the District Environmental Engineer shall attend the Pre-Construction Meeting.

5. MassDEP shall be copied on applicable submittals to the U.S. Army Corps of Engineers (USACE). These include but are not limited to: Self-Verification Notification Form (SVNF); Pre-Construction Notification (PCN); Work-Start Notification Form; Mitigation Work-Start Notification Form; and Compliance Certification Form. The Work-Start Notification Form shall be submitted at least 14 days before the anticipated start of work and the Compliance Certification Form shall be submitted within 30 days following the completion of the authorized work. **(Submittal)**

6. A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan (CP/PP) shall be developed and implemented as required by 314 CMR 9.06(6)(a)8. A minimum of 14 days prior to the start of work, MassDOT shall submit the CP/PP for review and approval. If the U.S. Environmental Protection Agency (EPA) Construction General Permit (CGP) applies, Stormwater Pollution Prevention Plan (SWPPP) may serve as the CP/PP, providing it includes the measures required to be in the CP/PP per these Special Conditions, in addition to the measures specifically required by the CGP. Any subsequent changes to the Final CP/PP (defined herein as including the construction period SWPPP if applicable) must be approved by MassDEP. **(Submittal)**

7. Training regarding erosion and sedimentation controls is required. The RE, CP/PP Inspector, and any other relevant personnel responsible for erosion and sedimentation controls shall complete the EPA CGP Inspector Training, or other training that meets the CGP requirements, as well as complete a comprehensive review of the approved CP/PP. Verification of proof of completion training of the shall be submitted to MassDEP prior to the start of work. **(Submittal)**

8. The CP/PP shall identify, but shall not be limited to, staging and laydown areas in relation to BVWs and LUW, proposed dewatering locations, proposed stockpile locations and their proximity to catch basins or other drainage conveyances that discharge to wetland resource areas, and the location of construction-period erosion and sedimentation controls.

9. A minimum of 14 days prior to the start of work, MassDOT shall submit a Control of Water Plan for review and approval. The Plan shall include proposed methods to manage construction-period water including but not limited to dewatering methods and locations, specifications for any water bypass systems, and dredge and debris material dewatering prior to shipment off site, as applicable. The plan shall meet requirements of the CP/PP and be specific to the Project. Dewatering and water bypasses shall be conducted under the supervision of the RE or other project staff with knowledge of these practices and comply with the applicable conditions identified herein. **(Submittal)**

10. Prior to the start of work, approved erosion and sedimentation control measures shall be installed per the approved CP/PP and as applicable, the manufacturer specifications. Erosion

and sedimentation control measures may consist of, but are not limited to, silt fence, staked straw bales, silt/turbidity curtains, compost filter tubes, etc.

11. Prior to the Pre-Construction Meeting, the boundaries of BVWs and LUW shall be re-flagged where they are within 50 feet of the limits of work. In the event BVWs and LUW boundaries overlap, the outermost boundary (i.e., closest to the proposed work) shall be flagged. All boundary markers, once in place, shall remain in place throughout construction until all disturbed surfaces have been permanently stabilized. Boundary markers shall be fully evaluated annually and refreshed where needed. Implementation of and compliance with this requirement shall be documented by the RE. All construction personnel shall be made aware of these markers.

12. A Flood Contingency Plan shall be submitted to MassDEP for review and approval that addresses areas that fall within the 1% annual chance of flooding zone within project limits. The Plan shall address the potential need for temporary relocation of construction and auxiliary equipment during flood events to designated upland locations above the Base Flood Elevation. The Plan shall be approved by MassDEP prior to any work within the 1% annual chance of flooding zone, including mobilization or storage of equipment and materials. **(Submittal)**

13. A minimum of 21 days prior to the start of work, a Demolition Plan shall be submitted for review and approval describing how the existing bridge will be demolished and what measures will be taken to assure that demo material is properly contained and does not enter Lake Sabbatia. **(Submittal)**

14. The applicant shall develop an Invasive Plant Management Strategy (IMPS) to be submitted to MassDEP for review and approval prior to the Pre-Construction Meeting. The IMPS shall be implemented as approved. **(Submittal)**

15. If needed, use of herbicides to control invasive species shall be implemented in accordance with the approved IPMS and with the following requirements:

    a. Herbicides can only be applied by a Licensed Applicator;

    b. Applicant must provide MassDEP Material Safety Data Sheets (MSDS) of the product being used and must also keep MSDS sheets on site;

    c. Product registration in MA with Massachusetts Pesticide Product Registration Number must be confirmed with Massachusetts Department of Agricultural Resources Pesticide Division;

    d. EPA Registration Number for the product must be identified;

    e. Product label restricted use provisions must be followed; and

    f. Applicant must contact MassDEP Division of Watershed Planning to determine if a BRP WM 04 herbicide permit is required.

**Construction Period**

16. No more than **106 sf** of permanent and **567 sf** of temporary impacts to BVWs shall occur. No more than **13,897 sf** of permanent and **5,123 sf** of temporary impacts to LUW shall occur. No more than **330 cy** of dredging in LUW shall occur. All work shall avoid unapproved impacts to BVW and LUW.

17. CP/PP inspections shall occur at least once every seven calendar days and within 24 hours of a storm event that produces 0.5 inches or more of rain within a 24-hour period, or at a more stringent frequency if the CP/PP requires.

18. Copies of CP/PP Inspection and Maintenance Log Forms shall be submitted to MassDEP within 14 days upon request.

19. The Project shall identify one individual with at least three years of experience with construction period erosion and sedimentation control to be responsible for erosion and sedimentation control inspections (CP/PP Inspector). Under the direction of the CP/PP Inspector, inspection and maintenance of erosion and sediment controls in active work areas may be performed by both the Contractor and RE or other MassDOT project staff. Maintenance is the responsibility of the Contractor; however, the permittee shall be ultimately responsible for erosion and sedimentation control failure. The RE and/or contractor shall immediately notify MassDEP and the Taunton Conservation Commission if any unauthorized discharges to BVWs or LUW occur.

20. Disturbed areas shall be stabilized immediately after activities have permanently ceased or will be temporarily inactive for 14 or more calendar days. The installation of stabilization measures shall be implemented as soon as practicable, but no later than 14 calendar days after stabilization has been initiated.

21. Work within LUW shall be conducted in low or no-flow conditions to the extent practicable. Notice shall be provided to MassDEP and the Taunton Conservation Commission within 24 hours prior to the commencement of dewatering. Dewatering methods and location(s) shall be approved by the RE prior to use, and shall be documented in the CP/PP. There shall be no discharge of untreated dewatered stormwater or groundwater to BVWs or LUW. Any discharges shall be visibly free of sediment.

22. Additional erosion and sedimentation control materials shall be stored on-site at all times for emergency and routine replacement. Materials shall be kept covered, dry, and accessible at all times. The CP/PP Inspector shall be responsible for anticipating the need for and installation of additional erosion and sedimentation controls and shall have the authority to require additional erosion control measures to protect wetland resource areas beyond what is shown on the plans if field conditions or professional judgment dictate that additional protection is necessary.

23. The Contractor shall monitor the National Weather Service forecast for updates, and upon issuance of a flood watch for the 1% annual chance of flooding zone, shall implement the flood contingency plan referenced in Condition 12.

24. Any storm drains with potential to receive discharge from stockpiled materials or construction operations shall be managed to inhibit the inflow of sediment while not increasing the likelihood of roadway flooding during periods of precipitation. Stockpiles shall be located no less than 50 feet from LUW and catch basins, or other drainage conveyances that discharge to LUW. The CP/PP shall specify measures to implement this. Filter fabric stretched under storm drain inlet grates are not acceptable for this purpose.

25. The contractor shall have designated washout areas for concrete equipment that will be comprised of impermeable material and sized to contain project concrete wastes and wash water. Concrete wash out areas shall be located no less than 50 feet from BVWs, LUW and catch basins or other drainage conveyances that discharge directly or indirectly to BVWs or LUW.

26. Refueling, washing, and cleaning of vehicles and other construction equipment shall not take place within 50 feet of BVWs or LUW and any wash water shall be contained such that it does not drain toward BVWs or LUW. MassDEP shall explicitly approve in writing any deviation to this condition for oversized stationary vehicles.

27. The contractor shall have spill containment kits on site. In the event of a release of fuels and/or oils, the local fire department, MassDEP Emergency Response and MassDEP Wetlands Program Highway Unit shall be contacted, and in addition, the MassDEP Bureau of Waste Site Cleanup shall be notified per the requirements of the Massachusetts Contingency Plan, 310 CMR 40.0000.

28. Construction vehicles and equipment shall not enter the BVW or LUW unless authorization is provided by way of this permit or amendment. The Contractor shall use equipment with boom reach capabilities and other measures to avoid inadvertent impacts to jurisdictional resource areas as a result of excavation, riprap placement, and/or bridge/pier demo materials.

29. A temporary shielding system shall be in place beneath the bridge structure prior to removal and concrete excavation to prevent debris from falling into the water below. If any debris accidentally enters Lake Sabbatia, it shall be immediately retrieved. Notice shall be provided to MassDEP if debris enters the river and photo documentation (if practicable) provided that it has been removed submitted by email.

30. As shown on the plan set plotted on December 17, 2024 (“plan set”), the cofferdam traversing the centerline of the channel shall be removed completely following the completion of the second new abutment and before beams are placed. The upstream channel cofferdam shall also be removed. Cofferdam sheeting abutting the scour hole shall be cut at least two feet below the mudline.

31. Streambed/bank material shall be placed on top of the proposed riprap.

**Dredge Conditions**

32. Best Management Practices (BMPs) shall be employed by the contractor to protect resource areas located adjacent to the proposed staging/temporary dredged material stockpiling and dewatering areas. Sediment stockpiles shall be constructed in accordance with the MassDEP approved project plans, stabilized, bottom-lined if not placed on paved surfaces and securely covered with wind tear resistance tarpaulin, polyethylene sheeting or similar impermeable material at all times, and properly labeled. Stockpile covers shall be securely weighed down. Stockpiles shall also be secured to restrict access by the public and shall be set back at least 10 feet from temporary construction access roads or other areas and activities which could disturb the stockpiles and associated erosion controls; if the 10-foot setback cannot be met, then a MassDEP-approved barrier shall be provided. Inspection of the sediment containment and dewatering location and associated erosion controls shall be conducted daily and within 24 hours of a storm that produces 0.5 inches or more of rain. Any observed deficiency shall be corrected or repaired in a timely manner.

33. In the event of a precipitation or storm event, the site shall be secured beforehand in such a way as to protect resource areas and waters on site and downstream of the site, including covering of stockpiles of dredged material. Sediment stockpile areas shall be inspected in line with the frequency of the CP/PP required in Condition 6. Any observed deficiency shall be corrected or repaired in a timely manner to prevent discharge from the stockpiled material. If stormwater runoff and erosion is observed from stockpiled dredged material, additional erosion and/or damage prevention controls measures shall be implemented.

34. Measures shall be in place to prevent turbid waters, due to dredging, demolition, or debris removal activities, from extending past the limits of work into Lake Sabbatia. These measures can be items such as turbidity curtains and/or sheet piles.

35. MassDEP shall be notified one week prior to the start of dredging so that staff may inspect the work for compliance throughout the project.

36. If visual turbidity escapes the controls in place, as described in Condition 34, work shall stop immediately and MassDEP shall be notified within 24 hours. Work shall not resume until the issue is corrected and MassDEP to the satisfaction of MassDEP.

37. All turbidity controls shall be inspected daily by the RE or a designated MassDOT Project Staff. If any damage is observed the controls in place will be replaced or repaired immediately.

38. If excavated sediment is disposed of off-site, MassDEP shall be notified in writing of the name and location of the upland licensed facilities accepting the dredged material for disposal or reuse for review and approval. If the licensed facility is located out of state, documentation shall be provided to MassDEP that the dredged material disposal/reuse has been approved and will be accepted by the receiving State. The dredged material shall not be transported to the facility without concurrence of MassDEP.

39. If excavated sediment is disposed of off-site, a Bill-of-Lading (BOL) or a Material Shipping Record (MSR) shall be used to track the dredged material to the proposed intermediate (stockpiling /dewatering) facility. A fully executed copy of the BOL or MSR shall be provided to MassDEP within 30 days of final shipment to the reused location or facility.

40. If excavated sediment is disposed of off-site, Best Management Practices (BMPs) shall be implemented during transportation of the dredged material to the licensed receiving facility. At a minimum, when transported upon public roadways, all dredged material shall have no free liquid as determined by the Paint Filter Test or other suitably analogous methodology acceptable to MassDEP, and a tarpaulin or other means shall be used to cover the dredged material during transport.

**Wetland and LUW Mitigation/Restoration**

41. A minimum of **275 sf** of wetland replication shall be completed in coordination with an approved WS. The WS shall oversee all BVW replication and restoration, including final grading and seeding. The WS shall confirm that constructed BVW replication and restoration areas have adequate soils and hydrology to promote wetland plant species prior to seeding and shall recommend measures to amend soils and promote wetland hydrology as needed.

42. Seeding shall not take place between November 15th and April 15th, except as allowed by MassDEP in writing. Seed mixes shall consist of native and non-invasive species. Species may be substituted at the recommendation of the WS, and review and approval by MassDEP.

43. At least 75% of the surface area of the BVW replication areas shall be vegetated with indigenous wetland plant species within two growing seasons, or the period required by the Section 404 permit, whichever is longer. Additionally, evidence of hydrology, including hydric soil formation shall be submitted at the same time. Annual monitoring reports shall be submitted by the WS no later than January 15th each year. Monitoring reports shall include an assessment based on the approved success criteria, representative photos, and recommended corrective actions as needed. **(Submittal)**

44. MassDEP reserves the right to determine the success or failure of the BVW replication area, and reserves the right to require additional seeding, regrading, or other measures deemed necessary to promote success.

45. Two 24-inch trees and two highbush blueberry shrubs to the east of STA 16+ 00 and the proposed level spreader shall be retained. Fencing shall be installed to protect the root system at a minimum of a 24-foot radius, as noted on Sheet 9 of 9 of the December 17, 2024, plan set.

46. The final location of the access route for the replication area shall be located such that it results in the least disturbance. The proposed location shall be flagged in the field prior to clearing for approval by R.E.

**Post-Construction**

47. All temporary erosion controls shall be removed at the conclusion of work once the surrounding area has achieved final stabilization.

**General Conditions**

48. Any proposed alterations, minor plan changes, or amendment requests, as well as any required submittals shall be sent by email for review and approval to heidi.davis@mass.gov and tyler.lewis@mass.gov. **(Submittal)**

49. This WQC remains in effect for the same duration as the Section 404 permit that requires it.

50. No Special Condition set forth herein shall be construed or operate to prohibit MassDEP from taking enforcement against the MassDOT or its contractors for any failure to comply with the terms and requirements of this WQC.

51. No activity authorized by this WQC may begin prior to expiration of the 21-day appeal period, or until a final decision is issued by MassDEP in the event of an appeal.

Failure to comply with this Certification is grounds for enforcement, including civil and criminal penalties, under MGL Ch. 21 §42, MGL Ch. 21A §16, or other possible actions/penalties as authorized by the General Laws of the Commonwealth.

This Certification does not relieve the applicant of the obligation to comply with other appropriate state or federal statutes or regulations.

NOTICE OF APPEAL RIGHTS

a.) Appeal Rights and Time Limits

Certain persons shall have a right to request an adjudicatory hearing concerning certifications by MassDEP when an application is required: (a) the applicant or property owner; (b) any person aggrieved by the decision who has submitted written comments during the public comment period; (c) any ten (10) persons of the Commonwealth pursuant to M.G.L. c.30A where a group member has submitted written comments during the public comment period; or (d) any governmental body or private organization with a mandate to protect the environment which has submitted written comments during the public comment period. Any person aggrieved, any ten (10) persons of the Commonwealth, or a governmental body or private organization with a mandate to protect the environment may appeal without having submitted written comments during the public comment period only when the claim is based on new substantive issues arising from material changes to the scope or impact of the activity and not apparent at the time of public notice. To request an adjudicatory hearing pursuant to M.G.L. c.30A, § 10, a Notice of Claim must be made in writing, provided that the request is made by certified mail or hand delivery to MassDEP, with the appropriate filing fee specified within 310 CMR 4.10 along with a DEP Fee Transmittal Form within twenty-one (21) days from the date of issuance of this Certificate, and addressed to:

Case Administrator
Department of Environmental Protection
100 Cambridge Street, 9th Floor
Boston, MA 02114

A copy of the request shall at the same time be sent by certified mail or hand delivery to the Department of Environmental Protection at:

Department of Environmental Protection
Commissioner's Office
100 Cambridge Street, Suite 900
Boston, MA 02114

b.) Contents of Hearing Request

A Notice of Claim for Adjudicatory Hearing shall comply with MassDEP's Rules for Adjudicatory Proceedings, 310 CMR 1.01(6), and shall contain the following information pursuant to 314 CMR 9.10(3):

1. the 401 Certification Transmittal Number;
2. the complete name of the applicant and address of the project;
3. the complete name, address, and fax and telephone numbers of the party filing the request, and, if represented by counsel or other representative, the name, fax and telephone numbers, and address of the attorney;
4. if claiming to be a party aggrieved, the specific facts that demonstrate that the party satisfies the definition of "aggrieved person" found at 314 CMR 9.02;
5. a clear and concise statement that an adjudicatory hearing is being requested;
6. a clear and concise statement of (1) the facts which are grounds for the proceedings, (2) the objections to this Certificate, including specifically the manner in which it is alleged to be inconsistent with the MassDEP's Water Quality Regulations, 314 CMR 9.00, and (3) the relief sought through the adjudicatory hearing, including specifically the changes desired in the final written Certification; and
7. a statement that a copy of the request has been sent by certified mail or hand delivery to the applicant, the owner (if different from the applicant), the conservation commission of the city or town where the activity will occur, the Department of Conservation and Recreation (when the certificate concerns projects in Areas of Critical Environmental Concern), the public or private water supplier where the project is located (when the certificate concerns projects in Outstanding Resource Waters), and any other entity with responsibility for the resource where the project is located.

c.) Filing Fee and Address

The hearing request along with a DEP Fee Transmittal Form and a valid check or money order payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100) must be mailed to:

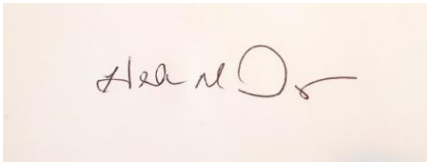
Commonwealth of Massachusetts
Department of Environmental Protection
Commonwealth Master Lockbox
PO Box 4062
Boston, MA 02211

The request will be dismissed if the filing fee is not paid unless the appellant is exempt or granted a waiver. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority. MassDEP may waive

the adjudicatory hearing filing fee pursuant to 310 CMR 4.06(2) for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file an affidavit setting forth the facts believed to support the claim of undue financial hardship together with the hearing request as provided above.

Should you have any questions relative to this permit, please contact myself or Tyler Lewis at tyler.lewis@mass.gov.

Very truly yours,



Heidi M. Davis
Highway Unit Supervisor

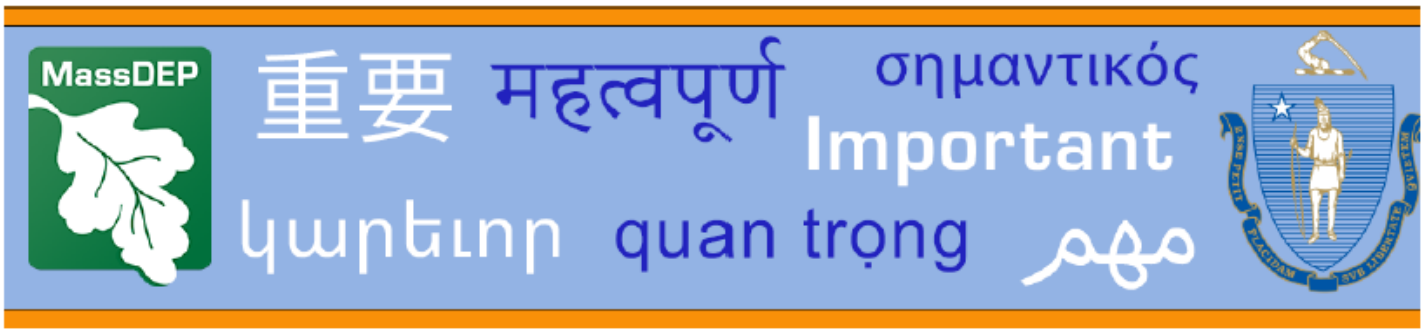
Ecc: DEP SERO – Maissoun Reda
USACE – Dan Vasconcelos
MassDOT – Melissa Lenker
MassDOT District 5 – Andrea Coates
MassDOT District 5 – David Pichette
Comprehensive Environmental Inc. – Nicholas Shaw - nshaw@ceiengineers.co
Comprehensive Environmental Inc. – Matthew Lundsted – mlundsted@ceiengineers.co
Taunton Conservation Commission – Michele Restino

**ATTACHMENT A**
**Bridge Replacement over Lake Sabbatia (T-01-024)**
**Taunton, MA**

**PRE-CONSTRUCTION SUBMITTAL CHECKLIST**

**THIS CHECKLIST MUST BE COMPLETED PRIOR TO THE START OF WORK; NOTE THAT SOME CONDITIONS REQUIRE THAT INFORMATION BE SUBMITTED A SPECIFIC NUMBER OF DAYS PRIOR TO THE START OF WORK OR THE PRE-CONSTRUCTION MEETING.**

| Condition | Required Submittal | Due Date | Date Submitted | Date Approved |
|---|---|---|---|---|
| **PRE-CONSTRUCTION SUBMITTAL REQUIREMENTS** | | | | |
| 2 | Name, contact information, and qualifications of the WS, including specific experience and years to meet requirements | Prior to Pre-Construction Meeting | | |
| 3 | Name and contact information of the RE | Prior to Pre-Construction Meeting | | |
| 5 | USACE Work-Start Notification Form | 14 days prior to work start | | |
| 6 | CP/PP | 14 days prior to work start | | |
| 7 | Verification of Erosion and Sedimentation Controls Training | Prior to work start | | |
| 9 | Control of Water Plan | 21 days prior to work start | | |
| 12 | Flood Contingency Plan | Prior to in water work | | |
| 13 | Demolition Plan | 21 days prior to work start | | |
| 14 | Invasive Plan Management Strategy | 21 days prior to work start | | |




## Communication for Non-English-Speaking Parties

***This document is important and should be translated immediately.***

If you need this document translated, please contact MassDEP's Director of Environmental Justice at the telephone number listed below.

### Español Spanish

Este documento es importante y debe ser traducido inmediatamente. Si necesita traducir este documento, póngase en contacto con el Director de Justicia Ambiental de MassDEP (*MassDEP's Director of Environmental Justice*) en el número de teléfono que figura más abajo.

### Português Portuguese

Este documento é importante e deve ser traduzido imediatamente. Se você precisar traduzir este documento, entre em contato com o Diretor de Justiça Ambiental do MassDEP no número de telefone listado abaixo.

### 繁體中文 Chinese Traditional

本文檔很重要，需要即刻進行翻譯。
如需對本文檔進行翻譯，請透過如下列示電話號碼與 MassDEP 的環境司法總監聯絡。

### 简体中文 Chinese Simplified

*这份文件非常重要，需要立即翻译。*
如果您需要翻译这份文件，请通过下方电话与 MassDEP 环境司法主任联系。

### Ayisyen Kreyòl Haitian Creole

Dokiman sa a enpòtan epi yo ta dwe tradui l imedyatman. Si w bezwen tradui dokiman sa a, tanpri kontakte Direktè. Jistis Anviwònmantal MassDEP a nan nimewo telefòn ki endike anba a.

### Việt Vietnamese

Tài liệu này và quan trọng và phải được dịch ngay. Nếu quý vị cần bản dịch của tài liệu này, vui lòng liên hệ với Giám Đốc Phòng Công Lý Môi Trường của MassDEP theo số điện thoại được liệt kê bên dưới.

### ប្រទេសកម្ពុជា Khmer/Cambodian

ឯកសារនេះមានសារៈសំខាន់
ហើយគប្បីត្រូវត្រូវបានបកប្រែភ្លាមៗ។.
ប្រសិនបើអ្នកត្រូវការអោយឯកសារនេះបកប្រែ
សូមទាក់ទងនាយកផ្នែកយុត្តិធម៌បរិស្ថានរបស់
MassDEPតាមរយៈលេខទូរស័ព្ទដែលបានរាយដូចខាងក្រោម។

### Kriolu Kabuverdianu Cape Verdean

Es dokumentu sta important i tenki ser tradusidu immediatamenti. Se nho ta presisa ke es dokumentu sta tradisidu, por favor kontata O Diretor di Justisia di Environman di DEP ku es numero di telifoni menxionadu di baixo.

**Contact Deneen Simpson 857-406-0738**
**Massachusetts Department of Environmental Protection**
**100 Cambridge Street 9th Floor Boston, MA 02114**
TTY# MassRelay Service 1-800-439-2370 • https://www.mass.gov/environmental-justice
(Version revised 8.2.2023) 310 CMR 1.03(5)(a)

## Русский Russian

Это чрезвычайно важный документ, и он должен быть немедленно переведен. Если вам нужен перевод этого документа, обратитесь к директору Департамента экологического правосудия MassDEP (MassDEP's Director of Environmental Justice) по телефону, указанному ниже.

## العربية Arabic

*هذه الوثيقة مهمة وتجب ترجمتها على الفور.*

إذا كنت بحاجة إلى ترجمة هذه الوثيقة، فيرجى الاتصال بمدير العدالة البيئية في MassDEP على رقم الهاتف المذكور أدناه.

## 한국어 Korean

*이 문서는 중대하므로 즉시 번역되어야 합니다.*
본 문서 번역이 필요하신 경우, 매사추세츠 환경보호부의 "환경정의" 담당자 분께 문의하십시오. 전화번호는 아래와 같습니다.

## հայերեն Armenian

Այս փաստաթուղթը կարևոր է, և պետք է անհապաղ թարգմանել այն:
Եթե Ձեզ անհրաժեշտ է թարգմանել այս փաստաթուղթը, դիմեք Մասաչուսեթսի շրջակա միջավայրի պահպանության նախարարության (MassDEP) Բնապահպանական հարցերով արդարադատության ղեկավարին (Director of Environmental Justice)՝ ստորև նշված հեռախոսահամարով

## فارسی Farsi Persian

این نوشتار بسیار مهمی است و باید فوراً ترجمه شود.
اگر نیاز به ترجمه این نوشتار دارید لطفاً با مدیر عدالت محیط زیستی MassDEP در شماره تلفن ذکر شده زیر تماس بگیرید.

## Français French

Ce document est important et doit être traduit immédiatement. Si vous avez besoin d'une traduction de ce document, veuillez contacter le directeur de la justice environnementale du MassDEP au numéro de téléphone indiqué ci-dessous.

## Deutsch German

Dieses Dokument ist wichtig und muss sofort übersetzt werden. Wenn Sie eine Übersetzung dieses Dokuments benötigen, wenden Sie sich bitte an MassDEP's Director of Environmental Justice *(Direktor für Umweltgerechtigkeit in Massachusetts)* unter der unten angegebenen Telefonnummer.

## Ελληνική Greek

Το έγγραφο αυτό είναι πολύ σημαντικό και πρέπει να μεταφραστεί αμέσως. Αν χρειάζεστε μετάφραση του εγγράφου αυτού, παρακαλώ επικοινωνήστε με τον Διευθυντή του Τμήματος Περιβαλλοντικής Δικαιοσύνης της Μασαχουσέτης στον αριθμό τηλεφώνου που αναγράφεται παρακάτω

## Italiano Italian

Questo documento è importante e deve essere tradotto immediatamente. Se hai bisogno di tradurre questo documento, contatta il Direttore della Giustizia Ambientale di MassDEP al numero di telefono sotto indicato.

## Język Polski Polish

Ten dokument jest ważny i powinien zostać niezwłocznie przetłumaczony. Jeśli potrzebne jest tłumaczenie tego dokumentu, należy skontaktować się z dyrektorem ds. sprawiedliwości środowiskowej MassDEP pod numerem telefonu podanym poniżej.

## हिन्दी Hindi

*यह दस्तावेज महत्वपूर्ण है और इसका अनुवाद तुरंत किया जाना चाहिए।* यदि आपको इस दस्तावेज का अनुवाद कराने की जरूरत है, तो कृपया नीचे दिए गए टेलीफोन नंबर पर MassDEP के पर्यावरणीय न्याय निदेशक से संपर्क करें।

**Contact Deneen Simpson 857-406-0738**
**Massachusetts Department of Environmental Protection**
**100 Cambridge Street 9th Floor Boston, MA 02114**
TTY# MassRelay Service 1-800-439-2370 • https://www.mass.gov/environmental-justice
(Version revised 8.2.2023) 310 CMR 1.03(5)(a)

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

April 25, 2025

Massachusetts Department of Transportation (MassDOT)
Highway Division
10 Park Plaza
Boston, MA 02116
ATTN: Courtney Walker

RE: **AMENDED** 401 Water Quality Certification
BRP WW 10, Major Fill Project
BRP WW 08, Minor Dredge
Scadding Street Bridge Replacement (Bridge T-01-024)
Lake Sabbatia
Taunton, MA

401 WQC Transmittal No: 24-WW26-0036-APP
USACE Application Number: NAE-2024-00894
DOT Project File Number: 608616

Dear Ms. Walker:

On January 28, 2025, the Massachusetts Department of Environmental Projection (MassDEP) issued a Water Quality Certification (WQC) to the Massachusetts Department of Transportation (MassDOT) for the realignment of Scadding Street which traverses a causeway through Lake Sabbatia, as well as the replacement of bridge T-01-024, installation of scour protection, stormwater improvements, and streambed restoration. The WQC contained 51 conditions and addressed impacts to Land Under Water (LUW). MassDOT requested a modification of the WQC in a letter dated April 4, 2025.

The WQC amendment request addresses changes to the designation of impacts to bordering vegetated wetland (BVW) and land under water (LUW) at the direction of the United States Army Corps of Engineers (USACE). The USACE made comments via email on January 3, 2025 and February 24, 2025 requesting that certain impact areas be designated as permanent impacts instead of temporary impacts as well as resolution of other discrepancies in the delineation. These adjustments decreased overall impacts on the project but increased permanent impacts to both BVW and LUW. The changes to impact numbers can be seen in Table 1. The addition to permanent impacts to BVW will require an increase in the size of the replication area, which will now be 700 square feet (sf).

This information is available in alternate format. Please contact MassDEP at 617-626-1282.
TTY# MassRelay Service 1-800-439-2370
MassDEP Website: www.mass.gov/dep

Printed on Recycled Paper

Table 1: Changes to Impacts

| | BVW Temporary | BVW Permanent | LUW Temporary | LUW Permanent |
|---|---|---|---|---|
| Originally Proposed | 567 sf | 106 sf | 5,123 sf | 13,897 sf |
| Newly Proposed | 0 sf | 633 sf | 0 sf | 9,741 sf |

In accordance with the provisions of MGL c. 21, s. 26-53 and Section 401 of the Federal Clean Water Act as amended (33 U.S.C. s. 1251 et seq.), MassDEP has reviewed this project change request and has determined that there is reasonable assurance that the project change will not violate applicable water quality standards. MassDEP hereby approves of the above-mentioned project changes and amends the WQC dated January 28, 2025, by referencing the following documents and subject to the following Special Conditions:

**Reference Documents:**

1. Request for Amended Water Quality Certification: Scadding Street Bridge Replacement over Snake River Bridge No. T-01-024 in Taunton, MA. 401 WQC Application Number 24-WW26-0036-APP. Prepared by Comprehensive Environmental Inc. and Dewberry on behalf of MassDOT. Dated April 4, 2025.

**Conditions:**

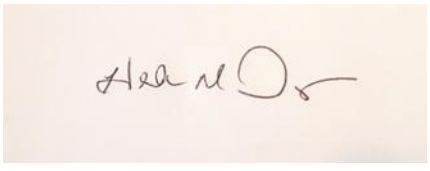
16. No more than **633 sf** of permanent impacts to BVWs shall occur. No more than **9,741 sf** of permanent impacts to LUW shall occur. No more than **330 cy** of dredging in LUW shall occur. All work shall avoid unapproved impacts to BVW and LUW.

41. A minimum of **700 sf** of wetland replication shall be completed in coordination with an approved WS. The WS shall oversee all BVW replication and restoration, including final grading and seeding. The WS shall confirm that constructed BVW replication and restoration areas have adequate soils and hydrology to promote wetland plant species prior to seeding and shall recommend measures to amend soils and promote wetland hydrology as needed.

**All WQC Special Conditions remain in effect as applicable.**

Should you have any questions relative to this permit, please contact me at heidi.davis@mass.gov or Tyler Lewis at tyler.lewis@mass.gov.

Very truly yours,



Heidi M. Davis

Highway Unit Supervisor

Ecc: DEP SERO – Maissoun Reda
USACE – Dan Vasconcelos
MassDOT District 5 – Andrea Coates
MassDOT District 5 – David Pichette
Comprehensive Environmental Inc. – Nicholas Shaw - nshaw@ceiengineers.co
Comprehensive Environmental Inc. – Matthew Lundsted – mlundsted@ceiengineers.co
Taunton Conservation Commission – Michele Restino

Failure to comply with this amended certification is grounds for enforcement, including civil and criminal penalties, under MGL Ch. 21 §42, MGL Ch. 21A §16, or other possible actions/penalties as authorized by the General Laws of the Commonwealth.

This amended certification does not relieve the applicant of the obligation to comply with other appropriate state or federal statutes or regulations.

NOTICE OF APPEAL RIGHTS

A) Appeal Rights and Time Limits

Certain persons shall have a right to request an adjudicatory hearing concerning certifications by MassDEP when an application is required: (a) the applicant or property owner; (b) any person aggrieved by the decision who has submitted written comments during the public comment period; (c) any ten (10) persons of the Commonwealth pursuant to M.G.L. c.30A where a group member has submitted written comments during the public comment period; or (d) any governmental body or private organization with a mandate to protect the environment which has submitted written comments during the public comment period. Any person aggrieved, any ten (10) persons of the Commonwealth, or a governmental body or private organization with a mandate to protect the environment may appeal without having submitted written comments during the public comment period only when the claim is based on new substantive issues arising from material changes to the scope or impact of the activity and not apparent at the time of public notice. To request an adjudicatory hearing pursuant to M.G.L. c.30A, § 10, a Notice of Claim must be made in writing, provided that the request is made by certified mail or hand delivery to MassDEP, with the appropriate filing fee specified within 310 CMR 4.10 along with a DEP Fee Transmittal Form within twenty-one (21) days from the date of issuance of this Certificate, and addressed to:

Case Administrator
Department of Environmental Protection
100 Cambridge Street, Suite 900
Boston, MA 02108

A copy of the request shall at the same time be sent by certified mail or hand delivery to the Department of Environmental Protection at:

Department of Environmental Protection
Commissioner's Office
100 Cambridge Street, Suite 900

Boston, MA 02108

B) Contents of Hearing Request

A Notice of Claim for Adjudicatory Hearing shall comply with MassDEP's Rules for Adjudicatory Proceedings, 310 CMR 1.01(6), and shall contain the following information pursuant to 314 CMR 9.10(3):

a.) the 401 Certification Transmittal Number;
b.) the complete name of the applicant and address of the project;
c.) the complete name, address, and fax and telephone numbers of the party filing the request, and, if represented by counsel or other representative, the name, fax and telephone numbers, and address of the attorney;
d.) if claiming to be a party aggrieved, the specific facts that demonstrate that the party satisfies the definition of "aggrieved person" found at 314 CMR 9.02;
e.) a clear and concise statement that an adjudicatory hearing is being requested;
f.) a clear and concise statement of (1) the facts which are grounds for the proceedings, (2) the objections to this Certificate, including specifically the manner in which it is alleged to be inconsistent with the MassDEP's Water Quality Regulations, 314 CMR 9.00, and (3) the relief sought through the adjudicatory hearing, including specifically the changes desired in the final written Certification; and
g.) a statement that a copy of the request has been sent by certified mail or hand delivery to the applicant, the owner (if different from the applicant), the conservation commission of the city or town where the activity will occur, the Department of Environmental Management (when the certificate concerns projects in Areas of Critical Environmental Concern), the public or private water supplier where the project is located (when the certificate concerns projects in Outstanding Resource Waters), and any other entity with responsibility for the resource where the project is located.

C) Filing Fee and Address

The hearing request along with a DEP Fee Transmittal Form and a valid check or money order payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
Commonwealth Master Lockbox
PO Box 4062
Boston, MA 02211

The request will be dismissed if the filing fee is not paid unless the appellant is exempt or granted a waiver. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority. MassDEP may waive the adjudicatory hearing filing fee pursuant to 310 CMR 4.06(2) for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file an affidavit setting forth the facts believed to support the claim of undue financial hardship together with the hearing request as provided above.

DOCUMENT A00855

# 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 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To: 04/19/2024 14:51:16 UTC
Project code: 2023-0033659
Project Name: 608616 - TAUNTON- BRIDGE REPLACEMENT, T-01-024, SCADDING STREET OVER SNAKE RIVER

Subject: Concurrence verification letter for the '608616 - TAUNTON- BRIDGE REPLACEMENT, T-01-024, SCADDING STREET OVER SNAKE RIVER' project under the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

To whom it may concern:

The U.S. Fish and Wildlife Service (Service) has received your request dated April 19, 2024 to verify that the **608616 - TAUNTON- BRIDGE REPLACEMENT, T-01-024, SCADDING STREET OVER SNAKE RIVER** (Proposed Action) may rely on the concurrence provided in the February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat (PBO) to satisfy requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C 1531 *et seq.*).

Based on the information you provided (Project Description shown below), you have determined that the Proposed Action is within the scope and adheres to the criteria of the PBO, including the adoption of applicable avoidance and minimization measures, and may affect, but is not likely to adversely affect (NLAA) the endangered Indiana bat (*Myotis sodalis*) and/or the threatened Northern long-eared bat (*Myotis septentrionalis*). Consultation with the Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) is required.

The Service has 14 calendar days to notify the lead Federal action agency or designated non-federal representative if we determine that the Proposed Action does not meet the criteria for a NLAA determination under the PBO. If we do not notify the lead Federal action agency or designated non-federal representative within that timeframe, you may proceed with the Proposed Action under the terms of the NLAA concurrence provided in the PBO. This verification period allows Service Field Offices to apply local knowledge to implementation of the PBO, as we may

identify a small subset of actions having impacts that were unanticipated. In such instances, Service Field Offices may request additional information that is necessary to verify inclusion of the proposed action under the PBO.

NOTE: The Service reclassified the NLEB as an endangered species on November 30, 2022. This ruling becomes effective on January 30, 2023. This NLAA determination does not require reinitiation. For projects requiring consultation after the effective date of January 30, 2023, please use the 2022 FHWA, FRA, FTA PBO.

**For Proposed Actions that include bridge/culvert or structure removal, replacement, and/or maintenance activities:** If your initial bridge/culvert or structure assessment documented signs of bat use or occupancy, or an assessment failed to detect Indiana bats and/or NLEBs, yet are later detected prior to, or during construction, please submit the Post Assessment Discovery of Bats at Bridge/Culvert or Structure Form (User Guide Appendix E) to this Service Office within 2 working days of any potential take. In these instances, potential incidental take of Indiana bats and/or NLEBs is covered under the Incidental Take Statement in the 2018 FHWA, FRA, FTA PBO (provided that the take is reported to the Service).

If the Proposed Action is modified, or new information reveals that it may affect the Indiana bat and/or Northern long-eared bat in a manner or to an extent not considered in the PBO, further review to conclude the requirements of ESA Section 7(a)(2) may be required. If the Proposed Action may affect any other federally-listed or proposed species, and/or any designated critical habitat, additional consultation between the lead Federal action agency and this Service Office is required. If the proposed action has the potential to take bald or golden eagles, additional coordination with the Service under the Bald and Golden Eagle Protection Act may also be required. In either of these circumstances, please contact this Service Office.

The following species may occur in your project area and **are not** covered by this determination:

- Monarch Butterfly *Danaus plexippus* Candidate
- Tricolored Bat *Perimyotis subflavus* Proposed Endangered

# PROJECT DESCRIPTION

The following project name and description was collected in IPaC as part of the endangered species review process.

## NAME

608616 - TAUNTON- BRIDGE REPLACEMENT, T-01-024, SCADDING STREET OVER SNAKE RIVER

## DESCRIPTION

608616 - TAUNTON- BRIDGE REPLACEMENT, T-01-024, SCADDING STREET OVER SNAKE RIVER

BRIDGE REPLACEMENT

Monarch Butterfly: Candidate Species only, no conservation measures at this time.

Tricolor Bat: Proposed Endangered Species only, no conservation measures at this time.

# DETERMINATION KEY RESULT

Based on your answers provided, this project(s) may affect, but is not likely to adversely affect the endangered Indiana bat and/or the threatened Northern long-eared bat, therefore, consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (ESA) (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required. However, also based on your answers provided, this project may rely on the concurrence provided in the revised February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat.

# QUALIFICATION INTERVIEW

1. Is the project within the range of the Indiana bat[1]?

   [1] See Indiana bat species profile

   **Automatically answered**
   *No*

2. Is the project within the range of the Northern long-eared bat[1]?

   [1] See Northern long-eared bat species profile

   **Automatically answered**
   *Yes*

3. Which Federal Agency is the lead for the action?

   *A) Federal Highway Administration (FHWA)*

4. Are *all* project activities limited to non-construction[1] activities only? (examples of non-construction activities include: bridge/abandoned structure assessments, surveys, planning and technical studies, property inspections, and property sales)

   [1] Construction refers to activities involving ground disturbance, percussive noise, and/or lighting.

   *No*

5. Does the project include *any* activities that are **greater than** 300 feet from existing road/rail surfaces[1]?

   [1] Road surface is defined as the actively used [e.g. motorized vehicles] driving surface and shoulders [may be pavement, gravel, etc.] and rail surface is defined as the edge of the actively used rail ballast.

   *No*

6. Does the project include *any* activities **within** 0.5 miles of a known Indiana bat and/or NLEB hibernaculum[1]?

   [1] For the purpose of this consultation, a hibernaculum is a site, most often a cave or mine, where bats hibernate during the winter (see suitable habitat), but could also include bridges and structures if bats are found to be hibernating there during the winter.

   *No*

7. Is the project located **within** a karst area?

   *No*

8. Is there *any* suitable[1] summer habitat for Indiana Bat or NLEB **within** the project action area[2]? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

   [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

   [2] The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR Section 402.02). Further clarification is provided by the User's Guide for the Range-wide Programmatic Consultation for Indiana Bat and Northern Long-eared Bat.

   *Yes*

9. Will the project remove *any* suitable summer habitat[1] and/or remove/trim any existing trees **within** suitable summer habitat?

   [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

   *Yes*

10. Will the project clear more than 20 acres of suitable habitat per 5-mile section of road/rail?

    *No*

11. Have presence/probable absence (P/A) summer surveys[1][2] been conducted[3][4] **within** the suitable habitat located within your project action area?

    [1] See the Service's summer survey guidance for our current definitions of suitable habitat.

    [2] Presence/probable absence summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate distance from hibernacula) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

    [3] For projects within the range of either the Indiana bat or NLEB in which suitable habitat is present, and no bat surveys have been conducted, the transportation agency will assume presence of the appropriate species. This assumption of presence should be based upon the presence of suitable habitat and the capability of bats to occupy it because of their mobility.

    [4] Negative presence/probable absence survey results obtained using the summer survey guidance are valid for a minimum of two years from the completion of the survey unless new information (e.g., other nearby surveys) suggest otherwise.

    *Yes*

    ***SUBMITTED DOCUMENTS***

    - *608616_Taunton_PA-Bridge_survey_report_FINAL.pdf https://ipac.ecosphere.fws.gov/project/XXEVXTZM3ZCIVOS5AQ44GJ3CJE/projectDocuments/141820399*

12. Did the presence/probable absence (P/A) summer surveys detect Indiana bats and/or NLEB[1]?

    [1] P/A summer surveys conducted within the fall swarming/spring emergence home range of a documented Indiana bat hibernaculum (contact local Service Field Office for appropriate home range) that result in a negative finding requires additional consultation with the local Service Field Office to determine if clearing of forested habitat is appropriate and/or if seasonal clearing restrictions are needed to avoid and minimize potential adverse effects on fall swarming and spring emerging Indiana bats.

    *No*

13. Were the P/A summer surveys conducted **within** the fall swarming/spring emergence range of a documented Indiana bat hibernaculum[1]?

    [1] Contact the local Service Field Office for appropriate distance from hibernacula.

    *No*

14. Does the project include activities **within documented NLEB habitat**[1][2]?

    [1] Documented roosting or foraging habitat – for the purposes of this consultation, we are considering documented habitat as that where Indiana bats and/or NLEB have actually been captured and tracked using (1) radio telemetry to roosts; (2) radio telemetry biangulation/triangulation to estimate foraging areas; or (3) foraging areas with repeated use documented using acoustics. Documented roosting habitat is also considered as suitable summer habitat within 0.25 miles of documented roosts.)

    [2] For the purposes of this key, we are considering documented corridors as that where Indiana bats and/or NLEB have actually been captured and tracked to using (1) radio telemetry; or (2) treed corridors located directly between documented roosting and foraging habitat.

    *No*

15. Will the removal or trimming of habitat or trees occur **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors?

    *Yes*

16. What time of year will the removal or trimming of habitat or trees **within** suitable but **undocumented NLEB** roosting/foraging habitat or travel corridors occur?

    *C) During both the active and inactive seasons*

17. Will *any* tree trimming or removal occur **within** 100 feet of existing road/rail surfaces?

    *Yes*

18. Will *any* tree trimming or removal occur **between** 100-300 feet of existing road/rail surfaces?

    *No*

19. Are *all* trees that are being removed clearly demarcated?

    *Yes*

20. Will the removal of habitat or the removal/trimming of trees involve the use of **temporary** lighting?

    *Yes*

21. Will the removal of habitat or the removal/trimming of trees include installing new or replacing existing **permanent** lighting?

    *No*

22. Does the project include wetland or stream protection activities associated with compensatory wetland mitigation?

    *Yes*

23. Does the project include slash pile burning?

    *No*

24. Does the project include *any* bridge removal, replacement, and/or maintenance activities (e.g., any bridge repair, retrofit, maintenance, and/or rehabilitation work)?

    *Yes*

25. Is there *any* suitable habitat[1] for Indiana bat or NLEB **within** 1,000 feet of the bridge? (includes any trees suitable for maternity, roosting, foraging, or travelling habitat)

    [1] See the Service's current summer survey guidance for our current definitions of suitable habitat.

    *Yes*

26. Has a bridge assessment[1] been conducted **within** the last 24 months[2] to determine if the bridge is being used by bats?

    [1] See User Guide Appendix D for bridge/structure assessment guidance

    [2] Assessments must be completed no more than 2 years prior to conducting any work below the deck surface on all bridges that meet the physical characteristics described in the Programmatic Consultation, regardless of whether assessments have been conducted in the past. Due to the transitory nature of bat use, a negative result in one year does not guarantee that bats will not use that bridge/structure in subsequent years.

    *Yes*

    ***SUBMITTED DOCUMENTS***

    - *608616_Taunton_PA-Bridge_survey_report_FINAL.pdf https://ipac.ecosphere.fws.gov/project/XXEVXTZM3ZCIVOS5AQ44GJ3CJE/projectDocuments/141820399*

27. Did the bridge assessment detect *any* signs of Indiana bats and/or NLEBs roosting in/under the bridge (bats, guano, etc.)[1]?

    [1] If bridge assessment detects signs of *any* species of bats, coordination with the local FWS office is needed to identify potential threatened or endangered bat species. Additional studies may be undertaken to try to identify which bat species may be utilizing the bridge prior to allowing *any* work to proceed.

    Note: There is a small chance bridge assessments for bat occupancy do not detect bats. Should a small number of bats be observed roosting on a bridge just prior to or during construction, such that take is likely to occur or does occur in the form of harassment, injury or death, the PBO requires the action agency to report the take. Report all unanticipated take within 2 working days of the incident to the USFWS. Construction activities may continue without delay provided the take is reported to the USFWS and is limited to 5 bats per project.

    *No*

28. Will the bridge removal, replacement, and/or maintenance activities include installing new or replacing existing **permanent** lighting?

    *No*

29. Does the project include the removal, replacement, and/or maintenance of *any* structure other than a bridge? (e.g., rest areas, offices, sheds, outbuildings, barns, parking garages, etc.)

    *No*

30. Will the project involve the use of *any* **temporary** lighting in addition to the lighting already indicated for habitat removal (including the removal or trimming of trees), or bridge/structure removal, replacement or maintenance activities?

    *Yes*

31. Is there *any* suitable habitat **within** 1,000 feet of the location(s) where **temporary** lighting (other than the lighting already indicated for habitat removal (including the removal or trimming of trees) or bridge/structure removal, replacement or maintenance activities) will be used?

    *Yes*

32. Will the project install new or replace existing **permanent** lighting?

    *No*

33. Does the project include percussives or other activities (**not including tree removal/ trimming or bridge/structure work**) that will increase noise levels above existing traffic/ background levels?

    *Yes*

34. Will the activities that use percussives (**not including tree removal/trimming or bridge/ structure work**) and/or increase noise levels above existing traffic/background levels be conducted *during* the active season[1]?

    [1] Coordinate with the local Service Field Office for appropriate dates.

    *Yes*

35. Will *any* activities that use percussives (**not including tree removal/trimming or bridge/ structure work**) and/or increase noise levels above existing traffic/background levels be conducted *during* the inactive season[1]?

    [1] Coordinate with the local Service Field Office for appropriate dates.

    *Yes*

36. Are *all* project activities that are **not associated with** habitat removal, tree removal/ trimming, bridge and/or structure activities, temporary or permanent lighting, or use of percussives, limited to actions that DO NOT cause any additional stressors to the bat species?

    Examples: lining roadways, unlighted signage , rail road crossing signals, signal lighting, and minor road repair such as asphalt fill of potholes, etc.

    *Yes*

37. Will the project raise the road profile **above the tree canopy**?

    *No*

38. Are the wetland or stream protection activities associated with compensatory wetland/ stream mitigation portion of this project consistent with a Not Likely to Adversely Affect determination in this key?

    **Automatically answered**
    *Yes, because your activities associated with compensatory wetland/stream mitigation activities do not clear suitable summer habitat and are not within 0.5 miles of Indiana bat or NLEB hibernaculum.*

39. Are the project activities that use percussives (not including tree removal/trimming or bridge/structure work) consistent with a Not Likely to Adversely Affect determination in this key?

    **Automatically answered**
    *Yes, because the activities are within 300 feet of the existing road/rail surface, greater than 0.5 miles from a hibernacula, and conducted during the active season within undocumented habitat.*

40. Are the project activities that use percussives (not including tree removal/trimming or bridge/structure work) and/or increase noise levels above existing traffic/background levels consistent with a No Effect determination in this key?

    **Automatically answered**
    *Yes, because the activities are within 300 feet of the existing road/rail surface, greater than 0.5 miles from a hibernacula, and conducted during the inactive season*

41. Is the location of this project consistent with a Not Likely to Adversely Affect determination in this key?

    **Automatically answered**
    *Yes, because no bats were detected during presence/probable absence surveys conducted during the summer survey season and outside of the fall swarming/spring emergence periods. Additionally, all activities were at least 0.5 miles from any hibernaculum.*

42. Is the bridge removal, replacement, or maintenance activities portion of this project consistent with a No Effect determination in this key?

    **Automatically answered**
    *Yes, because the bridge has been assessed using the criteria documented in the BA and no signs of bats were detected*

43. **General AMM 1**
    Will the project ensure *all* operators, employees, and contractors working in areas of known or presumed bat habitat are aware of *all* FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable Avoidance and Minimization Measures?

    *Yes*

# PROJECT QUESTIONNAIRE

1. Have you made a No Effect determination for *all* other species indicated on the FWS IPaC generated species list?

   *N/A*

2. Have you made a May Affect determination for *any* other species on the FWS IPaC generated species list?

   *N/A*

3. How many acres[1] of trees are proposed for removal between 0-100 feet of the existing road/rail surface?

   [1] If described as number of trees, multiply by 0.09 to convert to acreage and enter that number.

   *0.7*

4. Please describe the proposed bridge work:

   *The project consists of demolition of the existing bridge structure and replacement of Bridge T-01-024, carrying Scadding Street over the Snake River and realignment/ improvement of the profile of Scadding Street. The proposed structure will be a precast concrete superstructure supported by cantilevered abutments. A sidewalk will be provided on the west side of the roadway and bridge in accordance with applicable design guides.*

5. Please state the timing of all proposed bridge work:

   *Summer 2025 - Summer 2026*

6. Please enter the date of the bridge assessment:

   *June 20 2023*

# AVOIDANCE AND MINIMIZATION MEASURES (AMMS)

This determination key result includes the committment to implement the following Avoidance and Minimization Measures (AMMs):

#### GENERAL AMM 1

Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs.

# DETERMINATION KEY DESCRIPTION: FHWA, FRA, FTA PROGRAMMATIC CONSULTATION FOR TRANSPORTATION PROJECTS AFFECTING NLEB OR INDIANA BAT

This key was last updated in IPaC on December 01, 2022. Keys are subject to periodic revision.

This decision key is intended for projects/activities funded or authorized by the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and/or Federal Transit Administration (FTA), which may require consultation with the U.S. Fish and Wildlife Service (Service) under Section 7 of the Endangered Species Act (ESA) for the endangered **Indiana bat** (*Myotis sodalis*) and the threatened **Northern long-eared bat** (NLEB) (*Myotis septentrionalis*).

This decision key should only be used to verify project applicability with the Service's February 5, 2018, FHWA, FRA, FTA Programmatic Biological Opinion for Transportation Projects. The programmatic biological opinion covers limited transportation activities that may affect either bat species, and addresses situations that are both likely and not likely to adversely affect either bat species. This decision key will assist in identifying the effect of a specific project/activity and applicability of the programmatic consultation. The programmatic biological opinion is not intended to cover all types of transportation actions. Activities outside the scope of the programmatic biological opinion, or that may affect ESA-listed species other than the Indiana bat or NLEB, or any designated critical habitat, may require additional ESA Section 7 consultation.

# IPAC USER CONTACT INFORMATION

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Name: Ian Battles
Address: 10 Park Plaza
City: Boston
State: MA
Zip: 02116
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# LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

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 A00891

# CITY OF TAUNTON
# WATERLINE SPECIFICATIONS

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# Taunton Water Division

# Water System Installation and Materials Specifications

## Effective January 1, 2017

**General**

All plans for new construction are subject to final approval by the Taunton DPW Water Division with regards to size and location of all Water Mains, Gate valves, Fire Hydrants, Water Services, and Water Meters.
These standards may be amended from periodically to meet current safety and design standards.

**Water Main Size:**

The minimum size of all new water mains for new construction shall be 8 inch. Water Mains will be installed on the same side of the street for the entire length of the street. The size of the water mains installed within any development Public or Private must provide the following:

- The water main design must also provide for a minimum of 20 PSI during fire flow conditions at peak demand times. The flow rates shall meet or exceed the minimum ISO (Insurance Services Office) requirements for the applicable construction.
- No Dead end water main shall be more than 1000 feet in length without looping back to the water system to allow for adequate flow to maintain water quality.

**Water Services:**

The minimum size pipe for a new water service shall be 1 inch. However, larger sizes may be required to meet minimum flow and pressure requirements. The city will use the chart on located on Appendix A to determine if a larger service is required. The size of the service will be determined by the city.

- All curb stops will be set at the property line of the building being served.
- During peak usage provide the customer with a minimum of 15 Gallons per minute at 40 Pounds per square inch (PSI) of pressure on the first floor of each residence or commercial property.
- Water services cannot be run along a public roadway, if the premises to be served is beyond the end of an existing water main, the water main will have to be extended to the farthest property line of the premises.
- All Buildings, single family homes, duplexes, triplexes, commercial, Industrial buildings etc. must each have their own water service tapped at the water main.
- On ductile Iron or Cast Iron water main, 1" Service taps will be the directly tapped into the water main. On PVC or AC (Transite) pipe all taps will require the use of a saddle. All 1 ½" and 2" taps on all pipe types require service saddles.
- Domestic water services cannot be tapped off a fire line. They must originate at the water main, no exceptions.

**Water Main Gate Valves:**

All water gates that connect to the city's water system shall meet the city minimum specifications. - The maximum distance between inline water main gates is 1000 feet.

- Each intersection will have either a three way gate assembly for a side street, or a four way gate for a cross street.
- All water main gates must be within public ways.

**Fire Hydrants:**

Fire hydrants shall be installed as follows

- Fire Hydrants shall be no more than 500 feet apart.
- The first Fire hydrant on a new road shall be located no farther than 500 feet from the nearest Fire hydrant in the existing water system.
- Fire hydrants will be installed on the same side of the road as the water main unless otherwise approved by the water department. All fire Hydrants will be installed using anchor tees with the auxiliary Fire hydrant gate mounted directly to the tee. The breakaway flanges must be 3 to 5 inches from ground level. Fire hydrants installed within a sidewalk shall be set so the bolts on the breakaway flange can be accessed without cutting the sidewalk. All Fire Hydrants will be red in color.
- Fire hydrants must be installed on dead end line.
- On dead end installations the Fire hydrant should be connected using a reducer with a 6" auxiliary valve. Mega Lug style retainer glands shall be used on the reducer, auxiliary gate, and Fire Hydrant. Depending on ground conditions a thrust block may be needed.
- Fire hydrants will have a minimum of 1/3 cubic yards or ½" to ¾" crushed stone to allow for proper drainage.
- All Fire Hydrants will be installed per manufactures instructions.

**Pipe & Joint Restraints**

All new construction will be required to use restraining glands similar to the EBBA Iron Mega lug system, on all Tee's bends reducers/increasers, gate valves (including inline valves), and Fire Hydrants.
Upon approval from the water department where necessary the city may allow the use of threaded rod for the installation of Fire risers. Fire risers shall also have a thrust block poured and tied to bend to prevent movement.

**Thrust Blocks**

Thrust blocks are required on bends and tees. Thrust Blocks will be properly sized based on ANSI/AWWA C150/21.50 or latest revision for ductile Iron Pipe

## Plans for proposed extension to the water system:

All proposed plans shall be drawn and stamped by a Massachusetts registered engineer, and include the following:

- Plans can either be submitted on 24" x 36" sheets or 22" x 34" sheets.
- The plans must show all proposed water mains, gates, Fire Hydrants, proposed water services.

- All Plans must be approved by the Water Division prior to installation. The water department generally requires 72 hours for approval but may take longer for more complex designs.
- Fire services require a fire flow test as close as possible to the connection point.
- The proponent of the new connection must prove there will be no negative effect on the existing water system. A negative impact on the existing system may trigger the proponent to make upgrades within the water system as part of the approval should they decide to proceed with the project. The city's water division if needed will use its consulting engineer to review the information supplied to make this determination.

## Cross Connections

The City of Taunton Water Division is responsible under Commonwealth of Massachusetts Drinking Water Regulations 310 CMR 22.22 is required to make sure that there is no possibility of a Potable water source coming in contact with a Non Potable Source without the proper backflow devices installed.

All new facilities where a cross connection may exist must submit a backflow device plan to the city as along with their plans. The plan must show the proposed locations for all the devices within the facility. While the proper installation of each device is overseen by the Plumbing inspector, the Water division is responsible for the location of each device to make sure the water supply is properly protected from water source to point of domestic use per the US EPA and Massachusetts DEP. The city must survey all new commercial facilities to track compliance.

## Pressure testing:

All new water mains will be tested to according to AWWA C-600 latest revision. The pressure test will be completed by a third party approved by the Water Division and witnessed by the Water Division.

- Pressure testing shall be done prior to the chlorination of the new lines.
- The Water division shall be notified of the date and time of the test (a minimum of 48 hours)
- The initial flooding of the mains will be controlled by the city. Once flooded the company preforming the pressure test may flush the lines to remove air from the lines. At no time will the contractor use a flow rate of more than 500 GPM to remove air.
- All hydrant branches within the test area must be open during the pressure test.
- The test pressure shall be 150 PSI and be held for 2 hours
- Any leakage if any shall be equal to or less than the amount as determined in AWWA C-600 or latest revision, Section 4.2. Any section of water main shall be considered unsuitable if the leakage is greater than the amount in the AWWA C-600 or latest revision, section 4.2.
- A failed pressure/leakage test will result in the installation contractor having to locate and repair the leak in a method approved by the city. The pressure test must then be redone and pass the test.
- Upon completion a written report of the test preformed must be supplied by the third party preforming the testing. The report should include at a minimum the date and time

of the pressure test, pipe diameter, and length tested, any problems, leaks encountered during the test. If for any reason the AWWA C-600 leakage calculations are used, the calculation and result must be included on the test report. The leakage calculations are subject to review prior to the city accepting the pressure test as having passed.

**New Water Line Disinfection:**

All new water lines installed within the distribution system must be disinfected in strict accordance with AWWA standard C-651 latest revision.

- Disinfection must be performed using Calcium Hypochlorite granules dissolves in water drawn from the distribution system and pumped continuously into the new water line until a chlorine residual is seen at the blow off location.
- Chlorination shall be performed by a third party approved by the city and witnessed by a city official. Disinfection companies may under the supervision of the city operate the water gates & Fire hydrants in the water line being treated to allow proper distribution of the chlorine.
- Before chlorination is begins, the lines should be flushed at a rate of 500 GPM until the water runs clear of discolored water and debris. Only one Fire hydrant will be allowed to be opened at a time for flushing new mains.
- Sampling and chlorination taps will be through a corporation stop in the water main with either copper or Polyethylene tuning to chlorinate and sample from. **No** Fire Hydrants or hoses will be used for chlorination or sampling of the mains. Sample locations along new water main shall be no more than 1000' apart.
- Prior to scheduling the pressure test, the contractor should notify the City's water treatment plant to schedule a time to draw the water samples. The City will take the samples Monday thru Thursday from 8AM to 2:30PM. Once taken the samples take 48 hours to process for Coliform and HPC's as required by DEP.
- If a line should fail the bacteria testing, the contractor will have to re-chlorinate & flush the lines that failed and be resampled by the city.
- No lines will be allowed to be put into service without passing the bacteria test.
- The third party contractor shall submit a written copy of the chlorination of the water main which should include at a minimum; the date and time of the chlorination, the pipe length and diameter, the location of the chlorination point and bleeder / test points, the amount of chlorine used, the chlorines % strength, and verification that 50 ppm chlorine residual was reached at each test point.

**Water Mains being put into service:**

Prior to a new water main being placed into service, the new lines must pass both a Leak test and Bacteria testing.

- The Water division or its agent must have witnessed all the work relating to the construction to make sure all the construction has been done in accordance with the city's installation requirements.
- The engineer will supply an as-built plan including a PE stamp which will show all new piping and the certification points. The plan must also include three tie points for each

water main gate and service box. On Water Mains 12" and larger as-built plans will include depth profiles including the location and depth of all other utilities that cross the water main. This plan is subject to review buy the Taunton Water Division prior to acceptance.

## Water Services:

New water services will not be put into service until the water line has been inspected and an inspection card has been issued. All water service installations must be inspected prior to backfilling. The request for inspection must be made at least 24 hours advance notice. Monday inspections must be requested by Friday at noon. All water services must be installed with a single continuous piece of pipe. On long services (over 300 ft.) any couplings installed must be indicated on the as built drawing. The water Service Acceptance card must be signed at the time of inspection. The inspection card will be required at the time a meter is requested.

## Pipe Installation

All water mains and appurtenances shall be installed according to the attached details. Water piping shall be installed with a minimum of 5 feet of cover and no more than 7 feet without prior approval of the Water Division. Horizontal clearance from other utilities must have a minimum of 10 feet Per Mass Department of Chapter 9 regulations. A vertical clearance of at least 18 inches shall be maintained when crossing other utilities. All water lines must be installed over drain and sewer lines Per Mass Department of Chapter 9 regulations. In the event that a water line has to pass under a sewer or drain line the sewer or drain line must be placed in a sleeve with a water tite seal at either end.

At no time will a water line share the same trench with another utility. Shelving a trench for another utility is not permitted for any reason. Where a water service line and sewer lateral must cross the water line must be located above the sewer line.

Fire hydrants will not be used during construction without the use of a backflow control device and water meter. People wishing to use a hydrant for construction purposes are required to go to the water department to fill out a rental agreement and pay a deposit for the equipment along with and initial water usage fee.

### Approval of Materials

Only new materials shall be incorporated into the work. All materials shall be supplied by the contractor and are subject to the approval of the Taunton Water Division.

Prior to beginning work, the contractor shall submit to the Water Division specification sheets for the materials and related equipment to be used in the construction of the new water line. Such data shall contain enough detail to allow the city to form an opinion as to the materials conformity to the specification contained within this. This information shall be submitted no

later than 5 days prior to the start of the work so the city has sufficient time to review the materials.

The materials on the job shall be free from defects and conform to the approved specifications.

All materials which do not conform to the specifications provided or have been damaged in shipment shall be promptly removed from the construction site.

# Materials Specifications

## General:

The Taunton Water Division is willing to review requests for the use of "or equal" materials. The Water Division has the sole right to decide whether materials are equal to what is listed in the specification, and will do so with the following stipulations:

1) It is the sole responsibility of the person/company making the request to supply all necessary documentation to prove the materials will serve the function equally or better, and are of equal or better design and quality. The city may request additional information if it deems necessary to properly review new products.
2) The Water Division may retain professional services to review these requests.
3) Sufficient time must be given to the water Division to perform the review.

All materials regardless of the manufacturer must meet all applicable ANSI/AWWA standards as well as NSF standards for materials to be used with drinking water.

## Pipe for Water Main

All new water main shall be ductile iron pipe and shall conform to AWWA standard C-151 latest revision, Class 52 manufactured by US Pipe, Griffin Pipe Co., Atlantic States pipe or approved equal.

Polyvinyl chloride (PVC) and Fused High Density Polyethylene Pipe (HDPE) water Main may be used in special circumstances may only be used under special approval in applications where Ductile Iron may not be suitable. PVC pipe shall conform to AWWA C-900 latest revision, Class 150, with Cast iron outside diameters. PVC shall be free from any visible UV deterioration. Any signs of deterioration will be grounds denying the use of the pipe. All PVC pipe is subject to approval prior to use. HDPE pipe shall meet the latest version of AWWA C901/C906, ASTM D2239, ASTM D2737, ASTM D3035, and F714.

## Fittings

All fitting shall conform to AWWA standard C-153 latest revision, Made of ductile iron, compact, Mechanical Joint, double cement lined, and bitumen coated, Manufactured by US Pipe, American Cast Iron Pipe, SIMGA, or approved equal. All gland bolts must be ductile iron

**Restrained Joints**

Retainer glands shall be Meg-A-Lug type as manufactured by EBBA Iron, Series 2100, or approved equal. Restrained Joints may be used for some thrust applications. Some applications may require thrust blocks in place of or in addition to the retainer glands.

## Gate Valves

All gate valves will meet AWWA standard C509 latest revision, be mechanical joint, have O-ring stem seals, and have an epoxy coated body. All Gates must be **OPEN RIGHT.** All gates from 4" through 16" will be designed vertical installation. Gates Larger than 20" through 36" will be the horizontal design with a bypass valve. The larger Gates will have a geared reduction to assist in opening and closing.

## Butterfly Valves

Butterfly valves of any size **WILL NOT** be allowed within the City's water distribution system.

## Water Gate Valve Boxes

Every Gate valve will gave a gate box equal to Bibby STE-Croix or Bingham & Taylor 2 piece 5-¼", sliding type adjustable top, roadway gate boxes with 13 lb. covers with "WATER" label in the casting. If extensions are needed to bring the casting to grade, the intermediate style sliding extension must be used. There must be a minimum of 6" of overlap between the top and bottom sections of all gate boxes.

## Corporation Stops

1", 1 ½", and 2" Corporation Stops will conform to AWWA C800 Standards (ASTM B584) Certified to be lead free and meet NSF/ANSI standards 61. All corporation stops will be **OPEN RIGHT,** be the ball valve type with the AWWA CC standard thread with pack joint suitable for use with copper tubing or copper tubing sized plastic pipe (CTS). All corporations will be rated for 300 PSI and include any needed restraints. Corporation stops shall be equal to Mueller 300 series, Ford Brass FB 1000, or approved equal.

## Curb Stops

1", 1 ½", and 2" Curb Stops will conform to AWWA C800 Standards (ASTM B584) Certified to be lead free and meet NSF/ANSI standards 61. All corporation stops will be **OPEN RIGHT,** be the ball valve type with pack joints on both ends suitable for use with copper tubing or copper tubing sized plastic pipe (CTS). All corporations will be rated for 300 PSI and include any needed restraints. Curb Stops will **NOT** have drains. Curb Stops will include a hole drilled in the Key to allow for the attachment of a curb box rod. Curb stops will be equal to the Mueller 300 series with Mueller 110 compression connections, Ford Brass B44 series with locking pack joint nuts, or approved equal.

## Curb Boxes

Each curb Box will have an Erie Style Curb Box with an arch style base and include and include a 36" long rod with brass cotter pin for attachment. Boxes shall have a bituminous coating for corrosion resistance. Curb Boxes shall have the two hole top with the "WATER" label cast in the top. For 1 ½" or 2" curb Stops a curb box base adapter will be used. Boxes and adapters shall be manufactured by Ford meter box, Bibby Ste-Croix or approved equal.

## Meter Valves

All 1" meter valves will be Angle ball valve type with handle. Valves will have copper tube sized compression fitting with a meter nut corresponding to the meter size (5/8", ¾" 1"). All valves will Brass meeting AWWA/ANSI C800 Lead free, meeting NSF61 for potable water use.

Larger valves will be approved by the city depending on the installation. In all cases the valves supplied will need to meet the AWWA/ANSI C800, lead free, meeting NSF61 standard for potable water use.

## Water Meters

All water meters up to 2" will be supplied by the Taunton water division. Meters 3" and larger will be purchased and by the contractor in accordance with the Water Divisions meter specification. Prior to the installation of the water meter the plumber must have the meter spacer and coupling in place. Meter spacers are available from the water department. Depending on the plumbing arrangement below is a table of approximate laying lengths for the meter and tail pieces.

## Service Saddles

Service saddles shall be Ductile Iron with 12 Mill Epoxy Coating with 2 Stainless Steel Straps. The Saddle will meet AWWA/ANSI Standard C800 and NSF61 for use in potable water. All saddles shall have the AWWA CC standard thread. Saddles shall be manufactured by Smith-Blair series 317, Mueller DR 2S series, or approved equal.

## Tapping Sleeves

For 4 inch or larger wet taps on existing water mains, a full diameter ductile iron mechanical joint sleeve must be used. Tapping sleeves will be made of Ductile Iron constructed to ASTM A536 standards mechanical joint rated for 250 PSI. All sleeves must have a test port for air testing. Tapping sleeves shall be manufactured by American flow control series 2800, Mueller H-615, or approved equal.

## Tapping Valves

Tapping valves shall conform to AWWA/ANSI C515, NSF61 approved for potable water. All valves will be **Open Right,** epoxy coated, with resilient wedge. The valve will have one side flanged and one side mechanical Joint. Tapping valves must be supplied by the same manufacturer as the tapping sleeve to be used. Tapping sleeves shall be manufactured by American Flow Control, Mueller, or approved equal.

## Fire Hydrants

Fire Hydrants shall conform to AWWA C502, FM 1510, and UL 246 listed. The hydrant main valve will be 5-1/4", **OPEN LEFT**. All hydrants will have two 2-1/2" NST and one 4 1/2" NST pumper nozzle. Fire hydrants will be equipped with a break away traffic flange which is field repairable. Fire hydrants will have bury depth to match the finished grade. Hydrants will have a 6" mechanical joint connection. All fire hydrants shall be from one of the following manufacturers, Mueller Super Centurion 250, or the American Darling B-84-B5 by American Flow Control.

## Water Service Tubing

All water service tubing will be a minimum of 1" in diameter. All copper water service tubing will be Lead free, Type K, with Soft Temper meeting ASTM standard B-88.

Polyethylene Water service pipe meeting AWWA C901-08 Standard for copper tubing sized (CTS) pipe rated for 200 PSI. The tubing must be ANSI/NSF 61 certified for use with potable water.

DOCUMENT A00892

# CITY OF TAUNTON
# SEWER REQUIREMENTS

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# EXHIBIT 12

# SANITARY SEWER SPECIFICATIONS

Recommended for Approval: Paul Norar Date: 8/9/06
Paul Norar P.E., Veolia Water

Approved: Fred Cornaglia Date: 8/9/06
Fred Cornaglia
Taunton Public Works Commissioner

## Taunton's Requirements for New Sanitary Sewer Service

### 1. APPROVAL PROCESS

**1.1** The objective of the requirements for new sanitary sewer service is to assure the sewer system capacity is available and sewer system expansion including new infrastructure and service connections are properly engineered and constructed to provide long term reliable sanitary sewer service. New sanitary sewer service shall include any new or modifications to the sanitary sewer system infrastructure including service laterals

**1.2** There are several Boards within the City including the Planning Board and the City Council that may be involved in the approval of new sanitary sewer systems. There is also the Committee under the Department of Public Works (DPW) that must approve sanitary sewer extensions. All of the Boards and Committee's will be required to get an approval by the Commissioner of Public Works for sanitary sewer system additions, modifications or changes.

**1.3** The Commissioner of Public Works or his designee shall have an opportunity to review and approve all new sanitary sewer service. New sanitary sewer service can be provided by either new connections to existing sanitary sewers or through the construction of sanitary sewer extensions.

**1.4** The Commissioner of Public Works or his designee shall have an opportunity to review and approve all new sanitary sewer service as follows:

- Determine the system has capacity to accommodate the new service
- Assure the new system or service has been properly engineered
- Assure the new system or service has been properly constructed
- Assure the new system has had the required quality control and acceptance testing performed with satisfactory results
- Assure the new system or service has As-Built plans
- Assure the new system is incorporated in the City GIS system for sanitary sewers

**1.5** The DPW will review the impact of any additional flow through the sanitary sewer system at the applicant's cost to ensure that the sanitary sewers and Pump Stations have sufficient safe capacity. All calculations and hydraulic evaluations shall be certified by a professional engineer in the state of Massachusetts.

**1.6** Preliminary and Final Plan submissions for all sanitary sewer construction shall include a separate set of plans (vertical and horizontal plans) showing all ties of sanitary sewer connections, stationing of all manholes, elevations of all manholes inverts, stationing of all wyes, and a calculation of the additional flow, as well as any other information required. Plans for sanitary sewer system additions, modifications and changes must be reviewed and approved by the DPW Commissioner.

**1.7** DPW will review the Final Plans and either approve them, amend them, or reject them and request a new submittal. The DPW Commissioner will issue a formal letter of approval or disapproval.

**1.8** After the DPW Commissioner approves the Final Plans and specifications, the developer shall submit the name of a qualified sanitary sanitary sewer contractor whom he proposes to do the work, together with a breakdown of items, quantities and unit prices for the project. After reviewing the breakdown submitted and investigating the qualifications of the proposed contractor, the DPW Commissioner shall make the final determination whether to allow the developer to use his proposed contractor or, if this contractor is unacceptable to the City, to submit another contractor for approval. Any contractor approved by DPW will require the appropriate State and City licenses required to perform the work.

**1.9** No work can commence of any sanitary sewer installation without the DPW Commissioner approval of the plans and the contractor.

**1.10** DPW will oversee the inspection of the construction consisting of excavation, laying of sanitary sewer mains and street laterals, installation of manholes, backfilling to the elevation of the existing ground, camera inspection, and vacuum testing; and shall perform the flow test. The The City will have the final decision on acceptance of new sanitary sewer system assets.

**1.11** The City shall may require more vigorous and frequent inspections at the work site, including full time inspection to assure the approved contract documents are being followed. The City will require the Applicant to pay the additional inspection fees in advance.

**1.12** The construction and laying out of all sanitary sewer lines other than Building Drains and Building Laterals pursuant to this section shall be subject to the inspection of DPW. If at any time DPW determines that the construction of such sanitary sewer lines is not being performed in accordance with the plans and specifications as approved, he shall forthwith notify the Applicant and the DPW Commissioner to this effect in writing. The City may then order the suspension of all further work by and of payments to the contractor until such corrections are made as will produce complete compliance with the plans and specifications.

**1.13** The City of Taunton Rules, Regulations and Ordinances shall incorporate the requirements as outlined in this document by reference to the "Taunton Requirements for New Sanitary Sewer Service" This document covers the requirements for new or expanded sanitary service within the City. The TR-16 Guides for the design of Wastewater Treatment Works (by the New England Interstate Water Pollution Control Commission), provide the general specifications for construction of sanitary sewers and represent the minimum acceptable standards and design for construction. These guidelines shall be the basis for all design plan reviews and construction inspections. Where there is a conflict between these documents, the precedence shall be in the order identified above.

**1.14** The construction of any new wastewater pumping station shall be in accordance with general specifications identified as Exhibit A entitled Taunton Sewage Pumping Stations Specifications. A reference document for the preparation of Exhibit A was Chapter 3 "Wastewater Pumping Stations" in the TR-16 Guides for the Design of Wastewater Treatment Works (by the New England Interstate Water Pollution Control Commission, the most recent edition). The pumping station shall be constructed with instrumentation and telemetry system compatible with the current Supervisory Control and Data Acquisition (SCADA) system located at the wastewater treatment plant. Additional requirements for pumping stations is outlined in the attached Exhibit A.

**1.15** The DPW Commissioner shall provide an acceptance letter for a new sanitary sewer system or extension as a condition of Bond release.

**1.16** Before final approval of any sanitary sewer system, the contractor shall submit to DPW two (2) sanitary sewer as-built plans with GIS coordinates for each manhole noted. The as-built plans shall be on copy-tuff and in a computer .dxf version file format, and meet the following requirements:

a. All record plans are required to be in a uniform size of 24" by 36".
b. Scale for plans: Horizontal 1 inch = 40 feet, Vertical 1 inch = 4 feet.
c. Station figures to be shown on all manhole structures.
d. Distance of laterals are to be shown with depths of end of pipe at the property line.
e. Ties to the "Y"'s and end of laterals are to be shown from permanent structures.
f. Ledge and selected materials are to be shown in the profile.
g. Slope, size and type of pipe to be shown in profile.
h. All utilities encountered during construction to be shown on profile.
i. Sanitary sewer record plan and storm drain plans are to be drawn separately.
j. The record plan shall be drawn so as the north designation shall be pointing in the upper quadrant. An ID Table needs to be provided on the plans.
k. The X and Y coordinate shall be the Massachusetts State Plane Feet Coordinates.
l. The elevations shall be based on the City of Taunton's Mean High Water (MHW) data or the Massachusetts state standards for the vertical coordinates.

**1.17** After the New Plat work is completed to its satisfaction, DPW shall review the as-built plans and GIS data submitted by the Applicant and shall accept this information only if the as-built plans and GIS data comply with and the City requirements. After this data is approved by DPW, DPW shall approve the sanitary sewer plan for the New Plat or subdivision and submit to the DPW Commissioner a Final Inspection report consisting of, but not limited to, the field data, inspection reports, test results, video tapes, one (1) set of as-built plans, and all documentation relating to the project, for the City's records. The DPW Commissioner shall forward copies of the pertinent information to Engineering and the IT Department. Veolia Water shall submit an O&M cost estimate with the final report which shall be used to modify it's Service Fee after review and approval by the DPW, effective thirty (30) days from its submission or on a date agreeable to both Veolia Water and the DPW. This information shall be submitted prior to submission of the final bill for this work unless the Applicant fails to furnish all the information required within thirty (30) days of the completion of the field work.

**1.18** A process will be developed to assure all review, engineering, construction and acceptance testing required for new sanitary sewer service is paid for in advance of the work being performed by the City.

**1.19** All sanitary sewer lines on public property constructed pursuant to the provisions of the preceding section shall become the property of the City when said installation is successfully tested and accepted by the City. After such sanitary sewer lines have been connected with the public sanitary sewer, all the normal costs of operating and maintaining the Sanitary sewer Mains shall be borne by the City. However, the City may backcharge the contractor for any abnormal conditions for a period of twelve (12) months after acceptance.

**1.20** Private sanitary sewers and sanitary sewers extending into adjacent communities which connect to the City sanitary sewer, shall be installed in conformance with the City Sanitary sewer Use Ordinance and these regulations unless otherwise approved by the DPW Commissioner.

**1.21** No person shall make connection of roof downspouts, floor drains, sump pumps, exterior foundation drains, areaway drains, or other sources of surface runoff or groundwater to a building sanitary sewer, Building Drain, Building Lateral, or Street Lateral which in turn is connected directly to a public sanitary sewer or septage system.

**1.22** The sanitary sewer lateral from the sanitary sewer main shall be the full ownership and maintenance responsibility of the property owner. The property owner shall be required to install, repair, replace and maintain their sewer lateral out to the sanitary sewer main. Any work on the sewer lateral must be performed by a contractor licensed by the City. The required permits to work on a sewer lateral must be obtained from the City prior to work being performed in the public right of way. One of the required permits will be the City Street opening permit requirements and specifications.

**1.23** Any excess inflow or infiltration identified by the City from a sanitary sewer lateral must be corrected by the property owner within 90 days of notification by the City. Excess inflow and infiltration will be 500 gallons per day per inch diameter per mile of pipe.

## 2. SANITARY SEWER STANDARDS

### 2.1 Design Flows

The Applicant for new or expanded sanitary sewer service will

provide details on the quantity and quality of sanitary sewer wastes being proposed. DPW will evaluate the quantity and quality of the proposed sanitary sewer waste to determine its acceptability and hydraulic impact on the sanitary sewer system based on data and calculations provided by the Applicant's Engineer.

## 2.2 Design Guidelines

Design guidelines for sanitary sanitary sewer collection systems and pump stations shall follow the latest edition of the TR-16 entitled "Guides for the Design of Wastewater Treatment Works" as published by the New England Interstate Pollution Control Commission. The specifications for the pump stations shall be in accordance with Exhibit A.

## 2.3 Minimum Size

No gravity sanitary sewer main shall be less than eight (8) inches (20.3 cm) diameter.

## 2.2 Depth

The minimum cover shall be four (4) feet over the crown of the pipe, except that insulation may be provided for sanitary sewers that cannot be placed at a depth sufficient to prevent freezing upon the approval of the DPW Commissioner.

## 2.3 Buoyancy

Buoyancy of sanitary sewers, manholes and structures shall be considered and flotation of the pipe, manholes and structures shall be prevented with appropriate construction where high groundwater conditions are anticipated.

## 2.4 Slope

All sanitary sewers shall be designed and constructed to give mean velocities, when flowing full, of not less than 2.0 feet per second (0.61 m/s) nor greater than 10.0 feet per second (3.05 m/s), based on Manning's formula using an "n" value of 0.013. Velocities greater than 10 fps or less than 2.0 fps (0.61 mps) when flowing full, will be unacceptable.

The minimum and maximum slopes for a sanitary sewer main shall be as follows:

| Sanitary Sewer Size | Minimum Per Cent (Feet per 100 foot) |
|---|---|
| 8 inches (203 mm) | 0.40 |
| 10 inches (254 mm) | 0.28 |
| 12 inches (305 mm) | 0.22 |
| 14 inches (356 mm) | 0.17 |
| 15 inches (381 mm) | 0.15 |
| 16 inches (406 mm) | 0.14 |
| 18 inches (457 mm) | 0.12 |
| 21 inches (533 mm) | 0.10 |
| 24 inches (610 mm) | 0.08 |
| 27 inches (686 mm) | 0.067 |
| 30 inches (762 mm) | 0.058 |
| 36 inches (914mm) | 0.046 |
| 42 inches (1067 mm) | 0.037 |

The City will not accept flow velocities greater than 12 feet per second.

Sanitary sewers shall be laid with a uniform slope between manholes. The City shall not accept pipe deflections greater than 5%.

## 2.5 Peak Flow Depths

Sanitary sewers of a diameter from eight (8) inches (20.3 cm) through twenty-one (21) inches (53.3 cm) shall be designed so that they are flowing at a depth no greater than 0.6 times the diameter of the sanitary sewer at peak flow rates.

Sanitary sewers of a diameter larger than twenty-one (21) inches (53.3 cm) shall be designed so that they are flowing at a depth no greater than 0.7 times the diameter of the sanitary sewer at peak flow rates.

## 2.6 Alignment

All new sanitary sewer lines shall be installed with straight alignment between manholes, using a laser system for alignment and degree of slope. Each manhole floor and invert shall be within 0.01 feet of that on the approved plan.

## 2.7 Changes in Pipe Size

Installing a smaller sanitary sewer downstream from a larger sanitary sewer in general will be considered unacceptable.

At the juncture between a sanitary sewer and one of larger diameter, the inverts of the sanitary sewers shall be designed so that the peak flow lines match.

### 2.8 Materials

Gravity sanitary sewer pipe shall be PVC SDR 35 for gravity sewers for pipe sizes through 15" and PS 46 for pipe sizes 18" and larger. conforming to ASTM Specifications D-3034.. All pipe shall have compression joints with an elastomeric gasket type conforming to ASTM D-3212.. For certain conditions, the City may approve an alternate pipe material.

### 2.10 Easement

Any sanitary sewer main shall include a fifteen (15) foot wide easement on each side of it (a total of thirty (30) feet) to provide for maintenance, within which no permanent structures may be installed. Where an easement extends onto private property, in the event the City, or the City's designee, desires to inspect, maintain, clear, repair, replace, alter, add to or remove its sanitary sewer main, or otherwise to excavate the subject easement on private property, and/or to install a new sanitary sewer main, the City will take whatever steps are required to do so in a manner causing a minimum of inconvenience to the property owner and interference with their use of the land. However, the property owner shall make no claim against the City for any losses or damages, including without limitation, loss of business, consequential damages or losses, it may sustain by reason of any inconvenience or interference in connection therewith. Any additional expenses incurred by the City in taking such steps to cause minimum inconvenience and interference shall be reimbursed by the property owner. The City shall restore the area to the condition when the sanitary sewer main was installed; the property owner shall be responsible for any additional restoration costs.

## 3. SIPHONS

### 3.1 Sizing

Siphons shall have no less than two barrels with a minimum pipe size of 6 inches and should be provided with necessary appurtenances for convenient flushing and maintenance.

The design shall provide for sufficient heads and pipe sizes to secure velocities of at least 3.0 feet per second (0.92 m/s) for average flows under initial conditions.

### 3.2 Manholes

Manholes shall have adequate clearances for cleaning equipment and for inspection and flushing.

The inlet and outlet details shall be arranged so that the normal flow is diverted to one barrel and so that either barrel may be taken out of service for maintenance. Provide a hose connection to the siphon for flushing purposes.

## 4. AERIAL CROSSINGS

### 4.1 Support

Provide appropriate support for all joints and pipes used for aerial crossing. The supports shall withstand frost heaves as well as overturning, settlement, flooding, thermal expansion, vibrations, and other loads that may act against the piping.

### 4.2 Freeze Protection

Provide precautions against freezing by insulation and increased slope. Provide expansion joints between above-ground and below-ground sanitary sewers. Where buried sanitary sewers change to aerial sanitary sewers, use special construction techniques to minimize damage from frost heaves.

### 4.3 Physical Protection

For aerial stream crossings, consider the impact of flood waters and debris. The bottom of the pipe shall be now lower than the 100-year flood elevation. Ductile iron pipe with restrained mechanical joints.

## 5. PROTECTION OF WATER RESOURCES

### 5.1 Location of Sanitary Sewers in Streams

The top of all sanitary sewers entering or crossing streams shall be sufficiently below the natural bottom of the stream bed to protect the sanitary sewer line. The following minimum cover requirements must

be met:

a. 1 foot (30.5 cm) of cover where the sanitary sewer is located in rock.
b. 3 feet (91.4 cm) of cover in other material, except that more than 3 feet may be required in major streams.
c. In paved stream channels, place the top of the sanitary sewer line at least 1 foot (30.5 cm) below the channel pavement.

Position sanitary sewers located along streams sufficiently outside of the stream bed to allow for stream widening in the future and for the prevention of siltation during construction.

### 5.2 Structures

Locate sanitary sewer manholes or other structures outside of streams whenever possible. Where structures must be located in a stream, they shall not interfere with the free discharge of flood flows.

### 5.3 Alignment

Sanitary sewers shall cross streams perpendicular to the flow without a change in grade.

### 5.4 Materials

Sanitary sewers entering or crossing streams shall be watertight and free from changes in alignment or grade. Joints shall be retrained in order to prevent movement form stream forces. In major streams, provide ball-and-socket or restrained joints designed for hard service applications. Provide mechanical joints with retainer glands for smaller streams.

Backfill materials shall be stone, coarse aggregate, washed gravel, or other material that will not readily erode, cause siltation, damage pipe during backfill, or corrode the pipe. On large stream crossings, place riprap over the sanitary sewer pipe to prevent erosion.

## 6 MANHOLE STANDARDS

### 6.1 Location

Manholes shall be installed at the end of each line; at all changes in grade size, or alignment; at all intersections; and at distances not greater than three hundred (300) feet (91.4 m) or as approved by the DPW Commissioner.

## 6.2 Manhole Materials

Manholes shall be constructed of precast reinforced concrete, ASTM Designation: C-478, latest edition; or as approved by the DPW Commissioner, and shall have O-ring or bituminous based gasketed joints. A twelve (12) inch bedding of compacted stone shall be placed underneath any manhole. The minimum internal diameter shall be 48 inches (1.2 m).

All new manhole joints and pinholes shall be parged from the outside and inside to prevent infiltration. Following which, a bituminous coating shall be installed on the exterior.

Inlet and outlet pipes shall be joined to the manhole with a gasketed, flexible watertight connection or with another watertight connection arrangement that allows for differential settlement of the pipe and the manhole.

All inverts and tables shall be constructed with red sanitary sewer bricks. At least one row of red sanitary sewer bricks shall be installed between the manhole frame and structure to meet the finished grade. The bricks shall be well cemented below, on top, and between each other. However the inside and outside faces of the bricks shall not be covered with cement or mortar.

Ladder bars furnished for manholes and concrete chambers shall be designed in accordance with the latest requirements of ASTM C-478 of gray iron construction (minimum tensile strength of 40,000 psi) or fabricated of a minimum 3/8 inch round steel step encapsulated with copolymer polypropylene plastic. The manhole top and ladder bars shall be installed aligned for ease of entry.

## 6.3 Manhole Frame Materials

Cast iron manhole frames and covers with twenty six(26) inch diameter openings shall be used, Cat. No. L7-193 and LT-103 as manufactured by E.L. LeBaron Foundry Co. or approved equal. Materials used in the manufacture of the castings shall conform to ASTM A48 of latest revision, Class 30 or better. All frames and covers shall have machined bearing surfaces to prevent rocking and rattling. All frames and covers shall receive a factory painting of a manufacturer recommended black asphaltum or bitumastic coating which shall be smooth and durable with no tendency to scale or chip off.

On each manhole two (2) complete rings of a 1/2 inch diameter approved flexible butyl rubber joint sealant shall be installed between

the bottom of the frame and the top of the concrete of the manhole. At least two stainless steel ¾ inch anchor bolts shall be installed to secure the frame to the manhole, aligned with the center line of the road to minimize rocking.

All covers shall have clearly embossed the year of construction and the word "SANITARY SEWER" in three (3) inch letters.

In areas prone to flooding, watertight covers shall be installed in paved areas and locking covers equal to Type 2 as manufactured by E.L. LeBaron Foundry Co. with three keys per cover in non-paved areas under the direction of the DPW Commissioner.

### 6.4 Flow Drop

Provide a minimum 0.1 foot drop through the manhole.

Provide a minimum 0.2 foot drop through the manhole where there is a change in direction of greater than 45 degrees.

Wherever sanitary sewers enter manholes such that the inlet invert of the sanitary sewer is above, but less than 2 feet above, the manhole bottom, a channeled, steel troweled concrete fillet shall be constructed to prevent the flow from splashing into the manhole.

Manhole uncontrolled internal drops shall not exceed 2.0 feet.

Manhole drops in excess of 2.0 feet must be built with a vented external-drop manhole. The outside drop connection shall be encased in concrete.

### 6.5 Bench

Provide a bench on each side of every manhole channel. The bench should have a slope no less than 0.5 inch per foot and no greater than 1.0 inch per foot. No street lateral, sanitary sewer main, or drop manhole pipe shall discharge onto the surface of the bench.

## 7. BUILDING DRAINS

### 7.1 Conformance

The connection of the building drain into the public drainage system shall conform to the requirements of the building and plumbing code to other applicable rules and regulations of the City, or the procedures set forth in appropriate specifications of the ASTM and Water Environment Federation Manual of Practice No. 9, latest edition. All

such connections shall be made gastight. Any deviation from the prescribed procedures and materials must be approved by the DPW Commissioner before installation.

### 7.2 Minimum Size

The pipes for Building Drains, the lowest horizontal piping of a drainage system which receives the discharge from wastewater pipes inside the walls of the building and conveys it to the Building Lateral, shall be not less than four (4) inches in diameter, but larger sizes may be required by the DPW Commissioner.

### 7.3 Depth

Whenever possible, the Building Drain shall be brought to the building at an elevation below the basement floor.

No plumbing fixtures shall be installed where the overflow rim of the lowest plumbing fixtures are below the next upstream manhole in the public drainage system, except where:

a) A sewage grinder pump is utilized to pump sewage to the Building Drain, upon approval of the DPW Commissioner, or

b) A backwater valve is installed only for plumbing fixtures installed where the overflow rim of the lowest plumbing fixtures are below the next upstream manhole in the public drainage system, upon approval of the DPW Commissioner.

In either of the above cases, the City shall have no responsibility for the installation, operation, and maintenance of said equipment.

### 7.4 Materials

The Building Drain, shall begin a minimum of six (6) inches (15.2 cm) inside the foundation wall, through the foundation wall, and to five (5) feet (1.5 meters) outside the inner face of the building wall shall be four (4) inch (10.2 cm) diameter PVC, cast iron, or ductile iron pipe.

## 8. SANITARY SEWER LATERALS

### 8.1 Ownership and Responsibility

The sanitary sewer lateral from the customers property to the sanitary sewer main shall be the full ownership and maintenance responsibility of the

property owner. The property owner shall be required to install, repair, replace and maintain their sewer lateral out to the sanitary sewer main. Any work on the sewer lateral must be performed by a contractor licensed by the City. The required permits to work on a sewer lateral must be obtained from the City prior to work being performed in the public right of way. One of the required permits will be the City Street opening permit requirements and specifications.

The DPW Commissioner shall require the Applicant at their cost to CCTV an existing clay sewer lateral that will be used to provide service to determine the condition of the exiting sewer lateral. Repair, rehabilitation or replacement of the sewer lateral shall be required prior to the tie-in being completed.

For all new or modifications for connections to the sanitary sewer lateral a cleanout at the property line shall be required to be installed by the property owner at their expense. The cleanout will be required to meet the Taunton specifications for clean outs.

**8.2 Minimum Size**

The pipes for Building Laterals and Street Laterals from the public sanitary sewer main, but never nearer to the connected building than the end of the Building Drain, shall be not less than six (6) inches (15.2 cm) in diameter, but larger sizes may be required by the DPW Commissioner.

**8.3 Depth**

Sanitary sewer service connections, Street and Building Laterals, from the public sanitary sewer to the Building Drain shall be laid at such depth and gradient and in such location as the DPW Commissioner may determine.

**8.4 Slope**

Building Lateral and Street Lateral pipes shall be laid with a minimum gradient of at least one-quarter inch per foot (2.1 cm/m).

**8.5 Alignment**

All pipe shall have compression joints. The following design standards for sanitary pipes and laterals shall be followed.

**8.6 Materials**

Gravity sanitary sewer pipe shall be ASTM Rigid Schedule 40 or heavier PVC Pipe for sanitary sewer use conforming to ASTM

Specifications D-3034, or as approved by the DPW Commissioner. All pipes shall have compression joints with an elastomeric gasket type conforming to ASTM D-3212; or as approved by the DPW Commissioner.

## 8.7 Installation

Street and Sanitary sewer Laterals shall be laid accurately to straight lines and gradients, except that:

a) If angles in the alignment of building sanitary sewers are unavoidable, the changes in direction or gradient shall be provided with special means for flushing and cleaning in accordance with the particular requirements of the DPW Commissioner. When completed, the inside of a sanitary sewer service connection shall be left smooth and clean.

b) Building Laterals, from the property line to the Building Drain, shall end with a cleanout, a six (6) inch (15.2 cm) by six (6) inch (15.2 cm) by four (4) inch (10.2 cm) PVC Schedule 40 wye with a four (4) inch (10.2 cm) PVC Schedule 40 standpipe and brass threaded cover located at ground level. The outlet of the wye shall be located at the property line and shall connect to the Street Lateral.

c) Where practical, the Street Lateral, from the sanitary sewer Main to the Building Lateral at the Property Line, shall tie into a manhole; the hole shall be bored and patched around the Street Lateral inside and outside of the manhole to prevent infiltration and movement of pipe. The Street Laterals shall empty into inverts going with the flow of wastewater. No service connection pipe will be installed below the invert grade of the sanitary sewer structure. If the Street Lateral enters the manhole equal to the invert or equal to the table, the table shall be rebuild to make an invert for the new service to provide a smooth flow line for the connection.

d) Street Laterals shall otherwise enter the sanitary sewer main above the spring line, angled so that the lateral sewage enters flowing with the sewage in the sanitary sewer main. The Street Lateral shall be attached to the sanitary sewer main with a Fernco type coupling. The Street Lateral may include a 6” PVC Schedule 40 angle, not greater than $45^{o}$, to provide the proper flow alignment.

No service pipes for other utilities, such as water, gas and the like, whether City owned or privately owned, shall be laid in the same

trench with a building sanitary sewer, except by written approval of the DPW Commissioner.

If during inspection a Building Lateral clean out trap can not be penetrated for lateral inspection or cleaning, the property owner shall replace it with a PVC wye at their expense.

If the Building Lateral to be connected with a Street Lateral is found to extend within the limits of the City street, the Owner or his Contractor will be required to take out a street opening permit form the City.

## 8.8 Inspection

The contractor installing the Building Lateral and Street Lateral shall make a submittal as per Section 1 above, including details of the cleanout and sanitary sewer main connection.

The applicant for the building sanitary sewer connection permit shall notify DPW when the Street Lateral is to be installed. The installation of the Street Lateral shall be made under the supervision of DPW .

The applicant for the building sanitary sewer connection permit shall notify the Plumbing Inspector when the Building Drain and Building Lateral are ready for inspection, and connection to the Street Lateral. The installation of the Building Drain and Building Lateral shall be made under the supervision of the Plumbing Inspector.

The contractor installing the Building Lateral and Street Lateral shall provide two (2) copies of as-built drawings of the installation acceptable to DPW to both DPW and the Building Inspector with dimensions to locate the cleanout.

## 8.9 Separate and Independent Building Sanitary Sewer and Drain Laterals

No sanitary sewer service connection shall serve more than one building, except by permission of the DPW Commissioner. A separate and independent Building Lateral shall be provided for every building; except where one building stands at the rear of another on an interior lot and no private sanitary sewer is available or can be constructed to the rear building through an adjoining alley, court, yard or driveway, the Building Lateral from the front building may be extended to the rear building and the whole considered as one Building Lateral, but the City does not and will not assume any obligation or responsibility for damage caused by or resulting from

any such single connection aforementioned. The rights appurtenant to such single connection or extension from a front building to a rear building shall be recorded with each of the respective deeds.

## 9. PRESSURE SANITARY SEWER SYSTEMS

### 9.1 Pressure Lateral

When a building can not be serviced by a gravity lateral to the main sanitary sewer, a pumped lateral may be installed directly to the closest manhole on the sanitary sewer main with the approval of the DPW Commissioner. In such instances, the minimum pipe size allowable for a pumped lateral shall be 1 ¼ inches and the system shall be designed for a minimum flow rate 2 feet per second. Such a system shall have minimum 70 working gallon receiving tank. The City shall have no responsibility for the operation and maintenance of said equipment, including the pressure lateral to the manhole or pressure main. Pressure laterals shall discharge to a pressure sanitary sewer main via a wye or to a manhole, but not directly into a gravity sanitary sewer main. The lateral to the main shall include a plug valve type curb stop and box as well as a flapper type check valve. The diameter should be 3 to 4 inches with a cover marked sewer (a locking cap is not needed) Also, make sure a flat concrete block is placed under curbstop to prevent to unit from shifting and settling. Stone should be placed around the curbstop after the shoe is on to help it the bleeder and lock it in position Inspection of inside w/ flashlight should be made to make sure the curbstop is centered and free of debris. The dept should be at least 4ft and no more than 5 ft max. The curbstop should be visible from the surface (not buried and off the street).

The system shall be designed to limit the maximum Total Dynamic Head at any point in the system to 60 psi (138 feet) or less.

### 9.2 Septic Tank Effluent Pumping (STEP)

A property owner may install a sewage grinder pump to discharge the treated discharge from their septic tank to the Street Lateral or main sanitary sewer with the approval of the DPW Commissioner. In such instances, the minimum pipe size allowable for a pumped lateral shall be 1 1/4 inch and the pump shall meet all the requirements of Section 9.3. The City shall have no responsibility for the operation and maintenance of said equipment.

### 9.3 Grinder Pumps

Sewage grinder pumps shall have an oil filled hermetically sealed motor, hardened stainless steel cutter rotor and disc, automatic alternate direction, stainless steel fasteners, and a seal leak alarm, as

approved by the DPW Commissioner. Unapproved grinder pumps will be required to be replaced with pumps approved by the DPW Commissioner at the property owner's expense. The pump and discharge piping shall be designed for a minimum flow rate of 2 feet per second in the discharge piping at diurnal peak flow periods. The grinder pump shall have a minimum pumping capacity of 9 gpm at the design peak system head.

The collection tank shall be resistant to corrosion and stress cracking. The tank shall be capable of withstanding the pressure exerted by saturated soil conditions at the maximum burial depth.

The pumping system shall be equipped with visual and audio alarms to signal high water level in the collection tank. The alarms shall be detectable in the building's occupied space.

The grinder pump controls shall be mounted in an exterior weatherproof, lockable enclosure (NEMA 3R).

Electrical power supply to the grinder pump shall be capable of being switched from utility service to portable emergency generator supply in the event of an extended power outage. The connection point for the emergency power supply shall be readily accessible, located with the grinder pump exterior control box.

The grinder pump motor shall have inherent protection against running overloads or locked rotor conditions and shall incorporate an automatic reset, integral overload protector.

All electrical work shall be performed in accordance with National Electrical Code (NEC) standards and applicable state and local codes.

The grinder pump core shall have a lifting eye and cable to facilitate removal.

## 9.4 Cleanout/Flushing Connections

A cleanout/flushing connection manhole or structure shall be placed on each lateral at the property line with an inlet valve, wye, and cleanout valve so that the line from the property to the sanitary sewer main can be isolated and pressurized from the cleanout or rodded. They shall also be installed at all terminal ends, every 1,000 feet of continuous runs, and wherever two or more mains meet and feed into another main.

## 9.5 Pressure Sanitary sewer Main

A pressure sanitary sewer main shall be designed to provide a velocity of 2 feet per second at the average daily flow of the installed system.

All pressure laterals shall enter via a wye. All bends shall be long radius sweeps. The pipe material shall be Class 200, SDR 21 PVC or greater. The minimum size pressure/force main shall be 4 inch.

Air relied valves shall be installed at high points. Vacuum valves shall be added as required to relieve negative pressures. All low pressure sanitary sewer system buried piping shall be marked by 3-inch wide detectable tracer tape suitable for burial and detection by metal or pipe locators.

Thrust blocks shall be installed at all bends, tees and changes in direction of sufficient size to resist maximum system thrust. Surge protection shall be provided as required.

All fittings, valves, quick connects, cleanouts, air/vacuum valves and other appurtenances shall be of corrosion resistant materials and appropriate to the application according to the manufacturer's recommendations.

The low pressure sanitary sewer system shall be pressure and leakage tested in accordance with applicable AWWA C600 standards. Force mains shall be tested to at least 2 times the maximum operating pressure.

### 9.6 Air/Vacuum Release Valves

To release air trapped in the pressure lines, site automatic air/vacuum release valves at high points in the system and at intervals of no more than 2,000 feet along any continuous runs. Air/vacuum release valves shall be located in a manhole or structure to allow access for repair and maintenance. Also, place air/vacuum release manholes at least 14 pipe diameters downstream of the location where hydraulic jumps occur. Hydraulic "jumps" form in sections where the pipeline intersects with the hydraulic grade line. Air bubbles formed by hydraulic jump conditions are carried downstream with the wastewater flow.

Cleanout and air/vacuum manholes shall include frost-proof covers. All piping with the manholes shall be adequately supported.

## 10. INSTALLATION

### 10.1 Trenching

All excavation for sanitary sewer installation shall be adequately guarded with barricades and lights so as to protect the public from

hazard. Streets, sidewalks, parkways and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the City.

Ledge rock, boulders, and large stones shall be removed, providing a minimum of 4 inches (10.2 cm) below and on each side of all pipe(s).

Minimum bedding requirements for sanitary sewer pipe construction shall be Class B as described in the American Society of Testing Materials standard ASTM C 12.

### 10.2 Backfilling

No backfill shall be placed against newly constructed masonry or concrete structures unless authorized by DPW. Only after the manhole structures have been inspected can the area around the manhole structure be backfilled.

All backfill shall be of suitable selected bank run or plant processed sand and gravel with a maximum sieve size of ¾ inch material, approved by the City.

Debris, frozen material, large clods, stones, organic mater, or other unsuitable materials for backfill shall not be used.

For additional bedding and backfill details, see City Standards CR-10/S-1, that are available in the Department of Engineering.

### 10.3 Compaction

The backfill under and beside the pipe shall be compacted for pipe support evenly on both sides of the pipe in layers so that the pipe remains aligned. These layers shall be compacted to not less than 95% of maximum density according to AASHTO T180 and shall be no more than 8-inches thick after compaction.

After successful pressure tests, all sanitary sewer lines and manholes structures shall be cleaned and flushed by the contractor.

### 10.4 Sanitary Sewer Flow Test

After the contractor has cleaned and flushed the system, the City shall perform a flow test which consists of running water into the upstream manhole and inspecting the system after the water is turned off for any standing water in the manholes or pipes.

### 10.5 Street Repairs

All repairs to City streets shall be in accordance with the most recent

revision of the City of Taunton Specifications for Utility Company Repairs to City Streets.

## 11. INTERNAL INSPECTION/TESTING OF SANITRAY SEWERS

### 11.1 Sanitary Sewer Main Camera Inspection

After the sanitary sewer manhole structures and sanitary sewer pipes are installed, but before the manhole inverts are installed, the contractor will camera inspect and video tape the sanitary sewer main lines to the satisfaction of DPW who shall be present for the entire period to verify that there are no discrepancies in the pipes.

### 11.2 Sanitary Sewer Main Leakage Testing

After the camera inspection is completed, the contractor shall air pressure test the sanitary sewer mains and laterals with the DPW inspector present to approve the test. Leakage tests shall include water or low pressure air testing. The leakage exfiltration or infiltration shall not exceed 100 gallons per inch of pipe diameter per mile per day. The test shall be conducted with a minimum positive head of 2 feet.

The low pressure air test will have a starting pressure of four (4) psi. The allowed pressure drop during the test will be 0.5 psi. The time for the test will vary depending on the size and length of pipe being tested. The contractor must explicitly identify what repairs or modifications he makes, at his expense, to the inspector.

### 11.3 Service Laterals (Connections)

Service Laterals (Connections) to the sewer main shall be watertight and not protrude into the sewer. All materials used for the service laterals (connections) shall be compatible with the other materials to be joined. All sewer laterals shall have a cleanout at the property line meeting the technical requirements of the DPW.

### 11.4 Manhole Camera Inspection

All manhole structures shall be inspected by DPW and video taped after the inverts are installed for proper installation of brickwork and proper angles of inverts.

### 11.5 Manhole Inspection and Testing

Once the manhole structures are completed, the contractor shall conduct a manhole air vacuum test, with the City present to approve the test. The vacuum test will consist of ten (10) inches of mercury for three (3) minutes or a longer amount of time if the inspector deems necessary. The vacuum pressure shall not drop more than 1 inch of mercury for the manhole to pass the test. The contractor must explicitly identify what repairs or modifications he makes, at his expense, to the Inspector.

## 12. PROTECTION OF WATER SUPPLIES

### 12.1 Relation to Water Structures

Sanitary sewers shall be located far away from public water supply wells or other potable water supply sources and structures. Engineer plans shall show all existing waterworks units, such as basins, wells, or other treatment units that are within 200 feet of the proposed sanitary sewer.

### 12.2 Relation to Water Mains

Whenever possible, lay out sanitary sewers at least 10 feet from any existing or proposed water main. A sanitary sewer may be installed closer than 10 feet to a water main provide that it is laid out in a separate trench with the crown of the sanitary sewer at least 18 inches (46 cm) below the invert of the water main. Exceptions require the approval of the DPW Commissioner.

Whenever sanitary sewers must cross water mains, lay out the sanitary sewer so that the top of the sanitary sewer is at least 18 inches (46 cm) below the bottom of the water main. The sanitary sewer joints shall be equidistant and located as far away as possible from the water main joints. When the sanitary sewer can not meet the above requirements, relocate the water main to provide for this separation or reconstruct it with mechanical-joint pipe for a distance of 10 feet on each side of the sanitary sewer. One full-length water main should be centered over the sanitary sewer so that both joints will be as far from the sanitary sewer as possible. Where a water main crosses under a sanitary sewer, adequate structural support should be provided for the sanitary sewer to maintain line and grade.

When it is impossible to achieve horizontal and/or vertical separation as stipulate above, both the water main and the sanitary sewer shall be constructed of mechanical-joint cement-lined ductile iron pipe or another equivalent that is watertight and structurally sound. Both

pipes shall be pressure tested to 150 psi to ensure they are watertight.

# EXHIBIT A-TAUNTON SEWAGE PUMPING STATION SPECIFICATIONS

TAUNTON, MASSACHUSETTS

## 1.01 GENERAL

The specifications for sewage pump stations will follow the guidelines set forth in Chapter 3 Wastewater Pumping Stations as outlined in TR-16 as published by the New England Interstate Water Pollution Control Commission.

## 1.02 DESIGN

Wastewater pumping station shall handle peak flows for the present and within the planning period as outlined in the Comprehensive Wastewater Management Plan for the geographic area to be served by the proposed pumping station.

The pump station shall be accessible by vehicles and personnel in all weather conditions. Wastewater pumping stations shall be protected from flooding the 100 year storm event.

Pump stations shall be designed to architecturally fit within the area. Noise, security odor control and landscaping shall be provided.

Prior to initiating detailed engineering design for a new or expanded pump station, a basis of design shall be prepared by the engineer and submitted to the DPW for approval.

## 1.03 PUMPING SYSTEM – GENERAL

A. Normally sewage lift stations shall be either wet well/dry well, submersible or suction lift. The wet well/dry well would be for the larger deeper pump stations. The determination as to the type of pump station will be based on the application and determined by City Department of Public Works Commissioner (DPW).

B. The Developer will furnish and install a complete automatic pumping system for the Pump Station. The principal equipment included in the pumping system shall include two non-clog pumps, valves, electrical and mechanical facilities, and related appurtenances. Discharge flow equipment shall be located in a separate chamber and will include piping, valves, check valves, gauges etc.
A separate control panel and pedestal, will house motor controls and the liquid level control system. All pump station facilities shall be located in either a vault or a structure. This will include the generator and the motor control center.

C. The pump station will be provided with telemetry and instrumentation as necessary to communicate pertinent pumping and alarm data to the Taunton WWTP SCADA system. The SCADA system provided shall be compatib to and coordinated with the Taunton WWTP. The Taunton WWTP must approve the equipment and contractor**.** Pertinent data and information from the SCADA system will be as follows:

- ✓ High water in the wetwell
- ✓ Low water in the wetwell
- ✓ Loss of one or more phases in the electric power or a power failure
- ✓ Generator running indication
- ✓ High water level in the pump room sump
- ✓ Loss of the alarm transmission
- ✓ Loss of air pressure in the bubbler tube system/level sensing trouble or failure
- ✓ Standby power failure or pump malfunction
- ✓ Intrusion on all doors and hatches
- ✓ Flow for the larger pump stations

D. The finished pump station shall be subject to a 30-day trial period before station acceptance by the City of Taunton. All costs associated with this trial period shall be at no cost to the City of Taunton. City of Taunton WWTP personnel will be allowed access to the station at anytime during the trial period for monitoring and station reliability checks. After acceptance by the City, a one year unconditional warranty would be provided by the Contractor.

E. Prior to the 30-day trial period, the developer shall provide 2 complete sets of comprehensive written Operation & Maintenance manuals to Taunton WWTP.

F. The station will be provided with an independent engine generator sized to adequately power peak flow under power failure conditions for a period of 24 hours.

1.04 SUBMERSIBLE PUMPS

A. The most common pumping stations will be submersible. Details for submersible stations are provided herein.

B. The pumps shall be automatically and firmly connected to the discharge connection, guided by no less than two Stainless Steel guide rails extending from the top of the station to the discharge connection. There shall be no need for personnel to enter the wet well. Sealing of the pumping unit to the discharge connection shall be accomplished by a machined watertight connection.

C. Major pump components shall be of gray cast iron, ASTM A-48, Class35B, with smooth surfaces devoid of blowholes or other irregularities. All exposed nuts or bolts shall be AISI type 316 stainless steel construction. All fasteners shall be coated with an Anti-Seize compound during construction. All metal surfaces coming into contact with the pumpage shall be protected by spray coating of acrylic dispersion zinc phosphate primer with a polyester resin paint finish. Critical mating surfaces where watertight sealing is required shall be machined and fitted with Nitrile or Viton rubber O-rings or gaskets. Fittings will be the result of controlled compression of rubber O-rings in two planes and O-ring contact of four sides without the requirement of a specific torque limit.

D. The cable entry seal design shall preclude specific torque requirements to insure a watertight and submersible seal. The cable entry shall consist of a single cylindrical elastomer grommet, flanked by washers, all having a close tolerance fit against the cable outside diameter and the entry inside diameter and compressed by the body containing a strain relief function, separate from the function of the sealing the cable. The assembly shall provide ease of changing the cable when necessary using the same entry seal.

D. The pump motor shall be induction type with a squirrel cage rotor; shell type design housed in an air filled, watertight chamber, NEMA B type. The stator windings and stator leads shall be insulated with a moisture resistant Class F insulation rated for 311° F. The stator shall be dipped and baked three times in Class F varnish and shall be heat shrink fitted into the stator housing. The motor shall be designed for continuous duty handling pumped media of 104 ° F and capable of up to 15 evenly spaced starts per hour. The rotor bars and short circuit rings shall be made of cast aluminum. Thermal switches set to open at 260 ° F shall be embedded in the stator lead coils to monitor the temperature of each phase winding. These thermal switches shall be used in conjunction with and supplemental to external motor overload protection and shall be connected to the control panel. The junction chamber containing the terminal board shall be hermetically sealed from the motor by an elastomer compression seal. Connection between the cable conductors and stator leads shall be made with a threaded compression type binding posts permanently affixed to a terminal board. The motor shall have a voltage tolerance of plus or minus 10%.

E. The motor shall be designed for operation up to 104° F ambient and with a temperature rise not to exceed 80°C. A performance chart shall be provided showing the curves for torque, current, power factor, input/output kW and efficiency. This chart shall also include data on starting and no load characteristics. The motor horsepower shall be adequate so that the pump is non- overloading throughout the entire pump performance curve from shut-off through run-out.

F. The pump shaft shall rotate on Roller and /or Ball type bearings. The upper bearing shall be a single deep groove ball bearing. The lower bearing shall be a two angular contact bearing to compensate for axial thrust and radial forces.

G. Each pump shall be provided with a tandem mechanical shaft seal system consisting of two totally independent seal assemblies. The seals shall operate in a lubricant reservoir that hydrodynamically lubricates the lapped seal faces at a constant rate. The lower, primary seal unit, located between the pump and the lubricant chamber, shall contain one stationary and one positively driven rotating solid tungsten carbide ring. The upper, secondary seal unit located between the lubricant chamber and the motor housing, shall contain one stationary solid tungsten carbide seal ring and one positively driven rotating solid tungsten carbide seal ring. Each seal interface shall be held in contact by its own spring system. The seals shall require neither maintenance nor adjustment nor depend on direction of rotation for sealing. The position of both mechanical seals shall depend on the shaft. All stationary and rotating seal faces shall be constructed of solid tungsten carbide to facilitate re-lapping. Each pump shall be provided with a lubricant chamber for the shaft sealing system. The lubricant chamber shall be designed to prevent overfilling and to provide lubricant expansion capacity. The drain and inspection plug, with positive anti-leak seal shall be easily accessible from the outside. The seal system shall not rely on the pumped media for lubrication.

H. Pump and motor shaft shall be the same unit. The pump shaft is an extension of the motor shaft. Coupling shall not be acceptable. The pump shaft shall be AISI431 stainless steel.

I. The impeller can be of gray cast iron, Class 35B, dynamically balanced, non-clogging design having a long throughlet without acute turns. The impeller shall be capable of handling solids, fibrous materials, heavy sludge and other matter found in wastewater.

J. A wear ring system shall be used to provide efficient sealing between the volute and suction inlet of the impeller. Each pump shall be equipped with a brass, or nitrile rubber coated steel ring insert that is drive fitted to the volute inlet.

K. Pump motors shall have cooling characteristics suitable to permit continuous operation in a totally, partially, or non-submerged condition. The pump and motor shall be capable of running without damage for extended periods. Pump and motor shall be explosion proof, suitable for Class 1, Division 1, Group C or D applications.

L. A leakage sensor shall be available to detect water in the stator chamber. The Float Leakage Sensor (FLS) switch used to detect the presence of water in the stator chamber. When activated, the FLS will stop the motor and send an alarm both local and / or remote.

1.05 SERVICE REQUIREMENTS DURING STARTUP OR WARRANTY PERIOD

A. The pump manufacturer and /or supplier must be able to respond to a service call within 4 hours on every day of the year.

B. The pump manufacturer and/ or supplier must be able to provide a rental or replacement back up pump within 8 hours of a service call on every day of the year.

C. The pump manufacturer and/ or supplier must have all replacement parts available within 8 hours of a service call on every day of the year.

D. The pump manufacturer shall provide station start up training at no charge to the City of Taunton.

1.06 MIX FLUSH VALVE

A. One pump shall be provided with one Mix Flush Valve System suitable for Class 1, Division 1, Group C and D installations. The valve will mix the wastewater automatically. The valve is to be mounted directly on one pump volute to direct part of the pumped discharge to flush solids into suspension at the start of each pumping cycle. The valve shall be positioned on the pump volute to provide a non-clogging operation. The valve shall be open at the beginning of each pumping cycle producing a jet flow, with a minimum pressure of 15 psi and close under full pump discharge after a predetermined time. The valve shall be operated by the liquid being pumped through a self-contained hydraulic system. A means of adjustment should be provided to achieve a 30-second flushing period for different flow and load conditions.

1.07 CONTROL PANEL - GENERAL

A. A pump station control panel shall be provided for the pump station. The control panel shall respond to a level measuring device to automatically start and stop the pump station as well as sound an alarm upon high \ low wet well levels. Pump station controls including telemetry and generators will be installed in a weatherproof structure.

B. The pump control panel shall be the standard system of the manufacturer as modified for this application. Any control panel must be approved by personnel of the Taunton WWTP

1.08 OPERATION REQUIREMENTS

A. The control panel shall consist of a main and emergency circuit breaker, a motor circuit protector, and a magnetic starter for each pump motor, and circuit breakers as required. All pump operations shall be accomplished by a level measuring device with all control components mounted in one common enclosure. Control switches shall provide means to operate each pump manually or automatically. When operated in the automatic mode, the control assemble shall provide for means to manually select or automatically alternate the position of the “lead” and “lag” pump after each pumping cycle.

1.09 LEVEL CONTROL SYSTEM

A. The preferred level control system shall be a conductivity measuring device, comprising a multi-sensored probe in conjunction with a Programmable Logic Controller. The system shall operate using extra low voltage as a method of determining liquid level. The level is sensed when the electrical conductivity of the liquid allows a small current to flow, which activates the controller.

B. The exposed surfaces of the conductivity probe shall be constructed from premium quality uPVC extruded tube and Avesta 254 SMO high-grade stainless alloy. Sensor points of Avesta 254 SMO are to be spaced equally along the length of the probe assembly with the corresponding, individually numbered control cables accessible in the attached flexible muti-colored support cable. The flexible probe cable shall be capable of carrying the weight of the probe without the need for additional support and shall be sealed and secured to the tip of the probe by a synthetic rubber compression fitting. The probe shall be pressure injected with an epoxy resin encapsulate to form a rigid homogenous unit.

C. The level sensing probe length shall be as determined by the engineer, as appropriate, but in any case not to exceed 2.5 meters overall length. The probe shall be suspended, using a stainless steel hook from a stainless steel mounting bracket and cleaning squeegee, secured with stainless steel type 318 fasteners and positioned at an appropriate place at the top of the wet well. This shall be done in accordance with the manufacturer installation instructions.

D. The probe cable shall be routed from the wet well to the control panel via a separate dedicated conduit. For ease of selection of the pump duty (on and off) levels and high (or low) level alarm setpoint, each of the 10 probe input wires shall be terminated at a terminal strip inside the control panel.

E. Programmable Logic Controller: The panel mounted pump controller shall operate in conjunction with the multi-sensored probe by providing extra low voltage AC (12 VAC, 0.8mA max) via the numbered probe cables. It shall be capable of controlling and monitoring 2 pumps and alarms by activating the pump starters and alarm devices. The controller shall incorporate front panel LED indicator lamps that give readouts of cycle and setting status, as well as keypad switches to control the operation, tests the alarm..

F. LED Indication: The controller face shall include LED indicators to display the following:

Pump run
Manual / Off / Automatic
Next Pump
High (or Low) Level Alarm
Alarm Status (Latch of Automatic reset)

G. Key Pad: The keypad shall include membrane type keys to operate or control the following functions:

Manual / Off / Automatic selection
Time-delay (15 second) actuation of pump control
Level alarm reset and alarm latch-off-auto selection
Alternation (duty mode selector)

H. Dipswitches will be provided to select the following program functions:

Charge or discharge modes
High / Low level alarm choice
Sensitivity settings: 1K-,4K-,20K-, or 80K-ohm

I. The pump controller shall accept inputs from the conductivity probe. Connection shall be simplified by the marrying of numbered probe cables (1-10, as terminated at a distinct terminal strip inside the control panel) to the appropriate terminals on the rear of the Programmable Logic Controller.

J. The pump controller shall provide volt-free (dry contact) relay outputs for the following:

Pump 1 – change over contacts (SPDT)
Pump2 – change over contacts (SPDT)
High and Low level alarm (flash and constant) (SPDT)

1.10 ACCESS HATCHES

A. All station access hatches shall be FDRN-6 Light duty (300PSF)-access hatch.

B. Material shall be 6061-T6 aluminum for bars, angles and extrusions. Unit shall be designed for a minimum live load of 300 lbs. / sq. ft. . Deflection shall not exceed 1/150$^{th}$ of the span.

C. Each door shall be equipped with an aluminum hold open arm. Door shall lock open in the 90° position. Each hold open arm shall have a red vinyl grip handle. Hold open arm shall be fastened to the frame with a ½- inch grade 316 stainless steel bolt.

D. Channel frame shall be of extruded aluminum, with a continuous 1 ¼ inch anchor flange. Channel frame shall be a minimum of ¼ inch thick, with a minimum cross section of 7 ½ inches.

E. The FDRN style hatch shall be supplied with a 1-½ inch threaded drain coupler on the underside of the channel frame for pipe connection.

F. Hinges shall be of heavy-duty design. Material shall be a brass alloy with a 65,000-psi tensile strength. Each hinge shall have a 3/8-inch grade 316 stainless steel pin. Hinges shall be bolted to the angle frame and diamond plate, with 316 stainless steel bolts and ny-lock nuts.

G. Hatch shall be furnished with an exposed padlock clip and an aluminum lift handle. The lift handle shall be flush with the top of the ¼ inch diamond plate.

H. The hatch shall be provided with a hinged aluminum “Safe Hatch” designed to combine covering of the opening per OSHA Standard 1910.23 and shall include fall through protection and controlled confined space entry. Safety grates shall be made of 6061-T6 aluminum with a minimum ultimate strength of 38,000 psi and minimum yield strength of 35,000psi, as per ASTM B221. Grate design shall use safety factors as defined in the Specifications for Aluminum Structures, by the Aluminum Association, Inc. 5$^{th}$ Edition, December 1986 for Bridge Type Structures.

I. Aluminum grating shall be designed to withstand a minimum live load of 300 pounds per square foot. Deflection shall not exceed 1/150 th of the span. Grate opening shall be 5inch X 5 inch, which will allow for visual inspection of the pit and float adjustment once the hatch is open.

J. Each grate shall be provided with a permanent hinging system, which will lock the grate in the 90° position once opened. Design of the system must assure fall protection is in place after the hatch door is closed, thereby protecting the next station attendant.

K. Each grate shall have an opening arm with a red vinyl grip handle, which will allow opening of the grate, while providing the grate as a barrier between the operator and the pit. The grating system will allow any attendant to make visual inspection without entering the confined space.

L. Grating shall be painted with OSHA type safety orange paint.

M. All welding shall be in accordance with ANSI/AWS D1.2-90 Structural Welding Code for Aluminum.

### 1.11 Field Testing and Acceptance

The Contractor shall be required to prepare a detailed plan for acceptance testing of a new pumping station. The plan shall be approved by DPW prior to the scheduling of a field acceptance test. The City will approve the time and date for scheduling the field acceptance test. The City shall be provided the O&M Manuals prior to the field acceptance testing.

Additions to Sanitary Sewer Code

**Sec. 19.7 Installation of backflow preventer.**

(e) Mandatory Backwater Valves on any new building sewer or sewer lateral installation, alteration, or repair to existing building sewers or lateral.

(1) Materials, construction, diameter- All bearing parts of backwater valves shall be corrosion-resistant material and shall be constructed in such a manner so as to provide a mechanical seal against backflow. Backwater valves, when fully opened, shall have an effective opening not less than that of the pipes in which they are installed.

(2) Location- Backwater valves shall be installed in a location that provides easy access for service and repairs. Backwater valves located outside the foundation wall will require a sign reading "backwater valve installed" and be located above the main clean out for the building

(3) Correction upon sale or transfer- Except as hereinafter provided, no person shall sell, transfer, or convey any improved real property that is connected to the City of Taunton sewer system without first installing or conforming to the ordinance.

(4) Approval- the Plumbing Inspector shall approve all backwater valves prior to installation.

# TAUNTON BACKWATER OVERFLOW PREVENTION ORDINANCE

***Backwater Valves Help Prevent Sewer Backups in Your Home***

Purpose for requiring installation of backwater overflow prevention devices.

When blockages or stoppages occur in sanitary sewers, there exists the potential for adverse public and private health impacts, bodily injuries and damage to property resulting from sewerage overflow and back flooding on public property. It is the purpose of this ordinance to protect the health, safety and welfare of the residents of the city of Taunton ma. In addition, to minimize the possibility of damage to property or injury to persons by requiring the proper installation and maintenance of backwater overflow prevention devices pursuant to the directives and standards of city of Taunton.

THE CITY OF TAUNTON would like to pass along a few facts that will assist you in understanding, and possibly preventing, the rare occurrence of a sewer backup. Flooding in the sewer system can be caused by blockage in the sewer lines or by infiltration of surface water during storms. The City does everything possible to prevent this problem, but flooding of sewer lines may still occasionally occur. City ordinance currently requires installation of a backflow preventer in the service line connecting a new building to the City sewer system. Existing buildings are not required to provide such a device, but the City strongly recommends that owners consider retrofitting backflow preventers for existing buildings.

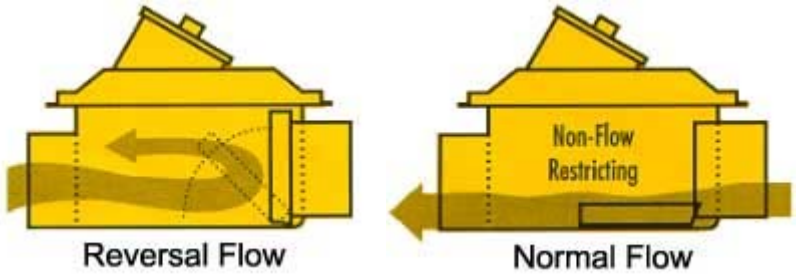
**Did you know?** Most homeowner's insurance policies do not pay for sewer backups;

The risk of back-flows will undoubtedly increase in future in line with the predicted greater frequency of heavy rainstorms. This is why it is important to remove roof drains from the sewer system. Sewers are designed to cope with average rainfall volumes for economic and technical reasons. Mixed water sewers can therefore very quickly fill up completely during major cloudbursts.

Raw sewage. Have you ever had it come out of your toilets, shower stalls or sinks? Though rare, some residents have experienced such unfortunate events. Owners can minimize their exposure to such an incident.

**What should property owners do?** Property owners are recommended to install both a backflow preventer valve to minimize the chance of flooding at properties that meet the aforementioned specifications.

**How does it work? T**he "lateral" is the underground pipe that carries sewage from private property to the City's sewer main. The backflow valve is installed downstream and prevents sewage from backing up into the lateral beyond this valve.




It is important to remember to maintain your property. The backflow preventer valve should be inspected annually. Remove the access cap and clean out any debris.

# City ordinance
# Chapter 19
# SEWERS AND DRAINS

## Sec. 19.7 Installation of backflow preventer.

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(4) Approval- the Plumbing Inspector shall approve all backwater valves prior to installation.

**Sec. 13-171. Same – Designation of Intersections**

*Be it ordained by the Municipal Council of the City of Taunton as follows:*

That Section 13.171 of the Revised Ordinances of the City of Taunton, as amended, be and hereby are further amended by adding thereto the following:

McIntosh Drive, northeast corner and southwest corner of McIntosh Drive at the intersection of McIntosh Drive and Quequechan Road.

All ordinances or parts thereof inconsistent herewith are hereby repealed. This Ordinance shall become effective immediately upon passage.

***Ordinance for a third reading to be ordained on a roll call vote***

# AN ORDINANCE

**Establishment of Sewer Bank**
**And**
**Infiltration/Inflow Removal Fee**

## 1. Purpose

The purpose of the Sewer Bank is to allow limited expansion of sewers while decreasing the burden on an overtaxed sewer system. The Taunton sewer system currently experiences overflows during times of high groundwater and heavy rainfall, and allowing additional flow into the system without reductions in extraneous flow would worsen the problem. The Sewer Bank will ensure that groundwater and rainfall, or Infiltration/Inflow (I/I), will be removed in sufficient amounts to allow additional sanitary sewage to be discharged to the system.

## 2. Accounting

The Sewer Bank is a method of determining the quantity of sanitary sewer (wastewater) flows that can be added to the system as a function of how much I/I has been removed from the system. The unit of measurement for the Sewer Bank shall be gallons per day (gpd) of maximum daily wastewater flow. Each gpd of wastewater maximum daily flow shall be considered one "credit". When I/I is removed from the system, the bank will be credited in gallons of maximum daily wastewater flow. When connections are made to the sewer system, the flows will be deducted from the Sewer Bank.

I/I reduction credits to the Sewer Bank shall be calculated from April 15, 2005. Wastewater flow debits from the Sewer Bank shall be calculated from July 1, 2008.

The City will add flow to the sewer bank for work done in reducing I/I to the sewer

system. For illegally connected sump pumps, the City will add 500gpd of flow to the Sewer Bank for each permanently redirected sump pump. For all other reduction projects the City will add one gallon of flow to the Sewer Bank for every five gallons of I/I removed. Wastewater design flows shall be calculated based on the most recent version of Massachusetts Title V Regulations (310 CMR 15.203). Maximum daily wastewater flows from facilities not listed in Title V shall be calculated by a Licensed Professional Engineer in the Commonwealth of Massachusetts and submitted for approval by the Commissioner of Public Works. When the City permits/approves extensions and or connections to the sewer system the City will reduce the Sewer Bank by the approved design flow. The extensions and or connections also apply to the Intermunicipal Agreements.

The Sewer Bank shall be administered by the Commissioner of Public Works. Changes and exceptions to the administration procedures shall be at the discretion of the Commissioner, with the approval of the City Council. The Commissioner shall be responsible for crediting and debiting the Sewer Bank, and for keeping copies of all Sewer Bank transactions.

### 3. Applicability

All construction activities resulting in additional wastewater flow to the City sewer system shall be subject to the requirements of the Sewer Bank. This includes, but is not limited to, new connections to the sewer system, expansion/renovation of existing buildings, and construction of additional buildings on existing lots. Expansion and / or renovation of an existing single family residential home is exempt from this ordinance.

The Sewer Bank is established for lots located inside the existing sewer area and for those lots existing within the prioritized "needs area" as established in the Comprehensive Wastewater Management Plan published July 2005. All lots existing outside the "needs area" shall be serviced by means of on-lot treatment and disposal systems, as required by the Title V State Environmental Code (310 CMR 15), and shall not be connected to the City's sewer system. The owner of a lot located outside of the sewer area wishing to connect to the City sewer system may file a "Notice of Project Change" with MEPA per 301 CMR 11.10 (1). Owner shall meet all requirements of MADEP and must also receive approval from the Taunton DPW and the City Council in order to be allowed to connect to the sewer system. Any owner receiving approval to connect through this process shall be subject to the fees established in this Ordinance.

Applications for connection to the sewer system shall be reviewed on a first come, first served basis. If there are limited credits available in the Sewer Bank, existing buildings will be given first opportunity to connect.

### 4. Conditions for Connections

Sewer connections may only be made when the Sewer Bank has a positive balance, indicating that there is available capacity in the system. If there is insufficient capacity available to accommodate the flows generated by the new connection, the connection cannot be made until sufficient capacity is achieved.
If the Sewer Bank has insufficient capacity to accommodate a new connection, the owner may petition the Taunton DPW for a project that will satisfy the requirements of a 5 to 1 ratio of I/I removed to maximum daily wastewater added. The City shall identify a project of sufficient scope to satisfy the Sewer Bank balance. The City shall be responsible for identifying a new project that meets the requirements of the applicant for a new connection. The City shall contract the required work with an outside independent contractor. The applicant shall not be allowed to connect to the sewer system until the the sewer bank has been properly replenished to accommodate the applicants new connection..

The Owner may petition the Commissioner to undertake a potable Water Use Reduction project in lieu of contributing to the I&I fund or undertaking an individual I&I project. Water Use Reduction projects shall consist of the supply and replacement of existing standard water fixtures (toilets, showerheads, faucets, etc.) with low-flow equivalents, thereby reducing the amount of flow contributed to the sewer system. All low-flow fixtures MUST carry USEPA's WaterSense label. The City and the Owner shall enter into a contract to govern the execution of a Water Use Reduction Project. The scope of the water use Reduction project shall be designed to achieve a cost that is nearly equal to the cost that would be otherwise required by using the established I&I fee. This is necessary as Water Use Reduction projects can vary significantly in cost due to the variability of the work to be performed, e.g. cost difference between a low flow shower head versus a low flow toilet. Every Water Use Reduction project shall achieve at least a 1 for 1 reduction. No crediting or debiting of the Sewer Bank shall be made for a Water Use Reduction Project. Water use reduction calculations must be certified by a licensed professional engineer in the Commonwealth of Massachusetts and approved by the Commissioner of Public Works. Owners completing eligible Water Use Reduction projects shall be exempt from the I/I Removal Fee.

### 5. Exceptions to Conditions

Any existing building within the existing sewer area or needs area with an on-site wastewater system that is deemed by the Taunton Board of Health to be a threat to public health shall be allowed to connect to the sewer system immediately, regardless of the balance of the Sewer Bank. Applicable permits shall be required. I/I Removal fees shall still apply.

### 6. I/I Removal Fee

The Standard I/I Removal Fee shall be $5 per gpd of wastewater flow removed from the Sewer Bank. The I/I fee shall be deposited in a revolving account to be used only

for improvements to the City's sewer and storm water systems. The City Auditor is hereby authorized to establish a revolving fund to accomplish said objectives.

Residents may request a reduced fee if they meet ALL of the following requirements:
1. Homeowner must be over 65 years of age.
2. Homeowner must have been a resident of Taunton for a minimum of 20 years.
3. Homeowner must be able to demonstrate that they belong under the low-income category). (i.e. Low-income families are defined as families whose income does not exceed 80% of the median income for the City of Taunton)

Residents meeting ALL of the above requirements shall not be assessed Removal Fee for wastewater flow removed from the Sewer Bank.

7. **Termination of Ordinance**

Should the elimination of the Combined Sewer Overflow structure (located on West Water Street) occur and the hydraulic capacity of the sewer system be restored to a condition that will protect the public's health and safety and function in a manner that will convey wastewater in an efficient manner within the standard guidelines common to engineering practice as required by the regulatory agencies of appropriate jurisdiction, then this ordinance shall be terminated as approved by order the City Council.

All ordinances or parts thereof inconsistent herewith are hereby repealed. This Ordinance shall become effective immediately upon passage.

## NEW BUSINESS

**Respectfully submitted,**
Rose Marie Blackwell
**Rose Marie Blackwell**
**City Clerk**

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DOCUMENT A00893

# AMERICAN U-TEL SPECIFICATIONS

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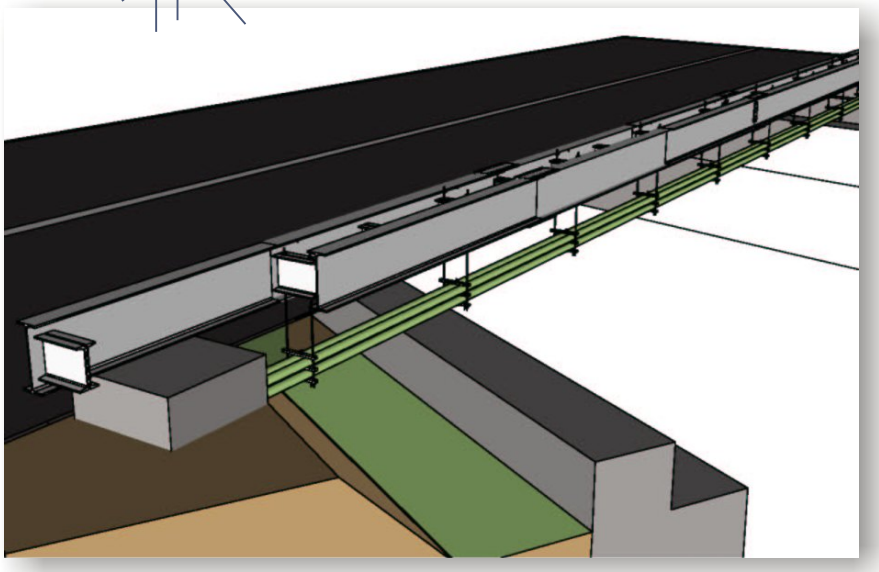
# AMERICAN U-TEL

Specialists in

# UNDERBRIDGE

Conduit Crossings



# TEMPORARY CABLE SUPPORT SAVES TIME & MONEY

9760 Smith Road• Willoughby, Ohio 44094
Ph: 440-946-6027 • Fax: 440-946-7285
www.Americanutel.com

AMERICAN U-TEL

## Design

- All Design Drawings Carry a P.E. Stamp for DOT Approval
- Design and Build Applications for HIGHWAYS, RAILROADS, and WATERWAYS
- Repair Aging Conduit Systems
- Design and Build Longer Hanger Spans Reducing Hangers and Labor
- Drawings Include a Complete Bill of Material

**Provide Temporary Cable Support During Reconstruction, Saving Cable & Time**

## Installation

**COMPLETE TURN-KEY PACKAGE AVAILABLE**

AMERICAN U-TEL

**UNDERBRIDGE**

SEE US FOR DESIGN & FURNISH DESIGN & BUILD

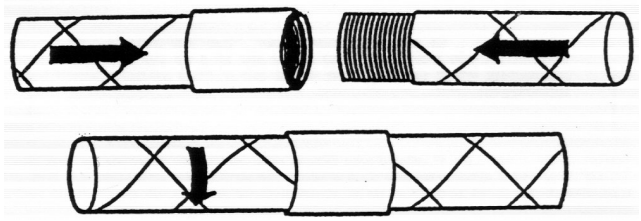
Lower Costs thru Greater Spans

# 4" IPS TELEPHONE FIBERGLASS CONDUIT

## THREADED CONDUIT

3,000 lbs. Unbonded Joint Pullout Strength

| Part No. | IPS Size | Nominal O.D. (in.) | Nominal I.D. (in.) | Nominal Wall Thick. (in.) | Cross-Sectional Area (sq. in.) | Nominal Weight (lbs. sq/ft.) |
|---|---|---|---|---|---|---|
| 12370 | 4 | 4.5 | 4.36 | .07 | 14.93 | .80 |



## Support Spacing for Interior Spans at 75°F

At 100°F apply factor of .96 - Based on Midspan Deflection not exceeding 5/8"

| Conduit IPS Size | Cable Wt. Lbs. per ft. | Moment/Inertia | Span in feet |
|---|---|---|---|
| 4 inch | 3<br>8 | 2.374 | 21.2<br>17.2 |

# ENGINEERING DESIGN

***by Professional Engineers***

## Our licensed engineers will design permanent systems as well as temporary systems to save cable during reconstruction.

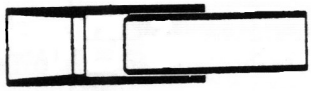
**Design Includes:**

- A detailed bill of material listing of all needed components.
- A detailed listing of any special brackets and metal work.
- Detailed information on compression, tension, local stress in existing steel, flange load.
- All supporting calculations.
- Engineer the effect of the independent bridge structure as it relates to the conduit system.

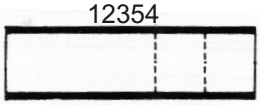
# 4” IPS TELEPHONE FIBERGLASS FITTINGS

## EXPANSION JOINTS

Gasketed
12365

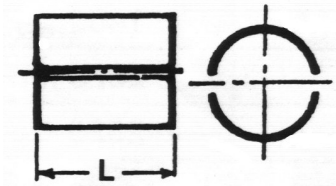


Sleeve Type
12354



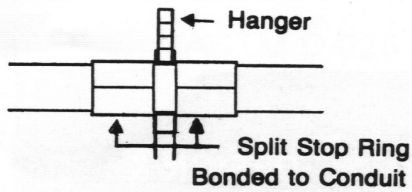
Our Fiberglass conduit has a low thermal expansion coefficient for non-metallic conduit. 100 ft. of conduit will expand approximately 1.6 inches per 100°F increase in temperature. Recommended placement of gasketed expansion joints is no further than 300 feet apart. Non-gasketed expansion joints may be spaced 200 feet apart.

## SPLIT ANCHOR RING




12351

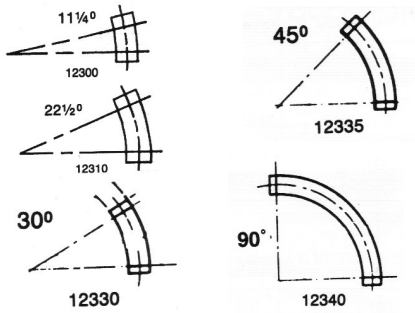
## ANCHOR



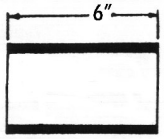

When using more than one expansion joint an anchor must positively restrain the movement of the against all applied forces. Anchoring is done by bonding split stop rings on the exterior of the conduit on both sides of the support hanger that ends or covers the distance or length of conduit for that particular expansion joint.

## SWEEP ELBOWS - 42” Radius

| Angle | Part No. |
|---|---|
| 11¼° | 12300 |
| 22½° | 12310 |
| 30° | 12330 |
| 45° | 12335 |
| 90° | 12340 |




*Both ends are spigot (plain end). Couplings are ordered separately.

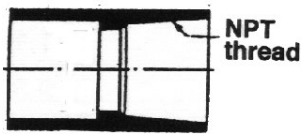



Straight Coupling
12348

## ADHESIVE KIT

12358 - Approx 10 joints of 4”

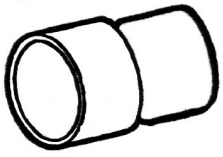
## ADAPTERS




4” Threaded Steel to
4” Plain End Fiberglass

Bell X Female
12349

## PVC ADAPTERS TO FIBERGLASS



4” tel to 4½ OD FRP
(both ends belled)
12357

## SPECIALS

- ***Split & Hinged Fiberglass Repair Conduit***
- ***Cable Trays - Fiberglass***
- ***Bullet Resistant Fiberglass Conduit***

# GENERAL SPECIFICATIONS AT 75°F (24°C)

| IPS Size | Max. Tensile Load (lbs.) | Max Comp. Load (lbs.) | Min. Bending Radius (ft.) | Max. Torque Ft. - Lbs. | Stiffness Factor at 5% Deflection $in.^3$ - $lbs./in.^2$ |
|---|---|---|---|---|---|
| 4 | 2260 | 3110 | 120 | 370 | 70 |

**American U-Tel reinforced epoxy conduit combines the strength characteristics of IMC steel with the weight and corrosion-free characteristics of thermoplastics to provide the ideal conduit system.**

**LIGHTWEIGHT -** One tenth the weight of steel, lighter than Sch. 40 PVC.
**CORROSION-FREE -** Cannot rust or rot.
**CHEMICAL RESISTANCE** to all road chemicals.
**LOW COEFFICIENT** of thermal expansion - about twice that of steel and ½ that of PVC.
**HIGH LONGITUDINAL** modulus of elasticity compared to thermoplastic, means fewer hangers.
**HIGH TEMPERATURE** performance. Longitudinal tensile strength at 75°F is 11,400 psi and at 150°F it is 8,500 psi. Heat distortion temperature is 217°F at 264 psi.
**BEAM STRENGTH** exceeds that of thermoplastic materials.
**LOW COEFFICIENT OF FRICTION -** cable pull-through forces are lower.
**LARGER INSIDE DIAMETER** allows more cable.
**RESISTANT TO DEGRADATION** from weather and ultraviolet radiation.
**JOINT PULL-OUT STRENGTH** of unbonded threaded joint is in excess of 3,000 lbs.

| Property - Physical | Test Method | Value at 75°F | Value at 24°C |
|---|---|---|---|
| Ultimate Tensile Strength | ASTM-D2105 | 10,500 psi | 72.4 MPa |
| Design Tensile Stress | - | 2,625 psi | 18.1 MPa |
| Tensile Modus of Elasticity | ASTM-D2105 | 1.77 X $10^6$ psi | 12203.7 MPa |
| Ultimate Compressive Strength | ASTM-D695 | 17,800 psi | 122.7 MPa |
| Design Compressive Stress | - | 4,450 psi | 30.7 MPa |
| Compressive Modus of Elasticity | ASTM-D695 | 1.4 X $10^6$ psi | 9652.7 MPa |
| Ultimate Beam Bending Strength | AOSI-TM | 16,700 psi | 115.1 MPa |
| Design Beam Bending Strength | - | 5,000 psi | 34.5 MPa |
| Coefficient of Thermal Expansion | AOSI-TM 16-3 | 1.12 X $10^5$ in/in/°F | 2.02 X $10^5$ mm/mm/°C |
| Thermal Conductivity | AOSI-TM 16-15 | 2.6 Btu•in/$ft^2$•°F•hr | 0.37 W/m•°K |
| Specific Gravity | ASTM-D792 | 1.85 | 1.85 |

| Property - Electrical | Test Method | Value at 75°F | Value at 24°C |
|---|---|---|---|
| Volume Resistivity | ASTM-D150 | 7.6 X $10^{15}$ ohm-cm | 7.6 X $10^{15}$ ohm-cm |
| Surface Resistivity | ASTM-D257 | 2.4 X $10^8$ megohm | 2.4 X $10^8$ megohm |
| Dielectric Constant | ASTM-D150 | 4.2 (at $10^3$ cps) | 4.2 (at $10^3$ cps) |
| Dissipation Factor | ASTM-D150 | 0.06 (at $10^3$ cps) | 0.06 (at $10^3$ cps) |
| Dielectric Strength | ASTM-D348 | 440 volts/mil | 1800 volts/mil |

# 4” IPS SUPPORT HANGERS

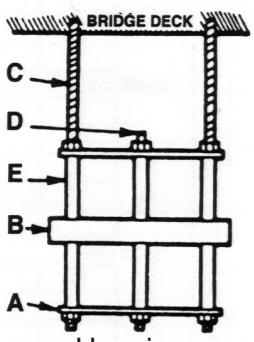
## FOR 4.50 O.D. X 4.36 I.D. FIBERGLASS DUCT - IPS SIZE

**HARDWARE:** Specify if Zinc Plated or Hot Dip Galvanized.

## STANDARD HANGING

### Dimensions in Inches

| NUMBER OF DUCTS HIGH | Part | 1 No. Req'd. | 1 Length | 2 No. Req'd. | 2 Length | 3 No. Req'd. | 3 Length | 4 No. Req'd. | 4 Length | 5 No. Req'd. | 5 Length | 6 No. Req'd. | 6 Length |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 1 | 7.69 | 1 | 13.38 | 1 | 19.06 | 1 | 24.75 | 1 | 30.43 | 1 | 36.13 |
| | B | 1 | 11.69 | 1 | 17.38 | 1 | 23.06 | 1 | 28.75 | 1 | 34.43 | 1 | 40.13 |
| | C | 2 | 26.00 | 2 | 26.00 | 2 | 26.00 | 2 | 26.00 | 3 | 26.00 | 3 | 26.00 |
| | D | 0 | — | 1 | 9.18 | 2 | 9.18 | 3 | 9.18 | 4 | 9.18 | 4 | 9.18 |
| | E | 2 | 4.69 | 3 | 4.69 | 4 | 4.69 | 5 | 4.69 | 6 | 4.69 | 7 | 4.69 |
| Weight Lbs. | | 9.2 | | 11.5 | | 13.9 | | 16.5 | | 18.9 | | 23.6 | |
| 2 | A | 2 | 7.69 | 2 | 13.38 | 2 | 19.06 | 2 | 24.75 | 2 | 30.43 | 2 | 36.13 |
| | B | 1 | 11.69 | 1 | 17.38 | 1 | 23.06 | 1 | 28.75 | 1 | 34.43 | 1 | 40.13 |
| | C | 2 | 31.18 | 2 | 31.18 | 2 | 31.18 | 2 | 31.18 | 3 | 31.18 | 3 | 31.18 |
| | D | 0 | — | 1 | 14.50 | 2 | 14.50 | 3 | 14.50 | 4 | 14.50 | 4 | 14.50 |
| | E | 4 | 4.69 | 6 | 4.69 | 8 | 4.69 | 10 | 4.69 | 12 | 4.69 | 14 | 4.69 |
| Weight Lbs. | | 11.1 | | 14.6 | | 18.2 | | 21.9 | | 25.5 | | 28.9 | |
| 3 | A | 3 | 7.69 | 3 | 13.38 | 3 | 19.06 | 3 | 24.75 | 3 | 30.43 | 3 | 36.13 |
| | B | 1 | 11.69 | 1 | 17.38 | 1 | 23.06 | 1 | 28.75 | 1 | 34.43 | 1 | 40.13 |
| | C | 2 | 36.31 | 2 | 36.31 | 2 | 36.31 | 2 | 36.31 | 3 | 36.31 | 3 | 36.31 |
| | D | 0 | — | 1 | 19.62 | 2 | 19.62 | 3 | 19.62 | 4 | 19.62 | 4 | 19.62 |
| | E | 6 | 4.69 | 9 | 4.69 | 12 | 4.69 | 15 | 4.69 | 18 | 4.69 | 21 | 4.69 |
| Weight Lbs. | | 13.1 | | 17.8 | | 22.5 | | 27.3 | | 32.9 | | 36.9 | |
| 4 | A | 4 | 7.69 | 4 | 13.38 | 4 | 19.06 | 4 | 24.75 | 4 | 30.43 | 4 | 36.13 |
| | B | 1 | 11.69 | 1 | 17.38 | 1 | 23.06 | 1 | 28.75 | 1 | 34.43 | 1 | 40.13 |
| | C | 2 | 41.43 | 2 | 41.43 | 2 | 41.43 | 2 | 41.43 | 3 | 41.43 | 3 | 41.43 |
| | D | 0 | — | 1 | 24.75 | 2 | 24.75 | 3 | 24.75 | 4 | 24.75 | 4 | 24.75 |
| | E | 8 | 4.69 | 12 | 4.69 | 16 | 4.69 | 20 | 4.69 | 24 | 4.69 | 28 | 4.69 |
| Weight Lbs. | | 15.5 | | 21.1 | | 26.9 | | 32.9 | | 38.8 | | 44.8 | |




Hanging
2 wide X 2 high

### FIBERGLASS HANGER

**Part (A) ½” X 2” fiberglass plate**

**Part (B) 2” X 2” fiberglass square tubing**

**Part (C) ¾” 10NC threaded steel attachment rods, nuts and washers (plated)**

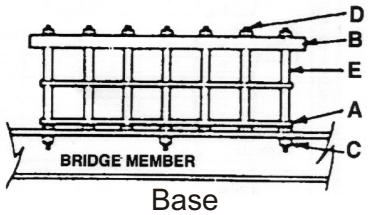
**Part (D) Spacer rods: ¾” 10NC threaded steel rods, nuts and washers (plated)**

**Part (E) ¾” fiberglass spacer tubes (1.0” O.D. X .755” I.D. X 4.69” long)**

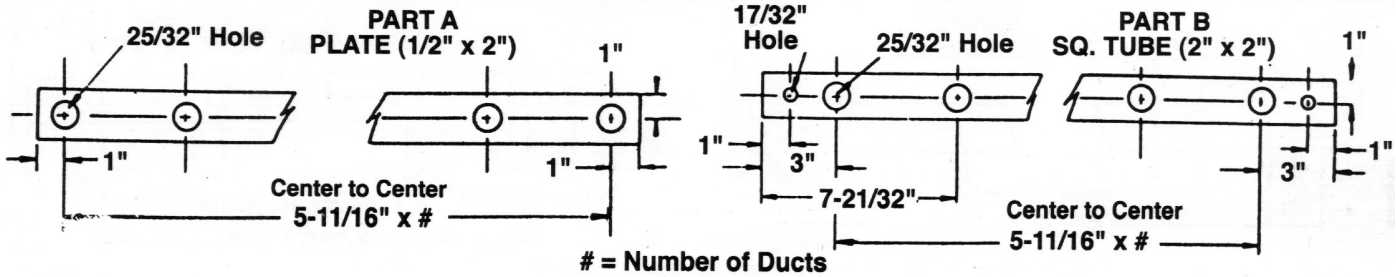
## STANDARD BASE MOUNT

### Dimensions in Inches

| NUMBER OF DUCTS HIGH | Part | 1 No. Req'd. | 1 Length | 2 No. Req'd. | 2 Length | 3 No. Req'd. | 3 Length | 4 No. Req'd. | 4 Length | 5 No. Req'd. | 5 Length | 6 No. Req'd. | 6 Length |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 2 | 7.69 | 2 | 13.38 | 2 | 19.06 | 2 | 24.75 | 2 | 30.43 | 2 | 36.13 |
| | B | 0 | — | 0 | — | 0 | — | 0 | — | 0 | — | 0 | — |
| | C | 2 | 10.56 | 2 | 10.56 | 2 | 10.56 | 2 | 10.56 | 3 | 10.56 | 3 | 10.56 |
| | D | 0 | — | 1 | 7.75 | 2 | 7.75 | 3 | 7.75 | 3 | 7.75 | 4 | 7.75 |
| | E | 2 | 4.69 | 3 | 4.69 | 4 | 4.69 | 5 | 4.69 | 6 | 4.69 | 7 | 4.69 |
| Weight Lbs. | | 4.5 | | 6.8 | | 8.9 | | 10.9 | | 13.1 | | 15.8 | |
| 2 | A | 2 | 7.69 | 2 | 13.38 | 2 | 19.06 | 2 | 24.75 | 2 | 30.43 | 2 | 36.13 |
| | B | 1 | 11.69 | 1 | 17.38 | 1 | 23.06 | 1 | 28.75 | 1 | 34.43 | 1 | 40.13 |
| | C | 2 | 17.18 | 2 | 17.18 | 2 | 17.18 | 2 | 17.18 | 3 | 17.08 | 3 | 17.18 |
| | D | 0 | — | 1 | 14.38 | 2 | 14.38 | 3 | 14.38 | 3 | 14.38 | 4 | 14.38 |
| | E | 4 | 4.69 | 6 | 4.69 | 8 | 4.69 | 10 | 4.69 | 12 | 4.69 | 14 | 4.69 |
| Weight Lbs. | | 7.9 | | 11.8 | | 15.0 | | 19.0 | | 22.7 | | 23.8 | |
| 3 | A | 3 | 7.69 | 3 | 13.38 | 3 | 19.06 | 3 | 24.75 | 3 | 30.43 | 3 | 36.13 |
| | B | 1 | 11.69 | 1 | 17.38 | 1 | 23.06 | 1 | 28.75 | 1 | 34.43 | 1 | 40.13 |
| | C | 2 | 22.97 | 2 | 22.97 | 2 | 22.97 | 2 | 22.97 | 3 | 22.97 | 3 | 22.97 |
| | D | 0 | — | 1 | 19.97 | 2 | 19.97 | 3 | 19.97 | 3 | 19.97 | 4 | 19.97 |
| | E | 6 | 4.69 | 9 | 4.69 | 12 | 4.69 | 15 | 4.69 | 18 | 4.69 | 21 | 4.69 |
| Weight Lbs. | | 9.6 | | 14.6 | | 19.4 | | 26.6 | | 28.6 | | 33.8 | |
| 4 | A | 4 | 7.69 | 4 | 13.38 | 4 | 19.06 | 4 | 24.75 | 4 | 30.43 | 4 | 36.13 |
| | B | 1 | 11.69 | 1 | 17.38 | 1 | 23.06 | 1 | 28.75 | 1 | 34.43 | 1 | 40.13 |
| | C | 2 | 28.16 | 2 | 28.16 | 2 | 28.16 | 2 | 28.16 | 3 | 28.16 | 3 | 28.16 |
| | D | 0 | — | 1 | 25.16 | 2 | 25.16 | 3 | 25.16 | 3 | 25.16 | 4 | 25.16 |
| | E | 8 | 4.69 | 12 | 4.69 | 16 | 4.69 | 20 | 4.69 | 24 | 4.69 | 28 | 4.69 |
| Weight Lbs. | | 11.9 | | 17.8 | | 23.3 | | 29.5 | | 34.8 | | 41.0 | |




Base
6 wide X 2 high



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# CHAMPION FIBERGLASS DUCT SPECIFICATIONS

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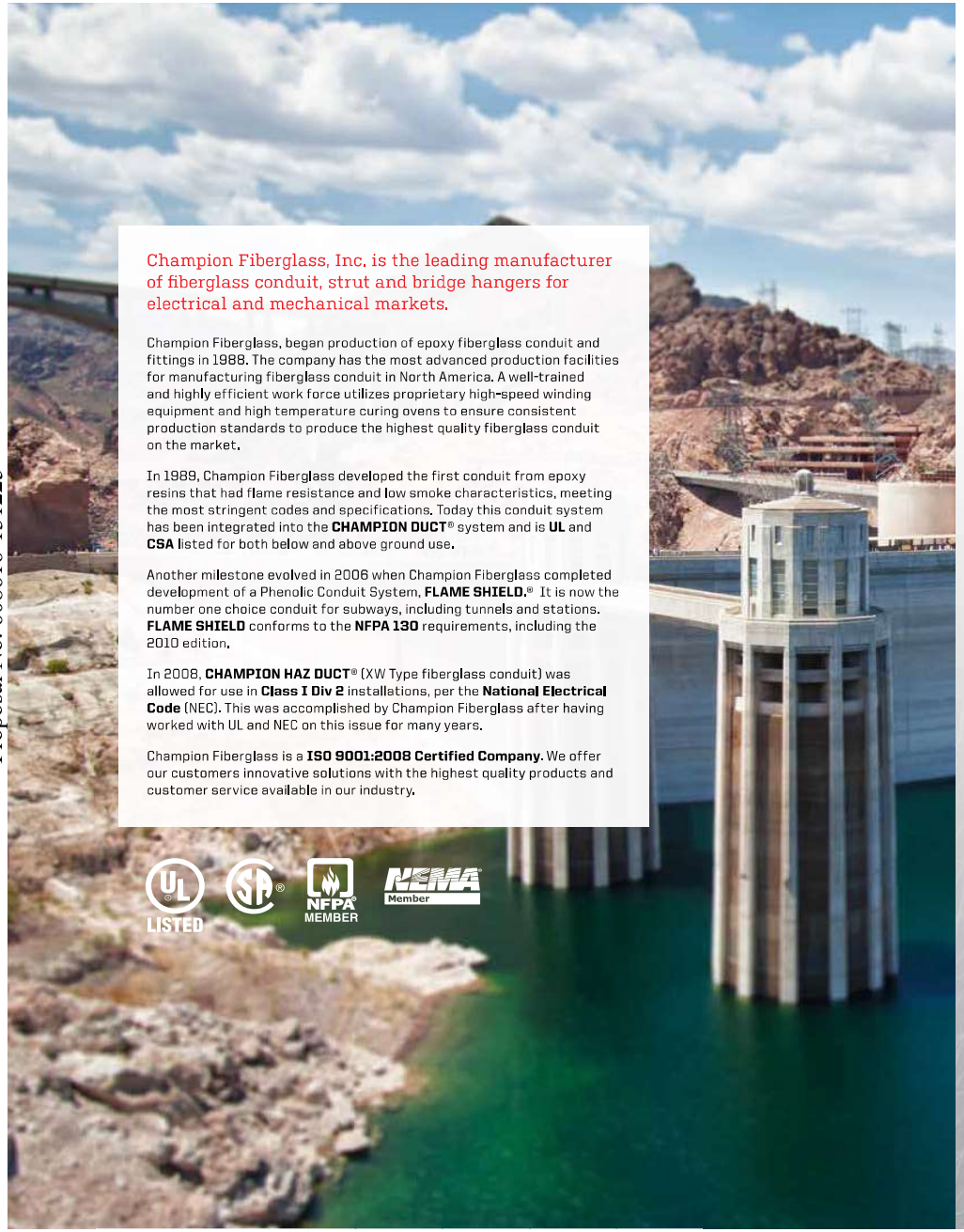
CHAMPION FIBERGLASS®

Do More.®

CHAMPION DUCT®

MADE IN THE U.S.A.

ISO 9001:2008 CERTIFIED



Champion Fiberglass, Inc. is the leading manufacturer of fiberglass conduit, strut and bridge hangers for electrical and mechanical markets.

Champion Fiberglass, began production of epoxy fiberglass conduit and fittings in 1988. The company has the most advanced production facilities for manufacturing fiberglass conduit in North America. A well-trained and highly efficient work force utilizes proprietary high-speed winding equipment and high temperature curing ovens to ensure consistent production standards to produce the highest quality fiberglass conduit on the market.

In 1989, Champion Fiberglass developed the first conduit from epoxy resins that had flame resistance and low smoke characteristics, meeting the most stringent codes and specifications. Today this conduit system has been integrated into the **CHAMPION DUCT®** system and is **UL** and **CSA** listed for both below and above ground use.

Another milestone evolved in 2006 when Champion Fiberglass completed development of a Phenolic Conduit System, **FLAME SHIELD.®** It is now the number one choice conduit for subways, including tunnels and stations. **FLAME SHIELD** conforms to the **NFPA 130** requirements, including the 2010 edition.

In 2008, **CHAMPION HAZ DUCT®** (XW Type fiberglass conduit) was allowed for use in **Class I Div 2** installations, per the **National Electrical Code** (NEC). This was accomplished by Champion Fiberglass after having worked with UL and NEC on this issue for many years.

Champion Fiberglass is a **ISO 9001:2008 Certified Company.** We offer our customers innovative solutions with the highest quality products and customer service available in our industry.

UL LISTED · CSA · NFPA MEMBER · NEMA Member

Proposal No. 608616-131225

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CHAMPION DUCT®

A00894 - 4

Proposal No. 608616-131225

| | Epoxy Fiberglass | PVC Sch 40 | PVC Sch 80 | Galvanized Rigid Steel | PVC Coated Steel | Aluminum |
|---|---|---|---|---|---|---|
| **Cable Fault**<br>Fiberglass conduit will not melt or weld the wire to the inside of the conduit under fault conditions as can happen with PVC, steel and aluminum conduit. | Not Affected | Melt/ Fuse | Melt/ Fuse | Weld | Weld | Weld |
| **Corrosion Resistance**<br>Fiberglass conduit has the broadest range of corrosion resistance of all of these conduit materials. See page 62 for further information. | Wide Range | Limited | Limited | Poor | Limited | Limited |
| **Relative Cost, 4" Conduit**<br>(Relative for Labor and Material Cost) | 1 | 0.75 | 1 | 4 | 6 | 3.5 |
| **Toxicity/Halogens**<br>Fiberglass conduit does not release toxic halogens (i.e. chlorine and bromine) when burning. | No | Yes | Yes | No | Yes | No |
| **Weight Comparison**<br>(lbs. per 100 ft., approx.)<br>Fiberglass conduit offers the lowest weight and is still very rigid. See support spacing on pages 58-61. | | | | | | |
| ¾" | 27 | 23 | 29 | 105 | 105 | 36 |
| 1" | 30 | 34 | 43 | 153 | 153 | 53 |
| 1¼" | 35 | 46 | 59 | 201 | 201 | 70 |
| 1½" | 38 | 55 | 99 | 246 | 246 | 86 |
| 2" | 40 | 73 | 99 | 334 | 334 | 116 |
| 2½" | 50 | 125 | 152 | 527 | 527 | 183 |
| 3" | 59 | 164 | 212 | 690 | 690 | 239 |
| 3½" | 65 | 198 | 262 | 831 | 831 | 288 |
| 4" | 78 | 234 | 310 | 982 | 982 | 340 |
| 5" | 97 | 318 | 431 | 1344 | 1344 | 465 |
| 6" | 117 | 412 | 592 | 1770 | 1770 | 612 |
| 8" | 150 | 640 | N/A | N/A | N/A | N/A |
| **Support Spacing for 4" Conduit (ft)**<br>See Engineering Section of this catalog for further information ("Deflection" on pages 58-61). | 12 | 7 | 7 | 20 | 20 | 15 |
| **Temperature Range (°F)**<br>Fiberglass has an excellent wide temperature range. | -60° to +250° | +40° to +150° | +40° to +150° | N/A | N/A | N/A |
| **Handling in Low Temperatures**<br>Fiberglass conduit has been shown to retain its properties at low temperatures allowing year round installations. | Excellent | Brittle | Brittle | Excellent | Excellent | Excellent |
| **Burn Through (Cable Pull)**<br>Fiberglass conduit is an excellent material for avoiding "burn through" when pulling cable. | No | Yes | Yes | No | No | No |



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| | Epoxy Fiberglass | PVC Sch 40 | PVC Sch 80 | Galvanized Rigid Steel | PVC Coated Steel | Aluminum |
|---|---|---|---|---|---|---|
| **Coefficient of Friction**<br>Using PVC Jacketed Cable<br>Fiberglass conduit offers one of the lowest coefficient of friction available today for conduit systems. It is completely resistant to any of the current pulling lubricants corrosive properties. | 0.38 | 0.90 | 0.90 | 0.55 | 0.55 | 0.25 |
| **Conductivity**<br>Fiberglass conduit acts as an excellent insulator. | No | No | No | Yes | Yes | Yes |
| **UV Stable (Sunlight Resistance)**<br>(Per UL 2515 & CSA C22.2 No. 211.3-96) | Good | Poor | Poor | Excellent | Poor | Excellent |
| **Coefficient of Thermal Expansion**<br>(10-5 inch/inch/°F)<br>*The coefficient is .7 for the steel and 3.5 for the PVC layer. Because of the broad difference between the two materials, adhesion is severely affected during temperature contraction and expansion. | 1.0 | 3.5 | 3.5 | 0.7 | 3.5/0.7* | 3.5 |
| **Distance Between Expansion Joints (ft)** | 200 | 50 | 50 | 200 | 200 | 50 |
| **NECA Labor Installation Rates**<br>(Normal installation per/100 ft)<br>(REF: 2013-2014 NECA Manual of Labor Units) | | | | | | |
| ¾" | $5.50 | $4.50 | $5.40 | $6.00 | $8.00 | $5,50 |
| 1" | $5.75 | $5.25 | $6.30 | $7.00 | $10.00 | $6.00 |
| 1¼" | $6.00 | $6,00 | $7,20 | $8.00 | $12.00 | $6.50 |
| 1½" | $6.35 | $7.00 | $8.40 | $9.00 | $15,00 | $7,00 |
| 2" | $6.75 | $8.00 | $9.60 | $11.00 | $18.00 | $8.00 |
| 2½" | $7,10 | $9,00 | $10.80 | $15.00 | $21.00 | $10.00 |
| 3" | $7.50 | $10.00 | $12.00 | $20.00 | $26.00 | $12.00 |
| 3½" | $7.85 | $12.00 | N/A | $25.00 | $32.00 | $15.00 |
| 4" | $8,25 | $14.00 | $16.80 | $30.00 | $38.00 | $19.00 |
| 5" | $8.60 | $18.00 | $21.60 | $38.00 | $45.00 | $24.00 |
| 6" | $9.00 | $24.00 | $28.80 | $48.00 | $60.00 | $30.00 |
| **Field Handling**<br>Due to its light weight, ease of cutting and integral bell, fiberglass conduit is very easy to install. | Excellent | Good | Good | Very Poor | Very Poor | Poor |
| **Memory**<br>Fiberglass conduit will retain its original shape after impact or compression. | Yes | No | No | No | No | No |

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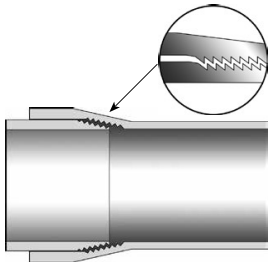
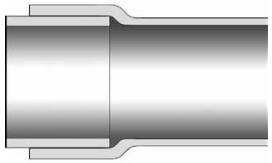
## INTERFERENCE JOINT

The interference joint system consists of an integral bell and spigot. The spigot end has a buttress type, male thread for easy installation. The belled end contains the mating female threads. The tapered buttress threads make it easy to join while giving it a high pull out strength of 1,000 lbs. The joint is concrete tight but not water tight.



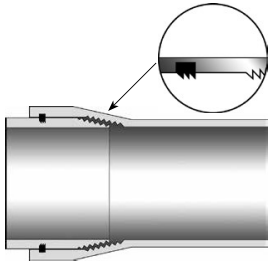
## STRAIGHT SOCKET

The straight socket system consists of an integral bell and spigot where the bell is bonded on. The spigot end easily slides into the belled end. This joining system is intended for use with Champion Fiberglass epoxy adhesive, see page 47-48.



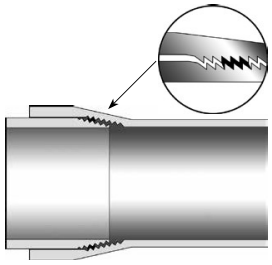
## GASKET JOINT (TRIPLE SEAL)

The gasket joint system consists of an integral bell and spigot. The belled end has a triple seal gasket in addition to the interference joint. The triple seal gasket fits into a permanent groove formed during the manufacturing of the conduit. Because of this design, thermoplastic retainer rings, which often fall out during cold weather, are not necessary. The triple seal gasket provides a water tight seal. When properly installed, the triple seal gasket in combination with the interference joint has a pull out strength of 2,000 lbs. Triple seal gasket without interference joint (e.g. after a field cut) has a pull out strength of 500 lbs.



## TIGHT LOCK JOINT

The Tight Lock Joint is the interference joint or the straight socket joint combined with epoxy adhesive. The adhesive is applied to the spigot end of the conduit, and after the proper set up time, the joint is as strong as the conduit itself. This type of joining method provides the best water tightness and pull out strength. For pull out strength see page 53.





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## SELECTION OF JOINTS FOR VARIOUS APPLICATIONS

- **Below Ground, Direct Buried, Water Tight Joint**
  - Gasketed Joint
  - Tight Lock Joint
- **Below Ground, Concrete Encased**
  - Interference Joint
  - Gasketed Joint can be used, however is not required
  - Tight Lock Joint can be used, however is not required
- **Underbridge and Above Ground installations**
  - Tight Lock Joint

Note: Never use Interference Joint without adhesive or Gasketed Joint for above ground applications. The pull-out strength is not sufficient. Experience has shown that over the service life of an installation, Interference Joint without adhesive or Gasketed Joint may fail.

## EXPANSION JOINTS PER NEC

NEC 2011 Article 355.44 Expansion Fittings. "Expansion fittings for RTRC shall be provided to compensate for thermal expansion and contraction where the length change, in accordance with Tables 355.44, is expected to be 6 mm (¼ in.) or greater in a straight run between securely mounted items such as boxes, cabinets, elbows, or other conduit terminations."

**Table 355.44 Expansion Characteristics of Reinforced Thermosetting Resin Conduit (RTRC)**
**Coefficient of Thermal Expansion = 1.5 x $10^{-5}$ in/in/°F (2.7 x $10^{-5}$ mm/mm/°C)**

| Temperature Change (°F) | Length Change of RTRC Conduit (in/100 ft) | Temperature Change (°F) | Length Change of RTRC Conduit (in/100 ft) |
|---|---|---|---|
| 5 | 0.09 | 105 | 1.89 |
| 10 | 0.18 | 110 | 1.98 |
| 15 | 0.27 | 115 | 2.07 |
| 20 | 0.36 | 120 | 2.16 |
| 25 | 0.45 | 125 | 2.25 |
| 30 | 0.54 | 130 | 2.34 |
| 35 | 0.63 | 135 | 2.43 |
| 40 | 0.72 | 140 | 2.52 |
| 45 | 0.81 | 145 | 2.61 |
| 50 | 0.90 | 150 | 2.70 |
| 55 | 0.99 | 155 | 2.79 |
| 60 | 1.08 | 160 | 2.88 |
| 65 | 1.17 | 165 | 2.97 |
| 70 | 1.26 | 170 | 3.06 |
| 75 | 1.35 | 175 | 3.15 |
| 80 | 1.44 | 180 | 3.24 |
| 85 | 1.53 | 185 | 3.33 |
| 90 | 1.62 | 190 | 3.42 |
| 95 | 1.71 | 195 | 3.51 |
| 100 | 1.80 | 200 | 3.60 |

| Temperature Change (°C) | Length Change of RTRC Conduit (mm/m) |
|---|---|
| *5* | *0.14* |
| *10* | *0.27* |
| *15* | *0.41* |
| *20* | *0.54* |
| *25* | *0.68* |
| *30* | *0.81* |
| *35* | *0.95* |
| *40* | *1.08* |
| *45* | *1.22* |
| *50* | *1.35* |
| *55* | *1.49* |
| *60* | *1.62* |
| *65* | *1.76* |
| *70* | *1.89* |
| *75* | *2.03* |
| *80* | *2.16* |
| *85* | *2.30* |
| *90* | *2.43* |
| *95* | *2.57* |
| *100* | *2.70* |

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## DIFFERENCE BETWEEN BELOW GROUND AND ABOVE GROUND CONDUIT*

The main difference between above ground and below ground conduit is its fire resistance. Above ground has a fire resistance per UL 2515 and CSA C22.2 No. 2515, meaning that the conduit will extinguish within 15 seconds after each of 5 successive applications of a flame per the UL standard. Below ground conduit meets the UL 94 HB requirement.

Dimensions, color, physical, mechanical and electrical criteria are otherwise similar between above ground and below ground conduit. Note that conduit marked for above ground use, can also be used for below ground.

## WHICH CONDUIT TO INSTALL WHERE*

**Above Ground**
Base the diameter of conduit on the allowable wire fill per page 56-57 in this catalog. For support distance, see pages 58-61. Normally, a mid-span deflection of ⅝" ***(16mm)*** should not be exceeded.

Please note that Iron Pipe Size (IPS) type of fiberglass conduit can easily be used with standard pipe clamps. Due to the smaller outside diameter of tubular (ID) type fiberglass conduit, standard pipe clamps cannot be used with this type of conduit. Furthermore, IPS Type conduit has a larger inside diameter vs. tubular (ID) type conduit, allowing for more wire fill.

**Under Bridge**
For proper selection of conduit, please refer to the deflection charts shown on pages 58-61 in the Engineering Section of this catalog. After determining the weight of the cable and maximum allowable deflection (typically not exceeding ⅝" ***(16mm)***), use the deflection charts for selection of conduit type and support distance.

**Encased in Concrete** (often referred to as EB quality)
For most cases, standard wall product is sufficient. Due to its high temperature rating, fiberglass conduit holds up very well for concrete encasement. This application does not include core boring (see below). If UL listed material is required, use standard wall for ¾" - 4" diameter, and medium wall for 5" and 6" diameter.

**Direct Buried** (often referred to as DB quality)
For all direct buried applications, UL listed conduit should be selected. Use standard wall for ¾" - 4" diameter, and medium wall for 5" and 6". For very deep trenches, special soil conditions or where high rate of compacting can be expected, an even heavier wall should be selected. Please contact Champion Fiberglass for any of the above situations.

**Core Boring**
Because of the possibility of high pressure caused by concrete, heavy wall conduit should be used for 4" - 6" diameter conduit. It is very important that the contractor/installer observes proper procedures when pumping the concrete into the core. If excessive pressure is applied, even heavy wall conduit may fail. Please contact Champion Fiberglass for any of the above situations.

**High Impact Areas, Bullet Resistant**
For special applications, XWall conduit with a thickness of .25" can be used. Many of the telephone companies use this type of conduit for protection of fiber optic cables for Above Ground installations.
XWall conduit has been shown to stop a .22 caliber bullet.

Disclaimer: * It is always the responsibility of the contractor/installer and or engineer to select the proper conduit for any situation. Champion Fiberglass is under no circumstances responsible for selection of conduit. Above paragraphs are strictly suggestions only.



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## FIELD BENDING

Fiberglass conduit may be bent in the field. Bending fiberglass conduit in the field should be done when offsets are required and factory bends are not on site. Field bending of fiberglass conduit is recommended only when absolutely necessary. It is recommended that bends be calculated in the take-off and ordered with the straight sections.

Field bending is governed by **Article 355.24** in the **2011 NEC: Bends - How Made**. Bends shall be made so that the conduit will not be damaged and the internal diameter of the conduit will not be effectively reduced. Field bends shall be made only with bending equipment identified for that purpose. The radius of the curve to the centerline of such bends shall not be less than shown in **2011 NEC Table 2 Chapter 9**.

After reviewing below data, check the Champion Fiberglass catalog page 31 to verify the specific bending radius selected. Generally, it is difficult to field bend a tighter radius than what can be done at the factory.

The process for field bending is relatively simple. The conduit is heated in a standard PVC hot box, and then bent with bending equipment identified for this purpose.

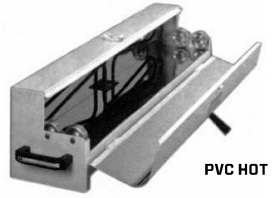
2011 NEC, Table 2, Chapter 9: Radius of Conduit and Tubing Bends

| Size of Conduit | | Other Bends | |
|---|---|---|---|
| Metric Designator | Trade Size | mm | in. |
| 16 | ½ | ***101.6*** | 4 |
| 21 | ¾ | ***127*** | 5 |
| 27 | 1 | ***152.4*** | 6 |
| 35 | 1¼ | ***203.2*** | 8 |
| 41 | 1½ | ***254*** | 10 |
| 53 | 2 | ***304.8*** | 12 |
| 63 | 2½ | ***381*** | 15 |
| 78 | 3 | ***457.2*** | 18 |
| 91 | 3½ | ***533.4*** | 21 |
| 103 | 4 | ***609.6*** | 24 |
| 129 | 5 | ***762*** | 30 |
| 155 | 6 | ***914.4*** | 36 |

For the standard wall sizes listed below, the heating time ranges from approximately 20 seconds to 65 seconds depending on the temperature of the hot box and the size of the conduit. After heating, immediately place conduit in the bending equipment and begin to bend. It is extremely important that the proper bending equipment is used. Allow the bend to cool at the desired angle.

For other sizes and wall thicknesses, please refer to the Installation Instructions under the "Products" tab on-line at www.championfiberglass.com.

| Conduit Size (in) | Time (sec) In Heater |
|---|---|
| ¾ IPS | 25 - 30 |
| 1 IPS | 30 - 35 |
| 1¼ IPS | 30 - 35 |
| 1½ IPS | 35 - 40 |
| 2 IPS | 40 - 60 |
| 2½ IPS | 45 - 65 |



PVC HOT BOX

When installing field bent fiberglass conduit, the elbow or offset should immediately be installed and supported by conduit straps on both ends of the elbow and offset.

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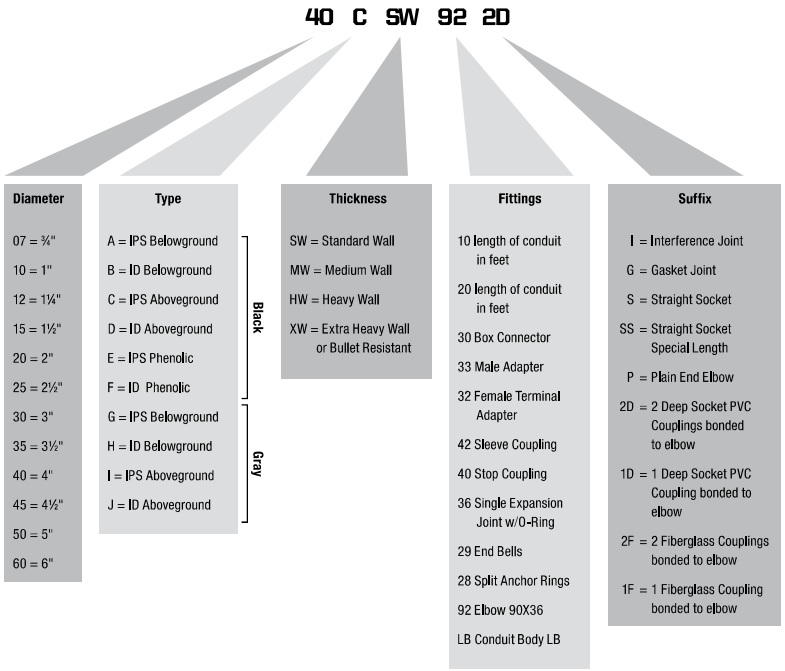
## UNDERSTANDING PART NUMBERS




*Note: If the first 5 characters in a part number match, then they will fit together!*

### EXAMPLE OF A GOOD SYSTEM

All items below are 4", IPS, SW, Aboveground

| | |
|---|---|
| 40 C SW 20 I | Conduit / Interference Joint |
| 40 C SW 33 | Male Adapter |
| 40 C SW LB | Conduit Body LB |
| 40 C SW 92 P | Plain End Elbow |



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## UNDERSTANDING PART NUMBERS

When selecting Fiberglass Conduit for a job, ask yourself these questions:

### 1. Nominal Size — What nominal size conduit is required for the job?

| | | | |
|---|---|---|---|
| ¾" x 10' (Avail. IPS only) | 2" x 20' | 4" x 20' | 6" x 20' |
| 1" x 10' (Avail. IPS only) | 2½" x 20' | 4½" x 20' (Avail. ID only) | 8" x 20' |
| 1¼" x 20' (Avail. IPS only) | 3" x 20' | 5" x 20' | 10" x 20' (Avail. ID only) |
| 1½" x 20' (Avail. IPS only) | 3½" x 20' (AVAIL ID only) | | 12" x 20' (Avail. ID only) |

### 2. Type — What type of conduit is required for the job?

A = IPS Belowground (Iron Pipe Size)
B = ID Belowground (Tubular)
C = IPS Aboveground (Most Common)
D = ID Aboveground
E = IPS Phenolic (Meets NFPA 130)
F = ID Phenolic (Meets NFPA 130)
G = IPS Belowground – Gray in Color
H = ID Belowground – Gray in Color
I = IPS Aboveground – Gray in Color
J = ID Aboveground – Gray in Color

*Note: Aboveground conduit can be used Belowground.*

### 3. Thickness — What wall thickness is required for the job?

SW = Standard Wall (UL ¾" thru 4")
(Most Common)
MW = Medium Wall (UL 5" & 6")
Used for more protection in 5" & 6"
HW = Heavy Wall
Used for increased protection in 4" - 8"
XW = X Wall (UL ¾" thru 6")
Highest level of physical protection
Bullet Resistant
Class 1 Div 2 & Class 1 Zone 2 Applications

SW Applies in Most Cases > Unless:
1) Class 1 Div 2 then XWall is required
2) Extra Physical Protection is required
3) UL is required, then see catalog for UL listing
4) Size of Conduit
5) Specifications (i.e. DOT)
6) Extreme environments

*Note: Reference Duct Catalog, page 8 for conduit selection, pages 52-61 for engineering data*

### 4. Joint — What joint type is required for the job?

Interference Joint (Most Common)
Aboveground & Belowground
Available in 2" - 8" IPS
Available in 2" - 12" ID
Gasket Joint
Belowground or constant temperature environment
Available in ¾" - 8" IPS
Available in 2" - 6" ID

Straight Socket
Available in ¾" - 1½" IPS
Available in ¾" - 12" XWALL

*Note: Reference Duct Catalog pages 6, 7, 12-16*



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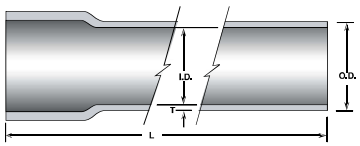
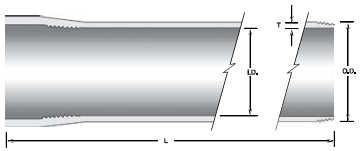



## STRAIGHT SOCKET JOINT (IPS)

**Type SW** (Standard Wall) Inches *(Metric)*

| Nominal. Size | Item No Belowground | Item No Aboveground | UL/CSA Listed | Outside Diameter Average | Outside Diameter Tolerance | Min. Inside Diameter | Nominal Wall Thickness* (T) | Length (L) | Weight lbs/ft | Weight kg/m |
|---|---|---|---|---|---|---|---|---|---|---|
| ¾ *(19)* | 07A-SW-10S | 07C-SW-10S | Yes | 1.050 *(27)* | +0.028 *(0.7)* -0.018 *(0.4)* | 0.910 *(23)* | .070 *(2)* | 10 ft *(3m)* | .17 | *(0.25)* |
| 1 *(25)* | 10A-SW-10S | 10C-SW-10S | Yes | 1.315 *(33)* | +0.028 *(0.7)* -0.018 *(0.4)* | 1.175 *(30)* | .070 *(2)* | 10 ft *(3m)* | .19 | *(0.28)* |
| 1¼ *(32)* | 12A-SW-20-S | 12C-SW-20-S | Yes | 1.660 *(42)* | +0.028 *(0.7)* -0.018 *(0.4)* | 1.520 *(39)* | .070 *(2)* | 20 ft *(6.1m)* | .23 | *(0.34)* |
| 1½ *(38)* | 15A-SW-20-S | 15C-SW-20-S | Yes | 1.900 *(48)* | +0.028 *(0.7)* -0.018 *(0.4)* | 1.760 *(45)* | .070 *(2)* | 20 ft *(6.1m)* | .33 | *(0.49)* |




## INTERFERENCE JOINT (IPS)

**Type SW** (Standard Wall) Inches *(Metric)*

| Nominal. Size | Item No Belowground | Item No Aboveground | UL/CSA Listed | Outside Diameter Average | Outside Diameter Tolerance | Min. Inside Diameter | Nominal Wall Thickness* (T) | Length (L) | Weight lbs/ft | Weight kg/m |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 *(51)* | 20A-SW-20-I | 20C-SW-20-I | Yes | 2.375 *(60)* | +0.028 *(0.7)* -0.018 *(0.4)* | 2.235 *(57)* | .070 *(2)* | 20 ft *(6.1m)* | .38 | *(0.57)* |
| 2½ *(64)* | 25A-SW-20-I | 25C-SW-20-I | Yes | 2.875 *(73)* | +0.028 *(0.7)* -0.018 *(0.4)* | 2.740 *(69)* | .070 *(2)* | 20 ft *(6.1m)* | .46 | *(0.68)* |
| 3 *(76)* | 30A-SW-20-I | 30C-SW-20-I | Yes | 3.500 *(89)* | +0.028 *(0.7)* -0.018 *(0.4)* | 3.360 *(85)* | .070 *(2)* | 20 ft *(6.1m)* | .60 | *(0.89)* |
| 4 *(102)* | 40A-SW-20-I | 40C-SW-20-I | Yes | 4.460 *(113)* | +0.028 *(0.7)* -0.018 *(0.4)* | 4.320 *(110)* | .070 *(2)* | 20 ft *(6.1m)* | .72 | *(1.07)* |
| 5 *(127)* | 50A-SW-20-I | 50C-SW-20-I | -- | 5.520 *(140)* | +0.028 *(0.7)* -0.018 *(0.4)* | 5.380 *(137)* | .070 *(2)* | 20 ft *(6.1m)* | .90 | *(1.34)* |
| 6 *(152)* | 60A-SW-20-I | 60C-SW-20-I | -- | 6.575 *(167)* | +0.028 *(0.7)* -0.018 *(0.4)* | 6.435 *(163)* | .070 *(2)* | 20 ft *(6.1m)* | 1.00 | *(1.49)* |
| 8 *(203)* | 80A-SW-20-I | 80C-SW-20-I | -- | 8.592 *(218)* | +0.028 *(0.7)* -0.018 *(0.4)* | 8.400 *(213)* | .096 *(2)* | 20 ft *(6.1m)* | 2.02 | *(3.01)* |

**Type MW** (Medium Wall) Inches *(Metric)*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 *(127)* | 50A-MW-20-I | 50C-MW-20-I | Yes | 5.572 *(142)* | +0.034 *(0.9)* -0.028 *(0.7)* | 5.380 *(137)* | .096 *(2)* | 20 ft *(6.1m)* | 1.20 | *(1.79)* |
| 6 *(152)* | 60A-MW-20-I | 60C-MW-20-I | Yes | 6.627 *(168)* | +0.034 *(0.9)* -0.028 *(0.7)* | 6.435 *(163)* | .096 *(2)* | 20 ft *(6.1m)* | 1.42 | *(2.11)* |
| 8 *(203)* | 80A-MW-20-I | 80C-MW-20-I | -- | 8.620 *(219)* | +0.034 -0.028 *(0.9)* *(0.7)* | 8.400 *(213)* | .110 *(3)* | 20 ft *(6.1m)* | 2.14 | *(3.20)* |

**Type HW** (Heavy Wall) Inches *(Metric)*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 *(102)* | 40A-HW-20-I | 40C-HW-20-I | Yes | 4.512 *(115)* | +0.028 *(0.7)* -0.022 *(0.6)* | 4.320 *(110)* | .096 *(2)* | 20 ft *(6.1m)* | 0.97 | *(1.44)* |
| 5 *(127)* | 50A-HW-20-I | 50C-HW-20-I | Yes | 5.600 *(142)* | +0.034 *(0.9)* -0.028 *(0.7)* | 5.380 *(137)* | .110 *(3)* | 20 ft *(6.1m)* | 1.32 | *(1.96)* |
| 6 *(152)* | 60A-HW-20-I | 60C-HW-20-I | Yes | 6.655 *(169)* | +0.034 *(0.9)* -0.028 *(0.7)* | 6.435 *(163)* | .110 *(3)* | 20 ft *(6.1m)* | 1.63 | *(2.43)* |
| 8 *(203)* | 80A-HW-20-I | 80C-HW-20-I | -- | 8.650 *(220)* | +0.034 -0.028 *(0.9)* *(0.7)* | 8.400 *(213)* | .125 *(3)* | 20 ft *(6.1m)* | 2.43 | *(3.62)* |

* Actual wall thickness is that required to meet the performance requirements for specifications. Other wall thicknesses are available by special request.

** When ordering 10 ft *(3.05m)* lengths, half of the order will be supplied with interference joint and half with straight socket joint.



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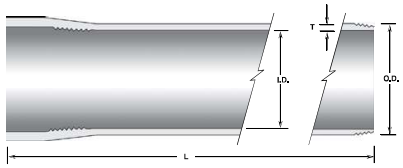


## INTERFERENCE JOINT (ID)

**Type SW** (Standard Wall) Inches *(Metric)*

| Nominal. Size | Item No Belowground | Item No Aboveground | UL/CSA Listed | Outside Diameter Average | Outside Diameter Tolerance | Min. Inside Diameter | Nominal Wall Thickness* (T) | Length (L) | Weight lbs/ft | Weight kg/m |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 *(51)* | 20B-SW-20-I | 20D-SW-20-I | Yes | 2.140 *(54)* | +0.028 *(0.7)* -0.018 *(0.4)* | 2.000 *(51)* | .070 *(2)* | 20 ft *(6.1m)* | 0.34 | *(0.51)* |
| 2½ *(64)* | 25B-SW-20-I | 25D-SW-20-I | Yes | 2.640 *(67)* | +0.028 *(0.7)* -0.018 *(0.4)* | 2.500 *(64)* | .070 *(2)* | 20 ft *(6.1m)* | 0.42 | *(0.63)* |
| 3 *(76)* | 30B-SW-20-I | 30D-SW-20-I | Yes | 3.140 *(80)* | +0.028 *(0.7)* -0.018 *(0.4)* | 3.000 *(76)* | .070 *(2)* | 20 ft *(6.1m)* | 0.48 | *(0.72)* |
| 3½ *(89)* | 35B-SW-20-I | 35D-SW-20-I | Yes | 3.640 *(92)* | +0.028 *(0.7)* -0.018 *(0.4)* | 3.500 *(89)* | .070 *(2)* | 20 ft *(6.1m)* | 0.60 | *(0.89)* |
| 4 *(102)* | 40B-SW-20-I | 40D-SW-20-I | Yes | 4.140 *(105)* | +0.028 *(0.7)* -0.018 *(0.4)* | 4.000 *(101)* | .070 *(2)* | 20 ft *(6.1m)* | 0.69 | *(1.03)* |
| 4½ *(114)* | 45B-SW-20-I | 45D-SW-20-I | -- | 4.640 *(118)* | +0.028 *(0.7)* -0.018 *(0.4)* | 4.500 *(114)* | .070 *(2)* | 20 ft *(6.1m)* | 0.75 | *(1.12)* |
| 5 *(127)* | 50B-SW-20-I | 50D-SW-20-I | -- | 5.140 *(131)* | +0.028 *(0.7)* -0.018 *(0.4)* | 5.000 *(127)* | .070 *(2)* | 20 ft *(6.1m)* | 0.85 | *(1.27)* |
| 6 *(152)* | 60B-SW-20-I | 60D-SW-20-I | -- | 6.140 *(156)* | +0.028 *(0.7)* -0.018 *(0.4)* | 6.000 *(152)* | .070 *(2)* | 20 ft *(6.1m)* | 1.02 | *(1.52)* |
| 8 *(203)* | 80B-SW-20-S | 80D-SW-20-S | -- | 8.192 *(208)* | +0.028 *(0.7)* -0.018 *(0.4)* | 8.000 *(203)* | .096 *(2)* | 20 ft *(6.1m)* | 1.86 | *(2.77)* |
| 10 *(254)* | 100B-SW-20-S | 100D-SW-20-S | -- | 10.250 *(260)* | +0.028 *(0.7)* -0.018 *(0.4)* | 10.000 *(254)* | .125 *(3)* | 20 ft *(6.1m)* | 3.04 | *(4.52)* |
| 12 *(305)* | 120B-SW-20-S | 120D-SW-20-S | -- | 12.250 *(311)* | +0.028 *(0.7)* -0.018 *(0.4)* | 12.000 *(305)* | .125 *(3)* | 20 ft *(6.1m)* | 3.64 | *(5.42)* |

**Type MW** (Medium Wall) Inches *(Metric)*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 *(127)* | 50B-MW-20-I | 50D-MW-20-I | Yes | 5.192 *(131)* | +0.034 -0.028 *(0.9)* *(0.7)* | 5.000 *(127)* | .096 *(2)* | 20 ft *(6.1m)* | 1.13 | *(1.68)* |
| 6 *(152)* | 60B-MW-20-I | 60D-MW-20-I | Yes | 6.192 *(157)* | +0.034 -0.028 *(0.9)* *(0.7)* | 6.000 *(152)* | .096 *(2)* | 20 ft *(6.1m)* | 1.35 | *(2.01)* |
| 8 *(203)* | 80B-MW-20-S | 80D-MW-20-S | -- | 8.220 *(209)* | +0.028 *(0.7)* -0.018 *(0.4)* | 8.000 *(203)* | .110 *(3)* | 20 ft *(6.1m)* | 2.13 | *(3.17)* |
| 10 *(254)* | 100B-MW-20-S | 100D-MW-20-S | -- | 10.312 *(262)* | +0.034 -0.028 *(0.9)* *(0.7)* | 10.000 *(254)* | .156 *(4)* | 20 ft *(6.1m)* | 3.65 | *(5.43)* |
| 12 *(305)* | 120B-MW-20-S | 120D-MW-20-S | -- | 12.312 *(313)* | +0.034 -0.028 *(0.9)* *(0.7)* | 12.000 *(305)* | .156 *(4)* | 20 ft *(6.1m)* | 4.37 | *(6.50)* |

**Type HW** (Heavy Wall) Inches *(Metric)*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 *(102)* | 40B-HW-20-I | 40D-HW-20-I | Yes | 4.192 *(106)* | +0.028 -0.022 *(0.7)* *(0.6)* | 4.000 *(101)* | .096 *(2)* | 20 ft *(6.1m)* | 0.92 | *(1.37)* |
| 4½ *(114)* | 45B-HW-20-I | 45D-HW-20-I | Yes | 4.692 *(119)* | +0.028 -0.022 *(0.7)* *(0.6)* | 4.500 *(114)* | .096 *(2)* | 20 ft *(6.1m)* | 1.04 | *(1.55)* |
| 5 *(127)* | 50B-HW-20-I | 50D-HW-20-I | Yes | 5.220 *(132)* | +0.034 -0.028 *(0.9)* *(0.7)* | 5.000 *(127)* | .110 *(3)* | 20 ft *(6.1m)* | 1.30 | *(1.92)* |
| 6 *(152)* | 60B-HW-20-I | 60D-HW-20-I | Yes | 6.220 *(158)* | +0.034 -0.028 *(0.9)* *(0.7)* | 6.000 *(152)* | .110 *(3)* | 20 ft *(6.1m)* | 1.58 | *(2.35)* |
| 8 *(203)* | 80B-HW-20-S | 80D-HW-20-S | -- | 8.250 *(210)* | +0.028 -0.018 *(0.7)* *(0.4)* | 8.000 *(203)* | .125 *(3)* | 20 ft *(6.1m)* | 2.42 | *(3.60)* |
| 10 *(254)* | 100B-HW-20-S | 100D-HW-20-S | -- | 10.376 *(264)* | +0.034 -0.028 *(0.9)* *(0.7)* | 10.000 *(254)* | .188 *(5)* | 20 ft *(6.1m)* | 4.50 | *(6.70)* |
| 12 *(305)* | 120B-HW-20-S | 120D-HW-20-S | -- | 12.376 *(314)* | +0.034 -0.028 *(0.9)* *(0.7)* | 12.000 *(305)* | .188 *(5)* | 20 ft *(6.1m)* | 5.38 | *(8.01)* |

* Actual wall thickness is that required to meet the performance requirements for specifications. Other wall thicknesses are available by special request.



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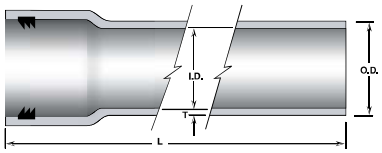
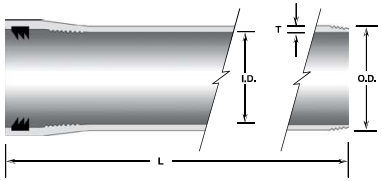



## STRAIGHT GASKET JOINT (IPS)

**Type SW** (Standard Wall) Inches *(Metric)*

| Nominal Size | Item No. Belowground | Item No. Aboveground | UL/CSA Listed | Outside Diameter Average | Outside Diameter Tolerance | Min. Inside Diameter | Nominal Wall Thickness* (T) | Length (L) | Weight lbs/ft | Weight kg/m |
|---|---|---|---|---|---|---|---|---|---|---|
| ¾ *(19)* | 07A-SW-10-G | 07C-SW-10-G | Yes | 1.050 *(27)* | +0.028 -0.018 *(0.7) (0.4)* | 0.910 *(23)* | .070 *(2)* | 10 ft *(3m)* | .17 | *(0.25)* |
| 1 *(25)* | 10A-SW-10-G | 10C-SW-10-G | Yes | 1.315 *(33)* | +0.028 -0.018 *(0.7) (0.4)* | 1.175 *(30)* | .070 *(2)* | 10 ft *(3m)* | .19 | *(0.28)* |
| 1¼ *(32)* | 12A-SW-20-G | 12C-SW-20-G | Yes | 1.660 *(42)* | +0.028 -0.018 *(0.7) (0.4)* | 1.520 *(39)* | .070 *(2)* | 20 ft *(6.1m)* | .23 | *(0.34)* |
| 1½ *(38)* | 15A-SW-20-G | 15C-SW-20-G | Yes | 1.900 *(48)* | +0.028 -0.018 *(0.7) (0.4)* | 1.760 *(45)* | .070 *(2)* | 20 ft *(6.1m)* | .33 | *(0.49)* |




## INTERFERENCE GASKET JOINT (IPS)

**Type SW** (Standard Wall) Inches *(Metric)*

| Nominal Size | Item No. Belowground | Item No. Aboveground | UL/CSA Listed | Outside Diameter Average | Outside Diameter Tolerance | Min. Inside Diameter | Nominal Wall Thickness* (T) | Length (L) | Weight lbs/ft | Weight kg/m |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 *(51)* | 20A-SW-20-G | 20C-SW-20-G | Yes | 2.375 *(60)* | +0.028 -0.018 *(0.7) (0.4)* | 2.235 *(57)* | .070 *(2)* | 20 ft *(6.1m)* | 0.38 | *(0.57)* |
| 3 *(76)* | 30A-SW-20-G | 30C-SW-20-G | Yes | 3.500 *(89)* | +0.028 -0.018 *(0.7) (0.4)* | 3.360 *(85)* | .070 *(2)* | 20 ft *(6.1m)* | 0.60 | *(0.90)* |
| 4 *(102)* | 40A-SW-20-G | 40C-SW-20-G | Yes | 4.460 *(113)* | +0.028 -0.018 *(0.7) (0.4)* | 4.320 *(110)* | .070 *(2)* | 20 ft *(6.1m)* | 0.72 | *(1.07)* |
| 5 *(127)* | 50A-SW-20-G | 50C-SW-20-G | -- | 5.520 *(140)* | +0.028 -0.018 *(0.7) (0.4)* | 5.380 *(137)* | .070 *(2)* | 20 ft *(6.1m)* | 0.90 | *(1.34)* |
| 6 *(152)* | 60A-SW-20-G | 60C-SW-20-G | -- | 6.575 *(167)* | +0.028 -0.018 *(0.7) (0.4)* | 6.435 *(163)* | .070 *(2)* | 20 ft *(6.1m)* | 1.00 | *(1.49)* |
| 8 *(203)* | 80A-SW-20-G | 80C-SW-20-G | -- | 8.592 *(218)* | +0.028 -0.018 *(0.7) (0.4)* | 8.400 *(213)* | .096 *(2)* | 20 ft *(6.1m)* | 2.02 | *(3.01)* |

**Type MW** (Medium Wall) Inches *(Metric)*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 *(127)* | 50A-MW-20-G | 50C-MW-20-G | Yes | 5.572 *(142)* | +0.034 -0.028 *(0.9) (0.7)* | 5.380 *(137)* | .096 *(2)* | 20 ft *(6.1m)* | 1.20 | *(1.79)* |
| 6 *(152)* | 60A-MW-20-G | 60C-MW-20-G | Yes | 6.627 *(168)* | +0.034 -0.028 *(0.9) (0.7)* | 6.435 *(163)* | .096 *(2)* | 20 ft *(6.1m)* | 1.42 | *(2.11)* |
| 8 *(203)* | 80A-MW-20-G | 80C-MW-20-G | -- | 8.620 *(219)* | +0.028 -0.018 *(0.7) (0.4)* | 8.400 *(213)* | .110 *(3)* | 20 ft *(6.1m)* | 2.14 | *(3.20)* |

**Type HW** (Heavy Wall) Inches *(Metric)*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 *(102)* | 40A-HW-20-G | 40C-HW-20-G | Yes | 4.512 *(115)* | +0.028 -0.022 *(0.7) (0.6)* | 4.320 *(110)* | .096 *(2)* | 20 ft *(6.1m)* | 0.97 | *(1.44)* |
| 5 *(127)* | 50A-HW-20-G | 50C-HW-20-G | Yes | 5.600 *(142)* | +0.034 -0.028 *(0.9) (0.7)* | 5.380 *(137)* | .110 *(3)* | 20 ft *(6.1m)* | 1.32 | *(1.96)* |
| 6 *(152)* | 60A-HW-20-G | 60C-HW-20-G | Yes | 6.655 *(169)* | +0.034 -0.028 *(0.9) (0.7)* | 6.435 *(163)* | .110 *(3)* | 20 ft *(6.1m)* | 1.63 | *(2.43)* |
| 8 *(203)* | 80A-HW-20-G | 80C-HW-20-G | -- | 8.650 *(220)* | +0.028 -0.018 *(0.7) (0.4)* | 8.400 *(213)* | .125 *(3)* | 20 ft *(6.1m)* | 2.43 | *(3.62)* |

* Actual wall thickness is that required to meet the performance requirements for specifications. Other wall thicknesses are available by special request.

** When ordering 10 ft *(3.05m)* lengths, half of the order will be supplied with interference joint and half with straight socket joint.



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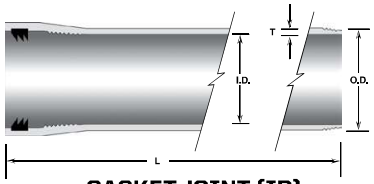


## GASKET JOINT (ID)

**Type SW** (Standard Wall) Inches *(Metric)*

| Nominal Size | Item No. Belowground | Item No. Aboveground | UL/CSA Listed | Outside Diameter Average | Outside Diameter Tolerance | Min. Inside Diameter | Nominal Wall Thickness* (T) | Length (L) | Weight lbs/ft | Weight kg/m |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 *(51)* | 20B-SW-20-G | 20D-SW-20-G | Yes | 2.140 *(54)* | +0.028 -0.018 *(0.7) (0.4)* | 2.000 *(51)* | .070 *(2)* | 20 ft *(6.1m)* | 0.34 | *(0.51)* |
| 2½ *(64)* | 25B-SW-20-G | 25D-SW-20-G | Yes | 2.640 *(67)* | +0.028 -0.018 *(0.7) (0.4)* | 2.500 *(64)* | .070 *(2)* | 20 ft *(6.1m)* | 0.42 | *(0.63)* |
| 3 *(76)* | 30B-SW-20-G | 30D-SW-20-G | Yes | 3.140 *(80)* | +0.028 -0.018 *(0.7) (0.4)* | 3.000 *(76)* | .070 *(2)* | 20 ft *(6.1m)* | 0.48 | *(0.71)* |
| 3½ *(89)* | 35B-SW-20-G | 35D-SW-20-G | Yes | 3.640 *(92)* | +0.028 -0.018 *(0.7) (0.4)* | 3.500 *(89)* | .070 *(2)* | 20 ft *(6.1m)* | 0.60 | *(0.89)* |
| 4 *(102)* | 40B-SW-20-G | 40D-SW-20-G | Yes | 4.140 *(105)* | +0.028 -0.018 *(0.7) (0.4)* | 4.000 *(101)* | .070 *(2)* | 20 ft *(6.1m)* | 0.79 | *(1.18)* |
| 4½ *(114)* | 45B-SW-20-G | 45D-SW-20-G | Yes | 4.640 *(118)* | +0.028 -0.018 *(0.7) (0.4)* | 4.500 *(114)* | .070 *(2)* | 20 ft *(6.1m)* | 0.89 | *(1.32)* |
| 5 *(127)* | 50B-SW-20-G | 50D-SW-20-G | -- | 5.140 *(131)* | +0.028 -0.018 *(0.7) (0.4)* | 5.000 *(127)* | .070 *(2)* | 20 ft *(6.1m)* | 0.95 | *(1.41)* |
| 6 *(152)* | 60B-SW-20-G | 60D-SW-20-G | -- | 6.140 *(156)* | +0.028 -0.018 *(0.7) (0.4)* | 6.000 *(152)* | .070 *(2)* | 20 ft *(6.1m)* | 1.02 | *(1.52)* |

**Type MW** (Medium Wall) Inches *(Metric)*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 *(127)* | 50B-MW-20-G | 50D-MW-20-G | Yes | 5.192 *(131)* | +0.034 -0.028 *(0.9) (0.7)* | 5.000 *(127)* | .096 *(2)* | 20 ft *(6.1m)* | 1.13 | *(1.68)* |
| 6 *(152)* | 60B-MW-20-G | 60D-MW-20-G | Yes | 6.192 *(157)* | +0.034 -0.028 *(0.9) (0.7)* | 6.000 *(152)* | .096 *(2)* | 20 ft *(6.1m)* | 1.35 | *(2.01)* |

**Type HW** (Heavy Wall) Inches *(Metric)*

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 *(102)* | 40B-HW-20-G | 40D-HW-20-G | Yes | 4.192 *(106)* | +0.028 -0.022 *(0.7) (0.6)* | 4.000 *(101)* | .096 *(2)* | 20 ft *(6.1m)* | 0.92 | *(1.37)* |
| 4½ *(114)* | 45B-HW-20-G | 45D-HW-20-G | Yes | 4.692 *(119)* | +0.028 -0.022 *(0.7) (0.6)* | 4.500 *(114)* | .096 *(2)* | 20 ft *(6.1m)* | 1.04 | *(1.55)* |
| 5 *(127)* | 50B-HW-20-G | 50D-HW-20-G | Yes | 5.220 *(132)* | +0.034 -0.028 *(0.9) (0.7)* | 5.000 *(127)* | .110 *(3)* | 20 ft *(6.1m)* | 1.30 | *(1.92)* |
| 6 *(152)* | 60B-HW-20-G | 60D-HW-20-G | Yes | 6.220 *(158)* | +0.034 -0.028 *(0.9) (0.7)* | 6.000 *(152)* | .110 *(3)* | 20 ft *(6.1m)* | 1.58 | *(2.35)* |

* Actual wall thickness is that required to meet the performance requirements for specifications. Other wall thicknesses are available by special request.

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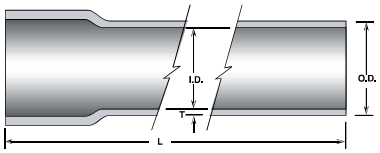


## STRAIGHT SOCKET (XW)

**Type XW** (Xtra Wall) Inches *(Metric)*

| Nominal Size | Item No. Belowground | Item No. Aboveground | UL Listed | Outside Diameter Average | Outside Diameter Tolerance | Min. Inside Diameter | Nominal Wall Thickness* (T) | Length (L) | Weight lbs/ft | Weight kg/m |
|---|---|---|---|---|---|---|---|---|---|---|
| ¾ *(19)* | 07A-XW-10S | 07C-XW-10S | Yes | 1.410 *(36)* | +0.056 -0.036 *(1.4 -0.9)* | 0.910 *(23)* | .25 *(6)* | 10 ft *(3m)* | .61 | *(.91)* |
| 1 *(25)* | 10A-XW-10S | 10C-XW-10S | Yes | 1.675 *(43)* | +0.056 -0.036 *(1.4 -0.9)* | 1.175 *(30)* | .25 *(6)* | 10 ft *(3m)* | .68 | *(1.01)* |
| 1¼ *(32)* | 12A-XW-20-S | 12C-XW-20-S | Yes | 2.020 *(51)* | +0.056 -0.036 *(1.4 -0.9)* | 1.520 *(39)* | .25 *(6)* | 20 ft *(6.1m)* | .82 | *(1.22)* |
| 1½ *(38)* | 15A-XW-20-S | 15C-XW-20-S | Yes | 2.260 *(57)* | +0.056 -0.036 *(1.4 -0.9)* | 1.760 *(45)* | .25 *(6)* | 20 ft *(6.1m)* | 1.18 | *(1.76)* |
| 2 *(51)* | 20B-XW-20-S | 20D-XW-20-S | Yes | 2.500 *(64)* | +0.056 -0.036 *(1.4 -0.9)* | 2.000 *(51)* | .25 *(6)* | 20 ft *(6.1m)* | 1.26 | *(1.88)* |
| 2½ *(64)* | 25B-XW-20-S | 25D-XW-20-S | Yes | 3.000 *(76)* | +0.056 -0.036 *(1.4 -0.9)* | 2.500 *(64)* | .25 *(6)* | 20 ft *(6.1m)* | 1.54 | *(2.29)* |
| 3 *(76)* | 30B-XW-20-S | 30D-XW-20-S | Yes | 3.500 *(89)* | +0.056 -0.036 *(1.4 -0.9)* | 3.000 *(76)* | .25 *(6)* | 20 ft *(6.1m)* | 1.82 | *(2.71)* |
| 3½ *(89)* | 35B-XW-20-S | 35D-XW-20-S | Yes | 4.000 *(102)* | -0.036 +0.056 *(1.4 -0.9)* | 3.500 *(89)* | .25 *(6)* | 20 ft *(6.1m)* | 2.10 | *(3.13)* |
| 4 *(102)* | 40B-XW-20-S | 40D-XW-20-S | Yes | 4.500 *(114)* | +0.056 -0.036 *(1.4 -0.9)* | 4.000 *(102)* | .25 *(6)* | 20 ft *(6.1m)* | 2.38 | *(3.54)* |
| 5 *(127)* | 50B-XW-20-S | 50D-XW-20-S | Yes | 5.500 *(140)* | +0.056 -0.036 *(1.4 -0.9)* | 5.000 *(127)* | .25 *(6)* | 20 ft *(6.1m)* | 2.94 | *(4.38)* |
| 6 *(152)* | 60B-XW-20-S | 60D-XW-20-S | Yes | 6.500 *(165)* | +0.056 -0.036 *(1.4 -0.9)* | 6.000 *(152)* | .25 *(6)* | 20 ft *(6.1m)* | 3.50 | *(5.21)* |
| 8** *(203)* | 80A-XW-20-S | 80C-XW-20-S | -- | 8.900 *(226)* | +0.056 -0.036 *(1.4 -0.9)* | 8.400 *(213)* | .25 *(6)* | 20 ft *(6.1m)* | 4.80 | *(7.14)* |
| 10 *(254)* | 100B-XW-20-S | 100D-XW-20-S | -- | 10.500 *(267)* | +0.056 -0.036 *(1.4 -0.9)* | 10.000 *(254)* | .25 *(6)* | 20 ft *(6.1m)* | 5.74 | *(8.54)* |
| 12 *(305)* | 120B-XW-20-S | 120D-XW-20-S | -- | 12.500 *(318)* | +0.056 -0.036 *(1.4 -0.9)* | 12.000 *(305)* | .25 *(6)* | 20 ft *(6.1m)* | 6.86 | *(10.21)* |

* Actual wall thickness is that required to meet the performance requirements for specifications. Other wall thicknesses are available by special request.

** XW type conduit is also available with an inside diameter of 8.000 (203). Please contact our factory for further information.



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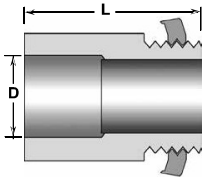



## BOX CONNECTOR

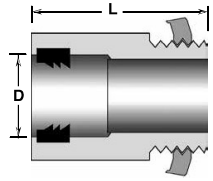
(Straight Threads)

A box connector creates a separable termination into a box. This connector has straight threads (NPS) and is supplied with a locknut. Sealing O-ring supplied by adding an EX suffix to the part number.

| Nominal Size | Type | IPS Item No. Belowground | IPS Item No. Aboveground | D | L | Weight lbs | Weight kg |
|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-30 | 07C-SW-30 | 1.06 *(27)* | 3 *(76)* | 0.11 | *(.05)* |
| 1 | SW | 10A-SW-30 | 10C-SW-30 | 1.32 *(34)* | 3 *(76)* | 0.22 | *(.10)* |
| 1¼ | SW | 12A-SW-30 | 12C-SW-30 | 1.67 *(42)* | 3 *(76)* | 0.25 | *(.12)* |
| 1½ | SW | 15A-SW-30 | 15C-SW-30 | 1.91 *(49)* | 3 *(76)* | 0.29 | *(.13)* |
| 2 | SW | 20A-SW-30 | 20C-SW-30 | 2.40 *(61)* | 5 *(127)* | 0.85 | *(.39)* |
| 3 | SW | 30A-SW-30 | 30C-SW-30 | 3.52 *(89)* | 5 *(127)* | 1.28 | *(.58)* |
| 4 | SW | 40A-SW-30 | 40C-SW-30 | 4.47 *(114)* | 5 *(127)* | 2.09 | *(.95)* |
| 4 | HW | 40A-HW-30 | 40C-HW-30 | 4.52 *(115)* | 5 *(127)* | 2.09 | *(.95)* |
| 5 | SW | 50A-SW-30 | 50C-SW-30 | 5.54 *(141)* | 5 *(127)* | 2.75 | *(1.25)* |
| 5 | MW | 50A-MW-30 | 50C-MW-30 | 5.59 *(142)* | 5 *(127)* | 2.75 | *(1.25)* |
| 5 | HW | 50A-HW-30 | 50C-HW-30 | 5.63 *(143)* | 5 *(127)* | 2.75 | *(1.25)* |
| 6 | SW | 60A-SW-30 | 60C-SW-30 | 6.61 *(168)* | 5 *(127)* | 2.97 | *(1.35)* |
| 6 | MW | 60A-MW-30 | 60C-MW-30 | 6.66 *(169)* | 5 *(127)* | 2.97 | *(1.35)* |
| 6 | HW | 60A-HW-30 | 60C-HW-30 | 6.69 *(170)* | 5 *(127)* | 2.97 | *(1.35)* |

| Nominal Size | Type | ID Item No. Belowground | ID Item No. Aboveground | D | L | Weight lbs | Weight kg |
|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-30 | 20D-SW-30 | 2.16 *(55)* | 5 *(127)* | 0.85 | *(.39)* |
| 2½ | SW | 25B-SW-30 | 25D-SW-30 | 2.66 *(68)* | 5 *(127)* | 0.94 | *(.43)* |
| 3 | SW | 30B-SW-30 | 30D-SW-30 | 3.16 *(80)* | 5 *(127)* | 1.28 | *(.58)* |
| 3½ | SW | 35B-SW-30 | 35D-SW-30 | 3.66 *(93)* | 5 *(127)* | 1.77 | *(.80)* |
| 4 | SW | 40B-SW-30 | 40D-SW-30 | 4.16 *(106)* | 5 *(127)* | 2.09 | *(.95)* |
| 4 | HW | 40B-HW-30 | 40D-HW-30 | 4.20 *(107)* | 5 *(127)* | 2.09 | *(.95)* |
| 4½ | SW | 45B-SW-30 | 45D-SW-30 | 4.66 *(118)* | 5 *(127)* | 2.40 | *(1.08)* |
| 4½ | HW | 45B-HW-30 | 45D-HW-30 | 4.70 *(119)* | 5 *(127)* | 2.40 | *(1.08)* |
| 5 | SW | 50B-SW-30 | 50D-SW-30 | 5.16 *(131)* | 5 *(127)* | 2.75 | *(1.25)* |
| 5 | MW | 50B-MW-30 | 50D-MW-30 | 5.20 *(132)* | 5 *(127)* | 2.75 | *(1.25)* |
| 5 | HW | 50B-HW-30 | 50D-HW-30 | 5.24 *(133)* | 5 *(127)* | 2.75 | *(1.25)* |
| 6 | SW | 60B-SW-30 | 60D-SW-30 | 6.16 *(156)* | 5 *(127)* | 2.97 | *(1.35)* |
| 6 | MW | 60B-MW-30 | 60D-MW-30 | 6.20 *(157)* | 5 *(127)* | 2.97 | *(1.35)* |
| 6 | HW | 60B-HW-30 | 60D-HW-30 | 6.24 *(158)* | 5 *(127)* | 2.97 | *(1.35)* |

| Nominal Size | Type | Item No. Belowground | Item No. Aboveground | D | L | Weight lbs | Weight kg |
|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-30 | 20D-XW-30 | 2.520 *(64)* | 5 *(127)* | 0.85 | *(0.39)* |
| 2½ | XW | 25B-XW-30 | 25D-XW-30 | 3.025 *(77)* | 5 *(127)* | 0.94 | *(0.43)* |
| 3 | XW | 30B-XW-30 | 30D-XW-30 | 3.520 *(89)* | 5 *(127)* | 1.28 | *(0.58)* |
| 3½ | XW | 35B-XW-30 | 35D-XW-30 | 4.025 *(102)* | 5 *(127)* | 1.77 | *(0.80)* |
| 4 | XW | 40B-XW-30 | 40D-XW-30 | 4.520 *(115)* | 7 *(165)* | 2.09 | *(0.95)* |
| 5 | XW | 50B-XW-30 | 50D-XW-30 | 5.520 *(140)* | 7 *(165)* | 2.75 | *(1.25)* |
| 6 | XW | 60B-XW-30 | 60D-XW-30 | 6.520 *(166)* | 7 *(165)* | 2.97 | *(1.35)* |
| 8 | XW | 80A-XW-30 | 80C-XW-30 | 8.920 *(227)* | 8 *(203)* | 5.24 | *(2.37)* |




## BOX CONNECTOR WITH GASKET

(Straight Threads)

A box connector creates a separable termination into a box. This connector has straight threads (NPS) and is supplied with a locknut. Sealing O-ring supplied by adding an EX suffix to the part number.

| Nominal Size | Type | IPS Item No. Belowground | IPS Item No. Aboveground | D | L | Weight lbs | Weight kg |
|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-30-G | 07C-SW-30-G | 1.06 *(27)* | 3 *(102)* | 0.08 | *(.04)* |
| 1 | SW | 10A-SW-30-G | 10C-SW-30-G | 1.32 *(34)* | 3 *(102)* | 0.08 | *(.04)* |
| 1¼ | SW | 12A-SW-30-G | 12C-SW-30-G | 1.67 *(42)* | 3 *(102)* | 0.15 | *(.07)* |
| 1½ | SW | 15A-SW-30-G | 15C-SW-30-G | 1.91 *(49)* | 3 *(102)* | 0.15 | *(.07)* |
| 2 | SW | 20A-SW-30-G | 20C-SW-30-G | 2.40 *(61)* | 5 *(127)* | 0.83 | *(0.38)* |
| 3 | SW | 30A-SW-30-G | 30C-SW-30-G | 3.52 *(89)* | 5 *(127)* | 1.10 | *(0.50)* |
| 4 | SW | 40A-SW-30-G | 40C-SW-30-G | 4.47 *(114)* | 5 *(127)* | 1.25 | *(0.57)* |
| 4 | HW | 40A-HW-30-G | 40C-HW-30-G | 4.52 *(115)* | 5 *(127)* | 1.25 | *(0.57)* |
| 5 | SW | 50A-SW-30-G | 50C-SW-30-G | 5.54 *(141)* | 5 *(127)* | 1.70 | *(0.77)* |
| 5 | MW | 50A-MW-30-G | 50C-MW-30-G | 5.59 *(142)* | 5 *(127)* | 1.65 | *(0.75)* |
| 5 | HW | 50A-HW-30-G | 50C-HW-30-G | 5.63 *(143)* | 5 *(127)* | 1.60 | *(0.73)* |
| 6 | SW | 60A-SW-30-G | 60C-SW-30-G | 6.61 *(168)* | 5 *(127)* | 2.20 | *(1.00)* |
| 6 | MW | 60A-MW-30-G | 60C-MW-30-G | 6.66 *(169)* | 5 *(127)* | 2.00 | *(0.91)* |
| 6 | HW | 60A-HW-30-G | 60C-HW-30-G | 6.69 *(170)* | 5 *(127)* | 1.80 | *(0.82)* |

| Nominal Size | Type | ID Item No. Belowground | ID Item No. Aboveground | D | L | Weight lbs | Weight kg |
|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-30-G | 20D-SW-30-G | 2.16 *(55)* | 5 *(127)* | 0.65 | *(0.30)* |
| 2½ | SW | 25B-SW-30-G | 25D-SW-30-G | 2.66 *(68)* | 5 *(127)* | 0.80 | *(0.36)* |
| 3 | SW | 30B-SW-30-G | 30D-SW-30-G | 3.16 *(80)* | 5 *(127)* | 0.90 | *(0.41)* |
| 3½ | SW | 35B-SW-30-G | 35D-SW-30-G | 3.66 *(93)* | 5 *(127)* | 1.00 | *(0.45)* |
| 4 | SW | 40B-SW-30-G | 40D-SW-30-G | 4.16 *(106)* | 5 *(127)* | 1.40 | *(0.64)* |
| 4 | HW | 40B-HW-30-G | 40D-HW-30-G | 4.20 *(107)* | 5 *(127)* | 1.30 | *(0.59)* |
| 4½ | SW | 45B-SW-30-G | 45D-SW-30-G | 4.66 *(118)* | 5 *(127)* | 1.60 | *(0.73)* |
| 4½ | HW | 45B-HW-30-G | 45D-HW-30-G | 4.70 *(119)* | 5 *(127)* | 1.50 | *(0.68)* |
| 5 | SW | 50B-SW-30-G | 50D-SW-30-G | 5.16 *(131)* | 5 *(127)* | 1.60 | *(0.73)* |
| 5 | MW | 50B-MW-30-G | 50D-MW-30-G | 5.20 *(132)* | 5 *(127)* | 1.40 | *(0.64)* |
| 5 | HW | 50B-HW-30-G | 50D-HW-30-G | 5.24 *(133)* | 5 *(127)* | 1.28 | *(0.58)* |
| 6 | SW | 60B-SW-30-G | 60D-SW-30-G | 6.16 *(156)* | 5 *(127)* | 2.30 | *(1.04)* |
| 6 | MW | 60A-MW-30-G | 60D-MW-30-G | 6.20 *(157)* | 5 *(127)* | 2.10 | *(0.95)* |
| 6 | HW | 60B-HW-30-G | 60D-HW-30-G | 6.24 *(158)* | 5 *(127)* | 1.90 | *(0.86)* |

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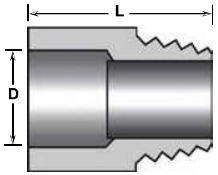
CD-1012

Proposal No. 608616-131225




## MALE ADAPTER

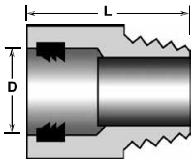
(Tapered Threads)

Male adapters with tapered threads (NPT) are generally used for joining to female threads of rigid steel, Myers type hubs or terminating into precast iron boxes with female thread entrances.

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-33 | 07C-SW-33 | 1.06 | *(27)* | 3 | *(76)* | 0.08 | *(.04)* |
| 1 | SW | 10A-SW-33 | 10C-SW-33 | 1.32 | *(34)* | 3 | *(76)* | 0.08 | *(.04)* |
| 1¼ | SW | 12A-SW-33 | 12C-SW-33 | 1.67 | *(42)* | 3 | *(76)* | 0.15 | *(.07)* |
| 1½ | SW | 15A-SW-33 | 15C-SW-33 | 1.91 | *(49)* | 3 | *(76)* | 0.15 | *(.07)* |
| 2 | SW | 20A-SW-33 | 20C-SW-33 | 2.40 | *(61)* | 5 | *(127)* | 0.44 | *(.20)* |
| 3 | SW | 30A-SW-33 | 30C-SW-33 | 3.52 | *(89)* | 5 | *(127)* | 0.64 | *(.29)* |
| 4 | SW | 40A-SW-33 | 40C-SW-33 | 4.47 | *(114)* | 5 | *(127)* | 0.93 | *(.42)* |
| 4 | HW | 40A-HW-33 | 40C-HW-33 | 4.52 | *(115)* | 5 | *(127)* | 0.97 | *(.44)* |
| 5 | SW | 50A-SW-33 | 50C-SW-33 | 5.54 | *(141)* | 5 | *(127)* | 1.45 | *(.66)* |
| 5 | MW | 50A-MW-33 | 50C-MW-33 | 5.59 | *(142)* | 5 | *(127)* | 1.30 | *(.59)* |
| 5 | HW | 50A-HW-33 | 50C-HW-33 | 5.63 | *(143)* | 5 | *(127)* | 1.15 | *(.52)* |
| 6 | SW | 60A-SW-33 | 60C-SW-33 | 6.61 | *(168)* | 5 | *(127)* | 2.00 | *(.91)* |
| 6 | MW | 60A-MW-33 | 60C-MW-33 | 6.66 | *(169)* | 5 | *(127)* | 1.70 | *(.77)* |
| 6 | HW | 60A-HW-33 | 60C-HW-33 | 6.69 | *(170)* | 5 | *(127)* | 1.40 | *(.64)* |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-33 | 20D-SW-33 | 2.16 | *(55)* | 5 | *(127)* | 0.43 | *(.20)* |
| 2½ | SW | 25B-SW-33 | 25D-SW-33 | 2.66 | *(68)* | 5 | *(127)* | 0.62 | *(.28)* |
| 3 | SW | 30B-SW-33 | 30D-SW-33 | 3.16 | *(80)* | 5 | *(127)* | 0.76 | *(.35)* |
| 3½ | SW | 35B-SW-33 | 35D-SW-33 | 3.66 | *(93)* | 5 | *(127)* | 0.86 | *(.39)* |
| 4 | SW | 40B-SW-33 | 40D-SW-33 | 4.16 | *(106)* | 5 | *(127)* | 1.02 | *(.46)* |
| 4 | HW | 40B-HW-33 | 40D-HW-33 | 4.20 | *(107)* | 5 | *(127)* | 0.95 | *(.43)* |
| 4½ | SW | 45B-SW-33 | 45D-SW-33 | 4.66 | *(118)* | 5 | *(127)* | 1.22 | *(.55)* |
| 4½ | HW | 45B-HW-33 | 45D-HW-33 | 4.70 | *(119)* | 5 | *(127)* | 1.15 | *(.52)* |
| 5 | SW | 50B-SW-33 | 50D-SW-33 | 5.16 | *(131)* | 5 | *(127)* | 1.53 | *(.70)* |
| 5 | MW | 50B-MW-33 | 50D-MW-33 | 5.20 | *(132)* | 5 | *(127)* | 1.30 | *(.59)* |
| 5 | HW | 50B-HW-33 | 50D-HW-33 | 5.24 | *(133)* | 5 | *(127)* | 1.18 | *(.54)* |
| 6 | SW | 60B-SW-33 | 60D-SW-33 | 6.16 | *(156)* | 5 | *(127)* | 2.08 | *(.94)* |
| 6 | MW | 60B-MW-33 | 60D-MW-33 | 6.20 | *(157)* | 5 | *(127)* | 1.40 | *(.64)* |
| 6 | HW | 60B-HW-33 | 60D-HW-33 | 6.24 | *(158)* | 5 | *(127)* | 1.30 | *(.59)* |

| Nominal Size | Type | Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-33 | 20D-XW-33 | 2.520 | *(64)* | 5 | *(127)* | 0.69 | *(0.31)* |
| 2½ | XW | 25B-XW-33 | 25D-XW-33 | 3.025 | *(77)* | 5 | *(127)* | 0.85 | *(0.38)* |
| 3 | XW | 30B-XW-33 | 30D-XW-33 | 3.520 | *(89)* | 5 | *(127)* | 1.00 | *(0.45)* |
| 3½ | XW | 35B-XW-33 | 35D-XW-33 | 4.025 | *(102)* | 5 | *(127)* | 1.28 | *(0.58)* |
| 4 | XW | 40B-XW-33 | 40D-XW-33 | 4.520 | *(115)* | 7 | *(178)* | 1.56 | *(0.71)* |
| 5 | XW | 50B-XW-33 | 50D-XW-33 | 5.520 | *(140)* | 7 | *(178)* | 2.08 | *(0.94)* |
| 6 | XW | 60B-XW-33 | 60D-XW-33 | 6.520 | *(166)* | 7 | *(178)* | 2.47 | *(1.12)* |




## MALE ADAPTER WITH GASKET

(Tapered Threads)

Male adapters with tapered threads (NPT) are generally used for joining to female threads of rigid steel, Myers type hubs or terminating into precast iron boxes with female thread entrances.

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-33-G | 07C-SW-33-G | 1.06 | *(27)* | 3 | *(102)* | 0.08 | *(0.04)* |
| 1 | SW | 10A-SW-33-G | 10C-SW-33-G | 1.32 | *(34)* | 3 | *(102)* | 0.08 | *(0.04)* |
| 1¼ | SW | 12A-SW-33-G | 12C-SW-33-G | 1.67 | *(42)* | 3 | *(102)* | 0.15 | *(0.07)* |
| 1½ | SW | 15A-SW-33-G | 15C-SW-33-G | 1.91 | *(49)* | 3 | *(102)* | 0.15 | *(0.07)* |
| 2 | SW | 20A-SW-33-G | 20C-SW-33-G | 2.40 | *(61)* | 5 | *(127)* | 0.83 | *(0.38)* |
| 3 | SW | 30A-SW-33-G | 30C-SW-33-G | 3.52 | *(89)* | 5 | *(127)* | 1.10 | *(0.50)* |
| 4 | SW | 40A-SW-33-G | 40C-SW-33-G | 4.47 | *(114)* | 5 | *(127)* | 1.35 | *(0.61)* |
| 4 | HW | 40A-HW-33-G | 40C-HW-33-G | 4.52 | *(115)* | 5 | *(127)* | 1.25 | *(0.57)* |
| 5 | SW | 50A-SW-33-G | 50C-SW-33-G | 5.54 | *(141)* | 5 | *(127)* | 1.70 | *(0.77)* |
| 5 | MW | 50A-MW-33-G | 50C-MW-33-G | 5.59 | *(142)* | 5 | *(127)* | 1.65 | *(0.75)* |
| 5 | HW | 50A-HW-33-G | 50C-HW-33-G | 5.63 | *(143)* | 5 | *(127)* | 1.68 | *(0.76)* |
| 6 | SW | 60A-SW-33-G | 60C-SW-33-G | 6.61 | *(168)* | 5 | *(127)* | 2.20 | *(1.00)* |
| 6 | MW | 60A-MW-33-G | 60C-MW-33-G | 6.66 | *(169)* | 5 | *(127)* | 2.00 | *(0.91)* |
| 6 | HW | 60A-HW-33-G | 60C-HW-33-G | 6.69 | *(170)* | 5 | *(127)* | 1.80 | *(0.82)* |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-33-G | 20D-SW-33-G | 2.16 | *(55)* | 5 | *(127)* | 0.65 | *(0.30)* |
| 2½ | SW | 25B-SW-33-G | 25D-SW-33-G | 2.66 | *(68)* | 5 | *(127)* | 0.80 | *(0.36)* |
| 3 | SW | 30B-SW-33-G | 30D-SW-33-G | 3.16 | *(80)* | 5 | *(127)* | 0.90 | *(0.41)* |
| 3½ | SW | 35B-SW-33-G | 35D-SW-33-G | 3.66 | *(93)* | 5 | *(127)* | 1.00 | *(0.45)* |
| 4 | SW | 40B-SW-33-G | 40D-SW-33-G | 4.16 | *(106)* | 5 | *(127)* | 1.40 | *(0.64)* |
| 4 | HW | 40B-HW-33-G | 40D-HW-33-G | 4.20 | *(107)* | 5 | *(127)* | 1.30 | *(0.59)* |
| 4½ | SW | 45B-SW-33-G | 45D-SW-33-G | 4.66 | *(118)* | 5 | *(127)* | 1.60 | *(0.73)* |
| 4½ | HW | 45B-HW-33-G | 45D-HW-33-G | 4.70 | *(119)* | 5 | *(127)* | 1.50 | *(0.68)* |
| 5 | SW | 50B-SW-33-G | 50D-SW-33-G | 5.16 | *(131)* | 5 | *(127)* | 1.60 | *(0.73)* |
| 5 | MW | 50B-MW-33-G | 50D-MW-33-G | 5.20 | *(132)* | 5 | *(127)* | 1.40 | *(0.64)* |
| 5 | HW | 50B-HW-33-G | 50D-HW-33-G | 5.24 | *(133)* | 5 | *(127)* | 1.28 | *(0.58)* |
| 6 | SW | 60B-SW-33-G | 60D-SW-33-G | 6.16 | *(156)* | 5 | *(127)* | 2.30 | *(1.04)* |
| 6 | MW | 60B-MW-33-G | 60D-MW-33-G | 6.20 | *(157)* | 5 | *(127)* | 2.10 | *(0.95)* |
| 6 | HW | 60B-HW-33-G | 60D-HW-33-G | 6.24 | *(158)* | 5 | *(127)* | 1.90 | *(0.86)* |



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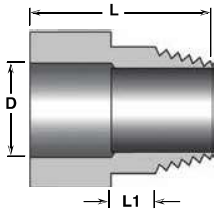


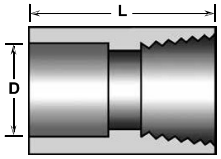

## SPECIAL ADAPTER FOR PVC COATED FITTINGS

(Male Terminal Adapter)

This terminal adapter has tapered threads and a straight shoulder so it can fit under the PVC sleeve of a PVC coated steel fitting.

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D | | L | | L1 | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-24 | 07C-SW-24 | 1.06 | *(27)* | 3¾ | *(95)* | ¾ | | 0.10 | *(3.00)* |
| 1 | SW | 10A-SW-24 | 10C-SW-24 | 1.32 | *(34)* | 4 | *(102)* | 1 | | 0.13 | *(3.00)* |
| 1¼ | SW | 12A-SW-24 | 12C-SW-24 | 1.67 | *(42)* | 4¼ | *(108)* | 1¼ | | 0.18 | *(5.00)* |
| 1½ | SW | 15A-SW-24 | 15C-SW-24 | 1.91 | *(49)* | 4½ | *(114)* | 1½ | | 0.18 | *(5.00)* |
| 2 | SW | 20A-SW-24 | 20C-SW-24 | 2.40 | *(61)* | 7 | *(178)* | 2 | | 0.60 | *(15.00)* |
| 3 | SW | 30A-SW-24 | 30C-SW-24 | 3.52 | *(89)* | 7 | *(178)* | 2 | | 0.80 | *(20.00)* |
| 4 | SW | 40A-SW-24 | 40C-SW-24 | 4.47 | *(114)* | 7 | *(178)* | 2 | | 1.20 | *(30.00)* |
| 4 | HW | 40A-HW-24 | 40C-HW-24 | 4.52 | *(115)* | 7 | *(178)* | 2 | | 1.30 | *(33.00)* |
| 5 | SW | 50A-SW-24 | 50C-SW-24 | 5.54 | *(141)* | 7 | *(178)* | 2 | | 1.90 | *(48.00)* |
| 5 | MW | 50A-MW-24 | 50C-MW-24 | 5.59 | *(142)* | 7 | *(178)* | 2 | | 1.70 | *(43.00)* |
| 5 | HW | 50A-HW-24 | 50C-HW-24 | 5.63 | *(143)* | 7 | *(178)* | 2 | | 1.50 | *(38.00)* |
| 6 | SW | 60A-SW-24 | 60C-SW-24 | 6.61 | *(168)* | 7 | *(178)* | 2 | | 2.60 | *(66.00)* |
| 6 | MW | 60A-MW-24 | 60C-MW-24 | 6.66 | *(169)* | 7 | *(178)* | 2 | | 2.20 | *(56.00)* |
| 6 | HW | 60A-HW-24 | 60C-HW-24 | 6.69 | *(170)* | 7 | *(178)* | 2 | | 1.80 | *(46.00)* |

| Nominal Size | Type | Item No. Belowground | Aboveground | D | | L | | L1 | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-24 | 20D-XW-24 | 2.520 | *(64)* | 7 | *(178)* | 2 | *(51)* | 0.69 | *(0.31)* |
| 2½ | XW | 25B-XW-24 | 25D-XW-24 | 3.025 | *(77)* | 7 | *(178)* | 2 | *(51)* | 1.20 | *(0.45)* |
| 3 | XW | 30B-XW-24 | 30D-XW-24 | 3.520 | *(89)* | 7 | *(178)* | 2 | *(51)* | 1.00 | *(0.45)* |
| 3½ | XW | 35B-XW-24 | 35D-XW-24 | 4.025 | *(102)* | 7 | *(178)* | 2 | *(51)* | 1.20 | *(0.54)* |
| 4 | XW | 40B-XW-24 | 40D-XW-24 | 4.520 | *(115)* | 7 | *(178)* | 2 | *(51)* | 1.56 | *(0.71)* |
| 5 | XW | 50B-XW-24 | 50D-XW-24 | 5.520 | *(140)* | 7 | *(178)* | 2 | *(51)* | 2.08 | *(0.94)* |
| 6 | XW | 60B-XW-24 | 60D-XW-24 | 6.520 | *(166)* | 7 | *(178)* | 2 | *(51)* | 2.47 | *(1.12)* |




## FEMALE TERMINAL ADAPTER

This adapter is generally used for joining fiberglass conduit with galvanized rigid steel (GRS) conduit. It has the same threads as GRS conduit and can easily be attached to GRS conduit.

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-32 | 07C-SW-32 | 1.06 | *(27)* | 3.0 | *(76)* | 0.07 | *(0.03)* |
| 1 | SW | 10A-SW-32 | 10C-SW-32 | 1.32 | *(34)* | 3.0 | *(76)* | 0.13 | *(0.06)* |
| 1¼ | SW | 12A-SW-32 | 12C-SW-32 | 1.67 | *(42)* | 3.0 | *(76)* | 0.18 | *(0.08)* |
| 1½ | SW | 15A-SW-32 | 15C-SW-32 | 1.91 | *(49)* | 3.0 | *(76)* | 0.21 | *(0.10)* |
| 2 | SW | 20A-SW-32 | 20C-SW-32 | 2.40 | *(61)* | 5.0 | *(127)* | 0.47 | *(0.21)* |
| 3 | SW | 30A-SW-32 | 30C-SW-32 | 3.52 | *(89)* | 5.0 | *(127)* | 0.80 | *(0.36)* |
| 4 | SW | 40A-SW-32 | 40C-SW-32 | 4.47 | *(114)* | 5.0 | *(127)* | 1.05 | *(0.48)* |
| 4 | HW | 40A-HW-32 | 40C-HW-32 | 4.52 | *(115)* | 5.0 | *(127)* | 1.00 | *(0.45)* |
| 5 | SW | 50A-SW-32 | 50C-SW-32 | 5.54 | *(141)* | 5.0 | *(127)* | 1.10 | *(0.50)* |
| 5 | MW | 50A-MW-32 | 50C-MW-32 | 5.59 | *(142)* | 5.0 | *(127)* | 1.05 | *(0.48)* |
| 5 | HW | 50A-HW-32 | 50C-HW-32 | 5.63 | *(143)* | 5.0 | *(127)* | 1.00 | *(0.45)* |
| 6 | SW | 60A-SW-32 | 60C-SW-32 | 6.61 | *(168)* | 5.0 | *(127)* | 1.15 | *(0.52)* |
| 6 | MW | 60A-MW-32 | 60C-MW-32 | 6.66 | *(169)* | 5.0 | *(127)* | 1.10 | *(0.50)* |
| 6 | HW | 60A-HW-32 | 60C-HW-32 | 6.69 | *(170)* | 5.0 | *(127)* | 1.05 | *(0.48)* |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-32 | 20D-SW-32 | 2.16 | *(55)* | 5 | *(127)* | 0.75 | *(0.34)* |
| 2½ | SW | 25B-SW-32 | 25D-SW-32 | 2.66 | *(55)* | 5 | *(127)* | 1.00 | *(0.45)* |
| 3 | SW | 30B-SW-32 | 30D-SW-32 | 3.16 | *(80)* | 5 | *(127)* | 1.08 | *(0.49)* |
| 3½ | SW | 35B-SW-32 | 35D-SW-32 | 3.66 | *(93)* | 5 | *(127)* | 1.18 | *(0.54)* |
| 4 | SW | 40B-SW-32 | 40D-SW-32 | 4.16 | *(106)* | 5 | *(127)* | 1.25 | *(0.57)* |
| 4 | HW | 40B-HW-32 | 40D-HW-32 | 4.20 | *(107)* | 5 | *(127)* | 1.08 | *(0.49)* |
| 4½ | SW | 45B-SW-32 | 45D-SW-32 | 4.66 | *(118)* | 5 | *(127)* | 1.50 | *(0.68)* |
| 4½ | HW | 45B-HW-32 | 45D-HW-32 | 4.70 | *(119)* | 5 | *(127)* | 1.40 | *(0.64)* |
| 5 | SW | 50B-SW-32 | 50D-SW-32 | 5.16 | *(131)* | 5 | *(127)* | 1.90 | *(0.86)* |
| 5 | MW | 50B-MW-32 | 50D-MW-32 | 5.20 | *(132)* | 5 | *(127)* | 1.75 | *(0.80)* |
| 5 | HW | 50B-HW-32 | 50D-HW-32 | 5.24 | *(133)* | 5 | *(127)* | 1.65 | *(0.75)* |
| 6 | SW | 60B-SW-32 | 60D-SW-32 | 6.16 | *(156)* | 5 | *(127)* | 2.13 | *(0.97)* |
| 6 | MW | 60B-MW-32 | 60D-MW-32 | 6.20 | *(157)* | 5 | *(127)* | 2.00 | *(0.91)* |
| 6 | HW | 60B-HW-32 | 60D-HW-32 | 6.24 | *(158)* | 5 | *(127)* | 1.83 | *(0.83)* |

| Nominal Size | Type | Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-32 | 20D-XW-32 | 2.520 | *(64)* | 5 | *(127)* | 1.20 | *(0.55)* |
| 2½ | XW | 25B-XW-32 | 25D-XW-32 | 3.025 | *(77)* | 5 | *(127)* | 0.85 | *(0.38)* |
| 3 | XW | 30B-XW-32 | 30D-XW-32 | 3.520 | *(89)* | 5 | *(127)* | 1.40 | *(0.64)* |
| 3½ | XW | 35B-XW-32 | 35D-XW-32 | 4.025 | *(102)* | 5 | *(127)* | 1.28 | *(0.58)* |
| 4 | XW | 40B-XW-32 | 40D-XW-32 | 4.520 | *(115)* | 7 | *(178)* | 2.08 | *(0.94)* |
| 5 | XW | 50B-XW-32 | 50D-XW-32 | 5.520 | *(140)* | 7 | *(178)* | 2.60 | *(1.18)* |
| 6 | XW | 60B-XW-32 | 60D-XW-32 | 6.520 | *(166)* | 7 | *(178)* | 3.51 | *(1.59)* |

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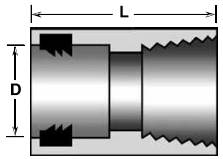
CD-1012

Proposal No. 608616-131225

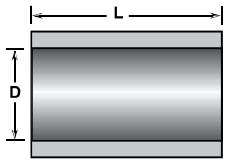



## FEMALE TERMINAL ADAPTER W/GASKET

This adapter is generally used for joining fiberglass conduit with galvanized rigid steel (GRS) conduit. It has the same threads as GRS conduit and can easily be attached to GRS conduit.

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-32-G | 07C-SW-32-G | 1.06 | (27) | 3 | (102) | 0.07 | (0.03) |
| 1 | SW | 10A-SW-32-G | 10C-SW-32-G | 1.32 | (34) | 3 | (102) | 0.13 | (0.06) |
| 1¼ | SW | 12A-SW-32-G | 12C-SW-32-G | 1.67 | (42) | 3 | (102) | 0.18 | (0.08) |
| 1½ | SW | 15A-SW-32-G | 15C-SW-32-G | 1.91 | (49) | 3 | (102) | 0.21 | (0.10) |
| 2 | SW | 20A-SW-32-G | 20C-SW-32-G | 2.40 | (61) | 5 | (127) | 0.47 | (0.21) |
| 3 | SW | 30A-SW-32-G | 30C-SW-32-G | 3.52 | (89) | 5 | (127) | 0.80 | (0.36) |
| 4 | SW | 40A-SW-32-G | 40C-SW-32-G | 4.47 | (114) | 5 | (127) | 1.05 | (0.48) |
| 4 | HW | 40A-HW-32-G | 40C-HW-32-G | 4.52 | (115) | 5 | (127) | 1.00 | (0.45) |
| 5 | SW | 50A-SW-32-G | 50C-SW-32-G | 5.54 | (141) | 5 | (127) | 1.10 | (0.50) |
| 5 | MW | 50A-MW-32-G | 50C-MW-32-G | 5.59 | (142) | 5 | (127) | 1.05 | (0.48) |
| 5 | HW | 50A-HW-32-G | 50C-HW-32-G | 5.63 | (143) | 5 | (127) | 1.00 | (0.45) |
| 6 | SW | 60A-SW-32-G | 60C-SW-32-G | 6.61 | (168) | 5 | (127) | 1.15 | (0.52) |
| 6 | MW | 60A-MW-32-G | 60C-MW-32-G | 6.66 | (169) | 5 | (127) | 1.10 | (0.50) |
| 6 | HW | 60A-HW-32-G | 60C-HW-32-G | 6.69 | (170) | 5 | (127) | 1.05 | (0.48) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-32-G | 20D-SW-32-G | 2.16 | (55) | 5 | (127) | 0.75 | (0.34) |
| 2½ | SW | 25B-SW-32-G | 25D-SW-32-G | 2.66 | (68) | 5 | (127) | 1.00 | (0.45) |
| 3 | SW | 30B-SW-32-G | 30D-SW-32-G | 3.16 | (80) | 5 | (127) | 1.08 | (0.49) |
| 3½ | SW | 35B-SW-32-G | 35D-SW-32-G | 3.66 | (93) | 5 | (127) | 1.18 | (0.54) |
| 4 | SW | 40B-SW-32-G | 40D-SW-32-G | 4.16 | (106) | 5 | (127) | 1.25 | (0.57) |
| 4 | HW | 40B-HW-32-G | 40D-HW-32-G | 4.20 | (107) | 5 | (127) | 1.08 | (0.49) |
| 4½ | SW | 45B-SW-32-G | 45D-SW-32-G | 4.66 | (118) | 5 | (127) | 1.50 | (0.68) |
| 4½ | HW | 45B-HW-32-G | 45D-HW-32-G | 4.70 | (119) | 5 | (127) | 1.40 | (0.64) |
| 5 | SW | 50B-SW-32-G | 50D-SW-32-G | 5.16 | (131) | 5 | (127) | 1.90 | (0.86) |
| 5 | MW | 50B-MW-32-G | 50D-MW-32-G | 5.20 | (132) | 5 | (127) | 1.75 | (0.80) |
| 5 | HW | 50B-HW-32-G | 50D-HW-32-G | 5.24 | (133) | 5 | (127) | 1.65 | (0.75) |
| 6 | SW | 60B-SW-32-G | 60D-SW-32-G | 6.16 | (156) | 5 | (127) | 2.13 | (0.97) |
| 6 | MW | 60B-MW-32-G | 60D-MW-32-G | 6.20 | (157) | 5 | (127) | 2.00 | (0.91) |
| 6 | HW | 60B-HW-32-G | 60D-HW-32-G | 6.24 | (158) | 5 | (127) | 1.83 | (0.83) |




## SLEEVE COUPLING

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-42 | 07C-SW-42 | 1.06 | (27) | 6 | (152) | 0.06 | (0.03) |
| 1 | SW | 10A-SW-42 | 10C-SW-42 | 1.32 | (34) | 6 | (152) | 0.08 | (0.04) |
| 1¼ | SW | 12A-SW-42 | 12C-SW-42 | 1.67 | (42) | 6 | (152) | 0.10 | (0.05) |
| 1½ | SW | 15A-SW-42 | 15C-SW-42 | 1.91 | (49) | 6 | (152) | 0.11 | (0.05) |
| 2 | SW | 20A-SW-42 | 20C-SW-42 | 2.40 | (61) | 6 | (152) | 0.20 | (0.09) |
| 3 | SW | 30A-SW-42 | 30C-SW-42 | 3.52 | (89) | 6 | (152) | 0.30 | (0.14) |
| 4 | SW | 40A-SW-42 | 40C-SW-42 | 4.47 | (114) | 6 | (152) | 0.36 | (0.16) |
| 4 | HW | 40A-HW-42 | 40C-HW-42 | 4.52 | (115) | 6 | (152) | 0.50 | (0.23) |
| 5 | SW | 50A-SW-42 | 50C-SW-42 | 5.54 | (141) | 6 | (152) | 0.45 | (0.20) |
| 5 | MW | 50A-MW-42 | 50C-MW-42 | 5.59 | (142) | 6 | (152) | 0.60 | (0.27) |
| 5 | HW | 50A-HW-42 | 50C-HW-42 | 5.63 | (143) | 6 | (152) | 0.70 | (0.32) |
| 6 | SW | 60A-SW-42 | 60C-SW-42 | 6.61 | (168) | 6 | (152) | 0.50 | (0.23) |
| 6 | MW | 60A-MW-42 | 60C-MW-42 | 6.66 | (169) | 6 | (152) | 0.80 | (0.36) |
| 6 | HW | 60A-HW-42 | 60C-HW-42 | 6.69 | (170) | 6 | (152) | 0.90 | (0.41) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-42 | 20D-SW-42 | 2.16 | (55) | 6 | (152) | 0.17 | (0.08) |
| 2½ | SW | 25B-SW-42 | 25D-SW-42 | 2.66 | (68) | 6 | (152) | 0.21 | (0.10) |
| 3 | SW | 30B-SW-42 | 30D-SW-42 | 3.16 | (80) | 6 | (152) | 0.24 | (0.11) |
| 3½ | SW | 35B-SW-42 | 35D-SW-42 | 3.66 | (93) | 6 | (152) | 0.32 | (0.15) |
| 4 | SW | 40B-SW-42 | 40D-SW-42 | 4.16 | (106) | 6 | (152) | 0.35 | (0.16) |
| 4 | HW | 40B-HW-42 | 40D-HW-42 | 4.20 | (107) | 6 | (152) | 0.46 | (0.21) |
| 4½ | SW | 45B-SW-42 | 45D-SW-42 | 4.66 | (118) | 6 | (152) | 0.38 | (0.17) |
| 4½ | HW | 45B-HW-42 | 45D-HW-42 | 4.70 | (119) | 6 | (152) | 0.54 | (0.25) |
| 5 | SW | 50B-SW-42 | 50D-SW-42 | 5.16 | (131) | 6 | (152) | 0.43 | (0.20) |
| 5 | MW | 50B-MW-42 | 50D-MW-42 | 5.20 | (132) | 6 | (152) | 0.60 | (0.27) |
| 5 | HW | 50B-HW-42 | 50D-HW-42 | 5.24 | (133) | 6 | (152) | 0.70 | (0.32) |
| 6 | SW | 60B-SW-42 | 60D-SW-42 | 6.16 | (156) | 6 | (152) | 0.48 | (0.22) |
| 6 | MW | 60B-MW-42 | 60D-MW-42 | 6.20 | (157) | 6 | (152) | 0.83 | (0.38) |
| 6 | HW | 60B-HW-42 | 60D-HW-42 | 6.24 | (158) | 6 | (152) | 1.15 | (0.52) |

| Nominal Size | Type | Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-42 | 20D-XW-42 | 2.520 | (64) | 6 | (152) | 0.53 | (0.24) |
| 2½ | XW | 25B-XW-42 | 25D-XW-42 | 3.025 | (77) | 6 | (152) | 0.77 | (0.35) |
| 3 | XW | 30B-XW-42 | 30D-XW-42 | 3.520 | (89) | 6 | (152) | 0.75 | (0.34) |
| 3½ | XW | 35B-XW-42 | 35D-XW-42 | 4.025 | (102) | 6 | (152) | 1.12 | (0.51) |
| 4 | XW | 40B-XW-42 | 40D-XW-42 | 4.520 | (115) | 10 | (254) | 1.50 | (0.68) |
| 5 | XW | 50B-XW-42 | 50D-XW-42 | 5.520 | (140) | 10 | (254) | 2.08 | (0.94) |
| 6 | XW | 60B-XW-42 | 60D-XW-42 | 6.520 | (166) | 10 | (254) | 2.50 | (1.13) |



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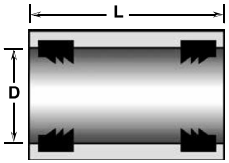
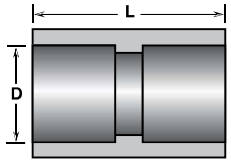



## SLEEVE COUPLING WITH GASKET

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-42-G | 07C-SW-42-G | 1.06 | (27) | 8 | (203) | 0.06 | (0.03) |
| 1 | SW | 10A-SW-42-G | 10C-SW-42-G | 1.32 | (34) | 8 | (203) | 0.08 | (0.04) |
| 1¼ | SW | 12A-SW-42-G | 12C-SW-42-G | 1.67 | (42) | 8 | (203) | 0.10 | (0.05) |
| 1½ | SW | 15A-SW-42-G | 15C-SW-42-G | 1.91 | (49) | 8 | (203) | 0.11 | (0.05) |
| 2 | SW | 20A-SW-42-G | 20C-SW-42-G | 2.40 | (61) | 8 | (203) | 0.70 | (0.32) |
| 3 | SW | 30A-SW-42-G | 30C-SW-42-G | 3.52 | (89) | 8 | (203) | 0.95 | (0.43) |
| 4 | SW | 40A-SW-42-G | 40C-SW- 42-G | 4.47 | (114) | 8 | (203) | 1.30 | (0.59) |
| 4 | HW | 40A-HW-42-G | 40C-HW-42-G | 4.52 | (115) | 8 | (203) | 1.40 | (0.64) |
| 5 | SW | 50A-SW-42-G | 50C-SW-42-G | 5.54 | (141) | 8 | (203) | 1.60 | (0.73) |
| 5 | MW | 50A-MW-42-G | 50C-MW-42-G | 5.59 | (142) | 8 | (203) | 1.80 | (0.82) |
| 5 | HW | 50A-HW-42-G | 50C-HW-42-G | 5.63 | (143) | 8 | (203) | 1.90 | (0.86) |
| 6 | SW | 60A-SW-42-G | 60C-SW-42-G | 6.61 | (168) | 8 | (203) | 2.00 | (0.91) |
| 6 | MW | 60A-MW-42-G | 60C-MW-42-G | 6.66 | (169) | 8 | (203) | 2.10 | (0.95) |
| 6 | HW | 60A-HW-42-G | 60C-HW-42-G | 6.69 | (170) | 8 | (203) | 2.40 | (1.09) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-42-G | 20D-SW-42-G | 2.16 | (55) | 8 | (203) | 0.70 | (0.32) |
| 2½ | SW | 25B-SW-42-G | 25D-SW-42-G | 2.66 | (68) | 8 | (203) | 0.80 | (0.36) |
| 3 | SW | 30B-SW-42-G | 30D-SW-42-G | 3.16 | (80) | 8 | (203) | 0.95 | (0.43) |
| 3½ | SW | 35B-SW-42-G | 35D-SW-42-G | 3.66 | (93) | 8 | (203) | 1.20 | (0.55) |
| 4 | SW | 40B-SW-42-G | 40D-SW-42-G | 4.16 | (106) | 8 | (203) | 1.30 | (0.59) |
| 4 | HW | 40B-HW-42-G | 40D-HW-42-G | 4.20 | (107) | 8 | (203) | 1.40 | (0.64) |
| 4½ | SW | 45B-SW-42-G | 45D-SW-42-G | 4.66 | (118) | 8 | (203) | 1.50 | (0.68) |
| 4½ | HW | 45B-HW-42-G | 45D-HW-42-G | 4.70 | (119) | 8 | (203) | 1.60 | (0.73) |
| 5 | SW | 50B-SW-42-G | 50D-SW-42-G | 5.16 | (131) | 8 | (203) | 1.60 | (0.73) |
| 5 | MW | 50B-MW-42-G | 50D-MW-42-G | 5.20 | (132) | 8 | (203) | 1.70 | (0.77) |
| 5 | HW | 50B-HW-42-G | 50D-HW-42-G | 5.24 | (133) | 8 | (203) | 1.80 | (0.82) |
| 6 | SW | 60B-SW-42-G | 60D-SW-42-G | 6.16 | (156) | 8 | (203) | 1.90 | (0.86) |
| 6 | MW | 60B-MW-42-G | 60D-MW-42-G | 6.20 | (157) | 8 | (203) | 1.90 | (0.86) |
| 6 | HW | 60B-HW-42-G | 60D-HW-42-G | 6.24 | (158) | 8 | (203) | 2.00 | (0.91) |




## STOP COUPLING

Stop coupling is sometimes referred to as a double bell coupling.

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-40 | 07C-SW-40 | 1.06 | (27) | 6 | (152) | 0.07 | (0.03) |
| 1 | SW | 10A-SW-40 | 10C-SW-40 | 1.32 | (34) | 6 | (152) | 0.08 | (0.04) |
| 1¼ | SW | 12A-SW-40 | 12C-SW-40 | 1.67 | (42) | 6 | (152) | 0.09 | (0.04) |
| 1½ | SW | 15A-SW-40 | 15C-SW-40 | 1.91 | (49) | 6 | (152) | 0.11 | (0.05) |
| 2 | SW | 20A-SW-40 | 20C-SW-40 | 2.40 | (61) | 6 | (152) | 0.20 | (0.10) |
| 3 | SW | 30A-SW-40 | 30C-SW-40 | 3.52 | (89) | 6 | (152) | 0.30 | (0.14) |
| 4 | SW | 40A-SW-40 | 40C-SW-40 | 4.47 | (114) | 6 | (152) | 0.43 | (0.20) |
| 4 | HW | 40A-HW-40 | 40C-HW-40 | 4.52 | (115) | 6 | (152) | 0.58 | (0.26) |
| 5 | SW | 50A-SW-40 | 50C-SW-40 | 5.54 | (141) | 6 | (152) | 0.50 | (0.23) |
| 5 | MW | 50A-MW-40 | 50C-MW-40 | 5.59 | (142) | 6 | (152) | 0.70 | (0.31) |
| 5 | HW | 50A-HW-40 | 50C-HW-40 | 5.63 | (143) | 6 | (152) | 0.90 | (0.41) |
| 6 | SW | 60A-SW-40 | 60C-SW-40 | 6.61 | (168) | 6 | (152) | 0.65 | (0.30) |
| 6 | MW | 60A-MW-40 | 60C-MW-40 | 6.66 | (169) | 6 | (152) | 0.85 | (0.39) |
| 6 | HW | 60A-HW-40 | 60C-HW-40 | 6.69 | (170) | 6 | (152) | 0.95 | (0.43) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-40 | 20D-SW-40 | 2.16 | (55) | 6 | (152) | 0.20 | (0.09) |
| 2½ | SW | 25B-SW-40 | 25D-SW-40 | 2.66 | (68) | 6 | (152) | 0.25 | (0.11) |
| 3 | SW | 30B-SW-40 | 30D-SW-40 | 3.16 | (80) | 6 | (152) | 0.30 | (0.14) |
| 3½ | SW | 35B-SW-40 | 35D-SW-40 | 3.66 | (93) | 6 | (152) | 0.35 | (0.16) |
| 4 | SW | 40B-SW-40 | 40D-SW-40 | 4.16 | (106) | 6 | (152) | 0.40 | (0.18) |
| 4 | HW | 40B-HW-40 | 40D-HW-40 | 4.20 | (107) | 6 | (152) | 0.54 | (0.25) |
| 4½ | SW | 45B-SW-40 | 45D-SW-40 | 4.66 | (118) | 6 | (152) | 0.45 | (0.20) |
| 4½ | HW | 45B-HW-40 | 45D-HW-40 | 4.70 | (119) | 6 | (152) | 0.60 | (0.27) |
| 5 | SW | 50B-SW-40 | 50D-SW-40 | 5.16 | (131) | 6 | (152) | 0.50 | (0.23) |
| 5 | MW | 50B-MW-40 | 50D-MW-40 | 5.20 | (132) | 6 | (152) | 0.68 | (0.31) |
| 5 | HW | 50B-HW-40 | 50D-HW-40 | 5.24 | (133) | 6 | (152) | 0.80 | (0.36) |
| 6 | SW | 60B-SW-40 | 60D-SW-40 | 6.16 | (156) | 6 | (152) | 0.60 | (0.27) |
| 6 | MW | 60B-MW-40 | 60D-MW-40 | 6.20 | (157) | 6 | (152) | 0.80 | (0.36) |
| 6 | HW | 60B-HW-40 | 60D-HW-40 | 6.24 | (158) | 6 | (152) | 0.92 | (0.42) |

| Nominal Size | Type | Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-40 | 20D-XW-40 | 2.520 | (64) | 6 | (152) | 0.65 | (0.29) |
| 2½ | XW | 25B-XW-40 | 25D-XW-40 | 3.025 | (77) | 6 | (152) | 0.77 | (0.35) |
| 3 | XW | 30B-XW-40 | 30D-XW-40 | 3.520 | (89) | 6 | (152) | 0.95 | (0.43) |
| 3½ | XW | 35B-XW-40 | 35D-XW-40 | 4.025 | (102) | 6 | (152) | 1.12 | (0.51) |
| 4 | XW | 40B-XW-40 | 40D-XW-40 | 4.520 | (115) | 10 | (254) | 2.00 | (0.91) |
| 5 | XW | 50B-XW-40 | 50D-XW-40 | 5.520 | (140) | 10 | (254) | 2.50 | (1.13) |
| 6 | XW | 60B-XW-40 | 60D-XW-40 | 6.520 | (166) | 10 | (254) | 2.90 | (1.32) |

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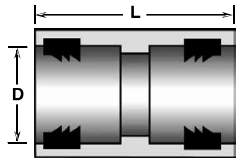
Proposal No. 608616-131225

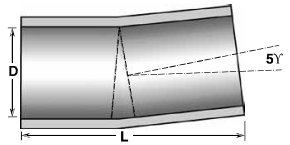



## STOP COUPLING WITH GASKET

Stop coupling is sometimes referred to as a double bell coupling.

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-40-G | 07C-SW-40-G | 1.06 | (27) | 8 | (203) | 0.07 | (0.03) |
| 1 | SW | 10A-SW-40-G | 10C-SW-40-G | 1.32 | (34) | 8 | (203) | 0.08 | (0.04) |
| 1¼ | SW | 12A-SW-40-G | 12C-SW-40-G | 1.67 | (42) | 8 | (203) | 0.09 | (0.04) |
| 1½ | SW | 15A-SW-40-G | 15C-SW-40-G | 1.91 | (49) | 8 | (203) | 0.11 | (0.05) |
| 2 | SW | 20A-SW-40-G | 20C-SW-40-G | 2.40 | (61) | 8 | (203) | 0.70 | (0.32) |
| 3 | SW | 30A-SW-40-G | 30C-SW-40-G | 3.52 | (89) | 8 | (203) | 0.95 | (0.43) |
| 4 | SW | 40A-SW-40-G | 40C-SW-40-G | 4.47 | (114) | 8 | (203) | 1.30 | (0.59) |
| 4 | HW | 40A-HW-40-G | 40C-HW-40-G | 4.52 | (115) | 8 | (203) | 1.40 | (0.64) |
| 5 | SW | 50A-SW-40-G | 50C-SW-40-G | 5.54 | (141) | 8 | (203) | 1.60 | (0.73) |
| 5 | MW | 50A-MW-40-G | 50C-MW-40-G | 5.59 | (142) | 8 | (203) | 1.80 | (0.82) |
| 5 | HW | 50A-HW-40-G | 50C-HW-40-G | 5.63 | (143) | 8 | (203) | 1.90 | (0.86) |
| 6 | SW | 60A-SW-40-G | 60C-SW-40-G | 6.61 | (168) | 8 | (203) | 2.00 | (0.91) |
| 6 | MW | 60A-MW-40-G | 60C-MW-40-G | 6.66 | (169) | 8 | (203) | 2.10 | (0.95) |
| 6 | HW | 60A-HW-40-G | 60C-HW-40-G | 6.69 | (170) | 8 | (203) | 2.40 | (1.09) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-40-G | 20D-SW-40-G | 2.16 | (55) | 8 | (203) | 0.70 | (0.32) |
| 2½ | SW | 25B-SW-40-G | 25D-SW-40-G | 2.66 | (68) | 8 | (203) | 0.80 | (0.36) |
| 3 | SW | 30B-SW-40-G | 30D-SW-40-G | 3.16 | (80) | 8 | (203) | 0.95 | (0.43) |
| 3½ | SW | 35B-SW-40-G | 35D-SW-40-G | 3.66 | (93) | 8 | (203) | 1.20 | (0.55) |
| 4 | SW | 40B-SW-40-G | 40D-SW-40-G | 4.16 | (106) | 8 | (203) | 1.30 | (0.59) |
| 4 | HW | 40B-HW-40-G | 40D-HW-40-G | 4.20 | (107) | 8 | (203) | 1.40 | (0.64) |
| 4½ | SW | 45B-SW-40-G | 45D-SW-40-G | 4.66 | (118) | 8 | (203) | 1.50 | (0.68) |
| 4½ | HW | 45B-HW-40-G | 45D-HW-40-G | 4.70 | (119) | 8 | (203) | 1.60 | (0.73) |
| 5 | SW | 50B-SW-40-G | 50D-SW-40-G | 5.16 | (131) | 8 | (203) | 1.60 | (0.73) |
| 5 | MW | 50B-MW-40-G | 50D-MW-40-G | 5.20 | (132) | 8 | (203) | 1.70 | (0.77) |
| 5 | HW | 50B-HW-40-G | 50D-HW-40-G | 5.24 | (133) | 8 | (203) | 1.80 | (0.82) |
| 6 | SW | 60B-SW-40-G | 60D-SW-40-G | 6.16 | (156) | 8 | (203) | 1.90 | (0.86) |
| 6 | MW | 60B-MW-40-G | 60D-MW-40-G | 6.20 | (157) | 8 | (203) | 1.90 | (0.86) |
| 6 | HW | 60B-HW-40-G | 60D-HW-40-G | 6.24 | (158) | 8 | (203) | 2.00 | (0.91) |




## 5° DOUBLE BELL COUPLING

Other angles can also be manufactured, such as 2.5° etc. Please contact factory for consultation.

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-44 | 07C-SW-44 | 1.06 | (27) | 6 | (152) | 0.07 | (0.03) |
| 1 | SW | 10A-SW-44 | 10C-SW-44 | 1.32 | (34) | 6 | (152) | 0.09 | (0.04) |
| 1¼ | SW | 12A-SW-44 | 12C-SW-44 | 1.67 | (42) | 6 | (152) | 0.11 | (0.05) |
| 1½ | SW | 15A-SW-44 | 15C-SW-44 | 1.91 | (49) | 6 | (165) | 0.13 | (0.06) |
| 2 | SW | 20A-SW-44 | 20C-SW-44 | 2.40 | (61) | 6 | (152) | 0.22 | (0.10) |
| 3 | SW | 30A-SW-44 | 30C-SW-44 | 3.52 | (89) | 6 | (152) | 0.32 | (0.46) |
| 4 | SW | 40A-SW-44 | 40C-SW-44 | 4.47 | (114) | 6 | (152) | 0.40 | (0.18) |
| 4 | HW | 40A-HW-44 | 40C-HW-44 | 4.52 | (115) | 6 | (152) | 0.60 | (0.27) |
| 5 | SW | 50A-SW-44 | 50C-SW-44 | 5.54 | (141) | 6 | (152) | 0.50 | (0.23) |
| 5 | MW | 50A-MW-44 | 50C-MW-44 | 5.59 | (142) | 6 | (152) | 0.65 | (0.30) |
| 5 | HW | 50A-HW-44 | 50C-HW-44 | 5.63 | (143) | 6 | (152) | 0.75 | (0.34) |
| 6 | SW | 60A-SW-44 | 60C-SW-44 | 6.61 | (168) | 6 | (152) | 0.55 | (0.25) |
| 6 | MW | 60A-MW-44 | 60C-MW-44 | 6.66 | (169) | 6 | (152) | 0.85 | (0.39) |
| 6 | HW | 60A-HW-44 | 60C-HW-44 | 6.69 | (170) | 6 | (152) | 0.95 | (0.43) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-44 | 20D-SW-44 | 2.16 | (55) | 6 | (152) | 0.18 | (0.08) |
| 2½ | SW | 25B-SW-44 | 25D-SW-44 | 2.66 | (68) | 6 | (152) | 0.22 | (0.10) |
| 3 | SW | 30B-SW-44 | 30D-SW-44 | 3.16 | (80) | 6 | (152) | 0.25 | (0.11) |
| 3½ | SW | 35B-SW-44 | 35D-SW-44 | 3.66 | (93) | 6 | (152) | 0.32 | (0.15) |
| 4 | SW | 40B-SW-44 | 40D-SW-44 | 4.16 | (106) | 6 | (152) | 0.36 | (0.16) |
| 4 | HW | 40B-HW-44 | 40D-HW-44 | 4.20 | (107) | 6 | (152) | 0.48 | (0.22) |
| 4½ | SW | 45B-SW-44 | 45D-SW-44 | 4.66 | (118) | 6 | (152) | 0.40 | (0.18) |
| 4½ | HW | 45B-HW-44 | 45D-HW-44 | 4.70 | (119) | 6 | (152) | 0.56 | (0.25) |
| 5 | SW | 50B-SW-44 | 50D-SW-44 | 5.16 | (131) | 6 | (152) | 0.45 | (0.20) |
| 5 | MW | 50B-MW-44 | 50D-MW-44 | 5.20 | (132) | 6 | (152) | 0.63 | (0.29) |
| 5 | HW | 50B-HW-44 | 50D-HW-44 | 5.24 | (133) | 6 | (152) | 0.73 | (0.33) |
| 6 | SW | 60B-SW-44 | 60D-SW-44 | 6.16 | (156) | 6 | (152) | 0.50 | (0.23) |
| 6 | MW | 60B-MW-44 | 60D-MW-44 | 6.20 | (157) | 6 | (152) | 0.85 | (0.39) |
| 6 | HW | 60B-HW-44 | 60D-HW-44 | 6.24 | (158) | 6 | (152) | 1.20 | (0.55) |

| Nominal Size | Type | Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-44 | 20D-XW-44 | 2.520 | (64) | 6 | (152) | 0.55 | (0.25) |
| 2½ | XW | 25B-XW-44 | 25D-XW-44 | 3.025 | (77) | 6 | (152) | 0.77 | (0.35) |
| 3 | XW | 30B-XW-44 | 30D-XW-44 | 3.520 | (89) | 6 | (152) | 0.89 | (0.40) |
| 3½ | XW | 35B-XW-44 | 35D-XW-44 | 4.025 | (102) | 6 | (152) | 1.02 | (0.51) |
| 4 | XW | 40B-XW-44 | 40D-XW-44 | 4.520 | (115) | 10 | (254) | 1.53 | (0.67) |
| 5 | XW | 50B-XW-44 | 50D-XW-44 | 5.520 | (140) | 10 | (254) | 2.17 | (0.98) |
| 6 | XW | 60B-XW-44 | 60D-XW-44 | 6.520 | (166) | 10 | (254) | 2.55 | (1.16) |



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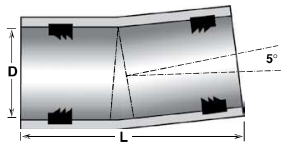


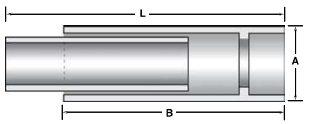

## 5° DOUBLE BELL COUPLING WITH GASKET

Other angles can also be manufactured, such as 2.5° etc. Please contact factory for consultation.

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-44-G | 07C-SW-44-G | 1.06 | (27) | 8 | (203) | 0.07 | (0.03) |
| 1 | SW | 10A-SW-44-G | 10C-SW-44-G | 1.32 | (34) | 8 | (203) | 0.09 | (0.04) |
| 1¼ | SW | 12A-SW-44-G | 12C-SW-44-G | 1.67 | (42) | 8 | (203) | 0.11 | (0.05) |
| 1½ | SW | 15A-HW-44-G | 15C-HW-44-G | 1.91 | (49) | 8 | (203) | 0.13 | (0.06) |
| 2 | SW | 20A-SW-44-G | 20C-SW-44-G | 2.40 | (61) | 8 | (203) | 0.72 | (0.33) |
| 3 | SW | 30A-SW-44-G | 30C-SW-44-G | 3.52 | (89) | 8 | (203) | 0.99 | (0.45) |
| 4 | SW | 40A-SW-44-G | 40C-SW-44-G | 4.47 | (114) | 8 | (203) | 1.35 | (0.61) |
| 4 | HW | 40A-HW-44-G | 40C-HW-44-G | 4.52 | (115) | 8 | (203) | 1.45 | (0.66) |
| 5 | SW | 50A-SW-44-G | 50C-SW-44-G | 5.54 | (141) | 8 | (203) | 1.65 | (0.75) |
| 5 | MW | 50A-MW-44-G | 50C-MW-44-G | 5.59 | (142) | 8 | (203) | 1.85 | (0.84) |
| 5 | HW | 50A-HW-44-G | 50C-HW-44-G | 5.63 | (143) | 8 | (203) | 1.95 | (0.89) |
| 6 | SW | 60A-SW-44-G | 60C-SW-44-G | 6.61 | (168) | 8 | (203) | 2.05 | (0.93) |
| 6 | MW | 60A-MW-44-G | 60C-MW-44-G | 6.66 | (169) | 8 | (203) | 2.15 | (0.98) |
| 6 | HW | 60A-HW-44-G | 60C-HW-44-G | 6.69 | (170) | 8 | (203) | 2.45 | (1.11) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-44-G | 20D-SW-44-G | 2.16 | (55) | 8 | (203) | 0.68 | (0.31) |
| 2½ | SW | 25B-SW-44-G | 25D-SW-44-G | 2.66 | (68) | 8 | (203) | 0.85 | (0.39) |
| 3 | SW | 30B-SW-44-G | 30D-SW-44-G | 3.16 | (80) | 8 | (203) | 1.00 | (0.45) |
| 3½ | SW | 35B-SW-44-G | 35D-SW-44-G | 3.66 | (93) | 8 | (203) | 1.20 | (0.55) |
| 4 | SW | 40B-SW-44-G | 40D-SW-44-G | 4.16 | (106) | 8 | (203) | 1.40 | (0.64) |
| 4 | HW | 40B-HW-44-G | 40D-HW-44-G | 4.20 | (107) | 8 | (203) | 1.50 | (0.68) |
| 4½ | SW | 45B-SW-44-G | 45D-SW-44-G | 4.66 | (118) | 8 | (203) | 1.60 | (0.73) |
| 4½ | HW | 45B-HW-44-G | 45D-HW-44-G | 4.70 | (119) | 8 | (203) | 1.60 | (0.73) |
| 5 | SW | 50B-SW-44-G | 50D-SW-44-G | 5.16 | (131) | 8 | (203) | 1.70 | (0.77) |
| 5 | MW | 50B-MW-44-G | 50D-MW-44-G | 5.20 | (132) | 8 | (203) | 1.80 | (0.82) |
| 5 | HW | 50B-HW-44-G | 50D-HW-44-G | 5.24 | (133) | 8 | (203) | 1.90 | (0.86) |
| 6 | SW | 60B-SW-44-G | 60D-SW-44-G | 6.16 | (156) | 8 | (203) | 1.90 | (0.86) |
| 6 | MW | 60B-MW-44-G | 60D-MW-44-G | 6.20 | (157) | 8 | (203) | 2.00 | (0.91) |
| 6 | HW | 60B-HW-44-G | 60D-HW-44-G | 6.24 | (158) | 8 | (203) | 2.00 | (0.91) |

## EXPANSION JOINTS




## SINGLE EXPANSION JOINT SOCKET X SPIGOT, NO O-RING

Installation of Expansion Joints:

- When the duct is shorter than 50 ft., no Expansion Joint needed
- When the duct is between 50 ft. up to 200 ft., install one Expansion Joint at the mid point
- If the duct is longer than 200 ft., install one Expansion Joint every 200 ft. apart

*Note: All Expansion Joints have a yellow line on the nipple end of the joint for proper installation.*

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | A | | B | | L - Min | | L - Max | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-34 | 07C-SW-34 | 1.20 | (30) | 12 | (305) | 15 | (381) | 23 | (584) | 0.39 | (0.18) |
| 1 | SW | 10A-SW-34 | 10C-SW-34 | 1.46 | (37) | 12 | (305) | 15 | (381) | 23 | (584) | 0.44 | (0.20) |
| 1¼ | SW | 12A-SW-34 | 12C-SW-34 | 1.81 | (46) | 12 | (305) | 15 | (381) | 23 | (584) | 0.53 | (0.24) |
| 1½ | SW | 15A-SW-34 | 15C-SW-34 | 2.04 | (52) | 12 | (305) | 15 | (381) | 23 | (584) | 0.76 | (0.35) |
| 2 | SW | 20A-SW-34 | 20C-SW-34 | 2.54 | (65) | 12 | (305) | 15 | (381) | 23 | (584) | 0.87 | (0.40) |
| 3 | SW | 30A-SW-34 | 30C-SW-34 | 3.66 | (93) | 12 | (305) | 15 | (381) | 23 | (584) | 1.38 | (0.63) |
| 4 | SW | 40A-SW-34 | 40C-SW-34 | 4.61 | (117) | 12 | (305) | 15 | (381) | 23 | (584) | 1.66 | (0.75) |
| 4 | HW | 40A-HW-34 | 40C-HW-34 | 4.69 | (119) | 12 | (305) | 15 | (381) | 23 | (584) | 2.23 | (1.01) |
| 5 | SW | 50A-SW-34 | 50C-SW-34 | 5.68 | (144) | 12 | (305) | 15 | (381) | 23 | (584) | 2.07 | (0.94) |
| 5 | MW | 50A-MW-34 | 50C-MW-34 | 5.79 | (147) | 12 | (305) | 15 | (381) | 23 | (584) | 2.76 | (1.25) |
| 5 | HW | 50A-HW-34 | 50C-HW-34 | 5.85 | (149) | 12 | (305) | 15 | (381) | 23 | (584) | 2.99 | (1.36) |
| 6 | SW | 60A-SW-34 | 60C-SW-34 | 6.75 | (171) | 12 | (305) | 15 | (381) | 23 | (584) | 2.30 | (1.04) |
| 6 | MW | 60A-MW-34 | 60C-MW-34 | 6.85 | (174) | 12 | (305) | 15 | (381) | 23 | (584) | 3.27 | (1.49) |
| 6 | HW | 60A-HW-34 | 60C-HW-34 | 6.91 | (176) | 12 | (305) | 15 | (381) | 23 | (584) | 3.75 | (1.70) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | A | | B | | L - Min | | L - Max | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-34 | 20D-SW-34 | 2.30 | (58) | 12 | (305) | 15 | (381) | 23 | (584) | 0.78 | (0.35) |
| 2½ | SW | 20B-SW-34 | 20D-SW-34 | 2.80 | (71) | 12 | (305) | 15 | (381) | 23 | (584) | 0.97 | (0.44) |
| 3 | SW | 30B-SW-34 | 30D-SW-34 | 3.30 | (84) | 12 | (305) | 15 | (381) | 23 | (584) | 1.10 | (0.50) |
| 3½ | SW | 35B-SW-34 | 35D-SW-34 | 3.80 | (96) | 12 | (305) | 15 | (381) | 23 | (584) | 1.38 | (0.63) |
| 4 | SW | 40B-SW-34 | 40D-SW-34 | 4.30 | (109) | 12 | (305) | 15 | (381) | 23 | (584) | 1.59 | (0.72) |
| 4 | HW | 40B-HW-34 | 40D-HW-34 | 4.39 | (111) | 12 | (305) | 15 | (381) | 23 | (584) | 2.12 | (0.96) |
| 4½ | SW | 45B-SW-34 | 45D-SW-34 | 4.80 | (122) | 12 | (305) | 15 | (381) | 23 | (584) | 1.73 | (0.79) |
| 4½ | HW | 45B-HW-34 | 45D-HW-34 | 4.89 | (124) | 12 | (305) | 15 | (381) | 23 | (584) | 2.39 | (1.09) |
| 5 | SW | 50B-SW-34 | 50D-SW-34 | 5.30 | (135) | 12 | (305) | 15 | (381) | 23 | (584) | 1.96 | (0.89) |
| 5 | MW | 50B-MW-34 | 50D-MW-34 | 5.39 | (137) | 12 | (305) | 15 | (381) | 23 | (584) | 2.60 | (1.18) |
| 5 | HW | 50B-HW-34 | 50D-HW-34 | 5.42 | (138) | 12 | (305) | 15 | (381) | 23 | (584) | 3.04 | (1.38) |
| 6 | SW | 60B-SW-34 | 60D-SW-34 | 6.30 | (160) | 12 | (305) | 15 | (381) | 23 | (584) | 2.35 | (1.07) |
| 6 | MW | 60B-MW-34 | 60D-MW-34 | 6.39 | (162) | 12 | (305) | 15 | (381) | 23 | (584) | 3.11 | (1.41) |
| 6 | HW | 60B-HW-34 | 60D-HW-34 | 6.42 | (163) | 12 | (305) | 15 | (381) | 23 | (584) | 3.63 | (1.65) |

| Nominal Size | Type | Item No. Belowground | Aboveground | A | | B | | L - Min | | L - Max | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-34 | 20D-XW-34 | 3.000 | (76) | 12 | (305) | 15 | (381) | 23 | (584) | 2.90 | (1.32) |
| 2½ | XW | 25B-XW-34 | 25D-XW-34 | 3.525 | (90) | 12 | (305) | 15 | (381) | 23 | (584) | 3.56 | (1.61) |
| 3 | XW | 30B-XW-34 | 30D-XW-34 | 4.000 | (102) | 12 | (305) | 15 | (381) | 23 | (584) | 4.19 | (1.90) |
| 3½ | XW | 35B-XW-34 | 35D-XW-34 | 4.525 | (115) | 12 | (305) | 15 | (381) | 23 | (584) | 4.83 | (2.19) |
| 4 | XW | 40B-XW-34 | 40D-XW-34 | 5.000 | (127) | 14 | (356) | 19 | (482) | 27 | (686) | 6.42 | (2.92) |
| 5 | XW | 50B-XW-34 | 50D-XW-34 | 6.000 | (152) | 14 | (356) | 19 | (482) | 27 | (686) | 7.94 | (3.60) |
| 6 | XW | 60B-XW-34 | 60D-XW-34 | 7.000 | (178) | 14 | (356) | 19 | (482) | 27 | (686) | 10.06 | (4.57) |
| 8 | XW | 80A-XW-34 | 80C-XW-34 | 9.420 | (239) | 14 | (356) | 19 | (482) | 27 | (686) | 13.80 | (6.27) |

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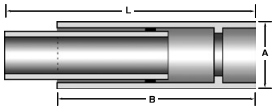
Proposal No. 608616-131225




## SINGLE EXPANSION JOINT SOCKET X SPIGOT WITH O-RING

Installation of Expansion Joints:

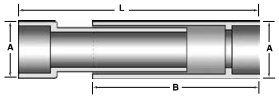
- When the duct is shorter than 50 ft., no Expansion Joint needed
- When the duct is between 50 ft. up to 200 ft., install one Expansion Joint at the mid point
- If the duct is longer than 200 ft., install one Expansion Joint every 200 ft. apart

*Note: All Expansion Joints have a yellow line on the nipple end of the joint for proper installation.*

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-36 | 07C-SW-36 | 1.20 (30) | 12 (305) | 15 (381) | 23 (584) | 0.39 | (0.18) |
| 1 | SW | 10A-SW-36 | 10C-SW-36 | 1.46 (37) | 12 (305) | 15 (381) | 23 (584) | 0.44 | (0.20) |
| 1¼ | SW | 12A-SW-36 | 12C-SW-36 | 1.81 (46) | 12 (305) | 15 (381) | 23 (584) | 0.53 | (0.24) |
| 1½ | SW | 15A-SW-36 | 15C-SW-36 | 2.04 (52) | 12 (305) | 15 (381) | 23 (584) | 0.76 | (0.35) |
| 2 | SW | 20A-SW-36 | 20C-SW-36 | 2.54 (65) | 12 (305) | 15 (381) | 23 (584) | 0.87 | (0.40) |
| 3 | SW | 30A-SW-36 | 30C-SW-36 | 3.66 (93) | 12 (305) | 15 (381) | 23 (584) | 1.38 | (0.63) |
| 4 | SW | 40A-SW-36 | 40C-SW-36 | 4.61 (117) | 12 (305) | 15 (381) | 23 (584) | 1.66 | (0.75) |
| 4 | HW | 40A-HW-36 | 40C-HW-36 | 4.69 (119) | 12 (305) | 15 (381) | 23 (584) | 2.23 | (1.01) |
| 5 | SW | 50A-SW-36 | 50C-SW-36 | 5.68 (144) | 12 (305) | 15 (381) | 23 (584) | 2.07 | (0.94) |
| 5 | MW | 50A-MW-36 | 50C-MW-36 | 5.79 (147) | 12 (305) | 15 (381) | 23 (584) | 2.76 | (1.25) |
| 5 | HW | 50A-HW-36 | 50C-HW-36 | 5.85 (149) | 12 (305) | 15 (381) | 23 (584) | 2.99 | (1.36) |
| 6 | SW | 60A-SW-36 | 60C-SW-36 | 6.75 (171) | 12 (305) | 15 (381) | 23 (584) | 2.30 | (1.04) |
| 6 | MW | 60A-MW-36 | 60C-MW-36 | 6.85 (174) | 12 (305) | 15 (381) | 23 (584) | 3.27 | (1.49) |
| 6 | HW | 60A-HW-36 | 60C-HW-36 | 6.91 (176) | 12 (305) | 15 (381) | 23 (584) | 3.75 | (1.70) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-36 | 20D-SW-36 | 2.30 (58) | 12 (305) | 15 (381) | 23 (584) | 0.78 | (0.35) |
| 2½ | SW | 25B-SW-36 | 25D-SW-36 | 2.80 (71) | 12 (305) | 15 (381) | 23 (584) | 0.97 | (0.44) |
| 3 | SW | 30B-SW-36 | 30D-SW-36 | 3.30 (84) | 12 (305) | 15 (381) | 23 (584) | 1.10 | (0.50) |
| 3½ | SW | 35B-SW-36 | 35D-SW-36 | 3.80 (96) | 12 (305) | 15 (381) | 23 (584) | 1.38 | (0.63) |
| 4 | SW | 40B-SW-36 | 40D-SW-36 | 4.30 (109) | 12 (305) | 15 (381) | 23 (584) | 1.59 | (0.72) |
| 4 | HW | 40B-HW-36 | 40D-HW-36 | 4.39 (111) | 12 (305) | 15 (381) | 23 (584) | 2.12 | (0.96) |
| 4½ | SW | 45B-SW-36 | 45D-SW-36 | 4.80 (122) | 12 (305) | 15 (381) | 23 (584) | 1.73 | (0.79) |
| 4½ | HW | 45B-HW-36 | 45D-HW-36 | 4.89 (124) | 12 (305) | 15 (381) | 23 (584) | 2.39 | (1.09) |
| 5 | SW | 50B-SW-36 | 50D-SW-36 | 5.30 (135) | 12 (305) | 15 (381) | 23 (584) | 1.95 | (0.89) |
| 5 | MW | 50B-MW-36 | 50D-MW-36 | 5.39 (137) | 12 (305) | 15 (381) | 23 (584) | 2.60 | (1.18) |
| 5 | HW | 50B-HW-36 | 50D-HW-36 | 5.42 (138) | 12 (305) | 15 (381) | 23 (584) | 3.04 | (1.38) |
| 6 | SW | 60B-SW-36 | 60D-SW-36 | 6.30 (160) | 12 (305) | 15 (381) | 23 (584) | 2.35 | (1.07) |
| 6 | MW | 60B-MW-36 | 60D-MW-36 | 6.39 (162) | 12 (305) | 15 (381) | 23 (584) | 3.11 | (1.41) |
| 6 | HW | 60B-HW-36 | 60D-HW-36 | 6.42 (163) | 12 (305) | 15 (381) | 23 (584) | 3.63 | (1.65) |

| Nominal Size | Type | Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-36 | 20D-XW-36 | 3.000 (76) | 12 (305) | 15 (381) | 23 (584) | 2.90 | (1.32) |
| 2½ | XW | 25B-XW-36 | 25D-XW-36 | 3.525 (90) | 12 (305) | 15 (381) | 23 (584) | 3.56 | (1.61) |
| 3 | XW | 30B-XW-36 | 30D-XW-36 | 4.000 (102) | 12 (305) | 15 (381) | 23 (584) | 4.19 | (1.90) |
| 3½ | XW | 35B-XW-36 | 35D-XW-36 | 4.525 (115) | 12 (305) | 15 (381) | 23 (584) | 4.83 | (2.19) |
| 4 | XW | 40B-XW-36 | 40D-XW-36 | 5.000 (127) | 14 (356) | 19 (482) | 27 (686) | 6.42 | (2.92) |
| 5 | XW | 50B-XW-36 | 50D-XW-36 | 6.000 (152) | 14 (356) | 19 (482) | 27 (686) | 7.94 | (3.60) |
| 6 | XW | 60B-XW-36 | 60D-XW-36 | 7.000 (178) | 14 (356) | 19 (482) | 27 (686) | 10.06 | (4.57) |




## SINGLE EXPANSION JOINT SOCKET X SOCKET, NO O-RING

*Same instructions & note as above*

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-35 | 07C-SW-35 | 1.20 (30) | 12 (305) | 18 (457) | 26 (660) | 0.49 | (0.22) |
| 1 | SW | 10A-SW-35 | 10C-SW-35 | 1.46 (37) | 12 (305) | 18 (457) | 26 (660) | 0.55 | (0.25) |
| 1¼ | SW | 12A-SW-35 | 12C-SW-35 | 1.81 (46) | 12 (305) | 18 (457) | 26 (660) | 0.66 | (0.30) |
| 1½ | SW | 15A-SW-35 | 15C-SW-35 | 2.04 (52) | 12 (305) | 18 (457) | 26 (660) | 0.76 | (0.35) |
| 2 | SW | 20A-SW-35 | 20C-SW-35 | 2.54 (65) | 12 (305) | 18 (457) | 26 (660) | 1.09 | (0.50) |
| 3 | SW | 30A-SW-35 | 30C-SW-35 | 3.66 (93) | 12 (305) | 18 (457) | 26 (660) | 1.73 | (0.79) |
| 4 | SW | 40A-SW-35 | 40C-SW-35 | 4.61 (117) | 12 (305) | 18 (457) | 26 (660) | 2.07 | (0.94) |
| 4 | HW | 40A-HW-35 | 40C-HW-35 | 4.69 (119) | 12 (305) | 18 (457) | 26 (660) | 2.79 | (1.27) |
| 5 | SW | 50A-SW-35 | 50C-SW-35 | 5.68 (144) | 12 (305) | 18 (457) | 26 (660) | 2.59 | (1.18) |
| 5 | MW | 50A-MW-35 | 50C-MW-35 | 5.79 (147) | 12 (305) | 18 (457) | 26 (660) | 3.45 | (1.57) |
| 5 | HW | 50A-HW-35 | 50C-HW-35 | 5.85 (149) | 12 (305) | 18 (457) | 26 (660) | 3.74 | (1.70) |
| 6 | SW | 60A-SW-35 | 60C-SW-35 | 6.75 (171) | 12 (305) | 18 (457) | 26 (660) | 2.88 | (1.31) |
| 6 | MW | 60A-MW-35 | 60C-MW-35 | 6.85 (174) | 12 (305) | 18 (457) | 26 (660) | 4.08 | (1.85) |
| 6 | HW | 60A-HW-35 | 60C-HW-35 | 6.91 (176) | 12 (305) | 18 (457) | 26 (660) | 4.69 | (2.13) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-35 | 20D-SW-35 | 2.30 (58) | 12 (305) | 18 (457) | 26 (660) | 0.98 | (0.45) |
| 2½ | SW | 25B-SW-35 | 25D-SW-35 | 2.30 (58) | 12 (305) | 18 (457) | 26 (660) | 1.21 | (0.55) |
| 3 | SW | 30B-SW-35 | 30D-SW-35 | 3.30 (84) | 12 (305) | 18 (457) | 26 (660) | 1.38 | (0.63) |
| 3½ | SW | 35B-SW-35 | 35D-SW-35 | 3.80 (96) | 12 (305) | 18 (457) | 26 (660) | 1.73 | (0.79) |
| 4 | SW | 40B-SW-35 | 40D-SW-35 | 4.30 (109) | 12 (305) | 18 (457) | 26 (660) | 1.98 | (0.90) |
| 4 | HW | 40B-HW-35 | 40D-HW-35 | 4.39 (111) | 12 (305) | 18 (457) | 26 (660) | 2.65 | (1.20) |
| 4½ | SW | 45B-SW-35 | 45D-SW-35 | 4.80 (122) | 12 (305) | 18 (457) | 26 (660) | 2.16 | (0.98) |
| 4½ | HW | 45B-HW-35 | 45D-HW-35 | 4.89 (124) | 12 (305) | 18 (457) | 26 (660) | 2.99 | (1.36) |
| 5 | SW | 50B-SW-35 | 50D-SW-35 | 5.30 (135) | 12 (305) | 18 (457) | 26 (660) | 2.44 | (1.11) |
| 5 | MW | 50B-MW-35 | 50D-MW-35 | 5.39 (137) | 12 (305) | 18 (457) | 26 (660) | 3.25 | (1.48) |
| 5 | HW | 50B-HW-35 | 50D-HW-35 | 5.42 (138) | 12 (305) | 18 (457) | 26 (660) | 3.80 | (1.73) |
| 6 | SW | 60B-SW-35 | 60D-SW-35 | 6.30 (160) | 12 (305) | 18 (457) | 26 (660) | 2.93 | (1.33) |
| 6 | MW | 60B-MW-35 | 60D-MW-35 | 6.39 (162) | 12 (305) | 18 (457) | 26 (660) | 3.88 | (1.76) |
| 6 | HW | 60B-HW-35 | 60D-HW-35 | 6.42 (163) | 12 (305) | 18 (457) | 26 (660) | 4.54 | (2.07) |

| Nominal Size | Type | Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-35 | 20D-XW-35 | 3.000 (76) | 12 (305) | 18 (457) | 26 (660) | 3.62 | (1.64) |
| 2½ | XW | 25B-XW-35 | 25D-XW-35 | 3.525 (90) | 12 (305) | 15 (381) | 23 (584) | 4.44 | (2.01) |
| 3 | XW | 30B-XW-35 | 30D-XW-35 | 4.000 (102) | 12 (305) | 18 (457) | 26 (660) | 5.23 | (2.37) |
| 3½ | XW | 35B-XW-35 | 35D-XW-35 | 4.525 (115) | 12 (305) | 15 (381) | 23 (584) | 6.06 | (2.75) |
| 4 | XW | 40B-XW-35 | 40D-XW-35 | 5.000 (127) | 14 (356) | 22 (559) | 32 (812) | 7.89 | (3.58) |
| 5 | XW | 50B-XW-35 | 50D-XW-35 | 6.000 (152) | 14 (356) | 22 (559) | 32 (812) | 9.75 | (4.43) |
| 6 | XW | 60B-XW-35 | 60D-XW-35 | 7.000 (178) | 14 (356) | 22 (559) | 32 (812) | 12.08 | (5.48) |



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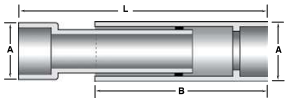



## SINGLE EXPANSION JOINT SOCKET X SOCKET WITH O-RING

Installation of Expansion Joints:

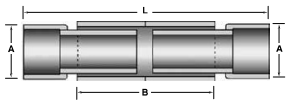
- When the duct is shorter than 50 ft., no Expansion Joint needed
- When the duct is between 50 ft. up to 200 ft., install one Expansion Joint at the mid point
- If the duct is longer than 200 ft., install one Expansion Joint every 200 ft. apart

*Note: All Expansion Joints have a yellow line on the nipple end of the joint for proper installation.*

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-37 | 07C-SW-37 | 1.20 (30) | 12 (305) | 18 (457) | 26 (660) | 0.49 | (0.22) |
| 1 | SW | 10A-SW-37 | 10C-SW-37 | 1.46 (37) | 12 (305) | 18 (457) | 26 (660) | 0.55 | (0.25) |
| 1¼ | SW | 12A-SW-37 | 12C-SW-37 | 1.81 (46) | 12 (305) | 18 (457) | 26 (660) | 0.66 | (0.30) |
| 1½ | SW | 15A-SW-37 | 15C-SW-37 | 2.04 (52) | 12 (305) | 18 (457) | 26 (660) | 0.76 | (0.35) |
| 2 | SW | 20A-SW-37 | 20C-SW-37 | 2.54 (65) | 12 (305) | 18 (457) | 26 (660) | 1.09 | (0.50) |
| 3 | SW | 30A-SW-37 | 30C-SW-37 | 3.66 (93) | 12 (305) | 18 (457) | 26 (660) | 1.73 | (0.79) |
| 4 | SW | 40A-SW-37 | 40C-SW-37 | 4.61 (117) | 12 (305) | 18 (457) | 26 (660) | 2.07 | (0.94) |
| 4 | HW | 40A-HW-37 | 40C-HW-37 | 4.69 (119) | 12 (305) | 18 (457) | 26 (660) | 2.79 | (1.27) |
| 5 | SW | 50A-SW-37 | 50C-SW-37 | 5.68 (144) | 12 (305) | 18 (457) | 26 (660) | 2.59 | (1.18) |
| 5 | MW | 50A-MW-37 | 50C-MW-37 | 5.79 (147) | 12 (305) | 18 (457) | 26 (660) | 3.45 | (1.57) |
| 5 | HW | 50A-HW-37 | 50C-HW-37 | 5.85 (149) | 12 (305) | 18 (457) | 26 (660) | 3.74 | (1.70) |
| 6 | SW | 60A-SW-37 | 60C-SW-37 | 6.75 (171) | 12 (305) | 18 (457) | 26 (660) | 2.88 | (1.31) |
| 6 | MW | 60A-MW-37 | 60C-MW-37 | 6.85 (174) | 12 (305) | 18 (457) | 26 (660) | 4.08 | (1.85) |
| 6 | HW | 60A-HW-37 | 60C-HW-37 | 6.91 (176) | 12 (305) | 18 (457) | 26 (660) | 4.69 | (2.13) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-37 | 20D-SW-37 | 2.30 (58) | 12 (305) | 18 (457) | 26 (660) | 0.98 | (0.45) |
| 2½ | SW | 25B-SW-37 | 25D-SW-37 | 2.80 (71) | 12 (305) | 18 (457) | 26 (660) | 1.21 | (0.55) |
| 3 | SW | 30B-SW-37 | 30D-SW-37 | 3.30 (84) | 12 (305) | 18 (457) | 26 (660) | 1.38 | (0.63) |
| 3½ | SW | 35B-SW-37 | 35D-SW-37 | 3.80 (96) | 12 (305) | 18 (457) | 26 (660) | 1.73 | (0.79) |
| 4 | SW | 40B-SW-37 | 40D-SW-37 | 4.30 (109) | 12 (305) | 18 (457) | 26 (660) | 1.98 | (0.90) |
| 4 | HW | 40B-HW-37 | 40D-HW-37 | 4.39 (111) | 12 (305) | 18 (457) | 26 (660) | 2.65 | (1.20) |
| 4½ | SW | 45B-SW-37 | 45D-SW-37 | 4.80 (122) | 12 (305) | 18 (457) | 26 (660) | 2.16 | (0.98) |
| 4½ | HW | 45B-HW-37 | 45D-HW-37 | 4.89 (124) | 12 (305) | 18 (457) | 26 (660) | 2.99 | (1.36) |
| 5 | SW | 50B-SW-37 | 50D-SW-37 | 5.30 (135) | 12 (305) | 18 (457) | 26 (660) | 2.44 | (1.11) |
| 5 | MW | 50B-MW-37 | 50D-MW-37 | 5.39 (137) | 12 (305) | 18 (457) | 26 (660) | 3.25 | (1.48) |
| 5 | HW | 50B-HW-37 | 50D-HW-37 | 5.42 (138) | 12 (305) | 18 (457) | 26 (660) | 3.80 | (1.73) |
| 6 | SW | 60B-SW-37 | 60D-SW-37 | 6.30 (160) | 12 (305) | 18 (457) | 26 (660) | 2.93 | (1.33) |
| 6 | MW | 60B-MW-37 | 60D-MW-37 | 6.39 (162) | 12 (305) | 18 (457) | 26 (660) | 3.88 | (1.76) |
| 6 | HW | 60B-HW-37 | 60D-HW-37 | 6.42 (163) | 12 (305) | 18 (457) | 26 (660) | 4.54 | (2.06) |

| Nominal Size | Type | Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-37 | 20D-XW-37 | 3.000 (76) | 12 (305) | 18 (457) | 26 (660) | 3.62 | (1.64) |
| 2½ | XW | 25B-XW-37 | 25D-XW-37 | 3.525 (90) | 12 (305) | 18 (457) | 26 (660) | 4.44 | (2.01) |
| 3 | XW | 30B-XW-37 | 30D-XW-37 | 4.000 (102) | 12 (305) | 18 (457) | 26 (660) | 5.23 | (2.37) |
| 3½ | XW | 35B-XW-37 | 35D-XW-37 | 4.525 (115) | 12 (305) | 18 (457) | 26 (660) | 6.06 | (2.75) |
| 4 | XW | 40B-XW-37 | 40D-XW-37 | 5.000 (127) | 14 (356) | 22 (559) | 32 (812) | 7.89 | (3.58) |
| 5 | XW | 50B-XW-37 | 50D-XW-37 | 6.000 (152) | 14 (356) | 22 (559) | 32 (812) | 9.75 | (4.43) |
| 6 | XW | 60B-XW-37 | 60D-XW-37 | 7.000 (178) | 14 (356) | 22 (559) | 32 (812) | 12.08 | (5.48) |
| 8 | XW | 80A-XW-37 | 80C-XW-37 | 9.420 (239) | 14 (356) | 22 (559) | 32 (812) | 16.56 | (7.52) |




## DOUBLE EXPANSION JOINT, NO O-RING

Double expansion joint is sometimes referred to as back-to-back expansion joint.

*Same instructions & note as above*

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-38 | 07C-SW-38 | 1.20 (30) | 17 (432) | 29 (737) | 45 (1143) | 0.84 | (0.38) |
| 1 | SW | 10A-SW-38 | 10C-SW-38 | 1.46 (37) | 17 (432) | 29 (737) | 45 (1143) | 0.94 | (0.43) |
| 1¼ | SW | 12A-SW-38 | 12C-SW-38 | 1.81 (46) | 17 (432) | 29 (737) | 45 (1143) | 1.14 | (0.52) |
| 1½ | SW | 15A-SW-38 | 15C-SW-38 | 2.04 (52) | 17 (432) | 29 (737) | 45 (1143) | 1.63 | (0.74) |
| 2 | SW | 20A-SW-38 | 20C-SW-38 | 2.54 (65) | 17 (432) | 29 (737) | 45 (1143) | 1.88 | (0.85) |
| 3 | SW | 30A-SW-38 | 30C-SW-38 | 3.66 (93) | 17 (432) | 29 (737) | 45 (1143) | 2.97 | (1.35) |
| 4 | SW | 40A-SW-38 | 40C-SW-38 | 4.61 (117) | 17 (432) | 29 (737) | 45 (1143) | 3.56 | (1.62) |
| 4 | HW | 40A-HW-38 | 40C-HW-38 | 4.69 (119) | 17 (432) | 29 (737) | 45 (1143) | 4.80 | (2.18) |
| 5 | SW | 50A-SW-38 | 50C-SW-38 | 5.68 (144) | 17 (432) | 29 (737) | 45 (1143) | 4.46 | (2.03) |
| 5 | MW | 50A-MW-38 | 50C-MW-38 | 5.79 (147) | 17 (432) | 29 (737) | 45 (1143) | 5.94 | (2.70) |
| 5 | HW | 50A-HW-38 | 50C-HW-38 | 5.85 (149) | 17 (432) | 29 (737) | 45 (1143) | 6.44 | (2.92) |
| 6 | SW | 60A-SW-38 | 60C-SW-38 | 6.75 (171) | 17 (432) | 29 (737) | 45 (1143) | 4.95 | (2.25) |
| 6 | MW | 60A-MW-38 | 60C-MW-38 | 6.85 (174) | 17 (432) | 29 (737) | 45 (1143) | 7.03 | (3.19) |
| 6 | HW | 60A-HW-38 | 60C-HW-38 | 6.91 (176) | 17 (432) | 29 (737) | 45 (1143) | 8.07 | (3.66) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-38 | 20D-SW-38 | 2.30 (58) | 17 (432) | 29 (737) | 45 (1143) | 1.68 | (0.76) |
| 2½ | SW | 25B-SW-38 | 25D-SW-38 | 2.80 (71) | 17 (432) | 29 (737) | 45 (1143) | 2.08 | (0.94) |
| 3 | SW | 30B-SW-38 | 30D-SW-38 | 3.30 (84) | 17 (432) | 29 (737) | 45 (1143) | 2.38 | (1.08) |
| 3½ | SW | 35B-SW-38 | 35D-SW-38 | 3.80 (96) | 17 (432) | 29 (737) | 45 (1143) | 2.97 | (1.35) |
| 4 | SW | 40B-SW-38 | 40D-SW-38 | 4.30 (109) | 17 (432) | 29 (737) | 45 (1143) | 3.42 | (1.55) |
| 4 | HW | 40B-HW-38 | 40D-HW-38 | 4.39 (111) | 17 (432) | 29 (737) | 45 (1143) | 4.55 | (2.07) |
| 4½ | SW | 45B-SW-38 | 45D-SW-38 | 4.80 (122) | 17 (432) | 29 (737) | 45 (1143) | 3.71 | (1.68) |
| 4½ | HW | 45B-HW-38 | 45D-HW-38 | 4.89 (124) | 17 (432) | 29 (737) | 45 (1143) | 5.15 | (2.34) |
| 5 | SW | 50B-SW-38 | 50D-SW-38 | 5.30 (135) | 17 (432) | 29 (737) | 45 (1143) | 4.21 | (1.91) |
| 5 | MW | 50B-MW-38 | 50D-MW-38 | 5.39 (137) | 17 (432) | 29 (737) | 45 (1143) | 5.59 | (2.54) |
| 5 | HW | 50B-HW-38 | 50D-HW-38 | 5.42 (138) | 17 (432) | 29 (737) | 45 (1143) | 6.53 | (2.97) |
| 6 | SW | 60B-SW-38 | 60D-SW-38 | 6.30 (160) | 17 (432) | 29 (737) | 45 (1143) | 5.05 | (2.30) |
| 6 | MW | 60B-MW-38 | 60D-MW-38 | 6.39 (162) | 17 (432) | 29 (737) | 45 (1143) | 6.68 | (3.03) |
| 6 | HW | 60B-HW-38 | 60D-HW-38 | 6.42 (163) | 17 (432) | 29 (737) | 45 (1143) | 7.82 | (3.55) |

| Nominal Size | Type | Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-38 | 20D-XW-38 | 3.000 (76) | 17 (432) | 29 (737) | 45 (1143) | 6.24 | (2.83) |
| 2½ | XW | 25B-XW-38 | 25D-XW-38 | 3.525 (90) | 17 (432) | 29 (737) | 45 (1143) | 7.63 | (3.46) |
| 3 | XW | 30B-XW-38 | 30D-XW-38 | 4.000 (102) | 17 (432) | 29 (737) | 45 (1143) | 9.01 | (4.09) |
| 3½ | XW | 35B-XW-38 | 35D-XW-38 | 4.525 (115) | 17 (432) | 29 (737) | 45 (1143) | 10.40 | (4.72) |
| 4 | XW | 40B-XW-38 | 40D-XW-38 | 5.000 (127) | 17 (432) | 29 (737) | 45 (1143) | 11.78 | (5.35) |
| 5 | XW | 50B-XW-38 | 50D-XW-38 | 6.000 (152) | 17 (432) | 29 (737) | 45 (1143) | 14.55 | (6.61) |
| 6 | XW | 60B-XW-38 | 60D-XW-38 | 7.000 (178) | 17 (432) | 29 (737) | 45 (1143) | 19.25 | (8.74) |
| 8 | XW | 80A-XW-38 | 80C-XW-38 | 9.420 (239) | 17 (432) | 29 (737) | 45 (1143) | 26.40 | (11.99) |

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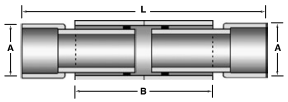
Proposal No. 608616-131225




## DOUBLE EXPANSION JOINT WITH O-RING

Double expansion joint is sometimes referred to as back-to-back expansion joint.

Installation of Expansion Joints:

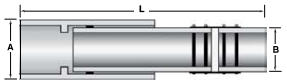
- When the duct is shorter than 50 ft., no Expansion Joint needed
- When the duct is between 50 ft. up to 200 ft., install one Expansion Joint at the mid point
- If the duct is longer than 200 ft., install one Expansion Joint every 200 ft. apart

*Note: All Expansion Joints have a yellow line on the nipple end of the joint for proper installation.*

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-39 | 07C-SW-39 | 1.20 (30) | 17 (432) | 29 (737) | 45 (1143) | 0.84 | (0.38) |
| 1 | SW | 10A-SW-39 | 10C-SW-39 | 1.46 (37) | 17 (432) | 29 (737) | 45 (1143) | 0.94 | (0.43) |
| 1¼ | SW | 12A-SW-39 | 12C-SW-39 | 1.81 (46) | 17 (432) | 29 (737) | 45 (1143) | 1.14 | (0.52) |
| 1½ | SW | 15A-SW-39 | 15C-SW-39 | 2.04 (52) | 17 (432) | 29 (737) | 45 (1143) | 1.63 | (0.74) |
| 2 | SW | 20A-SW-39 | 20C-SW-39 | 2.54 (65) | 17 (432) | 29 (737) | 45 (1143) | 1.88 | (0.85) |
| 3 | SW | 30A-SW-39 | 30C-SW-39 | 3.66 (93) | 17 (432) | 29 (737) | 45 (1143) | 2.97 | (1.35) |
| 4 | SW | 40A-SW-39 | 40C-SW-39 | 4.61 (117) | 17 (432) | 29 (737) | 45 (1143) | 3.56 | (1.62) |
| 4 | HW | 40A-HW-39 | 40C-HW-39 | 4.69 (119) | 17 (432) | 29 (737) | 45 (1143) | 4.80 | (2.18) |
| 5 | SW | 50A-SW-39 | 50C-SW-39 | 5.68 (144) | 17 (432) | 29 (737) | 45 (1143) | 4.46 | (2.03) |
| 5 | MW | 50A-MW-39 | 50C-MW-39 | 5.79 (147) | 17 (432) | 29 (737) | 45 (1143) | 5.94 | (2.70) |
| 5 | HW | 50A-HW-39 | 50C-HW-39 | 5.85 (149) | 17 (432) | 29 (737) | 45 (1143) | 6.44 | (2.92) |
| 6 | SW | 60A-SW-39 | 60C-SW-39 | 6.75 (171) | 17 (432) | 29 (737) | 45 (1143) | 4.95 | (2.25) |
| 6 | MW | 60A-MW-39 | 60C-MW-39 | 6.85 (174) | 17 (432) | 29 (737) | 45 (1143) | 7.03 | (3.19) |
| 6 | HW | 60A-HW-39 | 60C-HW-39 | 6.91 (176) | 17 (432) | 29 (737) | 45 (1143) | 8.07 | (3.66) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-39 | 20D-SW-39 | 2.30 (58) | 17 (432) | 29 (737) | 45 (1143) | 1.68 | (0.76) |
| 2½ | SW | 25B-SW-39 | 25D-SW-39 | 2.80 (71) | 17 (432) | 29 (737) | 45 (1143) | 2.08 | (0.94) |
| 3 | SW | 30B-SW-39 | 30D-SW-39 | 3.30 (84) | 17 (432) | 29 (737) | 45 (1143) | 2.38 | (1.08) |
| 3½ | SW | 35B-SW-39 | 35D-SW-39 | 3.80 (96) | 17 (432) | 29 (737) | 45 (1143) | 2.97 | (1.35) |
| 4 | SW | 40B-SW-39 | 40D-SW-39 | 4.30 (109) | 17 (432) | 29 (737) | 45 (1143) | 3.42 | (1.55) |
| 4 | HW | 40B-HW-39 | 40D-HW-39 | 4.39 (111) | 17 (432) | 29 (737) | 45 (1143) | 4.55 | (2.07) |
| 4½ | SW | 45B-SW-39 | 40D-SW-39 | 4.80 (122) | 17 (432) | 29 (737) | 45 (1143) | 3.71 | (1.68) |
| 4½ | HW | 45B-HW-39 | 45D-HW-39 | 4.89 (124) | 17 (432) | 29 (737) | 45 (1143) | 5.15 | (2.34) |
| 5 | SW | 50B-SW-39 | 50D-SW-39 | 5.30 (135) | 17 (432) | 29 (737) | 45 (1143) | 4.21 | (1.91) |
| 5 | MW | 50B-MW-39 | 50D-MW-39 | 5.39 (137) | 17 (432) | 29 (737) | 45 (1143) | 5.59 | (2.54) |
| 5 | HW | 50B-HW-39 | 50D-HW-39 | 5.42 (138) | 17 (432) | 29 (737) | 45 (1143) | 6.53 | (2.97) |
| 6 | SW | 60B-SW-39 | 60D-SW-39 | 6.30 (160) | 17 (432) | 29 (737) | 45 (1143) | 5.05 | (2.29) |
| 6 | MW | 60B-MW-39 | 60D-MW-39 | 6.39 (162) | 17 (432) | 29 (737) | 45 (1143) | 6.68 | (3.03) |
| 6 | HW | 60B-HW-39 | 60D-HW-39 | 6.42 (163) | 17 (432) | 29 (737) | 45 (1143) | 7.82 | (3.55) |

| Nominal Size | Type | Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-39 | 20D-XW-39 | 3.000 (76) | 17 (432) | 29 (737) | 45 (1143) | 6.24 | (2.83) |
| 2½ | XW | 25B-XW-39 | 25D-XW-39 | 3.525 (90) | 17 (432) | 29 (737) | 45 (1143) | 7.63 | (3.46) |
| 3 | XW | 30B-XW-39 | 30D-XW-39 | 4.000 (102) | 17 (432) | 29 (737) | 45 (1143) | 9.01 | (4.09) |
| 3½ | XW | 35B-XW-39 | 35D-XW-39 | 4.525 (115) | 17 (432) | 29 (737) | 45 (1143) | 10.42 | (4.72) |
| 4 | XW | 40B-XW-39 | 40D-XW-39 | 5.000 (127) | 17 (432) | 29 (737) | 45 (1143) | 11.78 | (5.35) |
| 5 | XW | 50B-XW-39 | 50D-XW-39 | 6.000 (152) | 17 (432) | 29 (737) | 45 (1143) | 14.55 | (6.61) |
| 6 | XW | 60B-XW-39 | 60D-XW-39 | 7.000 (178) | 17 (432) | 29 (737) | 45 (1143) | 19.25 | (8.74) |




## ALIGNMENT/EXPANSION FITTING, WITH O-RINGS

Alignment/Expansion fitting is sometimes referred to as an Expansion/Deflection joint.

(The clamps holding the rubber sleeve connecting the two nipples are made from stainless steel for corrosion protection.)

*Same instructions & note as above*

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-31 | 07C-SW-31 | 1.20 (30) | 1.1 (27) | 37 (940) | 51 (1295) | 1.19 | (0.54) |
| 1 | SW | 10A-SW-31 | 10C-SW-31 | 1.46 (37) | 1.3 (34) | 37 (940) | 51 (1295) | 1.33 | (0.60) |
| 1¼ | SW | 12A-SW-31 | 12C-SW-31 | 1.81 (46) | 1.7 (42) | 37 (940) | 51 (1295) | 1.61 | (0.73) |
| 1½ | SW | 15A-SW-31 | 15C-SW-31 | 2.04 (52) | 1.9 (49) | 37 (940) | 51 (1295) | 2.31 | (1.05) |
| 2 | SW | 20A-SW-31 | 20C-SW-31 | 2.54 (65) | 2.4 (61) | 37 (940) | 51 (1295) | 2.66 | (1.21) |
| 3 | SW | 30A-SW-31 | 30C-SW-31 | 3.66 (93) | 3.5 (89) | 37 (940) | 51 (1295) | 4.20 | (1.91) |
| 4 | SW | 40A-SW-31 | 40C-SW-31 | 4.61 (117) | 4.5 (114) | 37 (940) | 51 (1295) | 5.04 | (2.29) |
| 4 | HW | 40A-HW-31 | 40C-HW-31 | 4.69 (119) | 4.5 (115) | 37 (940) | 51 (1295) | 6.79 | (3.08) |
| 5 | SW | 50A-SW-31 | 50C-SW-31 | 5.68 (144) | 5.5 (141) | 37 (940) | 51 (1295) | 6.30 | (2.86) |
| 5 | MW | 50A-MW-31 | 50C-MW-31 | 5.79 (147) | 5.6 (142) | 37 (940) | 51 (1295) | 8.40 | (3.81) |
| 5 | HW | 50A-HW-31 | 50C-HW-31 | 5.85 (149) | 5.6 (143) | 37 (940) | 51 (1295) | 9.10 | (4.13) |
| 6 | SW | 60A-SW-31 | 60C-SW-31 | 6.75 (171) | 6.5 (166) | 37 (940) | 51 (1295) | 7.00 | (3.18) |
| 6 | MW | 60A-MW-31 | 60C-MW-31 | 6.85 (174) | 6.6 (167) | 37 (940) | 51 (1295) | 9.94 | (4.51) |
| 6 | HW | 60A-HW-31 | 60C-HW-31 | 6.91 (176) | 6.6 (168) | 37 (940) | 51 (1295) | 11.41 | (5.18) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-31 | 20D-SW-31 | 2.30 (58) | 2.2 (55) | 37 (940) | 51 (1295) | 2.38 | (1.08) |
| 2½ | SW | 25B-SW-31 | 25D-SW-31 | 2.80 (71) | 2.7 (68) | 37 (940) | 51 (1295) | 2.94 | (1.34) |
| 3 | SW | 30B-SW-31 | 30D-SW-31 | 3.30 (84) | 3.2 (80) | 37 (940) | 51 (1295) | 3.36 | (1.53) |
| 3½ | SW | 35B-SW-31 | 35D-SW-31 | 3.80 (96) | 3.7 (93) | 37 (940) | 51 (1295) | 4.20 | (1.97) |
| 4 | SW | 40B-SW-31 | 40D-SW-31 | 4.30 (109) | 4.2 (106) | 37 (940) | 51 (1295) | 4.83 | (2.19) |
| 4 | HW | 40B-HW-31 | 40D-HW-31 | 4.39 (111) | 4.2 (107) | 37 (940) | 51 (1295) | 6.44 | (2.92) |
| 4½ | SW | 45B-SW-31 | 45D-SW-31 | 4.80 (122) | 4.7 (118) | 37 (940) | 51 (1295) | 5.25 | (2.38) |
| 4½ | HW | 45B-HW-31 | 45D-HW-31 | 4.89 (124) | 4.7 (119) | 37 (940) | 51 (1295) | 7.28 | (3.31) |
| 5 | SW | 50B-SW-31 | 50D-SW-31 | 5.30 (135) | 5.2 (131) | 37 (940) | 51 (1295) | 5.95 | (2.70) |
| 5 | MW | 50B-MW-31 | 50D-MW-31 | 5.39 (137) | 5.2 (132) | 37 (940) | 51 (1295) | 7.91 | (3.59) |
| 5 | HW | 50B-HW-31 | 50D-HW-31 | 5.42 (138) | 5.2 (133) | 37 (940) | 51 (1295) | 9.24 | (4.20) |
| 6 | SW | 60B-SW-31 | 60D-SW-31 | 6.30 (160) | 6.2 (156) | 37 (940) | 51 (1295) | 7.14 | (3.24) |
| 6 | MW | 60B-MW-31 | 60D-MW-31 | 6.39 (162) | 6.2 (157) | 37 (940) | 51 (1295) | 9.45 | (4.29) |
| 6 | HW | 60B-HW-31 | 60D-HW-31 | 6.42 (163) | 6.2 (158) | 37 (940) | 51 (1295) | 11.06 | (5.02) |

| Nominal Size | Type | Item No. Belowground | Aboveground | A | B | L - Min | L - Max | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-31 | 20D-XW-31 | 3.000 (76) | 2.50 (64) | 37 (940) | 51 (1295) | 8.82 | (4.00) |
| 2½ | XW | 25B-XW-31 | 25D-XW-31 | 3.525 (90) | 3.00 (76) | 37 (940) | 51 (1295) | 10.78 | (4.89) |
| 3 | XW | 30B-XW-31 | 30D-XW-31 | 4.000 (102) | 3.50 (89) | 37 (940) | 51 (1295) | 12.74 | (5.78) |
| 3½ | XW | 35B-XW-31 | 35D-XW-31 | 4.525 (115) | 4.00 (102) | 37 (940) | 51 (1295) | 14.70 | (6.67) |
| 4 | XW | 40B-XW-31 | 40D-XW-31 | 5.000 (127) | 4.50 (114) | 37 (940) | 51 (1295) | 16.66 | (7.56) |
| 5 | XW | 50B-XW-31 | 50D-XW-31 | 6.000 (152) | 5.50 (140) | 37 (940) | 51 (1295) | 20.58 | (9.34) |
| 6 | XW | 60B-XW-31 | 60D-XW-31 | 7.000 (178) | 6.50 (165) | 37 (940) | 51 (1295) | 24.50 | (11.12) |



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info@championfiberglass.com championfiberglass.com CD-1012



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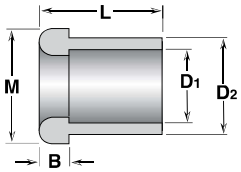


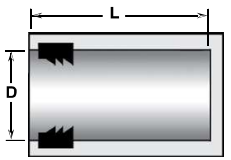

## END BELLS-SOCKET TYPE

End bells are used for creating a permanent termination into a box as well as having a smooth surface that the cable can be pulled over.

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D1 | D2 | L | M | B | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-29 | 07C-SW-29 | 1.06 (27) | 1.20 (30) | 1.60 (41) | 1.50 (38) | 0.25 (6) | 0.10 | (0.05) |
| 1 | SW | 10A-SW-29 | 10C-SW-29 | 1.32 (34) | 1.46 (37) | 1.60 (41) | 2.50 (64) | 0.50 (13) | 0.10 | (0.05) |
| 1¼ | SW | 12A-SW-29 | 12C-SW-29 | 1.67 (42) | 1.81 (46) | 1.60 (41) | 3.00 (76) | 0.50 (13) | 0.15 | (0.07) |
| 1½ | SW | 15A-SW-29 | 15C-SW-29 | 1.91 (49) | 2.04 (52) | 1.60 (41) | 3.25 (83) | 0.50 (13) | 0.20 | (0.09) |
| 2 | SW | 20A-SW-29 | 20C-SW-29 | 2.40 (61) | 2.54 (61) | 3.00 (76) | 3.75 (95) | 0.50 (13) | 0.40 | (0.18) |
| 3 | SW | 30A-SW-29 | 30C-SW-29 | 3.52 (89) | 3.66 (93) | 3.00 (76) | 5.37 (137) | 0.50 (13) | 0.45 | (0.20) |
| 4 | SW | 40A-SW-29 | 40C-SW-29 | 4.47 (114) | 4.61 (117) | 3.00 (76) | 6.50 (165) | 0.75 (19) | 0.80 | (0.36) |
| 4 | HW | 40A-HW-29 | 40C-HW-29 | 4.52 (115) | 4.69 (119) | 3.00 (76) | 6.50 (165) | 0.75 (19) | 0.85 | (0.38) |
| 5 | SW | 50A-SW-29 | 50C-SW-29 | 5.54 (141) | 5.68 (144) | 3.00 (76) | 7.37 (187) | 0.75 (19) | 0.90 | (0.41) |
| 5 | MW | 50A-MW-29 | 50C-MW-29 | 5.59 (142) | 5.79 (147) | 3.00 (76) | 7.37 (187) | 0.75 (19) | 0.95 | (0.43) |
| 5 | HW | 50A-HW-29 | 50C-HW-29 | 5.63 (143) | 5.85 (149) | 3.00 (76) | 7.37 (187) | 0.75 (19) | 1.00 | (0.45) |
| 6 | SW | 60A-SW-29 | 60C-SW-29 | 6.61 (168) | 6.68 (170) | 3.00 (76) | 8.50 (216) | 0.75 (19) | 1.05 | (0.48) |
| 6 | MW | 60A-MW-29 | 60C-MW-29 | 6.66 (169) | 6.79 (172) | 3.00 (76) | 8.50 (216) | 0.75 (19) | 1.10 | (0.50) |
| 6 | HW | 60A-HW-29 | 60C-HW-29 | 6.69 (170) | 6.85 (174) | 3.00 (76) | 8.50 (216) | 0.75 (19) | 1.15 | (0.52) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | D1 | D2 | L | M | B | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-29 | 20D-SW-29 | 2.16 (55) | 2.30 (58) | 3.00 (76) | 3.62 (92) | 0.50 (13) | 0.40 | (0.18) |
| 2½ | SW | 25B-SW-29 | 25D-SW-29 | 2.66 (68) | 2.80 (71) | 3.00 (76) | 4.00 (102) | 0.50 (13) | 0.45 | (0.20) |
| 3 | SW | 30B-SW-29 | 30D-SW-29 | 3.16 (80) | 3.30 (84) | 3.00 (76) | 5.00 (127) | 0.50 (13) | 0.55 | (0.25) |
| 3½ | SW | 35B-SW-29 | 35D-SW-29 | 3.66 (93) | 3.80 (96) | 3.00 (76) | 5.50 (140) | 0.50 (13) | 0.60 | (0.27) |
| 4 | SW | 40B-SW-29 | 40D-SW-29 | 4.16 (106) | 4.30 (109) | 3.00 (76) | 6.00 (153) | 0.75 (19) | 0.78 | (0.35) |
| 4 | HW | 40B-HW-29 | 40D-HW-29 | 4.20 (107) | 4.39 (111) | 3.00 (76) | 6.00 (153) | 0.75 (19) | 0.95 | (0.43) |
| 5 | SW | 50B-SW-29 | 50D-SW-29 | 5.16 (131) | 5.30 (135) | 3.00 (76) | 7.00 (178) | 0.75 (19) | 0.80 | (0.36) |
| 5 | MW | 50B-MW-29 | 50D-MW-29 | 5.20 (132) | 5.39 (137) | 3.00 (76) | 7.00 (178) | 0.75 (19) | 0.85 | (0.39) |
| 5 | HW | 50B-HW-29 | 50D-HW-29 | 5.24 (133) | 5.42 (138) | 3.00 (76) | 7.00 (178) | 0.75 (19) | 0.87 | (0.40) |
| 6 | SW | 60B-SW-29 | 60D-SW-29 | 6.16 (156) | 6.30 (160) | 3.00 (76) | 8.00 (203) | 0.75 (19) | 0.95 | (0.43) |
| 6 | MW | 60B-MW-29 | 60D-MW-29 | 6.20 (157) | 6.39 (162) | 3.00 (76) | 8.00 (203) | 0.75 (19) | 1.15 | (0.52) |
| 6 | HW | 60B-HW-29 | 60D-HW-29 | 6.24 (158) | 6.42 (163) | 3.00 (76) | 8.00 (203) | 0.75 (19) | 1.25 | (0.57) |

| Nominal Size | Type | Item No. Belowground | Aboveground | D1 | D2 | L | M | B | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-29 | 20D-XW-29 | 2.520 (64) | 3.020 (76) | 3.00 (76) | 3.62 (92) | 0.50 (13) | 1.30 | (0.59) |
| 2½ | XW | 25B-XW-29 | 25D-XW-29 | 3.025 (77) | 3.525 (90) | 3.00 (76) | 4.00 (102) | 0.50 (13) | 1.59 | (0.72) |
| 3 | XW | 30B-XW-29 | 30D-XW-29 | 3.520 (89) | 4.020 (102) | 3.00 (76) | 5.00 (127) | 0.50 (13) | 1.90 | (0.86) |
| 3½ | XW | 35B-XW-29 | 35D-XW-29 | 4.025 (102) | 4.525 (115) | 3.00 (76) | 5.50 (140) | 0.50 (13) | 2.17 | (0.98) |
| 4 | XW | 40B-XW-29 | 40D-XW-29 | 4.520 (115) | 5.020 (128) | 5.00 (127) | 6.00 (153) | 0.75 (19) | 2.40 | (1.09) |
| 5 | XW | 50B-XW-29 | 50D-XW-29 | 5.520 (140) | 6.020 (153) | 5.00 (127) | 7.00 (178) | 0.75 (19) | 2.42 | (1.10) |
| 6 | XW | 60B-XW-29 | 60D-XW-29 | 6.520 (166) | 7.020 (178) | 5.00 (127) | 8.00 (203) | 0.75 (19) | 2.50 | (1.13) |




## FIBERGLASS END CAP WITH GASKET

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D | L | Weight lbs | kg |
|---|---|---|---|---|---|---|---|
| 2 | SW | 20A-SW-23-G | 20C-SW-23-G | 2.40 (61) | 4 (102) | 0.70 | (0.32) |
| 3 | SW | 30A-SW-23-G | 30C-SW-23-G | 3.52 (89) | 4 (102) | 0.95 | (0.43) |
| 4 | SW | 40A-SW-23-G | 40C-SW-23-G | 4.47 (114) | 4 (102) | 1.30 | (0.59) |
| 4 | HW | 40A-HW-23-G | 40C-HW-23-G | 4.52 (115) | 4 (102) | 1.40 | (0.64) |
| 5 | SW | 50A-SW-23-G | 50C-SW-23-G | 5.54 (141) | 4 (102) | 1.60 | (0.73) |
| 5 | MW | 50A-MW-23-G | 50C-MW-23-G | 5.59 (142) | 4 (102) | 1.80 | (0.82) |
| 5 | HW | 50A-HW-23-G | 50C-HW-23-G | 5.63 (143) | 4 (102) | 1.90 | (0.86) |
| 6 | SW | 60A-SW-23-G | 60C-SW-23-G | 6.61 (168) | 4 (102) | 2.00 | (0.91) |
| 6 | MW | 60A-MW-23-G | 60C-MW-23-G | 6.66 (169) | 4 (102) | 2.10 | (0.95) |
| 6 | HW | 60A-HW-23-G | 60C-HW-23-G | 6.69 (170) | 4 (102) | 2.40 | (1.09) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | D | L | Weight lbs | kg |
|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-23-G | 20D-SW-23-G | 2.16 (55) | 4 (102) | 0.70 | (0.32) |
| 2½ | SW | 25B-SW-23-G | 25D-SW-23-G | 2.66 (68) | 4 (102) | 0.80 | (0.36) |
| 3 | SW | 30B-SW-23-G | 30D-SW-23-G | 3.16 (80) | 4 (102) | 0.95 | (0.43) |
| 3½ | HW | 35B-SW-23-G | 35D-SW-23-G | 3.66 (93) | 4 (102) | 1.20 | (0.55) |
| 4 | SW | 40B-SW-23-G | 40D-SW-23-G | 4.16 (106) | 4 (102) | 1.30 | (0.59) |
| 4 | HW | 40B-HW-23-G | 40D-HW-23-G | 4.20 (107) | 4 (102) | 1.40 | (0.64) |
| 4½ | SW | 45B-SW-23-G | 45D-SW-23-G | 4.66 (118) | 4 (102) | 1.50 | (0.68) |
| 4½ | HW | 45B-HW-23-G | 45D-HW-23-G | 4.70 (119) | 4 (102) | 1.60 | (0.73) |
| 5 | SW | 50B-SW-23-G | 50D-SW-23-G | 5.16 (131) | 4 (102) | 1.60 | (0.73) |
| 5 | MW | 50B-MW-23-G | 50D-MW-23-G | 5.20 (132) | 4 (102) | 1.70 | (0.77) |
| 5 | HW | 50B-HW-23-G | 50D-HW-23-G | 5.24 (133) | 4 (102) | 1.80 | (0.82) |
| 6 | SW | 60B-SW-23-G | 60D-SW-23-G | 6.16 (156) | 4 (102) | 1.90 | (0.86) |
| 6 | MW | 60B-MW-23-G | 60D-MW-23-G | 6.20 (157) | 4 (102) | 1.90 | (0.86) |
| 6 | HW | 60B-HW-23-G | 60D-HW-23-G | 6.24 (158) | 4 (102) | 2.00 | (0.91) |

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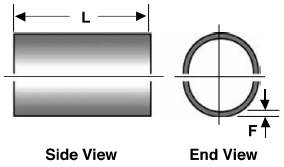
Proposal No. 608616-131225




Side View End View

## SPLIT ANCHOR RINGS

Split anchor rings are always supplied in pairs and are used for above ground installations in order to create fixed points. The split anchor rings are placed around the hanger closest to the mid point between two expansion joints. One pair of split anchor rings is placed on each side of the hanger. The split anchor rings are bonded with epoxy adhesive to the outside of the conduit. The hanger where split anchor rings are used is called an anchor hanger and is normally braced, see Champion Hanger section in this catalog.

| Nominal Size | Type | IPS Item No. Belowground | IPS Item No. Aboveground | ID Item No. Belowground | ID Item No. Aboveground | F | L | Weight lbs | Weight kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-28 | 07C-SW-28 | — | — | 0.25 (6) | 3 (76) | 0.18 | (0.08) |
| 1 | SW | 10A-SW-28 | 10C-SW-28 | — | — | 0.25 (6) | 3 (76) | 0.21 | (0.10) |
| 1¼ | SW | 12A-SW-28 | 12C-SW-28 | — | — | 0.25 (6) | 3 (76) | 0.26 | (0.12) |
| 1½ | SW | 15A-SW-28 | 15C-SW-28 | — | — | 0.25 (6) | 3 (76) | 0.36 | (0.16) |
| 2 | SW | 20A-SW-28 | 20C-SW-28 | 20B-SW-28 | 20D-SW-28 | 0.25 (6) | 3 (76) | 0.42 | (0.19) |
| 2½ | SW | 25A-SW-28 | 25C-SW-28 | 25B-SW-28 | 25D-SW-28 | 0.25 (6) | 3 (76) | 0.48 | (0.22) |
| 3 | SW | 30A-SW-28 | 30C-SW-28 | 30B-SW-28 | 30D-SW-28 | 0.25 (6) | 3 (76) | 0.67 | (0.30) |
| 3½ | SW | — | — | 35B-SW-28 | 35D-SW-28 | 0.25 (6) | 3 (76) | 0.76 | (0.34) |
| 4 | SW | 40A-SW-28 | 40C-SW-28 | 40B-SW-28 | 40D-SW-28 | 0.25 (6) | 3 (76) | 0.80 | (0.36) |
| 4 | HW | 40A-HW-28 | 40C-HW-28 | 40B-HW-28 | 40D-HW-28 | 0.25 (6) | 3 (76) | 0.80 | (0.36) |
| 4½ | SW | 45A-SW-28 | 45C-SW-28 | 45B-SW-28 | 45D-SW-28 | 0.25 (6) | 3 (76) | 0.91 | (0.41) |
| 4½ | HW | 45A-HW-28 | 45C-HW-28 | 45B-HW-28 | 45D-HW-28 | 0.25 (6) | 3 (76) | 0.91 | (0.41) |
| 5 | SW | 50A-SW-28 | 50C-SW-28 | 50B-SW-28 | 50D-SW-28 | 0.25 (6) | 3 (76) | 1.06 | (0.48) |
| 5 | MW | 50A-MW-28 | 50C-MW-28 | 50B-MW-28 | 50D-MW-28 | 0.25 (6) | 3 (76) | 1.06 | (0.48) |
| 5 | HW | 50A-HW-28 | 50C-HW-28 | 50B-HW-28 | 50D-HW-28 | 0.25 (6) | 3 (76) | 1.06 | (0.48) |
| 6 | SW | 60A-SW-28 | 60C-SW-28 | 60B-SW-28 | 60D-SW-28 | 0.25 (6) | 3 (76) | 1.15 | (0.52) |
| 6 | MW | 60A-MW-28 | 60C-MW-28 | 60B-MW-28 | 60D-MW-28 | 0.25 (6) | 3 (76) | 1.15 | (0.52) |
| 6 | HW | 60A-HW-28 | 60C-HW-28 | 60B-HW-28 | 60D-HW-28 | 0.25 (6) | 3 (76) | 1.15 | (0.52) |

| Nominal Size | Type | Item No. Belowground | Item No. Aboveground | F | L | Weight lbs | Weight kg |
|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-28 | 20D-XW-28 | 0.25 (6) | 3 (76) | 0.52 | (0.24) |
| 2½ | XW | 25B-XW-28 | 25D-XW-28 | 0.25 (6) | 3 (76) | 0.64 | (0.29) |
| 3 | XW | 30B-XW-28 | 30D-XW-28 | 0.25 (6) | 3 (76) | 0.80 | (0.36) |
| 3½ | XW | 35B-XW-28 | 35D-XW-28 | 0.25 (6) | 3 (76) | 0.87 | (0.39) |
| 4 | XW | 40B-XW-28 | 40D-XW-28 | 0.25 (6) | 3 (76) | 0.98 | (0.44) |
| 5 | XW | 50B-XW-28 | 50D-XW-28 | 0.25 (6) | 3 (76) | 1.15 | (0.52) |
| 6 | XW | 60B-XW-28 | 60D-XW-28 | 0.25 (6) | 3 (76) | 1.25 | (0.57) |

## THERMOPLASTIC PLUG

| Nominal Size | Type | IPS Item No. Belowground | IPS Item No. Aboveground | ID Item No. Belowground | ID Item No. Aboveground | Weight lbs | Weight kg |
|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-26 | 07C-SW-26 | — | — | 0.01 | (0.005) |
| 1 | SW | 10A-SW-26 | 10C-SW-26 | — | — | 0.01 | (0.005) |
| 1¼ | SW | 12A-SW-26 | 12C-SW-26 | — | — | 0.01 | (0.005) |
| 1½ | SW | 15A-SW-26 | 15C-SW-26 | — | — | 0.01 | (0.005) |
| 2 | SW | 20A-SW-26 | 20C-SW-26 | 20B-SW-26 | 20D-SW-26 | 0.01 | (0.005) |
| 2½ | SW | 25A-SW-26 | 25C-SW-26 | 25B-SW-26 | 25D-SW-26 | 0.01 | (0.005) |
| 3 | SW | 30A-SW-26 | 30C-SW-26 | 30B-SW-26 | 30D-SW-26 | 0.03 | (0.014) |
| 3½ | SW | — | — | 35B-SW-26 | 35D-SW-26 | 0.03 | (0.014) |
| 4 | SW | 40A-SW-26 | 40C-SW-26 | 40B-SW-26 | 40D-SW-26 | 0.03 | (0.014) |
| 4 | HW | 40A-HW-26 | 40C-HW-26 | 40B-HW-26 | 40D-HW-26 | 0.03 | (0.014) |
| 4½ | SW | 45A-SW-26 | 45C-SW-26 | 45B-SW-26 | 45D-SW-26 | 0.05 | (0.023) |
| 4½ | HW | 45A-HW-26 | 45C-HW-26 | 45B-HW-26 | 45D-HW-26 | 0.05 | (0.023) |
| 5 | SW | 50A-SW-26 | 50C-SW-26 | 50B-SW-26 | 50D-SW-26 | 0.06 | (0.027) |
| 5 | MW | 50A-MW-26 | 50C-MW-26 | 50B-MW-26 | 50D-MW-26 | 0.06 | (0.027) |
| 5 | HW | 50A-HW-26 | 50C-HW-26 | 50B-HW-26 | 50D-HW-26 | 0.06 | (0.027) |
| 6 | SW | 60A-SW-26 | 60C-SW-26 | 60B-SW-26 | 60D-SW-26 | 0.07 | (0.032) |
| 6 | MW | 60A-MW-26 | 60C-MW-26 | 60B-MW-26 | 60D-MW-26 | 0.07 | (0.032) |
| 6 | HW | 60A-HW-26 | 60C-HW-26 | 60B-HW-26 | 60D-HW-26 | 0.07 | (0.032) |

| Nominal Size | Type | Item No. | Weight lbs | Weight kg |
|---|---|---|---|---|
| 2 | XW | 20D-XW-26 | 0.01 | (0.005) |
| 2½ | XW | 25D-XW-26 | 0.01 | (0.005) |
| 3 | XW | 30D-XW-26 | 0.03 | (0.014) |
| 3½ | XW | 35D-XW-26 | 0.03 | (0.014) |
| 4 | XW | 40D-XW-26 | 0.03 | (0.014) |
| 5 | XW | 50D-XW-26 | 0.06 | (0.027) |
| 6 | XW | 60D-XW-26 | 0.07 | (0.032) |



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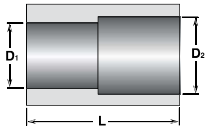
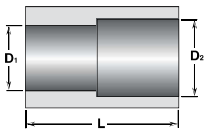



## REDUCING ADAPTER

Transition adapter from ID/tubular fiberglass conduit to IPS type and PVC schedule 40 and 80.

| Nominal Size | Type | Item No. Belowground | Item No. Aboveground | D1 | D2 | L | Weight lbs | Weight kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-27 | 20D-SW-27 | 2.16 (55) | 2.40 (61) | 6 (152) | 0.30 | (0.14) |
| 3 | SW | 30B-SW-27 | 30D-SW-27 | 3.16 (80) | 3.52 (89) | 6 (152) | 0.50 | (0.23) |
| 4 | SW | 40B-SW-27 | 40D-SW-27 | 4.16 (106) | 4.47 (114) | 6 (152) | 0.60 | (0.27) |
| 4 | HW | 40B-HW-27 | 40D-HW-27 | 4.20 (107) | 4.52 (115) | 6 (152) | 0.70 | (0.32) |
| 5 | SW | 50B-SW-27 | 50D-SW-27 | 5.16 (131) | 5.54 (141) | 6 (152) | 0.70 | (0.32) |
| 5 | MW | 50B-MW-27 | 50D-MW-27 | 5.20 (132) | 5.59 (142) | 6 (152) | 0.90 | (0.41) |
| 5 | HW | 50B-HW-27 | 50D-HW-27 | 5.24 (133) | 5.63 (143) | 6 (152) | 1.00 | (0.45) |
| 6 | SW | 60B-SW-27 | 60D-SW-27 | 6.16 (156) | 6.61 (168) | 6 (152) | 0.80 | (0.36) |
| 6 | MW | 60B-MW-27 | 60D-MW-27 | 6.20 (157) | 6.66 (169) | 6 (152) | 1.10 | (0.50) |
| 6 | HW | 60B-HW-27 | 60D-HW-27 | 6.24 (158) | 6.69 (170) | 6 (152) | 1.20 | (0.55) |

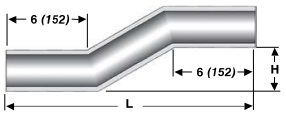



## REDUCING ADAPTER

This adapter is used for transition between different diameters of fiberglass conduit.

| Nominal Size | | IPS Item No. Belowground | IPS Item No. Aboveground | D1 | D2 | L | Weight lbs | Weight kg |
|---|---|---|---|---|---|---|---|---|
| ¾ SW | - ½ SW | 07A-SW-25-05A | 07C-SW-25-05C | 0.87 (22) | 1.06 (27) | 4 (101) | 0.30 | (0.14) |
| 1 SW | - ½ SW | 10A-SW-25-05A | 10C-SW-25-05C | 0.87 (22) | 1.32 (34) | 4 (101) | 0.40 | (0.18) |
| 1 SW | - ¾ SW | 10A-SW-25-07A | 10C-SW-25-07C | 1.06 (27) | 1.32 (34) | 4 (101) | 0.35 | (0.16) |
| 1¼ SW | - ¾ SW | 12A-SW-25-07A | 12C-SW-25-07C | 1.06 (27) | 1.67 (42) | 4 (101) | 0.45 | (0.20) |
| 1¼ SW | - 1 SW | 12A-SW-25-10A | 12C-SW-25-10C | 1.32 (34) | 1.67 (42) | 4 (101) | 0.40 | (0.18) |
| 1½ SW | - ¾ SW | 15A-SW-25-07A | 15C-SW-25-07C | 1.06 (27) | 1.91 (48) | 4 (101) | 0.38 | (0.17) |
| 1½ SW | - 1 SW | 15A-SW-25-10A | 15C-SW-25-10C | 1.32 (34) | 1.91 (48) | 4 (101) | 0.40 | (0.18) |
| 1½ SW | - 1¼ SW | 15A-SW-25-12A | 15C-SW-25-12C | 1.67 (42) | 1.91 (48) | 6 (152) | 0.37 | (0.17) |
| 2 SW | - ¾ SW | 20A-SW-25-07A | 20C-SW-25-07C | 1.06 (27) | 2.40 (61) | 6 (152) | 0.60 | (0.27) |
| 2 SW | - 1 SW | 20A-SW-25-10A | 20C-SW-25-10C | 1.32 (34) | 2.40 (61) | 6 (152) | 0.55 | (0.25) |
| 2 SW | - 1¼ SW | 20A-SW-25-12A | 20C-SW-25-12C | 1.67 (42) | 2.40 (61) | 6 (152) | 0.50 | (0.23) |
| 2 SW | - 1½ SW | 20A-SW-25-15A | 20C-SW-25-15C | 1.91 (48) | 2.40 (61) | 6 (152) | 0.47 | (0.21) |
| 3 SW | - 2 SW | 30A-SW-25-20A | 30C-SW-25-20C | 2.40 (61) | 3.52 (89) | 6 (152) | 0.65 | (0.32) |
| 4 SW | - 2 SW | 40A-SW-25-20A | 40C-SW-25-20C | 2.40 (61) | 4.47 (113) | 6 (152) | 0.80 | (0.36) |
| 4 SW | - 3 SW | 40A-SW-25-30A | 40C-SW-25-30C | 3.52 (89) | 4.47 (113) | 6 (152) | 0.90 | (0.41) |
| 5 SW | - 3 SW | 50A-SW-25-30A | 50C-SW-25-30C | 3.52 (89) | 5.59 (142) | 6 (152) | 1.30 | (0.59) |
| 5 SW | - 4 SW | 50A-SW-25-40A | 50C-SW-25-40C | 4.47 (114) | 5.59 (142) | 6 (152) | 0.85 | (0.39) |
| 6 SW | - 4 SW | 60A-SW-25-40A | 60C-SW-25-40C | 4.47 (114) | 6.61 (166) | 6 (152) | 1.70 | (0.77) |
| 6 MW | - 5 SW | 60A-MW-25-50A | 60C-MW-25-50C | 5.59 (142) | 6.61 (166) | 6 (152) | 1.90 | (0.86) |

*Note: These are just examples of some reducing adapters. Contact Champion Fiberglass directly for other reducers.*

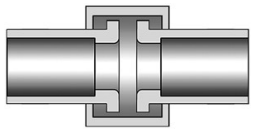



## OFFSET BEND

When manufacturing offset bends, the vertical offset dimension, H, and the horizontal offset dimension, L, must be provided.

All offset bends are supplied with 6" ***(152mm)*** straight ends. (Item numbers for offset bends end with the suffix - 47.)

Contact your local sales representative or Champion Fiberglass for additional information.



## WOBBLE COUPLING

Wobble couplings are used for minor vertical and horizontal offsets for above ground installations. (Item numbers for wobble couplings end with the suffix - 48.)

For additional information regarding dimensions, etc., please contact your local sales representative or Champion Fiberglass directly.

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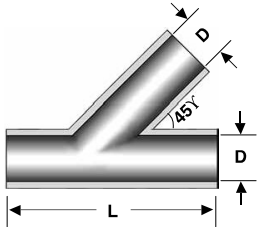
Proposal No. 608616-131225

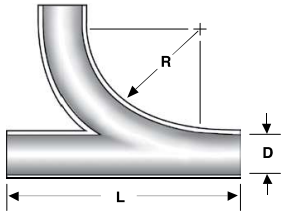



## Y - FITTING

Special fitting not sold in US.

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-45 | 07C-SW-45 | 1.06 | (27) | 15 | (381) | 0.54 | (0.25) |
| 1 | SW | 10A-SW-45 | 10C-SW-45 | 1.32 | (34) | 15 | (381) | 0.60 | (0.27) |
| 1¼ | SW | 12A-SW-45 | 12C-SW-45 | 1.67 | (42) | 15 | (381) | 0.70 | (0.32) |
| 1½ | SW | 15A-SW-45 | 15C-SW-45 | 1.91 | (49) | 15 | (381) | 0.76 | (0.35) |
| 2 | SW | 20A-SW-45 | 20C-SW-45 | 2.40 | (61) | 18 | (457) | 1.06 | (0.48) |
| 3 | SW | 30A-SW-45 | 30C-SW-45 | 3.52 | (89) | 22 | (559) | 1.91 | (0.87) |
| 4 | SW | 40A-SW-45 | 40C-SW-45 | 4.47 | (114) | 26 | (661) | 2.90 | (1.32) |
| 4 | HW | 40A-HW-45 | 40C-HW-45 | 4.52 | (115) | 26 | (661) | 3.60 | (1.63) |
| 5 | SW | 50A-SW-45 | 50C-SW-45 | 5.54 | (141) | 30 | (762) | 4.20 | (1.91) |
| 5 | MW | 50A-MW-45 | 50C-MW-45 | 5.59 | (142) | 30 | (762) | 5.50 | (2.50) |
| 5 | HW | 50A-HW-45 | 50C-HW-45 | 5.63 | (143) | 30 | (762) | 6.40 | (2.91) |
| 6 | SW | 60A-SW-45 | 60C-SW-45 | 6.61 | (168) | 36 | (915) | 6.00 | (2.72) |
| 6 | MW | 60A-MW-45 | 60C-MW-45 | 6.66 | (169) | 36 | (915) | 7.70 | (3.50) |
| 6 | HW | 60A-HW-45 | 60C-HW-45 | 6.69 | (170) | 36 | (915) | 8.10 | (3.68) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | D | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-45 | 20D-SW-45 | 2.16 | (55) | 24 | (609) | 1.01 | (0.46) |
| 2½ | SW | 25B-SW-45 | 25C-SW-45 | 2.66 | (68) | 24 | (609) | 1.20 | (0.55) |
| 3 | SW | 30B-SW-45 | 30D-SW-45 | 3.16 | (80) | 36 | (914) | 1.72 | (0.78) |
| 3½ | SW | 35B-SW-45 | 35D-SW-45 | 3.66 | (93) | 36 | (914) | 2.10 | (0.95) |
| 4 | SW | 40B-SW-45 | 40D-SW-45 | 4.16 | (106) | 36 | (914) | 2.70 | (1.23) |
| 4 | HW | 40B-HW-45 | 40D-HW-45 | 4.20 | (107) | 36 | (914) | 3.40 | (1.54) |
| 4½ | SW | 45B-SW-45 | 45D-SW-45 | 4.66 | (118) | 36 | (914) | 3.30 | (1.50) |
| 4½ | HW | 45B-HW-45 | 45D-HW-45 | 4.70 | (119) | 36 | (914) | 4.10 | (1.86) |
| 5 | SW | 50B-SW-45 | 50D-SW-45 | 5.16 | (131) | 48 | (1,219) | 3.90 | (1.77) |
| 5 | MW | 50B-MW-45 | 50D-MW-45 | 5.20 | (132) | 48 | (1,219) | 5.00 | (2.27) |
| 5 | HW | 50B-HW-45 | 50D-HW-45 | 5.24 | (133) | 48 | (1,219) | 5.90 | (2.70) |
| 6 | SW | 60B-SW-45 | 60D-SW-45 | 6.16 | (156) | 60 | (1,524) | 5.60 | (2.54) |
| 6 | MW | 60B-MW-45 | 60D-MW-45 | 6.20 | (157) | 60 | (1,524) | 7.20 | (3.27) |
| 6 | HW | 60B-HW-45 | 60D-HW-45 | 6.24 | (158) | 60 | (1,524) | 8.50 | (3.86) |




## Y - ELBOW

Special fitting not sold in US.

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | D | | R | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-46-P | 07C-SW-46-P | 1.06 | (27) | 24 | (609) | 12 | (305) | 0.68 | (0.31) |
| 1 | SW | 10A-SW-46-P | 10C-SW-46-P | 1.32 | (34) | 24 | (609) | 12 | (305) | 0.75 | (0.34) |
| 1¼ | SW | 12A-SW-46-P | 12C-SW-46-P | 1.67 | (42) | 24 | (609) | 12 | (305) | 0.88 | (0.40) |
| 1½ | SW | 15A-SW-46-P | 15C-SW-46-P | 1.91 | (49) | 24 | (609) | 12 | (305) | 0.95 | (0.43) |
| 2 | SW | 20A-SW-46-P | 20C-SW-46-P | 2.40 | (61) | 24 | (609) | 24 | (609) | 1.30 | (0.59) |
| 3 | SW | 30A-SW-46-P | 30C-SW-46-P | 3.52 | (89) | 36 | (914) | 36 | (914) | 2.40 | (1.09) |
| 4 | SW | 40A-SW-46-P | 40C-SW-46-P | 4.47 | (114) | 36 | (914) | 36 | (914) | 3.60 | (1.63) |
| 4 | HW | 40A-HW-46-P | 40C-HW-46-P | 4.52 | (115) | 36 | (914) | 36 | (914) | 4.50 | (2.04) |
| 5 | SW | 50A-SW-46-P | 50C-SW-46-P | 5.54 | (141) | 48 | (1,219) | 48 | (1,219) | 5.20 | (2.36) |
| 5 | MW | 50A-MW-46-P | 50C-MW-46-P | 5.59 | (142) | 48 | (1,219) | 48 | (1,219) | 6.90 | (3.13) |
| 5 | HW | 50A-HW-46-P | 50C-HW-46-P | 5.63 | (143) | 48 | (1,219) | 48 | (1,219) | 8.00 | (3.63) |
| 6 | SW | 60A-SW-46-P | 60C-SW-46-P | 6.61 | (168) | 60 | (1,524) | 60 | (1,524) | 7.50 | (3.41) |
| 6 | MW | 60A-MW-46-P | 60C-MW-46-P | 6.66 | (169) | 60 | (1,524) | 60 | (1,524) | 9.60 | (4.36) |
| 6 | HW | 60A-HW-46-P | 60C-HW-46-P | 6.69 | (170) | 60 | (1,524) | 60 | (1,524) | 10.10 | (4.58) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | D | | R | | L | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-46-P | 20D-SW-46-P | 2.16 | (55) | 24 | (609) | 24 | (609) | 1.25 | (0.57) |
| 2½ | SW | 25B-SW-46-P | 25D-SW-46-P | 2.66 | (68) | 24 | (609) | 24 | (609) | 1.50 | (0.68) |
| 3 | SW | 30B-SW-46-P | 30D-SW-46-P | 3.16 | (80) | 36 | (914) | 36 | (914) | 2.10 | (0.95) |
| 3½ | SW | 35B-SW-46-P | 35D-SW-46-P | 3.66 | (93) | 36 | (914) | 36 | (914) | 2.60 | (1.18) |
| 4 | SW | 40B-SW-46-P | 40D-SW-46-P | 4.16 | (106) | 36 | (914) | 36 | (914) | 3.40 | (1.54) |
| 4 | HW | 40B-HW-46-P | 40D-HW-46-P | 4.20 | (107) | 36 | (914) | 36 | (914) | 4.20 | (1.91) |
| 4½ | SW | 45B-SW-46-P | 45D-SW-46-P | 4.66 | (118) | 36 | (914) | 36 | (914) | 4.10 | (1.86) |
| 4½ | HW | 45B-HW-46-P | 45D-HW-46-P | 4.70 | (119) | 36 | (914) | 36 | (914) | 5.10 | (2.32) |
| 5 | SW | 50B-SW-46-P | 50D-SW-46-P | 5.16 | (131) | 48 | (1,219) | 48 | (1,219) | 4.90 | (2.23) |
| 5 | MW | 50B-MW-46-P | 50D-MW-46-P | 5.20 | (132) | 48 | (1,219) | 48 | (1,219) | 6.20 | (2.82) |
| 5 | HW | 50B-HW-46-P | 50D-HW-46-P | 5.24 | (133) | 48 | (1,219) | 48 | (1,219) | 7.40 | (3.36) |
| 6 | SW | 60B-SW-46-P | 60D-SW-46-P | 6.16 | (156) | 60 | (1,524) | 60 | (1,524) | 7.00 | (3.18) |
| 6 | MW | 60B-MW-46-P | 60D-MW-46-P | 6.20 | (157) | 60 | (1,524) | 60 | (1,524) | 9.00 | (4.09) |
| 6 | HW | 60B-HW-46-P | 60D-HW-46-P | 6.24 | (158) | 60 | (1,524) | 60 | (1,524) | 10.60 | (4.81) |



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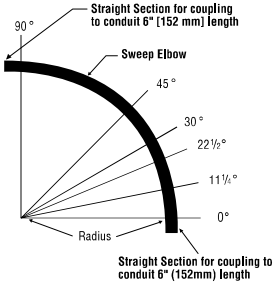
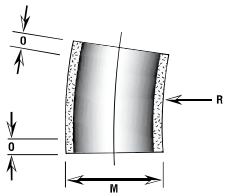



## ELBOWS

Radii listed are available and larger radii can be supplied. Contact your local representative or Champion Fiberglass for additional information. All elbows are supplied with plain ends. For installations with other conduit systems, we offer an assortment of transition and termination fittings that can be installed on our elbows. Please see page 44 for a selection of elbows with PVC couplings.

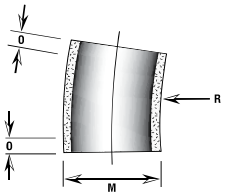



## 11¼° X 12"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | | O-Tangent (min) | | R - Radius (min) | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-50-P | 07C-SW-50-P | 1.05 | (27) | 6 | (152) | 12 | (305) | 0.20 | (0.09) |
| 1 | SW | 10A-SW-50-P | 10C-SW-50-P | 1.32 | (33) | 6 | (152) | 12 | (305) | 0.22 | (0.10) |
| 1¼ | SW | 12A-SW-50-P | 12C-SW-50-P | 1.66 | (42) | 6 | (152) | 12 | (305) | 0.27 | (0.12) |
| 1½ | SW | 15A-SW-50-P | 15C-SW-50-P | 1.90 | (48) | 6 | (152) | 12 | (305) | 0.39 | (0.18) |
| 2 | SW | 20A-SW-50-P | 20C-SW-50-P | 2.37 | (60) | 6 | (152) | 12 | (305) | 0.44 | (0.20) |
| 2½ | SW | 25A-SW-50-P | 25C-SW-50-P | 2.88 | (73) | 6 | (152) | 12 | (305) | 0.54 | (0.25) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | | O-Tangent (min) | | R - Radius (min) | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-50-P | 20D-SW-50-P | 2.14 | (54) | 6 | (152) | 12 | (305) | 0.40 | (0.18) |
| 2½ | SW | 25B-SW-50-P | 25D-SW-50-P | 2.64 | (67) | 6 | (152) | 12 | (305) | 0.49 | (0.22) |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | | O-Tangent (min) | | R - Radius (min) | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-50-P | 20D-XW-50-P | 2.50 | (63) | 6 | (152) | 12 | (305) | 1.47 | (0.67) |
| 2½ | XW | 25B-XW-50-P | 25D-XW-50-P | 3.00 | (76) | 6 | (152) | 12 | (305) | 1.80 | (0.82) |
| 3 | XW | 30B-XW-50-P | 30D-XW-50-P | 4.00 | (102) | 6 | (152) | 12 | (305) | 2.45 | (1.11) |




## 11¼° X 24"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | | O-Tangent (min) | | R - Radius (min) | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-51-P | 07C-SW-51-P | 1.05 | (27) | 6 | (152) | 24 | (610) | 0.24 | (0.11) |
| 1 | SW | 10A-SW-51-P | 10C-SW-51-P | 1.32 | (33) | 6 | (152) | 24 | (610) | 0.27 | (0.12) |
| 1¼ | SW | 12A-SW-51-P | 12C-SW-51-P | 1.66 | (42) | 6 | (152) | 24 | (610) | 0.33 | (0.15) |
| 1½ | SW | 15A-SW-51-P | 15C-SW-51-P | 1.90 | (48) | 6 | (152) | 24 | (610) | 0.47 | (0.21) |
| 2 | SW | 20A-SW-51-P | 20C-SW-51-P | 2.37 | (60) | 6 | (152) | 24 | (610) | 0.54 | (0.25) |
| 2½ | SW | 25A-SW-51-P | 25C-SW-51-P | 2.88 | (73) | 6 | (152) | 24 | (610) | 0.65 | (0.30) |
| 3 | SW | 30A-SW-51-P | 30C-SW-51-P | 3.50 | (89) | 6 | (152) | 24 | (610) | 0.85 | (0.38) |
| 4 | SW | 40A-SW-51-P | 40C-SW-51-P | 4.46 | (113) | 6 | (152) | 24 | (610) | 1.02 | (0.46) |
| 4 | HW | 40A-HW-51-P | 40C-HW-51-P | 4.51 | (114) | 6 | (152) | 24 | (610) | 1.37 | (0.61) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | | O-Tangent (min) | | R - Radius (min) | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-51-P | 20D-SW-51-P | 2.14 | (54) | 6 | (152) | 24 | (610) | 0.48 | (0.22) |
| 2½ | SW | 25B-SW-51-P | 25D-SW-51-P | 2.64 | (67) | 6 | (152) | 24 | (610) | 0.60 | (0.27) |
| 3 | SW | 30B-SW-51-P | 30D-SW-51-P | 3.14 | (80) | 6 | (152) | 24 | (610) | 0.68 | (0.25) |
| 3½ | SW | 35B-SW-51-P | 35D-SW-51-P | 3.64 | (92) | 6 | (152) | 24 | (610) | 0.86 | (0.39) |
| 4 | SW | 40B-SW-51-P | 40D-SW-51-P | 4.14 | (105) | 6 | (152) | 24 | (610) | 0.98 | (0.45) |
| 4 | HW | 40B-HW-51-P | 40D-HW-51-P | 4.19 | (106) | 6 | (152) | 24 | (610) | 1.48 | (0.67) |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | | O-Tangent (min) | | R - Radius (min) | | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-51-P | 20D-XW-51-P | 2.50 | (63) | 6 | (152) | 24 | (610) | 1.79 | (0.81) |
| 2½ | XW | 25B-XW-51-P | 25D-XW-51-P | 3.00 | (76) | 6 | (152) | 24 | (610) | 2.19 | (0.99) |
| 3 | XW | 30B-XW-51-P | 30D-XW-51-P | 3.50 | (89) | 6 | (152) | 24 | (610) | 2.58 | (1.17) |
| 3½ | XW | 35B-XW-51-P | 35D-XW-51-P | 4.00 | (102) | 6 | (152) | 24 | (610) | 2.98 | (1.35) |
| 4 | XW | 40B-XW-51-P | 40D-XW-51-P | 4.50 | (114) | 6 | (152) | 24 | (610) | 3.38 | (1.53) |

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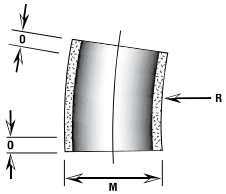
Proposal No. 608616-131225

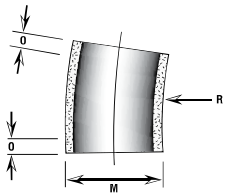



## 11¼° X 36"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-52-P | 07C-SW-52-P | 1.05 *(27)* | 6 *(152)* | 36 *(914)* | 0.27 | *(0.12)* |
| 1 | SW | 10A-SW-52-P | 10C-SW-52-P | 1.32 *(33)* | 6 *(152)* | 36 *(914)* | 0.30 | *(0.14)* |
| 1¼ | SW | 12A-SW-52-P | 12C-SW-52-P | 1.66 *(42)* | 6 *(152)* | 36 *(914)* | 0.36 | *(0.16)* |
| 1½ | SW | 15A-SW-52-P | 15C-SW-52-P | 1.90 *(48)* | 6 *(152)* | 36 *(914)* | 0.52 | *(0.24)* |
| 2 | SW | 20A-SW-52-P | 20C-SW-52-P | 2.37 *(60)* | 6 *(152)* | 36 *(914)* | 0.60 | *(0.27)* |
| 2½ | SW | 25A-SW-52-P | 25C-SW-52-P | 2.88 *(73)* | 6 *(152)* | 36 *(914)* | 0.73 | *(0.33)* |
| 3 | SW | 30A-SW-52-P | 30C-SW-52-P | 3.50 *(89)* | 6 *(152)* | 36 *(914)* | 0.95 | *(0.43)* |
| 4 | SW | 40A-SW-52-P | 40C-SW-52-P | 4.46 *(113)* | 6 *(152)* | 36 *(914)* | 1.14 | *(0.52)* |
| 4 | HW | 40A-HW-52-P | 40C-HW-52-P | 4.51 *(114)* | 6 *(152)* | 36 *(914)* | 1.54 | *(0.70)* |
| 5 | SW | 50A-SW-52-P | 50C-SW-52-P | 5.52 *(140)* | 6 *(152)* | 36 *(914)* | 1.43 | *(0.65)* |
| 5 | MW | 50A-MW-52-P | 50C-MW-52-P | 5.57 *(141)* | 6 *(152)* | 36 *(914)* | 1.90 | *(0.86)* |
| 5 | HW | 50A-HW-52-P | 50C-HW-52-P | 5.60 *(152)* | 6 *(152)* | 36 *(914)* | 2.10 | *(0.95)* |
| 6 | SW | 60A-SW-52-P | 60C-SW-52-P | 6.58 *(167)* | 6 *(152)* | 36 *(914)* | 1.59 | *(0.72)* |
| 6 | MW | 60A-MW-52-P | 60C-MW-52-P | 6.63 *(168)* | 6 *(152)* | 36 *(914)* | 2.25 | *(1.02)* |
| 6 | HW | 60A-HW-52-P | 60C-HW-52-P | 6.66 *(169)* | 6 *(152)* | 36 *(914)* | 2.59 | *(1.17)* |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-52-P | 20D-SW-52-P | 2.14 *(54)* | 6 *(152)* | 36 *(914)* | 0.54 | *(0.25)* |
| 2½ | SW | 25B-SW-52-P | 25D-SW-52-P | 2.64 *(67)* | 6 *(152)* | 36 *(914)* | 0.67 | *(0.30)* |
| 3 | SW | 30B-SW-52-P | 30D-SW-52-P | 3.14 *(80)* | 6 *(152)* | 36 *(914)* | 0.76 | *(0.35)* |
| 3½ | SW | 35B-SW-52-P | 35D-SW-52-P | 3.64 *(92)* | 6 *(152)* | 36 *(914)* | 0.95 | *(0.43)* |
| 4 | SW | 40B-SW-52-P | 40D-SW-52-P | 4.14 *(105)* | 6 *(152)* | 36 *(914)* | 1.09 | *(0.50)* |
| 4 | HW | 40B-HW-52-P | 40D-HW-52-P | 4.19 *(106)* | 6 *(152)* | 36 *(914)* | 1.46 | *(0.66)* |
| 4½ | SW | 45B-SW-52-P | 45D-SW-52-P | 4.64 *(117)* | 6 *(152)* | 36 *(914)* | 1.19 | *(0.54)* |
| 4½ | HW | 45B-HW-52-P | 45D-HW-52-P | 4.69 *(118)* | 6 *(152)* | 36 *(914)* | 1.65 | *(0.75)* |
| 5 | SW | 50B-SW-52-P | 50D-SW-52-P | 5.14 *(131)* | 6 *(152)* | 36 *(914)* | 1.34 | *(0.61)* |
| 5 | MW | 50B-MW-52-P | 50D-MW-52-P | 5.19 *(132)* | 6 *(152)* | 36 *(914)* | 1.78 | *(0.81)* |
| 5 | HW | 50B-HW-52-P | 50D-HW-52-P | 5.22 *(132)* | 6 *(152)* | 36 *(914)* | 2.05 | *(0.93)* |
| 6 | SW | 60B-SW-52-P | 60D-SW-52-P | 6.14 *(156)* | 6 *(152)* | 36 *(914)* | 1.61 | *(0.73)* |
| 6 | MW | 60B-MW-52-P | 60D-MW-52-P | 6.19 *(157)* | 6 *(152)* | 36 *(914)* | 2.13 | *(0.97)* |
| 6 | HW | 60B-HW-52-P | 60D-HW-52-P | 6.22 *(158)* | 6 *(152)* | 36 *(914)* | 2.50 | *(1.00)* |

| Nominal Size | Type | Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-52-P | 20D-XW-52-P | 2.50 *(64)* | 6 *(152)* | 36 *(914)* | 2.00 | *(0.91)* |
| 2½ | XW | 25B-XW-52-P | 25D-XW-52-P | 3.00 *(76)* | 6 *(152)* | 36 *(914)* | 2.44 | *(1.11)* |
| 3 | XW | 30B-XW-52-P | 30D-XW-52-P | 3.50 *(89)* | 6 *(152)* | 36 *(914)* | 2.88 | *(1.31)* |
| 3½ | XW | 35B-XW-52-P | 35D-XW-52-P | 4.00 *(102)* | 6 *(152)* | 36 *(914)* | 3.33 | *(1.51)* |
| 4 | XW | 40B-XW-52-P | 40D-XW-52-P | 4.50 *(114)* | 6 *(152)* | 36 *(914)* | 3.77 | *(3.77)* |
| 5 | XW | 50B-XW-52-P | 50D-XW-52-P | 5.50 *(140)* | 6 *(152)* | 36 *(914)* | 4.64 | *(2.11)* |
| 6 | XW | 60B-XW-52-P | 60D-XW-52-P | 6.50 *(165)* | 6 *(152)* | 36 *(914)* | 5.53 | *(2.51)* |




## 11¼° X 48"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-53-P | 07C-SW-53-P | 1.05 *(27)* | 6 *(152)* | 48 *(1,219)* | 0.31 | *(0.14)* |
| 1 | SW | 10A-SW-53-P | 10C-SW-53-P | 1.32 *(33)* | 6 *(152)* | 48 *(1,219)* | 0.35 | *(0.16)* |
| 1¼ | SW | 12A-SW-53-P | 12C-SW-53-P | 1.66 *(42)* | 6 *(152)* | 48 *(1,219)* | 0.42 | *(0.19)* |
| 1½ | SW | 15A-SW-53-P | 15C-SW-53-P | 1.90 *(48)* | 6 *(152)* | 48 *(1,219)* | 0.61 | *(0.28)* |
| 2 | SW | 20A-SW-53-P | 20C-SW-53-P | 2.37 *(60)* | 6 *(152)* | 48 *(1,219)* | 0.70 | *(0.32)* |
| 2½ | SW | 25A-SW-53-P | 25C-SW-53-P | 2.88 *(73)* | 6 *(152)* | 48 *(1,219)* | 0.84 | *(0.38)* |
| 3 | SW | 30A-SW-53-P | 30C-SW-53-P | 3.50 *(89)* | 6 *(152)* | 48 *(1,219)* | 1.10 | *(0.50)* |
| 4 | SW | 40A-SW-53-P | 40C-SW-53-P | 4.46 *(113)* | 6 *(152)* | 48 *(1,219)* | 1.32 | *(0.60)* |
| 4 | HW | 40A-HW-53-P | 40C-HW-53-P | 4.51 *(114)* | 6 *(152)* | 48 *(1,219)* | 1.78 | *(0.81)* |
| 5 | SW | 50A-SW-53-P | 50C-SW-53-P | 5.52 *(140)* | 6 *(152)* | 48 *(1,219)* | 1.65 | *(0.75)* |
| 5 | MW | 50A-MW-53-P | 50C-MW-53-P | 5.57 *(141)* | 6 *(152)* | 48 *(1,219)* | 2.20 | *(1.00)* |
| 5 | HW | 50A-HW-53-P | 50C-HW-53-P | 5.60 *(142)* | 6 *(152)* | 48 *(1,219)* | 2.38 | *(1.08)* |
| 6 | SW | 60A-SW-53-P | 60C-SW-53-P | 6.58 *(167)* | 6 *(152)* | 60 *(1,524)* | 1.83 | *(0.83)* |
| 6 | MW | 60A-MW-53-P | 60C-MW-53-P | 6.63 *(168)* | 6 *(152)* | 60 *(1,524)* | 2.60 | *(1.18)* |
| 6 | HW | 60A-HW-53-P | 60C-HW-53-P | 6.66 *(169)* | 6 *(152)* | 60 *(1,524)* | 2.98 | *(1.35)* |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-53-P | 20D-SW-53-P | 2.14 *(54)* | 6 *(152)* | 48 *(1,219)* | 0.62 | *(0.36)* |
| 2½ | SW | 25B-SW-53-P | 25D-SW-53-P | 2.64 *(67)* | 6 *(152)* | 48 *(1,219)* | 0.77 | *(0.45)* |
| 3 | SW | 30B-SW-53-P | 30D-SW-53-P | 3.14 *(80)* | 6 *(152)* | 48 *(1,219)* | 0.88 | *(0.55)* |
| 3½ | SW | 35B-SW-53-P | 35D-SW-53-P | 3.64 *(92)* | 6 *(152)* | 48 *(1,219)* | 1.10 | *(0.55)* |
| 4 | SW | 40B-SW-53-P | 40D-SW-53-P | 4.14 *(105)* | 6 *(152)* | 48 *(1,219)* | 1.27 | *(0.64)* |
| 4 | HW | 40B-HW-53-P | 40D-HW-53-P | 4.19 *(106)* | 6 *(152)* | 48 *(1,219)* | 1.69 | *(0.86)* |
| 4½ | SW | 45B-SW-53-P | 45D-SW-53-P | 4.64 *(117)* | 6 *(152)* | 48 *(1,219)* | 1.38 | *(0.73)* |
| 4½ | HW | 45B-HW-53-P | 45D-HW-53-P | 4.69 *(118)* | 6 *(152)* | 48 *(1,219)* | 1.91 | *(0.95)* |
| 5 | SW | 50B-SW-53-P | 50D-SW-53-P | 5.14 *(131)* | 6 *(152)* | 48 *(1,219)* | 1.56 | *(0.86)* |
| 5 | MW | 50B-MW-53-P | 50D-MW-53-P | 5.19 *(132)* | 6 *(152)* | 48 *(1,219)* | 2.07 | *(1.14)* |
| 5 | HW | 50B-HW-53-P | 50D-HW-53-P | 5.22 *(133)* | 6 *(152)* | 48 *(1,219)* | 2.42 | *(1.27)* |
| 6 | SW | 60B-SW-53-P | 60D-SW-53-P | 6.14 *(156)* | 6 *(152)* | 48 *(1,219)* | 2.31 | *(1.05)* |
| 6 | MW | 60B-MW-53-P | 60D-MW-53-P | 6.19 *(157)* | 6 *(152)* | 48 *(1,219)* | 3.34 | *(1.52)* |
| 6 | HW | 60B-HW-53-P | 60D-HW-53-P | 6.22 *(158)* | 6 *(152)* | 48 *(1,219)* | 4.36 | *(1.98)* |



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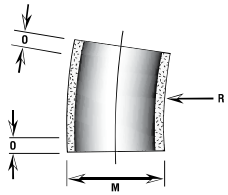
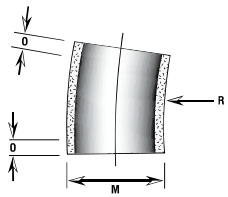



## 11¼° X 48"

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-53-P | 20D-XW-53-P | 2.50 *(64)* | 6 *(152)* | 48 *(1,219)* | 2.29 | *(1.04)* |
| 2½ | XW | 25B-XW-53-P | 25D-XW-53-P | 3.00 *(76)* | 6 *(152)* | 48 *(1,219)* | 2.83 | *(1.29)* |
| 3 | XW | 30B-XW-53-P | 30D-XW-53-P | 3.50 *(89)* | 6 *(152)* | 48 *(1,219)* | 3.34 | *(1.51)* |
| 3½ | XW | 35B-XW-53-P | 35D-XW-53-P | 4.00 *(102)* | 6 *(152)* | 48 *(1,219)* | 3.86 | *(1.75)* |
| 4 | XW | 40B-XW-53-P | 40D-XW-53-P | 4.50 *(114)* | 6 *(152)* | 48 *(1,219)* | 4.38 | *(1.99)* |
| 5 | XW | 50B-XW-53-P | 50D-XW-53-P | 5.50 *(140)* | 6 *(152)* | 48 *(1,219)* | 5.41 | *(2.46)* |
| 6 | XW | 60B-XW-53-P | 60D-XW-53-P | 6.50 *(165)* | 6 *(152)* | 48 *(1,219)* | 6.44 | *(2.92)* |




## 11¼° X 60"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-54-P | 07C-SW-54-P | 1.05 *(27)* | 6 *(152)* | 60 *(1,524)* | 0.34 | *(0.15)* |
| 1 | SW | 10A-SW-54-P | 10C-SW-54-P | 1.32 *(33)* | 6 *(152)* | 60 *(1,524)* | 0.38 | *(0.17)* |
| 1¼ | SW | 12A-SW-54-P | 12C-SW-54-P | 1.66 *(42)* | 6 *(152)* | 60 *(1,524)* | 0.46 | *(0.21)* |
| 1½ | SW | 15A-SW-54-P | 15C-SW-54-P | 1.90 *(48)* | 6 *(152)* | 60 *(1,524)* | 0.66 | *(0.30)* |
| 2 | SW | 20A-SW-54-P | 20C-SW-54-P | 2.37 *(60)* | 6 *(152)* | 60 *(1,524)* | 0.76 | *(0.35)* |
| 2½ | SW | 25A-SW-54-P | 25C-SW-54-P | 2.88 *(73)* | 6 *(152)* | 60 *(1,524)* | 0.92 | *(0.42)* |
| 3 | SW | 30A-SW-54-P | 30C-SW-54-P | 3.50 *(89)* | 6 *(152)* | 60 *(1,524)* | 1.20 | *(0.55)* |
| 4 | SW | 40A-SW-54-P | 40C-SW-54-P | 4.46 *(113)* | 6 *(152)* | 60 *(1,524)* | 1.44 | *(0.65)* |
| 4 | HW | 40A-HW-54-P | 40C-HW-54-P | 4.51 *(115)* | 6 *(152)* | 60 *(1,524)* | 1.94 | *(0.88)* |
| 5 | SW | 50A-SW-54-P | 50C-SW-54-P | 5.52 *(140)* | 6 *(152)* | 60 *(1,524)* | 1.80 | *(0.82)* |
| 5 | MW | 50A-MW-54-P | 50C-MW-54-P | 5.57 *(141)* | 6 *(152)* | 60 *(1,524)* | 2.40 | *(1.09)* |
| 5 | HW | 50A-HW-54-P | 50C-HW-54-P | 5.60 *(142)* | 6 *(152)* | 60 *(1,524)* | 2.60 | *(1.18)* |
| 6 | SW | 60A-SW-54-P | 60C-SW-54-P | 6.58 *(167)* | 6 *(152)* | 60 *(1,524)* | 2.00 | *(0.91)* |
| 6 | MW | 60A-MW-54-P | 60C-MW-54-P | 6.63 *(168)* | 6 *(152)* | 60 *(1,524)* | 2.84 | *(1.29)* |
| 6 | HW | 60A-HW-54-P | 60C-HW-54-P | 6.66 *(169)* | 6 *(152)* | 60 *(1,524)* | 3.26 | *(1.48)* |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-54-P | 20D-SW-54-P | 2.14 *(54)* | 6 *(152)* | 60 *(1,524)* | 0.68 | *(0.31)* |
| 2½ | SW | 25B-SW-54-P | 25D-SW-54-P | 2.64 *(67)* | 6 *(152)* | 60 *(1,524)* | 0.84 | *(0.38)* |
| 3 | SW | 30B-SW-54-P | 30D-SW-54-P | 3.14 *(80)* | 6 *(152)* | 60 *(1,524)* | 0.96 | *(0.44)* |
| 3½ | SW | 35B-SW-54-P | 35D-SW-54-P | 3.64 *(92)* | 6 *(152)* | 60 *(1,524)* | 1.20 | *(0.55)* |
| 4 | SW | 40B-SW-54-P | 40D-SW-54-P | 4.14 *(105)* | 6 *(152)* | 60 *(1,524)* | 1.38 | *(0.63)* |
| 4 | HW | 40B-HW-54-P | 40D-HW-54-P | 4.19 *(106)* | 6 *(152)* | 60 *(1,524)* | 1.84 | *(0.83)* |
| 4½ | SW | 45B-SW-54-P | 45D-SW-54-P | 4.64 *(117)* | 6 *(152)* | 60 *(1,524)* | 1.50 | *(0.68)* |
| 4½ | HW | 45B-HW-54-P | 45D-HW-54-P | 4.69 *(118)* | 6 *(152)* | 60 *(1,524)* | 2.08 | *(0.94)* |
| 5 | SW | 50B-SW-54-P | 50D-SW-54-P | 5.14 *(131)* | 6 *(152)* | 60 *(1,524)* | 1.70 | *(0.77)* |
| 5 | MW | 50B-MW-54-P | 50D-MW-54-P | 5.19 *(132)* | 6 *(152)* | 60 *(1,524)* | 2.26 | *(1.03)* |
| 5 | HW | 50B-HW-54-P | 50D-HW-54-P | 5.22 *(132)* | 6 *(152)* | 60 *(1,524)* | 2.64 | *(1.20)* |
| 6 | SW | 60B-SW-54-P | 60D-SW-54-P | 6.14 *(156)* | 6 *(152)* | 60 *(1,524)* | 2.04 | *(0.93)* |
| 6 | MW | 60B-MW-54-P | 60D-MW-54-P | 6.19 *(157)* | 6 *(152)* | 60 *(1,524)* | 2.70 | *(1.23)* |
| 6 | HW | 60B-HW-54-P | 60D-HW-54-P | 6.22 *(158)* | 6 *(152)* | 60 *(1,524)* | 3.16 | *(1.44)* |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-54-P | 20D-XW-54-P | 2.50 *(65)* | 6 *(152)* | 60 *(1,524)* | 2.52 | *(1.44)* |
| 2½ | XW | 25B-XW-54-P | 25D-XW-54-P | 3.00 *(76)* | 6 *(152)* | 60 *(1,524)* | 3.08 | *(1.40)* |
| 3 | XW | 30B-XW-54-P | 30D-XW-54-P | 3.50 *(89)* | 6 *(152)* | 60 *(1,524)* | 3.64 | *(1.65)* |
| 3½ | XW | 35B-XW-54-P | 35D-XW-54-P | 4.00 *(102)* | 6 *(152)* | 60 *(1,524)* | 4.20 | *(1.91)* |
| 4 | XW | 40B-XW-54-P | 40D-XW-54-P | 4.50 *(114)* | 6 *(152)* | 60 *(1,524)* | 4.76 | *(2.16)* |
| 5 | XW | 50B-XW-54-P | 50D-XW-54-P | 5.50 *(140)* | 6 *(152)* | 60 *(1,524)* | 5.88 | *(2.67)* |
| 6 | XW | 60B-XW-54-P | 60D-XW-54-P | 6.50 *(165)* | 6 *(152)* | 60 *(1,524)* | 7.00 | *(3.18)* |



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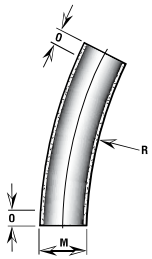
CD-0112

Proposal No. 608616-131225

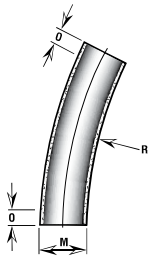



## 22½° X 12"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R-Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-60-P | 07C-SW-60-P | 1.05 *(27)* | 6 *(152)* | 12 *(305)* | 0.24 | *(0.11)* |
| 1 | SW | 10A-SW-60-P | 10C-SW-60-P | 1.32 *(33)* | 6 *(152)* | 12 *(305)* | 0.27 | *(0.12)* |
| 1¼ | SW | 12A-SW-60-P | 12C-SW-60-P | 1.66 *(42)* | 6 *(152)* | 12 *(305)* | 0.33 | *(0.15)* |
| 1½ | SW | 15A-SW-60-P | 15C-SW-60-P | 1.90 *(48)* | 6 *(152)* | 12 *(305)* | 0.47 | *(0.21)* |
| 2 | SW | 20A-SW-60-P | 20C-SW-60-P | 2.37 *(60)* | 6 *(152)* | 12 *(305)* | 0.54 | *(0.25)* |
| 2½ | SW | 25A-SW-60-P | 25C-SW-60-P | 2.88 *(73)* | 6 *(152)* | 12 *(305)* | 0.65 | *(0.30)* |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-60-P | 20D-SW-60-P | 2.14 *(54)* | 6 *(152)* | 12 *(305)* | 0.48 | *(0.22)* |
| 2½ | SW | 25B-SW-60-P | 25D-SW-60-P | 2.64 *(67)* | 6 *(152)* | 12 *(305)* | 0.60 | *(0.27)* |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-60-P | 20D-XW-60-P | 2.50 *(63)* | 6 *(152)* | 12 *(305)* | 1.79 | *(0.81)* |
| 2½ | XW | 25B-XW-60-P | 25D-XW-60-P | 3.00 *(76)* | 6 *(152)* | 12 *(305)* | 2.19 | *(0.99)* |
| 3 | XW | 30B-XW-60-P | 30D-XW-60-P | 3.50 *(89)* | 6 *(152)* | 12 *(305)* | 2.58 | *(1.17)* |
| 3½ | XW | 35B-XW-60-P | 35D-XW-60-P | 4.00 *(102)* | 6 *(152)* | 12 *(305)* | 2.98 | *(1.35)* |

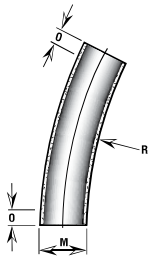



## 22½° X 24"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R-Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-61-P | 07C-SW-61-P | 1.05 *(27)* | 6 *(152)* | 24 *(610)* | 0.30 | *(0.14)* |
| 1 | SW | 10A-SW-61-P | 10C-SW-61-P | 1.32 *(33)* | 6 *(152)* | 24 *(610)* | 0.33 | *(0.15)* |
| 1¼ | SW | 12A-SW-61-P | 12C-SW-61-P | 1.66 *(42)* | 6 *(152)* | 24 *(610)* | 0.40 | *(0.18)* |
| 1½ | SW | 15A-SW-61-P | 15C-SW-61-P | 1.90 *(48)* | 6 *(152)* | 24 *(610)* | 0.58 | *(0.26)* |
| 2 | SW | 20A-SW-61-P | 20C-SW-61-P | 2.37 *(60)* | 6 *(152)* | 24 *(610)* | 0.67 | *(0.30)* |
| 2½ | SW | 25A-SW-61-P | 25C-SW-61-P | 2.88 *(73)* | 6 *(152)* | 24 *(610)* | 0.81 | *(0.37)* |
| 3 | SW | 30A-SW-61-P | 30C-SW-61-P | 3.50 *(89)* | 6 *(152)* | 24 *(610)* | 1.06 | *(0.48)* |
| 4 | SW | 40A-SW-61-P | 40C-SW-61-P | 4.46 *(113)* | 6 *(152)* | 24 *(610)* | 1.27 | *(0.58)* |
| 4 | HW | 40A-HW-61-P | 40C-HW-61-P | 4.51 *(114)* | 6 *(152)* | 24 *(610)* | 1.71 | *(0.78)* |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-61-P | 20D-SW-61-P | 2.14 *(54)* | 6 *(152)* | 24 *(610)* | 0.60 | *(0.27)* |
| 2½ | SW | 25B-SW-61-P | 25D-SW-61-P | 2.64 *(67)* | 6 *(152)* | 24 *(610)* | 0.74 | *(0.34)* |
| 3 | SW | 30B-SW-61-P | 30D-SW-61-P | 3.14 *(80)* | 6 *(152)* | 24 *(610)* | 0.85 | *(0.38)* |
| 3½ | SW | 35B-SW-61-P | 35D-SW-61-P | 3.64 *(92)* | 6 *(152)* | 24 *(610)* | 1.06 | *(0.48)* |
| 4 | SW | 40B-SW-61-P | 40D-SW-61-P | 4.14 *(105)* | 6 *(152)* | 24 *(610)* | 1.22 | *(0.55)* |
| 4 | HW | 40B-HW-61-P | 40D-HW-61-P | 4.19 *(106)* | 6 *(152)* | 24 *(610)* | 1.62 | *(0.74)* |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-61-P | 20D-XW-61-P | 2.50 *(65)* | 6 *(152)* | 24 *(610)* | 2.21 | *(1.00)* |
| 2½ | XW | 25B-XW-61-P | 25D-XW-61-P | 3.00 *(76)* | 6 *(152)* | 24 *(610)* | 2.70 | *(1.23)* |
| 3 | XW | 30B-XW-61-P | 30D-XW-61-P | 3.50 *(89)* | 6 *(152)* | 24 *(610)* | 3.32 | *(1.51)* |
| 3½ | XW | 35B-XW-61-P | 35D-XW-61-P | 4.00 *(102)* | 6 *(152)* | 24 *(610)* | 3.83 | *(1.74)* |
| 4 | XW | 40B-XW-61-P | 40D-XW-61-P | 4.50 *(114)* | 6 *(152)* | 24 *(610)* | 4.34 | *(1.97)* |




## 22½° X 36"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-62-P | 07C-SW-62-P | 1.05 *(27)* | 6 *(152)* | 36 *(914)* | 0.35 | *(0.16)* |
| 1 | SW | 10A-SW-62-P | 10C-SW-62-P | 1.32 *(33)* | 6 *(152)* | 36 *(914)* | 0.40 | *(0.18)* |
| 1¼ | SW | 12A-SW-62-P | 12C-SW-62-P | 1.66 *(42)* | 6 *(152)* | 36 *(914)* | 0.48 | *(0.22)* |
| 1½ | SW | 15A-SW-62-P | 15C-SW-62-P | 1.90 *(48)* | 6 *(152)* | 36 *(914)* | 0.69 | *(0.31)* |
| 2 | SW | 20A-SW-62-P | 20C-SW-62-P | 2.37 *(60)* | 6 *(152)* | 36 *(914)* | 0.79 | *(0.36)* |
| 2½ | SW | 25A-SW-62-P | 25C-SW-62-P | 2.88 *(73)* | 6 *(152)* | 36 *(914)* | 0.96 | *(0.44)* |
| 3 | SW | 30A-SW-62-P | 30C-SW-62-P | 3.50 *(89)* | 6 *(152)* | 36 *(914)* | 1.25 | *(0.57)* |
| 4 | SW | 40A-SW-62-P | 40C-SW-62-P | 4.46 *(113)* | 6 *(152)* | 36 *(914)* | 1.50 | *(0.68)* |
| 4 | HW | 40A-HW-62-P | 40C-HW-62-P | 4.51 *(114)* | 6 *(152)* | 36 *(914)* | 2.02 | *(0.91)* |
| 5 | SW | 50A-SW-62-P | 50C-SW-62-P | 5.52 *(140)* | 6 *(152)* | 36 *(914)* | 1.88 | *(0.85)* |
| 5 | MW | 50A-MW-62-P | 50C-MW-62-P | 5.57 *(141)* | 6 *(152)* | 36 *(914)* | 2.50 | *(1.14)* |
| 5 | HW | 50A-HW-62-P | 50C-HW-62-P | 5.60 *(152)* | 6 *(152)* | 36 *(914)* | 2.75 | *(1.25)* |
| 6 | SW | 60A-SW-62-P | 60C-SW-62-P | 6.58 *(167)* | 6 *(152)* | 36 *(914)* | 2.08 | *(0.94)* |
| 6 | MW | 60A-MW-62-P | 60C-MW-62-P | 6.63 *(168)* | 6 *(152)* | 36 *(914)* | 2.96 | *(1.34)* |
| 6 | HW | 60A-HW-62-P | 60C-HW-62-P | 6.66 *(169)* | 6 *(152)* | 36 *(914)* | 3.40 | *(1.54)* |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-62-P | 20D-SW-62-P | 2.14 *(54)* | 6 *(152)* | 36 *(914)* | 0.71 | *(0.32)* |
| 2½ | SW | 25B-SW-62-P | 25D-SW-62-P | 2.64 *(67)* | 6 *(152)* | 36 *(914)* | 0.88 | *(0.40)* |
| 3 | SW | 30B-SW-62-P | 30D-SW-62-P | 3.14 *(80)* | 6 *(152)* | 36 *(914)* | 1.00 | *(0.45)* |
| 3½ | SW | 35B-SW-62-P | 35D-SW-62-P | 3.64 *(92)* | 6 *(152)* | 36 *(914)* | 1.25 | *(0.57)* |
| 4 | SW | 40B-SW-62-P | 40D-SW-62-P | 4.14 *(105)* | 6 *(152)* | 36 *(914)* | 1.44 | *(0.65)* |
| 4 | HW | 40B-HW-62-P | 40D-HW-62-P | 4.19 *(106)* | 6 *(152)* | 36 *(914)* | 1.92 | *(0.87)* |
| 4½ | SW | 45B-SW-62-P | 45D-SW-62-P | 4.64 *(117)* | 6 *(152)* | 36 *(914)* | 1.56 | *(0.71)* |
| 4½ | HW | 45B-HW-62-P | 45D-HW-62-P | 4.69 *(118)* | 6 *(152)* | 36 *(914)* | 2.17 | *(0.99)* |
| 5 | SW | 50B-SW-62-P | 50D-SW-62-P | 5.14 *(131)* | 6 *(152)* | 36 *(914)* | 1.77 | *(0.80)* |
| 5 | MW | 50B-MW-62-P | 50D-MW-62-P | 5.19 *(132)* | 6 *(152)* | 36 *(914)* | 2.36 | *(1.07)* |
| 5 | HW | 50B-HW-62-P | 50D-HW-62-P | 5.22 *(132)* | 6 *(152)* | 36 *(914)* | 2.71 | *(1.23)* |
| 6 | SW | 60B-SW-62-P | 60D-SW-62-P | 6.14 *(156)* | 6 *(152)* | 36 *(914)* | 2.13 | *(0.97)* |
| 6 | MW | 60B-MW-62-P | 60D-MW-62-P | 6.19 *(157)* | 6 *(152)* | 36 *(914)* | 2.82 | *(1.28)* |
| 6 | HW | 60B-HW-62-P | 60D-HW-62-P | 6.22 *(158)* | 6 *(152)* | 36 *(914)* | 3.30 | *(1.50)* |



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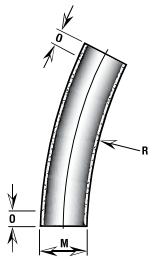
CD-1012

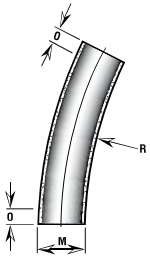


A00894 - 20




## 22½° X 36"

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-62-P | 20D-XW-62-P | 2.50 *(65)* | 6 *(152)* | 36 *(914)* | 2.63 | *(1.19)* |
| 2½ | XW | 25B-XW-62-P | 25D-XW-62-P | 3.00 *(76)* | 6 *(152)* | 36 *(914)* | 3.21 | *(1.46)* |
| 3 | XW | 30B-XW-62-P | 30D-XW-62-P | 3.50 *(89)* | 6 *(152)* | 36 *(914)* | 3.79 | *(1.72)* |
| 3½ | XW | 35B-XW-62-P | 35D-XW-62-P | 4.00 *(102)* | 6 *(152)* | 36 *(914)* | 4.38 | *(1.99)* |
| 4 | XW | 40B-XW-62-P | 40D-XW-62-P | 4.50 *(114)* | 6 *(152)* | 36 *(914)* | 4.96 | *(2.25)* |
| 5 | XW | 50B-XW-62-P | 50D-XW-62-P | 5.50 *(140)* | 6 *(152)* | 36 *(914)* | 6.13 | *(2.78)* |
| 6 | XW | 60B-XW-62-P | 60D-XW-62-P | 6.50 *(165)* | 6 *(152)* | 36 *(914)* | 7.29 | *(3.31)* |




## 22½° X 48"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-63-P | 07C-SW-63-P | 1.05 *(27)* | 6 *(152)* | 48 *(1,219)* | 0.43 | *(0.20)* |
| 1 | SW | 10A-SW-63-P | 10C-SW-63-P | 1.32 *(33)* | 6 *(152)* | 48 *(1,219)* | 0.48 | *(0.22)* |
| 1¼ | SW | 12A-SW-63-P | 12C-SW-63-P | 1.66 *(42)* | 6 *(152)* | 48 *(1,219)* | 0.58 | *(0.26)* |
| 1½ | SW | 15A-SW-63-P | 15C-SW-63-P | 1.90 *(48)* | 6 *(152)* | 48 *(1,219)* | 0.83 | *(0.38)* |
| 2 | SW | 20A-SW-63-P | 20C-SW-63-P | 2.37 *(60)* | 6 *(152)* | 48 *(1,219)* | 0.95 | *(0.43)* |
| 2½ | SW | 25A-SW-63-P | 25C-SW-63-P | 2.88 *(73)* | 6 *(152)* | 48 *(1,219)* | 1.15 | *(0.52)* |
| 3 | SW | 30A-SW-63-P | 30C-SW-63-P | 3.50 *(89)* | 6 *(152)* | 48 *(1,219)* | 1.50 | *(0.68)* |
| 4 | SW | 40A-SW-63-P | 40C-SW-63-P | 4.46 *(113)* | 6 *(152)* | 48 *(1,219)* | 1.80 | *(0.82)* |
| 4 | HW | 40A-HW-63-P | 40C-HW-63-P | 4.51 *(114)* | 6 *(152)* | 48 *(1,219)* | 2.43 | *(1.10)* |
| 5 | SW | 50A-SW-63-P | 50C-SW-63-P | 5.52 *(140)* | 6 *(152)* | 48 *(1,219)* | 2.25 | *(1.02)* |
| 5 | MW | 50A-MW-63-P | 50C-MW-63-P | 5.57 *(141)* | 6 *(152)* | 48 *(1,219)* | 3.00 | *(1.36)* |
| 5 | HW | 50A-HW-63-P | 50C-HW-63-P | 5.60 *(142)* | 6 *(152)* | 48 *(1,219)* | 3.25 | *(1.48)* |
| 6 | SW | 60A-SW-63-P | 60C-SW-63-P | 6.58 *(167)* | 6 *(152)* | 48 *(1,219)* | 2.00 | *(0.91)* |
| 6 | MW | 60A-MW-63-P | 60C-MW-63-P | 6.63 *(168)* | 6 *(152)* | 48 *(1,219)* | 2.84 | *(1.29)* |
| 6 | HW | 60A-HW-63-P | 60C-HW-63-P | 6.66 *(170)* | 6 *(152)* | 48 *(1,219)* | 3.26 | *(1.48)* |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-63-P | 20D-SW-63-P | 2.14 *(54)* | 6 *(152)* | 48 *(1,219)* | 0.85 | *(0.50)* |
| 2½ | SW | 25B-SW-63-P | 25D-SW-63-P | 2.64 *(67)* | 6 *(152)* | 48 *(1,219)* | 1.05 | *(0.64)* |
| 3 | SW | 30B-SW-63-P | 30D-SW-63-P | 3.14 *(80)* | 6 *(152)* | 48 *(1,219)* | 1.20 | *(0.77)* |
| 3½ | SW | 35B-SW-63-P | 35D-SW-63-P | 3.64 *(92)* | 6 *(152)* | 48 *(1,219)* | 1.50 | *(0.77)* |
| 4 | SW | 40B-SW-63-P | 40D-SW-63-P | 4.14 *(105)* | 6 *(152)* | 48 *(1,219)* | 1.73 | *(0.95)* |
| 4 | HW | 40B-HW-63-P | 40D-HW-63-P | 4.19 *(106)* | 6 *(152)* | 48 *(1,219)* | 2.30 | *(1.23)* |
| 4½ | SW | 45B-SW-63-P | 45D-SW-63-P | 4.64 *(117)* | 6 *(152)* | 48 *(1,219)* | 1.88 | *(1.73)* |
| 4½ | HW | 45B-HW-63-P | 45D-HW-63-P | 4.69 *(118)* | 6 *(152)* | 48 *(1,219)* | 2.60 | *(2.00)* |
| 5 | SW | 50B-SW-63-P | 50D-SW-63-P | 5.14 *(131)* | 6 *(152)* | 48 *(1,219)* | 2.13 | *(1.23)* |
| 5 | MW | 50B-MW-63-P | 50D-MW-63-P | 5.19 *(132)* | 6 *(152)* | 48 *(1,219)* | 2.83 | *(1.59)* |
| 5 | HW | 50B-HW-63-P | 50D-HW-63-P | 5.22 *(133)* | 6 *(152)* | 48 *(1,219)* | 3.30 | *(1.86)* |
| 6 | SW | 60B-SW-63-P | 60D-SW-63-P | 6.14 *(156)* | 6 *(152)* | 48 *(1,219)* | 2.00 | *(0.91)* |
| 6 | MW | 60B-MW-63-P | 60D-MW-63-P | 6.19 *(157)* | 6 *(152)* | 48 *(1,219)* | 2.84 | *(1.29)* |
| 6 | HW | 60B-HW-63-P | 60D-HW-63-P | 6.22 *(158)* | 6 *(152)* | 48 *(1,219)* | 3.26 | *(1.48)* |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-63-P | 20D-XW-63-P | 2.50 *(65)* | 6 *(152)* | 48 *(1,219)* | 3.15 | *(1.43)* |
| 2½ | XW | 25B-XW-63-P | 25D-XW-63-P | 3.00 *(76)* | 6 *(152)* | 48 *(1,219)* | 3.85 | *(1.75)* |
| 3 | XW | 30B-XW-63-P | 30D-XW-63-P | 3.50 *(89)* | 6 *(152)* | 48 *(1,219)* | 4.55 | *(2.07)* |
| 3½ | XW | 35B-XW-63-P | 35D-XW-63-P | 4.00 *(102)* | 6 *(152)* | 48 *(1,219)* | 5.25 | *(2.38)* |
| 4 | XW | 40B-XW-63-P | 40D-XW-63-P | 4.50 *(114)* | 6 *(152)* | 48 *(1,219)* | 5.95 | *(2.70)* |
| 5 | XW | 50B-XW-63-P | 50D-XW-63-P | 5.50 *(140)* | 6 *(152)* | 48 *(1,219)* | 7.35 | *(3.34)* |
| 6 | XW | 60B-XW-63-P | 60D-XW-63-P | 6.50 *(165)* | 6 *(152)* | 48 *(1,219)* | 8.75 | *(3.97)* |

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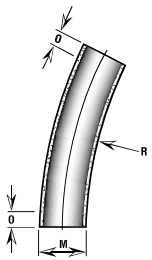
CD-1012

Proposal No. 608616-131225

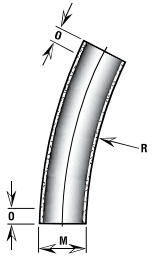



## 22½° X 60"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-64-P | 07C-SW-64-P | 1.05 *(27)* | 6 *(152)* | 60 *(1,524)* | 0.50 | *(0.23)* |
| 1 | SW | 10A-SW-64-P | 10C-SW-64-P | 1.32 *(33)* | 6 *(152)* | 60 *(1,524)* | 0.55 | *(0.25)* |
| 1¼ | SW | 12A-SW-64-P | 12C-SW-64-P | 1.66 *(42)* | 6 *(152)* | 60 *(1,524)* | 0.67 | *(0.30)* |
| 1½ | SW | 15A-SW-64-P | 15C-SW-64-P | 1.90 *(48)* | 6 *(152)* | 60 *(1,524)* | 0.96 | *(0.44)* |
| 2 | SW | 20A-SW-64-P | 20C-SW-64-P | 2.37 *(60)* | 6 *(152)* | 60 *(1,524)* | 1.11 | *(0.50)* |
| 2½ | SW | 25A-SW-64-P | 25C-SW-64-P | 2.88 *(73)* | 6 *(152)* | 60 *(1,524)* | 1.34 | *(0.61)* |
| 3 | SW | 30A-SW-64-P | 30C-SW-64-P | 3.50 *(89)* | 6 *(152)* | 60 *(1,524)* | 1.75 | *(0.80)* |
| 4 | SW | 40A-SW-64-P | 40C-SW-64-P | 4.46 *(113)* | 6 *(152)* | 60 *(1,524)* | 2.10 | *(0.95)* |
| 4 | HW | 40A-HW-64-P | 40C-HW-64-P | 4.51 *(115)* | 6 *(152)* | 60 *(1,524)* | 2.83 | *(1.29)* |
| 5 | SW | 50A-SW-64-P | 50C-SW-64-P | 5.52 *(140)* | 6 *(152)* | 60 *(1,524)* | 2.63 | *(1.19)* |
| 5 | MW | 50A-MW-64-P | 50C-MW-64-P | 5.57 *(141)* | 6 *(152)* | 60 *(1,524)* | 3.50 | *(1.59)* |
| 5 | HW | 50A-HW-64-P | 50C-HW-64-P | 5.60 *(142)* | 6 *(152)* | 60 *(1,524)* | 3.79 | *(1.72)* |
| 6 | SW | 60A-SW-64-P | 60C-SW-64-P | 6.58 *(167)* | 6 *(152)* | 60 *(1,524)* | 2.92 | *(1.33)* |
| 6 | MW | 60A-MW-64-P | 60C-MW-64-P | 6.63 *(168)* | 6 *(152)* | 60 *(1,524)* | 4.14 | *(1.88)* |
| 6 | HW | 60A-HW-64-P | 60C-HW-64-P | 6.66 *(170)* | 6 *(152)* | 60 *(1,524)* | 4.75 | *(2.16)* |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-64-P | 20D-SW-64-P | 2.14 *(54)* | 6 *(152)* | 60 *(1,524)* | 0.99 | *(0.45)* |
| 2½ | SW | 25B-SW-64-P | 25D-SW-64-P | 2.64 *(67)* | 6 *(152)* | 60 *(1,524)* | 1.23 | *(0.56)* |
| 3 | SW | 30B-SW-64-P | 30D-SW-64-P | 3.14 *(80)* | 6 *(152)* | 60 *(1,524)* | 1.40 | *(0.64)* |
| 3½ | SW | 35B-SW-64-P | 35D-SW-64-P | 3.64 *(92)* | 6 *(152)* | 60 *(1,524)* | 1.75 | *(0.80)* |
| 4 | SW | 40B-SW-64-P | 40D-SW-64-P | 4.14 *(105)* | 6 *(152)* | 60 *(1,524)* | 2.01 | *(0.91)* |
| 4 | HW | 40B-HW-64-P | 40D-HW-64-P | 4.19 *(106)* | 6 *(152)* | 60 *(1,524)* | 2.68 | *(1.22)* |
| 4½ | SW | 45B-SW-64-P | 45D-SW-64-P | 4.64 *(117)* | 6 *(152)* | 60 *(1,524)* | 2.19 | *(0.99)* |
| 4½ | HW | 45B-HW-64-P | 45D-HW-64-P | 4.69 *(118)* | 6 *(152)* | 60 *(1,524)* | 3.03 | *(1.38)* |
| 5 | SW | 50B-SW-64-P | 50D-SW-64-P | 5.14 *(131)* | 6 *(152)* | 60 *(1,524)* | 2.48 | *(1.13)* |
| 5 | MW | 50B-MW-64-P | 50D-MW-64-P | 5.19 *(132)* | 6 *(152)* | 60 *(1,524)* | 3.30 | *(1.50)* |
| 5 | HW | 50B-HW-64-P | 50D-HW-64-P | 5.22 *(132)* | 6 *(152)* | 60 *(1,524)* | 3.85 | *(1.75)* |
| 6 | SW | 60B-SW-64-P | 60D-SW-64-P | 6.14 *(156)* | 6 *(152)* | 60 *(1,524)* | 2.98 | *(1.35)* |
| 6 | MW | 60B-MW-64-P | 60D-MW-64-P | 6.19 *(157)* | 6 *(152)* | 60 *(1,524)* | 3.94 | *(1.79)* |
| 6 | HW | 60B-HW-64-P | 60D-HW-64-P | 6.22 *(158)* | 6 *(152)* | 60 *(1,524)* | 4.61 | *(2.09)* |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-64-P | 20D-XW-64-P | 2.50 *(65)* | 6 *(152)* | 60 *(1,524)* | 3.68 | *(1.67)* |
| 2½ | XW | 25B-XW-64-P | 25D-XW-64-P | 3.00 *(76)* | 6 *(152)* | 60 *(1,524)* | 4.50 | *(2.04)* |
| 3 | XW | 30B-XW-64-P | 30D-XW-64-P | 3.50 *(89)* | 6 *(152)* | 60 *(1,524)* | 5.31 | *(2.41)* |
| 3½ | XW | 35B-XW-64-P | 35D-XW-64-P | 4.00 *(102)* | 6 *(152)* | 60 *(1,524)* | 6.13 | *(2.78)* |
| 4½ | XW | 40B-XW-64-P | 40D-XW-64-P | 4.50 *(114)* | 6 *(152)* | 60 *(1,524)* | 6.94 | *(3.15)* |
| 5 | XW | 50B-XW-64-P | 50D-XW-64-P | 5.50 *(140)* | 6 *(152)* | 60 *(1,524)* | 8.58 | *(3.90)* |
| 6 | XW | 60B-XW-64-P | 60D-XW-64-P | 6.50 *(165)* | 6 *(152)* | 60 *(1,524)* | 10.21 | *(4.64)* |




## 30° X 12"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R-Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-70-P | 07C-SW-70-P | 1.05 *(27)* | 6 *(152)* | 12 *(305)* | 0.27 | *(0.12)* |
| 1 | SW | 10A-SW-70-P | 10C-SW-70-P | 1.32 *(33)* | 6 *(152)* | 12 *(305)* | 0.30 | *(0.14)* |
| 1¼ | SW | 12A-SW-70-P | 12C-SW-70-P | 1.66 *(42)* | 6 *(152)* | 12 *(305)* | 0.36 | *(0.16)* |
| 1½ | SW | 15A-SW-70-P | 15C-SW-70-P | 1.90 *(48)* | 6 *(152)* | 12 *(305)* | 0.52 | *(0.24)* |
| 2 | SW | 20A-SW-70-P | 20C-SW-70-P | 2.37 *(60)* | 6 *(152)* | 12 *(305)* | 0.60 | *(0.27)* |
| 2½ | SW | 25A-SW-70-P | 25C-SW-70-P | 2.88 *(73)* | 6 *(152)* | 12 *(305)* | 0.73 | *(0.33)* |

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R-Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-70-P | 20D-SW-70-P | 2.14 *(54)* | 6 *(152)* | 12 *(305)* | 0.54 | *(0.25)* |
| 2½ | SW | 25B-SW-70-P | 25D-SW-70-P | 2.64 *(67)* | 6 *(152)* | 12 *(305)* | 0.67 | *(0.30)* |

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R-Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-70-P | 20D-XW-70-P | 2.50 *(63)* | 6 *(152)* | 12 *(305)* | 2.00 | *(0.91)* |
| 2½ | XW | 25B-XW-70-P | 25D-XW-70-P | 3.00 *(76)* | 6 *(152)* | 12 *(305)* | 2.44 | *(1.11)* |
| 3 | XW | 30B-XW-70-P | 30D-XW-70-P | 3.50 *(89)* | 6 *(152)* | 12 *(305)* | 2.89 | *(1.31)* |
| 3½ | XW | 35B-XW-70-P | 35D-XW-70-P | 4.00 *(102)* | 6 *(152)* | 12 *(305)* | 3.33 | *(1.51)* |



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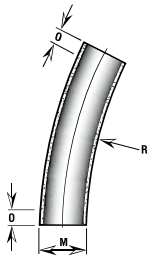
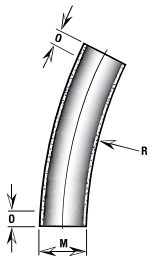



## 30° X 24"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-71-P | 07C-SW-71-P | 1.05 *(27)* | 6 *(152)* | 24 *(610)* | 0.34 | *(0.15)* |
| 1 | SW | 10A-SW-71-P | 10C-SW-71-P | 1.32 *(33)* | 6 *(152)* | 24 *(610)* | 0.38 | *(0.17)* |
| 1¼ | SW | 12A-SW-71-P | 12C-SW-71-P | 1.66 *(42)* | 6 *(152)* | 24 *(610)* | 0.46 | *(0.21)* |
| 1½ | SW | 15A-SW-71-P | 15C-SW-71-P | 1.90 *(48)* | 6 *(152)* | 24 *(610)* | 0.66 | *(0.30)* |
| 2 | SW | 20A-SW-71-P | 20C-SW-71-P | 2.37 *(60)* | 6 *(152)* | 24 *(610)* | 0.76 | *(0.35)* |
| 2½ | SW | 25A-SW-71-P | 25C-SW-71-P | 2.88 *(73)* | 6 *(152)* | 24 *(610)* | 0.92 | *(0.42)* |
| 3 | SW | 30A-SW-71-P | 30C-SW-71-P | 3.50 *(89)* | 6 *(152)* | 24 *(610)* | 1.20 | *(0.54)* |
| 4 | SW | 40A-SW-71-P | 40C-SW-71-P | 4.46 *(113)* | 6 *(152)* | 24 *(610)* | 1.44 | *(0.65)* |
| 4 | HW | 40A-HW-71-P | 40C-HW-71-P | 4.51 *(114)* | 6 *(152)* | 24 *(610)* | 1.94 | *(0.88)* |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-71-P | 20D-SW-71-P | 2.14 *(54)* | 6 *(152)* | 24 *(610)* | 0.68 | *(0.31)* |
| 2½ | SW | 25B-SW-71-P | 25D-SW-71-P | 2.64 *(67)* | 6 *(152)* | 24 *(610)* | 0.84 | *(0.38)* |
| 3 | SW | 30B-SW-71-P | 30D-SW-71-P | 3.14 *(80)* | 6 *(152)* | 24 *(610)* | 0.96 | *(0.44)* |
| 3½ | SW | 35B-SW-71-P | 35D-SW-71-P | 3.64 *(92)* | 6 *(152)* | 24 *(610)* | 1.20 | *(0.54)* |
| 4 | SW | 40B-SW-71-P | 40D-SW-71-P | 4.14 *(105)* | 6 *(152)* | 24 *(610)* | 1.38 | *(0.63)* |
| 4 | HW | 40B-HW-71-P | 40D-HW-71-P | 4.19 *(106)* | 6 *(152)* | 24 *(610)* | 1.84 | *(0.84)* |

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-71-P | 20D-XW-71-P | 2.50 *(65)* | 6 *(152)* | 24 *(610)* | 2.52 | *(1.14)* |
| 2½ | XW | 25B-XW-71-P | 25D-XW-71-P | 3.00 *(76)* | 6 *(152)* | 24 *(610)* | 3.08 | *(1.40)* |
| 3 | XW | 30B-XW-71-P | 30D-XW-71-P | 3.50 *(89)* | 6 *(152)* | 24 *(610)* | 3.72 | *(1.69)* |
| 3½ | XW | 35B-XW-71-P | 35D-XW-71-P | 4.00 *(102)* | 6 *(152)* | 24 *(610)* | 4.30 | *(1.95)* |
| 4 | XW | 40B-XW-71-P | 40D-XW-71-P | 4.50 *(114)* | 6 *(152)* | 24 *(610)* | 4.87 | *(2.21)* |




## 30° X 36"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-72-P | 07C-SW-72-P | 1.05 *(27)* | 6 *(152)* | 36 *(914)* | 0.43 | *(0.15)* |
| 1 | SW | 10A-SW-72-P | 10C-SW-72-P | 1.32 *(33)* | 6 *(152)* | 36 *(914)* | 0.48 | *(0.17)* |
| 1¼ | SW | 12A-SW-72-P | 12C-SW-72-P | 1.66 *(42)* | 6 *(152)* | 36 *(914)* | 0.58 | *(0.21)* |
| 1½ | SW | 15A-SW-72-P | 15C-SW-72-P | 1.90 *(48)* | 6 *(152)* | 36 *(914)* | 0.83 | *(0.30)* |
| 2 | SW | 20A-SW-72-P | 20C-SW-72-P | 2.37 *(60)* | 6 *(152)* | 36 *(914)* | 0.95 | *(0.50)* |
| 2½ | SW | 25A-SW-72-P | 25C-SW-72-P | 2.88 *(73)* | 6 *(152)* | 36 *(914)* | 1.15 | *(0.42)* |
| 3 | SW | 30A-SW-72-P | 30C-SW-72-P | 3.50 *(89)* | 6 *(152)* | 36 *(914)* | 1.50 | *(0.77)* |
| 4 | SW | 40A-SW-72-P | 40C-SW-72-P | 4.46 *(113)* | 6 *(152)* | 36 *(914)* | 1.80 | *(0.77)* |
| 4 | HW | 40A-HW-72-P | 40C-HW-72-P | 4.51 *(115)* | 6 *(152)* | 36 *(914)* | 2.43 | *(0.95)* |
| 5 | SW | 50A-SW-72-P | 50C-SW-72-P | 5.52 *(140)* | 6 *(152)* | 36 *(914)* | 2.25 | *(1.02)* |
| 5 | MW | 50A-MW-72-P | 50C-MW-72-P | 5.57 *(141)* | 6 *(152)* | 36 *(914)* | 3.00 | *(1.36)* |
| 5 | HW | 50A-HW-72-P | 50C-HW-72-P | 5.60 *(152)* | 6 *(152)* | 36 *(914)* | 3.31 | *(1.50)* |
| 6 | SW | 60A-SW-72-P | 60C-SW-72-P | 6.58 *(167)* | 6 *(152)* | 36 *(914)* | 2.50 | *(1.14)* |
| 6 | MW | 60A-MW-72-P | 60C-MW-72-P | 6.63 *(168)* | 6 *(152)* | 36 *(914)* | 3.56 | *(1.62)* |
| 6 | HW | 60A-HW-72-P | 60C-HW-72-P | 6.66 *(169)* | 6 *(152)* | 36 *(914)* | 4.08 | *(1.85)* |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-72-P | 20D-SW-72-P | 2.14 *(54)* | 6 *(152)* | 36 *(914)* | 0.85 | *(0.39)* |
| 2½ | SW | 25B-SW-72-P | 25D-SW-72-P | 2.64 *(67)* | 6 *(152)* | 36 *(914)* | 1.05 | *(0.48)* |
| 3 | SW | 30B-SW-72-P | 30D-SW-72-P | 3.14 *(80)* | 6 *(152)* | 36 *(914)* | 1.20 | *(0.55)* |
| 3½ | SW | 35B-SW-72-P | 35D-SW-72-P | 3.64 *(92)* | 6 *(152)* | 36 *(914)* | 1.50 | *(0.68)* |
| 4 | SW | 40B-SW-72-P | 40D-SW-72-P | 4.14 *(105)* | 6 *(152)* | 36 *(914)* | 1.73 | *(0.79)* |
| 4 | HW | 40B-HW-72-P | 40D-HW-72-P | 4.19 *(106)* | 6 *(152)* | 36 *(914)* | 2.30 | *(1.04)* |
| 4½ | SW | 45B-SW-72-P | 45D-SW-72-P | 4.64 *(117)* | 6 *(152)* | 36 *(914)* | 1.88 | *(0.85)* |
| 4½ | HW | 45B-HW-72-P | 45D-HW-72-P | 4.69 *(118)* | 6 *(152)* | 36 *(914)* | 2.60 | *(1.18)* |
| 5 | SW | 50B-SW-72-P | 50D-SW-72-P | 5.14 *(131)* | 6 *(152)* | 36 *(914)* | 2.13 | *(0.97)* |
| 5 | MW | 50B-MW-72-P | 50D-MW-72-P | 5.19 *(132)* | 6 *(152)* | 36 *(914)* | 2.83 | *(1.28)* |
| 5 | HW | 50B-HW-72-P | 50D-HW-72-P | 5.22 *(132)* | 6 *(152)* | 36 *(914)* | 3.25 | *(1.48)* |
| 6 | SW | 60B-SW-72-P | 60D-SW-72-P | 6.14 *(156)* | 6 *(152)* | 36 *(914)* | 2.56 | *(1.16)* |
| 6 | MW | 60B-MW-72-P | 60D-MW-72-P | 6.19 *(157)* | 6 *(152)* | 36 *(914)* | 3.38 | *(1.54)* |
| 6 | HW | 60B-HW-72-P | 60D-HW-72-P | 6.22 *(158)* | 6 *(152)* | 36 *(914)* | 3.96 | *(1.80)* |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-72-P | 20D-XW-72-P | 2.50 *(65)* | 6 *(152)* | 36 *(914)* | 3.15 | *(1.43)* |
| 2½ | XW | 25B-XW-72-P | 25D-XW-72-P | 3.00 *(76)* | 6 *(152)* | 36 *(914)* | 3.85 | *(1.75)* |
| 3 | XW | 30B-XW-72-P | 30D-XW-72-P | 3.50 *(89)* | 6 *(152)* | 36 *(914)* | 4.55 | *(2.07)* |
| 3½ | XW | 35B-XW-72-P | 35D-XW-72-P | 4.00 *(102)* | 6 *(152)* | 36 *(914)* | 5.25 | *(2.38)* |
| 4 | XW | 40B-XW-72-P | 40D-XW-72-P | 4.50 *(114)* | 6 *(152)* | 36 *(914)* | 5.95 | *(2.70)* |
| 5 | XW | 50B-XW-72-P | 50D-XW-72-P | 5.50 *(140)* | 6 *(152)* | 36 *(914)* | 7.35 | *(3.34)* |
| 6 | XW | 60B-XW-72-P | 60D-XW-72-P | 6.50 *(165)* | 6 *(152)* | 36 *(914)* | 8.75 | *(3.97)* |

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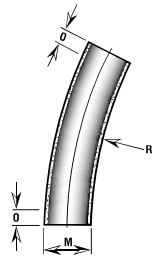
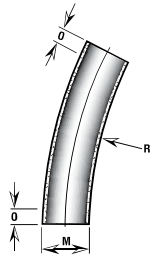



## 30° X 48"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R-Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-73-P | 07C-SW-73-P | 1.05 (27) | 6 (152) | 48 (1,219) | 0.52 | (0.24) |
| 1 | SW | 10A-SW-73-P | 10C-SW-73-P | 1.32 (33) | 6 (152) | 48 (1,219) | 0.59 | (0.27) |
| 1¼ | SW | 12A-SW-73-P | 12C-SW-73-P | 1.66 (42) | 6 (152) | 48 (1,219) | 0.71 | (0.32) |
| 1½ | SW | 15A-SW-73-P | 15C-SW-73-P | 1.90 (48) | 6 (152) | 48 (1,219) | 1.02 | (0.46) |
| 2 | SW | 20A-SW-73-P | 20C-SW-73-P | 2.37 (60) | 6 (152) | 48 (1,219) | 1.17 | (0.53) |
| 2½ | SW | 25A-SW-73-P | 25C-SW-73-P | 2.88 (73) | 6 (152) | 48 (1,219) | 1.42 | (0.65) |
| 3 | SW | 30A-SW-73-P | 30C-SW-73-P | 3.50 (89) | 6 (152) | 48 (1,219) | 1.85 | (0.84) |
| 4 | SW | 40A-SW-73-P | 40C-SW-73-P | 4.46 (113) | 6 (152) | 48 (1,219) | 2.22 | (1.01) |
| 4 | HW | 40A-HW-73-P | 40C-HW-73-P | 4.51 (114) | 6 (152) | 48 (1,219) | 2.99 | (1.36) |
| 5 | SW | 50A-SW-73-P | 50C-SW-73-P | 5.52 (140) | 6 (152) | 48 (1,219) | 2.78 | (1.26) |
| 5 | MW | 50A-MW-73-P | 50C-MW-73-P | 5.57 (141) | 6 (152) | 48 (1,219) | 3.70 | (1.68) |
| 5 | HW | 50A-HW-73-P | 50C-HW-73-P | 5.60 (142) | 6 (152) | 48 (1,219) | 4.01 | (1.82) |
| 6 | SW | 60A-SW-73-P | 60C-SW-73-P | 6.58 (167) | 6 (152) | 48 (1,219) | 3.09 | (1.40) |
| 6 | MW | 60A-MW-73-P | 60C-MW-73-P | 6.63 (168) | 6 (152) | 48 (1,219) | 4.38 | (1.99) |
| 6 | HW | 60A-HW-73-P | 60C-HW-73-P | 6.66 (169) | 6 (152) | 48 (1,219) | 5.03 | (2.28) |

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R-Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-73-P | 20D-SW-73-P | 2.14 (54) | 6 (152) | 48 (1,219) | 1.05 | (0.48) |
| 2½ | SW | 25B-SW-73-P | 25D-SW-73-P | 2.64 (67) | 6 (152) | 48 (1,219) | 1.30 | (0.59) |
| 3 | SW | 30B-SW-73-P | 30D-SW-73-P | 3.14 (80) | 6 (152) | 48 (1,219) | 1.48 | (0.67) |
| 3½ | SW | 35B-SW-73-P | 35D-SW-73-P | 3.64 (92) | 6 (152) | 48 (1,219) | 1.85 | (0.84) |
| 4 | SW | 40B-SW-73-P | 40D-SW-73-P | 4.14 (105) | 6 (152) | 48 (1,219) | 2.13 | (0.97) |
| 4 | HW | 40B-HW-73-P | 40D-HW-73-P | 4.19 (106) | 6 (152) | 48 (1,219) | 2.84 | (1.29) |
| 4½ | SW | 45B-SW-73-P | 45D-SW-73-P | 4.64 (117) | 6 (152) | 48 (1,219) | 2.31 | (1.05) |
| 4½ | HW | 45B-HW-73-P | 45D-HW-73-P | 4.69 (118) | 6 (152) | 48 (1,219) | 3.21 | (1.46) |
| 5 | SW | 50B-SW-73-P | 50D-SW-73-P | 5.14 (131) | 6 (152) | 48 (1,219) | 2.62 | (1.19) |
| 5 | MW | 50B-MW-73-P | 50D-MW-73-P | 5.19 (132) | 6 (152) | 48 (1,219) | 3.48 | (1.58) |
| 5 | HW | 50B-HW-73-P | 50D-HW-73-P | 5.22 (133) | 6 (152) | 48 (1,219) | 4.07 | (1.85) |
| 6 | SW | 60B-SW-73-P | 60D-SW-73-P | 6.14 (156) | 6 (152) | 48 (1,219) | 3.14 | (1.42) |
| 6 | MW | 60B-MW-73-P | 60D-MW-73-P | 6.19 (157) | 6 (152) | 48 (1,219) | 4.16 | (1.89) |
| 6 | HW | 60B-MW-73-P | 60D-MW-73-P | 6.22 (158) | 6 (152) | 48 (1,219) | 4.87 | (2.21) |

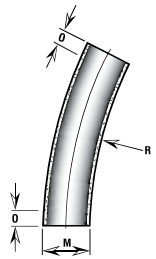
| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R-Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-73-P | 20D-XW-73-P | 2.50 (65) | 6 (152) | 48 (1,219) | 3.89 | (1.77) |
| 2½ | XW | 25B-XW-73-P | 25D-XW-73-P | 3.00 (76) | 6 (152) | 48 (1,219) | 4.75 | (2.16) |
| 3 | XW | 30B-XW-73-P | 30D-XW-73-P | 3.50 (89) | 6 (152) | 48 (1,219) | 5.61 | (2.55) |
| 3½ | XW | 35B-XW-73-P | 35D-XW-73-P | 4.00 (102) | 6 (152) | 48 (1,219) | 6.47 | (2.94) |
| 4½ | XW | 40B-XW-73-P | 40D-XW-73-P | 4.50 (114) | 6 (152) | 48 (1,219) | 7.34 | (3.33) |
| 5 | XW | 50B-XW-73-P | 50D-XW-73-P | 5.50 (140) | 6 (152) | 48 (1,219) | 9.07 | (4.12) |
| 6 | XW | 60B-XW-73-P | 60D-XW-73-P | 6.50 (165) | 6 (152) | 48 (1,219) | 10.79 | (4.90) |

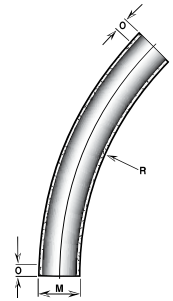


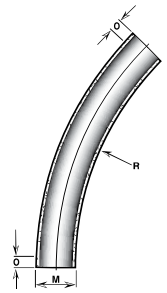

## 30° X 60"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-74-P | 07C-SW-74-P | 1.05 (27) | 6 (152) | 60 (1,524) | 0.61 | (0.28) |
| 1 | SW | 10A-SW-74-P | 10C-SW-74-P | 1.32 (33) | 6 (152) | 60 (1,524) | 0.68 | (0.31) |
| 1¼ | SW | 12A-SW-74-P | 12C-SW-74-P | 1.66 (42) | 6 (152) | 60 (1,524) | 0.82 | (0.37) |
| 1½ | SW | 15A-SW-74-P | 15C-SW-74-P | 1.90 (48) | 6 (152) | 60 (1,524) | 1.18 | (0.54) |
| 2 | SW | 20A-SW-74-P | 20C-SW-74-P | 2.37 (60) | 6 (152) | 60 (1,524) | 1.36 | (0.62) |
| 2½ | SW | 25A-SW-74-P | 25C-SW-74-P | 2.88 (73) | 6 (152) | 60 (1,524) | 1.65 | (0.75) |
| 3 | SW | 30A-SW-74-P | 30C-SW-74-P | 3.50 (89) | 6 (152) | 60 (1,524) | 2.15 | (0.98) |
| 4 | SW | 40A-SW-74-P | 40C-SW-74-P | 4.46 (113) | 6 (152) | 60 (1,524) | 2.58 | (1.17) |
| 4 | HW | 40A-HW-74-P | 40C-HW-74-P | 4.51 (115) | 6 (152) | 60 (1,524) | 3.48 | (1.58) |
| 5 | SW | 50A-SW-74-P | 50C-SW-74-P | 5.52 (140) | 6 (152) | 60 (1,524) | 3.23 | (1.47) |
| 5 | MW | 50A-MW-74-P | 50C-MW-74-P | 5.57 (141) | 6 (152) | 60 (1,524) | 4.30 | (1.95) |
| 5 | HW | 50A-HW-74-P | 50C-HW-74-P | 5.60 (142) | 6 (152) | 60 (1,524) | 4.66 | (2.12) |
| 6 | SW | 60A-SW-74-P | 60C-SW-74-P | 6.58 (167) | 6 (152) | 60 (1,524) | 3.58 | (1.63) |
| 6 | MW | 60A-MW-74-P | 60C-MW-74-P | 6.63 (168) | 6 (152) | 60 (1,524) | 5.09 | (2.31) |
| 6 | HW | 60A-HW-74-P | 60C-HW-74-P | 6.66 (169) | 6 (152) | 60 (1,524) | 5.84 | (2.65) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-74-P | 20D-SW-74-P | 2.14 (54) | 6 (152) | 60 (1,524) | 1.22 | (0.55) |
| 2½ | SW | 25B-SW-74-P | 25D-SW-74-P | 2.64 (67) | 6 (152) | 60 (1,524) | 1.51 | (0.69) |
| 3 | SW | 30B-SW-74-P | 30D-SW-74-P | 3.14 (80) | 6 (152) | 60 (1,524) | 1.72 | (0.78) |
| 3½ | SW | 35B-SW-74-P | 35D-SW-74-P | 3.64 (92) | 6 (152) | 60 (1,524) | 2.15 | (0.98) |
| 4 | SW | 40B-SW-74-P | 40D-SW-74-P | 4.14 (105) | 6 (152) | 60 (1,524) | 2.47 | (1.12) |
| 4 | HW | 40B-HW-74-P | 40D-HW-74-P | 4.19 (106) | 6 (152) | 60 (1,524) | 3.30 | (1.50) |
| 4½ | SW | 45B-SW-74-P | 45D-SW-74-P | 4.64 (117) | 6 (152) | 60 (1,524) | 2.69 | (1.22) |
| 4½ | HW | 45B-HW-74-P | 45D-HW-74-P | 4.69 (118) | 6 (152) | 60 (1,524) | 3.73 | (1.69) |
| 5 | SW | 50B-SW-74-P | 50D-SW-74-P | 5.14 (131) | 6 (152) | 60 (1,524) | 3.05 | (1.39) |
| 5 | MW | 50B-MW-74-P | 50D-MW-74-P | 5.19 (132) | 6 (152) | 60 (1,524) | 4.05 | (1.84) |
| 5 | HW | 50B-HW-74-P | 50D-HW-74-P | 5.22 (132) | 6 (152) | 60 (1,524) | 4.73 | (2.15) |
| 6 | SW | 60B-SW-74-P | 60D-SW-74-P | 6.14 (156) | 6 (152) | 60 (1,524) | 3.66 | (1.66) |
| 6 | MW | 60B-MW-74-P | 60D-MW-74-P | 6.19 (157) | 6 (152) | 60 (1,524) | 4.84 | (2.20) |
| 6 | HW | 60B-HW-74-P | 60D-HW-74-P | 6.22 (158) | 6 (152) | 60 (1,524) | 5.66 | (2.57) |




| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-74-P | 20D-XW-74-P | 2.50 (65) | 6 (152) | 60 (1,524) | 4.52 | (2.05) |
| 2½ | XW | 25B-XW-74-P | 25D-XW-74-P | 3.00 (76) | 6 (152) | 60 (1,524) | 5.52 | (2.51) |
| 3 | XW | 30B-XW-74-P | 30D-XW-74-P | 3.50 (89) | 6 (152) | 60 (1,524) | 6.52 | (2.96) |
| 3½ | XW | 35B-XW-74-P | 35D-XW-74-P | 4.00 (102) | 6 (152) | 60 (1,524) | 7.53 | (3.42) |
| 4 | XW | 40B-XW-74-P | 40D-XW-74-P | 4.50 (114) | 6 (152) | 60 (1,524) | 8.53 | (3.87) |
| 5 | XW | 50B-XW-74-P | 50D-XW-74-P | 5.50 (140) | 6 (152) | 60 (1,524) | 10.54 | (4.79) |
| 6 | XW | 60B-XW-74-P | 60D-XW-74-P | 6.50 (165) | 6 (152) | 60 (1,524) | 12.55 | (5.70) |

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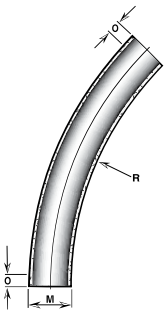
Proposal No. 608616-131225

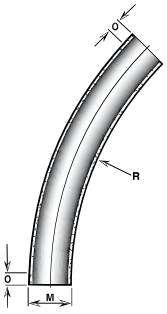



## 45° X 36"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-82-P | 07C-SW-82-P | 1.05 (27) | 6 (152) | 36 (914) | 0.57 | (0.26) |
| 1 | SW | 10A-SW-82-P | 10C-SW-82-P | 1.32 (33) | 6 (152) | 36 (914) | 0.63 | (0.29) |
| 1¼ | SW | 12A-SW-82-P | 12C-SW-82-P | 1.66 (42) | 6 (152) | 36 (914) | 0.77 | (0.35) |
| 1½ | SW | 15A-SW-82-P | 15C-SW-82-P | 1.90 (48) | 6 (152) | 36 (914) | 1.10 | (0.50) |
| 2 | SW | 20A-SW-82-P | 20C-SW-82-P | 2.37 (60) | 6 (152) | 36 (914) | 1.27 | (0.58) |
| 2½ | SW | 25A-SW-82-P | 25C-SW-82-P | 2.88 (73) | 6 (152) | 36 (914) | 1.53 | (0.7 |
| 3 | SW | 30A-SW-82-P | 30C-SW-82-P | 3.50 (89) | 6 (152) | 36 (914) | 2.00 | (0.91) |
| 4 | SW | 40A-SW-82-P | 40C-SW-82-P | 4.46 (113) | 6 (152) | 36 (914) | 2.40 | (1.09) |
| 4 | HW | 40A-HW-82-P | 40C-HW-82-P | 4.50 (114) | 6 (152) | 36 (914) | 3.23 | (1.47) |
| 5 | SW | 50A-SW-82-P | 50C-SW-82-P | 5.52 (140) | 6 (152) | 36 (914) | 3.00 | (1.36) |
| 5 | MW | 50A-MW-82-P | 50C-MW-82-P | 5.57 (141) | 6 (152) | 36 (914) | 4.00 | (1.81) |
| 5 | HW | 50A-HW-82-P | 50C-HW-82-P | 5.60 (152) | 6 (152) | 36 (914) | 4.39 | (2.00) |
| 6 | SW | 60A-SW-82-P | 60C-SW-82-P | 6.58 (167) | 6 (152) | 36 (914) | 3.33 | (1.51) |
| 6 | MW | 60A-MW-82-P | 60C-MW-82-P | 6.63 (168) | 6 (152) | 36 (914) | 4.73 | (2.15) |
| 6 | HW | 60A-HW-82-P | 60C-HW-82-P | 6.66 (169) | 6 (152) | 36 (914) | 5.43 | (2.46) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-82-P | 20D-SW-82-P | 2.14 (54) | 6 (152) | 36 (914) | 1.13 | (0.51) |
| 2½ | SW | 25B-SW-82-P | 25D-SW-82-P | 2.64 (67) | 6 (152) | 36 (914) | 1.40 | (0.64) |
| 3 | SW | 30B-SW-82-P | 30D-SW-82-P | 3.14 (80) | 6 (152) | 36 (914) | 1.60 | (0.73) |
| 3½ | SW | 35B-SW-82-P | 35D-SW-82-P | 3.64 (92) | 6 (152) | 36 (914) | 2.00 | (0.91) |
| 4 | SW | 40B-SW-82-P | 40D-SW-82-P | 4.14 (105) | 6 (152) | 36 (914) | 2.30 | (1.04) |
| 4 | HW | 40B-HW-82-P | 40D-HW-82-P | 4.19 (106) | 6 (152) | 36 (914) | 3.07 | (1.39) |
| 4½ | SW | 45B-SW-82-P | 45D-SW-82-P | 4.64 (117) | 6 (152) | 36 (914) | 3.65 | (1.66) |
| 4½ | HW | 45B-HW-82-P | 45D-HW-82-P | 4.69 (118) | 6 (152) | 36 (914) | 4.00 | (1.82) |
| 5 | SW | 50B-SW-82-P | 50D-SW-82-P | 5.14 (131) | 6 (152) | 36 (914) | 2.83 | (1.28) |
| 5 | MW | 50B-MW-82-P | 50D-MW-82-P | 5.19 (132) | 6 (152) | 36 (914) | 3.76 | (1.71) |
| 5 | HW | 50B-HW-82-P | 50D-HW-82-P | 5.22 (132) | 6 (152) | 36 (914) | 4.33 | (1.96) |
| 6 | SW | 60B-SW-82-P | 60D-SW-82-P | 6.14 (156) | 6 (152) | 36 (914) | 3.40 | (1.54) |
| 6 | MW | 60B-MW-82-P | 60D-MW-82-P | 6.19 (157) | 6 (152) | 36 (914) | 4.50 | (2.04) |
| 6 | HW | 60B-HW-82-P | 60D-HW-82-P | 6.22 (158) | 6 (152) | 36 (914) | 5.26 | (2.39) |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-82-P | 20D-XW-82-P | 2.50 (65) | 6 (152) | 36 (914) | 4.20 | (1.91) |
| 2½ | XW | 25B-XW-82-P | 25D-XW-82-P | 3.00 (76) | 6 (152) | 36 (914) | 5.13 | (2.33) |
| 3 | XW | 30B-XW-82-P | 30D-XW-82-P | 3.50 (89) | 6 (152) | 36 (914) | 6.07 | (2.76) |
| 3½ | XW | 35B-XW-82-P | 35D-XW-82-P | 4.00 (102) | 6 (152) | 36 (914) | 6.99 | (3.18) |
| 4 | XW | 40B-XW-82-P | 40D-XW-82-P | 4.59 (114) | 6 (152) | 36 (914) | 7.93 | (3.60) |
| 5 | XW | 50B-XW-82-P | 50D-XW-82-P | 5.50 (140) | 6 (152) | 36 (914) | 9.79 | (4.44) |
| 6 | XW | 60B-XW-82-P | 60D-XW-82-P | 6.50 (165) | 6 (152) | 36 (914) | 11.65 | (5.29) |




## 45° X 48"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-83-P | 07C-SW-83-P | 1.05 (27) | 6 (152) | 48 (1,219) | 0.69 | (0.31) |
| 1 | SW | 10A-SW-83-P | 10C-SW-83-P | 1.32 (33) | 6 (152) | 48 (1,219) | 0.78 | (0.35) |
| 1¼ | SW | 12A-SW-83-P | 12C-SW-83-P | 1.66 (42) | 6 (152) | 48 (1,219) | 0.94 | (0.43) |
| 1½ | SW | 15A-SW-83-P | 15C-SW-83-P | 1.90 (48) | 6 (152) | 48 (1,219) | 1.35 | (0.61) |
| 2 | SW | 20A-SW-83-P | 20C-SW-83-P | 2.37 (60) | 6 (152) | 48 (1,219) | 1.55 | (0.70) |
| 2½ | SW | 25A-SW-83-P | 25C-SW-83-P | 2.88 (73) | 6 (152) | 48 (1,219) | 1.88 | (0.85) |
| 3 | SW | 30A-SW-83-P | 30C-SW-83-P | 3.50 (89) | 6 (152) | 48 (1,219) | 2.45 | (1.11) |
| 4 | SW | 40A-SW-83-P | 40C-SW-83-P | 4.46 (113) | 6 (152) | 48 (1,219) | 2.94 | (1.34) |
| 4 | HW | 40A-HW-83-P | 40C-HW-83-P | 4.51 (114) | 6 (152) | 48 (1,219) | 3.96 | (1.80) |
| 5 | SW | 50A-SW-83-P | 50C-SW-83-P | 5.52 (140) | 6 (152) | 48 (1,219) | 3.68 | (1.67) |
| 5 | MW | 50A-MW-83-P | 50C-MW-83-P | 5.57 (141) | 6 (152) | 48 (1,219) | 4.90 | (2.23) |
| 5 | HW | 50A-HW-83-P | 50C-HW-83-P | 5.60 (142) | 6 (152) | 48 (1,219) | 5.31 | (2.41) |
| 6 | SW | 60A-SW-83-P | 60C-SW-83-P | 6.58 (167) | 6 (152) | 48 (1,219) | 4.09 | (1.86) |
| 6 | MW | 60A-MW-83-P | 60C-MW-83-P | 6.63 (168) | 6 (152) | 48 (1,219) | 5.80 | (2.63) |
| 6 | HW | 60A-HW-83-P | 60C-HW-83-P | 6.66 (169) | 6 (152) | 48 (1,219) | 6.66 | (3.02) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-83-P | 20D-SW-83-P | 2.14 (54) | 6 (152) | 48 (1,219) | 1.39 | (0.63) |
| 2½ | SW | 25B-SW-83-P | 25D-SW-83-P | 2.64 (67) | 6 (152) | 48 (1,219) | 1.72 | (0.78) |
| 3 | SW | 30B-SW-83-P | 30D-SW-83-P | 3.14 (80) | 6 (152) | 48 (1,219) | 1.96 | (0.89) |
| 3½ | SW | 35B-SW-83-P | 35D-SW-83-P | 3.64 (92) | 6 (152) | 48 (1,219) | 2.45 | (1.11) |
| 4 | SW | 40B-SW-83-P | 40D-SW-83-P | 4.14 (105) | 6 (152) | 48 (1,219) | 2.82 | (1.28) |
| 4 | HW | 40B-HW-83-P | 40D-HW-83-P | 4.19 (106) | 6 (152) | 48 (1,219) | 3.76 | (1.71) |
| 4½ | SW | 45B-SW-83-P | 45D-SW-83-P | 4.64 (117) | 6 (152) | 48 (1,219) | 3.06 | (1.39) |
| 4½ | HW | 45B-HW-83-P | 45D-HW-83-P | 4.69 (118) | 6 (152) | 48 (1,219) | 4.25 | (1.93) |
| 5 | SW | 50B-SW-83-P | 50D-SW-83-P | 5.14 (131) | 6 (152) | 48 (1,219) | 3.47 | (1.58) |
| 5 | MW | 50B-MW-83-P | 50D-MW-83-P | 5.19 (132) | 6 (152) | 48 (1,219) | 4.61 | (2.09) |
| 5 | HW | 50B-HW-83-P | 50D-HW-83-P | 5.22 (133) | 6 (152) | 48 (1,219) | 5.39 | (2.45) |
| 6 | SW | 60B-SW-83-P | 60D-SW-83-P | 6.14 (156) | 6 (152) | 48 (1,219) | 4.16 | (1.89) |
| 6 | MW | 60B-MW-83-P | 60D-MW-83-P | 6.19 (157) | 6 (152) | 48 (1,219) | 5.51 | (2.50) |
| 6 | HW | 60B-HW-83-P | 60D-HW-83-P | 6.22 (158) | 6 (152) | 48 (1,219) | 6.45 | (2.93) |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-83-P | 20D-XW-83-P | 2.50 (65) | 6 (152) | 48 (1,219) | 5.15 | (2.34) |
| 2½ | XW | 25B-XW-83-P | 25D-XW-83-P | 3.00 (76) | 6 (152) | 48 (1,219) | 6.29 | (2.85) |
| 3 | XW | 30B-XW-83-P | 30D-XW-83-P | 3.50 (89) | 6 (152) | 48 (1,219) | 7.43 | (3.37) |
| 3½ | XW | 35B-XW-83-P | 35D-XW-83-P | 4.00 (102) | 6 (152) | 48 (1,219) | 8.57 | (3.89) |
| 4 | XW | 40B-XW-83-P | 40D-XW-83-P | 4.50 (114) | 6 (152) | 48 (1,219) | 9.72 | (4.41) |
| 5 | XW | 50B-XW-83-P | 50D-XW-83-P | 5.50 (140) | 6 (152) | 48 (1,219) | 12.01 | (5.45) |
| 6 | XW | 60B-XW-83-P | 60D-XW-83-P | 6.50 (165) | 6 (152) | 48 (1,219) | 14.29 | (6.49) |



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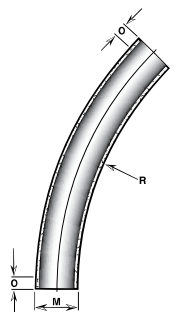
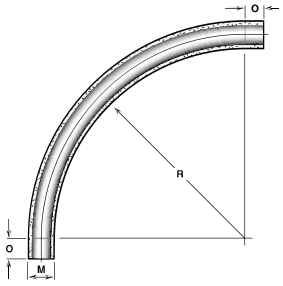



## 45° X 60"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-84-P | 07C-SW-84-P | 1.05 (27) | 6 (152) | 60 (1,524) | 0.85 | (0.39) |
| 1 | SW | 10A-SW-84-P | 10C-SW-84-P | 1.32 (33) | 6 (152) | 60 (1,524) | 0.95 | (0.43) |
| 1¼ | SW | 12A-SW-84-P | 12C-SW-84-P | 1.66 (42) | 6 (152) | 60 (1,524) | 1.15 | (0.52) |
| 1½ | SW | 15A-SW-84-P | 15C-SW-84-P | 1.90 (48) | 6 (152) | 60 (1,524) | 1.65 | (0.75) |
| 2 | SW | 20A-SW-84-P | 20C-SW-84-P | 2.37 (60) | 6 (152) | 60 (1,524) | 1.90 | (0.86) |
| 2½ | SW | 25A-SW-84-P | 25C-SW-84-P | 2.88 (73) | 6 (152) | 60 (1,524) | 2.30 | (1.04) |
| 3 | SW | 30A-SW-84-P | 30C-SW-84-P | 3.50 (89) | 6 (152) | 60 (1,524) | 3.00 | (1.36) |
| 4 | SW | 40A-SW-84-P | 40C-SW-84-P | 4.46 (113) | 6 (152) | 60 (1,524) | 3.60 | (1.63) |
| 4 | HW | 40A-HW-84-P | 40C-HW-84-P | 4.51 (115) | 6 (152) | 60 (1,524) | 4.85 | (2.20) |
| 5 | SW | 50A-SW-84-P | 50C-SW-84-P | 5.52 (140) | 6 (152) | 60 (1,524) | 4.50 | (2.04) |
| 5 | MW | 50A-MW-84-P | 50C-MW-84-P | 5.57 (141) | 6 (152) | 60 (1,524) | 6.00 | (2.72) |
| 5 | HW | 50A-HW-84-P | 50C-HW-84-P | 5.60 (142) | 6 (152) | 60 (1,524) | 6.50 | (2.95) |
| 6 | SW | 60A-SW-84-P | 60C-SW-84-P | 6.58 (167) | 6 (152) | 60 (1,524) | 5.00 | (2.27) |
| 6 | MW | 60A-MW-84-P | 60C-MW-84-P | 6.63 (168) | 6 (152) | 60 (1,524) | 7.10 | (3.22) |
| 6 | HW | 60A-HW-84-P | 60C-HW-84-P | 6.66 (169) | 6 (152) | 60 (1,524) | 8.15 | (3.70) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-84-P | 20D-SW-84-P | 2.14 (54) | 6 (152) | 60 (1,524) | 1.70 | (0.77) |
| 2½ | SW | 25B-SW-84-P | 25D-SW-84-P | 2.64 (67) | 6 (152) | 60 (1,524) | 2.10 | (0.95) |
| 3 | SW | 30B-SW-84-P | 30D-SW-84-P | 3.14 (80) | 6 (152) | 60 (1,524) | 2.40 | (1.09) |
| 3½ | SW | 35B-SW-84-P | 35D-SW-84-P | 3.64 (92) | 6 (152) | 60 (1,524) | 3.00 | (1.36) |
| 4 | SW | 40B-SW-84-P | 40D-SW-84-P | 4.14 (105) | 6 (152) | 60 (1,524) | 3.45 | (1.57) |
| 4 | HW | 40B-HW-84-P | 40D-HW-84-P | 4.19 (106) | 6 (152) | 60 (1,524) | 4.60 | (2.09) |
| 4½ | SW | 45B-SW-84-P | 45D-SW-84-P | 4.64 (117) | 6 (152) | 60 (1,524) | 3.75 | (1.70) |
| 4½ | HW | 45B-HW-84-P | 45D-HW-84-P | 4.69 (118) | 6 (152) | 60 (1,524) | 5.20 | (2.36) |
| 5 | SW | 50B-SW-84-P | 50D-SW-84-P | 5.14 (131) | 6 (152) | 60 (1,524) | 4.25 | (1.93) |
| 5 | MW | 50B-MW-84-P | 50D-MW-84-P | 5.19 (132) | 6 (152) | 60 (1,524) | 5.65 | (2.57) |
| 5 | HW | 50B-HW-84-P | 50D-HW-84-P | 5.22 (132) | 6 (152) | 60 (1,524) | 6.60 | (3.00) |
| 6 | SW | 60B-SW-84-P | 60D-SW-84-P | 6.14 (156) | 6 (152) | 60 (1,524) | 5.10 | (2.32) |
| 6 | MW | 60B-MW-84-P | 60D-MW-84-P | 6.19 (157) | 6 (152) | 60 (1,524) | 6.75 | (3.07) |
| 6 | HW | 60B-HW-84-P | 60D-HW-84-P | 6.22 (158) | 6 (152) | 60 (1,524) | 7.90 | (3.59) |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-84-P | 20D-XW-84-P | 2.50 (65) | 6 (152) | 60 (1,524) | 6.30 | (2.86) |
| 2½ | XW | 25B-XW-84-P | 25D-XW-84-P | 3.00 (76) | 6 (152) | 60 (1,524) | 7.70 | (3.50) |
| 3 | XW | 30B-XW-84-P | 30D-XW-84-P | 3.50 (89) | 6 (152) | 60 (1,524) | 9.10 | (4.13) |
| 3½ | XW | 35B-XW-84-P | 35D-XW-84-P | 4.00 (102) | 6 (152) | 60 (1,524) | 10.50 | (4.77) |
| 4 | XW | 40B-XW-84-P | 40D-XW-84-P | 4.50 (114) | 6 (152) | 60 (1,524) | 11.90 | (5.40) |
| 5 | XW | 50B-XW-84-P | 50D-XW-84-P | 5.50 (140) | 6 (152) | 60 (1,524) | 14.70 | (6.67) |
| 6 | XW | 60B-XW-84-P | 60D-XW-84-P | 6.50 (165) | 6 (152) | 60 (1,524) | 17.50 | (7.94) |




## 90° X 12"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R-Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-90-P | 07C-SW-90-P | 1.05 (27) | 6 (152) | 12 (305) | 0.43 | (0.20) |
| 1 | SW | 10A-SW-90-P | 10C-SW-90-P | 1.32 (33) | 6 (152) | 12 (305) | 0.48 | (0.22) |
| 1¼ | SW | 12A-SW-90-P | 12C-SW-90-P | 1.66 (42) | 6 (152) | 12 (305) | 0.58 | (0.26) |
| 1½ | SW | 15A-SW-90-P | 15C-SW-90-P | 1.90 (48) | 6 (152) | 12 (305) | 0.83 | (0.38) |
| 2 | SW | 20A-SW-90-P | 20C-SW-90-P | 2.37 (60) | 6 (152) | 12 (305) | 0.95 | (0.43) |
| 2½ | SW | 25A-SW-90-P | 25C-SW-90-P | 2.88 (73) | 6 (152) | 12 (305) | 1.15 | (0.52) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-90-P | 20D-SW-90-P | 2.14 (54) | 6 (152) | 12 (305) | 0.85 | (0.39) |
| 2½ | SW | 25B-SW-90-P | 25D-SW-90-P | 2.64 (67) | 6 (152) | 12 (305) | 1.05 | (0.48) |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-90-P | 20D-XW-90-P | 2.50 (63) | 6 (152) | 12 (305) | 3.15 | (1.43) |
| 2½ | XW | 25B-XW-90-P | 25D-XW-90-P | 3.00 (76) | 6 (152) | 12 (305) | 3.85 | (1.75) |
| 3 | XW | 30B-XW-90-P | 30D-XW-90-P | 3.50 (89) | 6 (152) | 12 (305) | 4.55 | (2.06) |
| 3½ | XW | 35B-XW-90-P | 35D-XW-90-P | 4.00 (102) | 6 (152) | 12 (305) | 5.25 | (2.38) |



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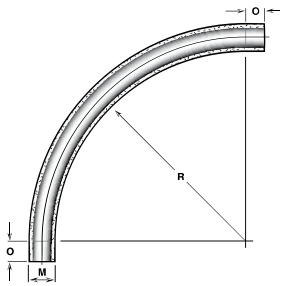
Proposal No. 608616-131225

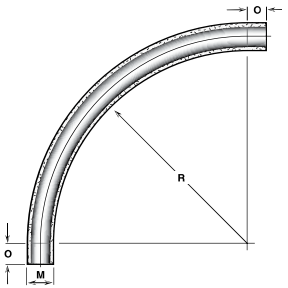



## 90° X 24"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R-Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-91-P | 07C-SW-91-P | 1.05 (27) | 6 (152) | 24 (610) | 0.71 | (0.32) |
| 1 | SW | 10A-SW-91-P | 10C-SW-91-P | 1.32 (33) | 6 (152) | 24 (610) | 0.79 | (0.36) |
| 1¼ | SW | 12A-SW-91-P | 12C-SW-91-P | 1.66 (42) | 6 (152) | 24 (610) | 0.96 | (0.44) |
| 1½ | SW | 15A-SW-91-P | 15C-SW-91-P | 1.90 (48) | 6 (152) | 24 (610) | 1.38 | (0.63) |
| 2 | SW | 20A-SW-91-P | 20C-SW-91-P | 2.37 (60) | 6 (152) | 24 (610) | 1.58 | (0.72) |
| 2½ | SW | 25A-SW-91-P | 25C-SW-91-P | 2.88 (73) | 6 (152) | 24 (610) | 1.92 | (0.87) |
| 3 | SW | 30A-SW-91-P | 30C-SW-91-P | 3.50 (89) | 6 (152) | 24 (610) | 2.50 | (1.14) |
| 4 | SW | 40A-SW-91-P | 40C-SW-91-P | 4.46 (113) | 6 (152) | 24 (610) | 3.00 | (1.36) |
| 4 | HW | 40A-HW-91-P | 40C-HW-91-P | 4.51 (115) | 6 (152) | 24 (610) | 4.04 | (1.83) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-91-P | 20D-SW-91-P | 2.14 (54) | 6 (152) | 24 (610) | 1.42 | (0.65) |
| 2½ | SW | 25B-SW-91-P | 25D-SW-91-P | 2.64 (67) | 6 (152) | 24 (610) | 1.75 | (0.80) |
| 3 | SW | 30B-SW-91-P | 30D-SW-91-P | 3.14 (80) | 6 (152) | 24 (610) | 2.00 | (0.91) |
| 4 | SW | 40B-SW-91-P | 40D-SW-91-P | 4.14 (105) | 6 (152) | 24 (610) | 2.88 | (1.30) |
| 4 | HW | 40A-HW-91-P | 40C-HW-91-P | 4.19 (106) | 6 (152) | 24 (610) | 3.84 | (1.74) |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-91-P | 20D-XW-91-P | 2.50 (65) | 6 (152) | 24 (610) | 5.25 | (2.38) |
| 2½ | XW | 25B-XW-91-P | 25D-XW-91-P | 3.00 (76) | 6 (152) | 24 (610) | 6.42 | (2.92) |
| 3 | XW | 30B-XW-91-P | 30D-XW-91-P | 3.50 (89) | 6 (152) | 24 (610) | 7.58 | (3.44) |
| 3½ | XW | 35B-XW-91-P | 35D-XW-91-P | 4.00 (102) | 6 (152) | 24 (610) | 8.76 | (3.98) |
| 4 | XW | 40B-XW-91-P | 40D-XW-91-P | 4.50 (114) | 6 (152) | 24 (610) | 9.92 | (4.50) |




## 90° X 36"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-92-P | 07C-SW-92-P | 1.05 (27) | 6 (152) | 36 (914) | 0.96 | (0.44) |
| 1 | SW | 10A-SW-92-P | 10C-SW-92-P | 1.32 (33) | 6 (152) | 36 (914) | 1.08 | (0.49) |
| 1¼ | SW | 12A-SW-92-P | 12C-SW-92-P | 1.66 (42) | 6 (152) | 36 (914) | 1.30 | (0.59) |
| 1½ | SW | 15A-SW-92-P | 15C-SW-92-P | 1.90 (48) | 6 (152) | 36 (914) | 1.87 | (0.85) |
| 2 | SW | 20A-SW-92-P | 20C-SW-92-P | 2.37 (60) | 6 (152) | 36 (914) | 2.15 | (0.98) |
| 2½ | SW | 25A-SW-92-P | 25C-SW-92-P | 2.88 (73) | 6 (152) | 36 (914) | 2.61 | (1.19) |
| 3 | SW | 30A-SW-92-P | 30C-SW-92-P | 3.50 (89) | 6 (152) | 36 (914) | 3.40 | (1.54) |
| 4 | SW | 40A-SW-92-P | 40C-SW-92-P | 4.46 (113) | 6 (152) | 36 (914) | 4.08 | (1.85) |
| 4 | HW | 40A-HW-92-P | 40C-HW-92-P | 4.51 (115) | 6 (152) | 36 (914) | 5.50 | (2.50) |
| 5 | SW | 50A-SW-92-P | 50C-SW-92-P | 5.52 (140) | 6 (152) | 36 (914) | 5.14 | (2.34) |
| 5 | MW | 50A-MW-92-P | 50C-MW-92-P | 5.57 (141) | 6 (152) | 36 (914) | 6.85 | (3.08) |
| 5 | HW | 50A-HW-92-P | 50C-HW-92-P | 5.60 (142) | 6 (152) | 36 (914) | 7.54 | (3.42) |
| 6 | SW | 60A-SW-92-P | 60C-SW-92-P | 6.58 (167) | 6 (152) | 36 (914) | 5.71 | (2.57) |
| 6 | MW | 60A-MW-92-P | 60C-MW-92-P | 6.63 (168) | 6 (152) | 36 (914) | 8.11 | (3.65) |
| 6 | HW | 60A-HW-92-P | 60C-HW-92-P | 6.66 (169) | 6 (152) | 36 (914) | 9.31 | (4.19) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-92-P | 20D-SW-92-P | 2.14 (54) | 6 (152) | 36 (914) | 1.93 | (1.14) |
| 2½ | SW | 25B-SW-92-P | 25D-SW-92-P | 2.64 (67) | 6 (152) | 36 (914) | 2.38 | (1.36) |
| 3 | SW | 30B-SW-92-P | 30D-SW-92-P | 3.14 (80) | 6 (152) | 36 (914) | 2.72 | (1.59) |
| 3½ | SW | 35B-SW-92-P | 35D-SW-92-P | 3.64 (92) | 6 (152) | 36 (914) | 3.40 | (1.63) |
| 4 | SW | 40B-SW-92-P | 40D-SW-92-P | 4.14 (105) | 6 (152) | 36 (914) | 3.91 | (1.68) |
| 4 | HW | 40B-HW-92-P | 40D-HW-92-P | 4.19 (106) | 6 (152) | 36 (914) | 5.21 | (2.09) |
| 4½ | SW | 45B-SW-92-P | 45D-SW-92-P | 4.64 (117) | 6 (152) | 36 (914) | 4.25 | (1.86) |
| 4½ | HW | 45B-HW-92-P | 45D-HW-92-P | 4.69 (118) | 6 (152) | 36 (914) | 5.89 | (2.27) |
| 5 | SW | 50B-SW-92-P | 50D-SW-92-P | 5.14 (131) | 6 (152) | 36 (914) | 4.86 | (2.18) |
| 5 | MW | 50B-MW-92-P | 50D-MW-92-P | 5.19 (132) | 6 (152) | 36 (914) | 6.45 | (2.90) |
| 5 | HW | 50B-HW-92-P | 50D-HW-92-P | 5.22 (132) | 6 (152) | 36 (914) | 7.42 | (3.34) |
| 6 | SW | 60B-SW-92-P | 60D-SW-92-P | 6.14 (156) | 6 (152) | 36 (914) | 5.83 | (2.62) |
| 6 | MW | 60B-MW-92-P | 60D-MW-92-P | 6.19 (157) | 6 (152) | 36 (914) | 7.71 | (3.47) |
| 6 | HW | 60B-HW-92-P | 60D-HW-92-P | 6.22 (158) | 6 (152) | 36 (914) | 9.02 | (4.06) |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-92-P | 20D-XW-92-P | 2.50 (65) | 6 (152) | 36 (914) | 7.14 | (3.24) |
| 2½ | XW | 25B-XW-92-P | 25D-XW-92-P | 3.00 (76) | 6 (152) | 36 (914) | 8.73 | (3.96) |
| 3 | XW | 30B-XW-92-P | 30D-XW-92-P | 3.50 (89) | 6 (152) | 36 (914) | 10.31 | (4.68) |
| 3½ | XW | 35B-XW-92-P | 35D-XW-92-P | 4.00 (102) | 6 (152) | 36 (914) | 11.90 | (5.40) |
| 4 | XW | 40B-XW-92-P | 40D-XW-92-P | 4.50 (114) | 6 (152) | 36 (914) | 13.49 | (6.12) |
| 5 | XW | 50B-XW-92-P | 50D-XW-92-P | 5.50 (140) | 6 (152) | 36 (914) | 16.79 | (7.56) |
| 6 | XW | 60B-XW-92-P | 60D-XW-92-P | 6.50 (165) | 6 (152) | 36 (914) | 19.99 | (9.00) |



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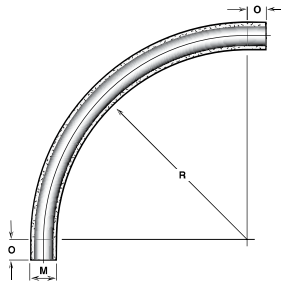
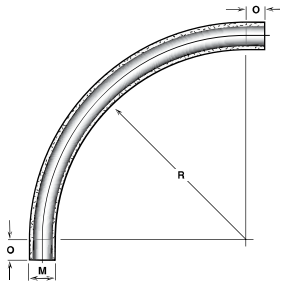



## 90° X 48"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-93-P | 07C-SW-93-P | 1.05 (27) | 6 (152) | 48 (1,219) | 1.36 | (0.62) |
| 1 | SW | 10A-SW-93-P | 10C-SW-93-P | 1.32 (33) | 6 (152) | 48 (1,219) | 1.52 | (0.69) |
| 1¼ | SW | 12A-SW-93-P | 12C-SW-93-P | 1.66 (42) | 6 (152) | 48 (1,219) | 1.84 | (0.84) |
| 1½ | SW | 15A-SW-93-P | 15C-SW-93-P | 1.90 (48) | 6 (152) | 48 (1,219) | 2.64 | (1.20) |
| 2 | SW | 20A-SW-93-P | 20C-SW-93-P | 2.37 (60) | 6 (152) | 48 (1,219) | 3.04 | (1.38) |
| 2½ | SW | 25A-SW-93-P | 25C-SW-93-P | 2.88 (73) | 6 (152) | 48 (1,219) | 3.68 | (1.67) |
| 3 | SW | 30A-SW-93-P | 30C-SW-93-P | 3.50 (89) | 6 (152) | 48 (1,219) | 4.80 | (2.18) |
| 4 | SW | 40A-SW-93-P | 40C-SW-93-P | 4.46 (113) | 6 (152) | 48 (1,219) | 5.76 | (2.62) |
| 4 | HW | 40A-HW-93-P | 40C-HW-93-P | 4.51 (114) | 6 (152) | 48 (1,219) | 7.76 | (3.52) |
| 5 | SW | 50A-SW-93-P | 50C-SW-93-P | 5.52 (140) | 6 (152) | 48 (1,219) | 7.20 | (3.27) |
| 5 | MW | 50A-MW-93-P | 50C-MW-93-P | 5.57 (141) | 6 (152) | 48 (1,219) | 9.60 | (4.36) |
| 5 | HW | 50A-HW-93-P | 50C-HW-93-P | 5.60 (142) | 6 (152) | 48 (1,219) | 10.40 | (4.72) |
| 6 | SW | 60A-SW-93-P | 60C-SW-93-P | 6.58 (167) | 6 (152) | 48 (1,219) | 8.64 | (3.92) |
| 6 | MW | 60A-MW-93-P | 60C-MW-93-P | 6.63 (168) | 6 (152) | 48 (1,219) | 11.52 | (5.23) |
| 6 | HW | 60A-HW-93-P | 60C-HW-93-P | 6.66 (169) | 6 (152) | 48 (1,219) | 12.67 | (5.75) |

| Nominal Size | Type | ID Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-93-P | 20D-SW-93-P | 2.14 (54) | 6 (152) | 48 (1,219) | 2.72 | (1.24) |
| 2½ | SW | 25B-SW-93-P | 25D-SW-93-P | 2.64 (67) | 6 (152) | 48 (1,219) | 3.36 | (1.53) |
| 3 | SW | 30B-SW-93-P | 30D-SW-93-P | 3.14 (80) | 6 (152) | 48 (1,219) | 3.84 | (1.74) |
| 3½ | SW | 35B-SW-93-P | 35D-SW-93-P | 3.64 (92) | 6 (152) | 48 (1,219) | 4.80 | (2.18) |
| 4 | SW | 40B-SW-93-P | 40D-SW-93-P | 4.14 (105) | 6 (152) | 48 (1,219) | 5.52 | (2.51) |
| 4 | HW | 40B-HW-93-P | 40D-HW-93-P | 4.19 (106) | 6 (152) | 48 (1,219) | 7.36 | (3.34) |
| 4½ | SW | 45B-SW-93-P | 45D-SW-93-P | 4.64 (117) | 6 (152) | 48 (1,219) | 6.00 | (2.72) |
| 4½ | HW | 45B-HW-93-P | 45D-HW-93-P | 4.69 (118) | 6 (152) | 48 (1,219) | 8.32 | (3.78) |
| 5 | SW | 50B-SW-93-P | 50D-SW-93-P | 5.14 (131) | 6 (152) | 48 (1,219) | 6.80 | (3.09) |
| 5 | MW | 50B-MW-93-P | 50D-MW-93-P | 5.19 (132) | 6 (152) | 48 (1,219) | 9.04 | (4.10) |
| 5 | HW | 50B-HW-93-P | 50D-HW-93-P | 5.22 (133) | 6 (152) | 48 (1,219) | 10.56 | (4.79) |
| 6 | SW | 60B-SW-93-P | 60D-SW-93-P | 6.14 (156) | 6 (152) | 48 (1,219) | 8.16 | (3.70) |
| 6 | MW | 60B-MW-93-P | 60D-MW-93-P | 6.19 (157) | 6 (152) | 48 (1,219) | 10.85 | (4.92) |
| 6 | HW | 60B-HW-93-P | 60D-HW-93-P | 6.22 (158) | 6 (152) | 48 (1,219) | 12.48 | (5.66) |

| Nominal Size | Type | Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-93-P | 20D-XW-93-P | 2.50 (65) | 6 (152) | 48 (1,219) | 10.08 | (4.58) |
| 2½ | XW | 25B-XW-93-P | 25D-XW-93-P | 3.00 (76) | 6 (152) | 48 (1,219) | 12.32 | (5.59) |
| 3 | XW | 30B-XW-93-P | 30D-XW-93-P | 3.50 (89) | 6 (152) | 48 (1,219) | 14.56 | (6.61) |
| 3½ | XW | 35B-XW-93-P | 35D-XW-93-P | 4.00 (102) | 6 (152) | 48 (1,219) | 16.80 | (7.63) |
| 4 | XW | 40B-XW-93-P | 40D-XW-93-P | 4.50 (114) | 6 (152) | 48 (1,219) | 19.04 | (8.64) |
| 5 | XW | 50B-XW-93-P | 50D-XW-93-P | 5.50 (140) | 6 (152) | 48 (1,219) | 23.52 | (10.68) |
| 6 | XW | 60B-XW-93-P | 60D-XW-93-P | 6.50 (165) | 6 (152) | 48 (1,219) | 28.00 | (12.71) |




## 90° X 60"

| Nominal Size | Type | IPS Item No. Belowground | Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-94-P | 07C-SW-94-P | 1.05 (27) | 6 (152) | 60 (1,524) | 1.50 | (0.68) |
| 1 | SW | 10A-SW-94-P | 10C-SW-94-P | 1.32 (33) | 6 (152) | 60 (1,524) | 1.68 | (0.76) |
| 1¼ | SW | 12A-SW-94-P | 12C-SW-94-P | 1.66 (42) | 6 (152) | 60 (1,524) | 2.03 | (0.92) |
| 1½ | SW | 15A-SW-94-P | 15C-SW-94-P | 1.90 (48) | 6 (152) | 60 (1,524) | 2.92 | (1.33) |
| 2 | SW | 20A-SW-94-P | 20C-SW-94-P | 2.37 (60) | 6 (152) | 60 (1,524) | 3.36 | (1.53) |
| 2½ | SW | 25A-SW-94-P | 25C-SW-94-P | 2.88 (73) | 6 (152) | 60 (1,524) | 4.06 | (1.84) |
| 3 | SW | 30A-SW-94-P | 30C-SW-94-P | 3.50 (89) | 6 (152) | 60 (1,524) | 5.30 | (2.41) |
| 4 | SW | 40A-SW-94-P | 40C-SW-94-P | 4.46 (113) | 6 (152) | 60 (1,524) | 6.36 | (2.89) |
| 4 | HW | 40A-HW-94-P | 40C-HW-94-P | 4.51 (115) | 6 (152) | 60 (1,524) | 8.57 | (3.89) |
| 5 | SW | 50A-SW-94-P | 50C-SW-94-P | 5.52 (140) | 6 (152) | 60 (1,524) | 7.95 | (3.61) |
| 5 | MW | 50A-MW-94-P | 50C-MW-94-P | 5.57 (141) | 6 (152) | 60 (1,524) | 10.60 | (4.81) |
| 5 | HW | 50A-HW-94-P | 50C-HW-94-P | 5.60 (142) | 6 (152) | 60 (1,524) | 11.48 | (5.21) |
| 6 | SW | 60A-SW-94-P | 60C-SW-94-P | 6.58 (167) | 6 (152) | 60 (1,524) | 8.83 | (4.01) |
| 6 | MW | 60A-MW-94-P | 60C-MW-94-P | 6.63 (168) | 6 (152) | 60 (1,524) | 12.54 | (5.69) |
| 6 | HW | 60A-HW-94-P | 60C-HW-94-P | 6.66 (169) | 6 (152) | 60 (1,524) | 14.40 | (6.54) |

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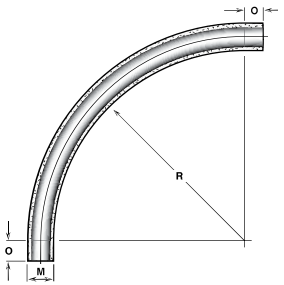
Proposal No. 608616-131225




## 90° X 60"

*Note: For different radii, degree and/or length for any* ***elbows listed in this catalog****, please contact your local sales representative or Champion Fiberglass. Please specify if such an arrangement is required.*

*For technical information regarding fittings and elbows for 8", 10", and 12" conduit, please contact your local sales representative or Champion Fiberglass.*

| Nominal Size | Type | ID Item No. Belowground | ID Item No. Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | Weight kg |
|---|---|---|---|---|---|---|---|---|
| 2 | SW | 20B-SW-94-P | 20D-SW-94-P | 2.14 (54) | 6 (152) | 60 (1,524) | 3.00 | (1.36) |
| 2½ | SW | 25B-SW-94-P | 25D-SW-94-P | 2.64 (67) | 6 (152) | 60 (1,524) | 3.71 | (1.68) |
| 3 | SW | 30B-SW-94-P | 30D-SW-94-P | 3.14 (80) | 6 (152) | 60 (1,524) | 4.24 | (1.93) |
| 3½ | SW | 35B-SW-94-P | 35D-SW-94-P | 3.64 (92) | 6 (152) | 60 (1,524) | 5.30 | (2.41) |
| 4 | SW | 40B-SW-94-P | 40D-SW-94-P | 4.14 (105) | 6 (152) | 60 (1,524) | 6.10 | (2.77) |
| 4 | HW | 40B-HW-94-P | 40D-HW-94-P | 4.19 (106) | 6 (152) | 60 (1,524) | 8.13 | (3.69) |
| 4½ | SW | 45B-SW-94-P | 45D-SW-94-P | 4.64 (117) | 6 (152) | 60 (1,524) | 6.63 | (3.01) |
| 4½ | HW | 45B-HW-94-P | 45D-HW-94-P | 4.69 (118) | 6 (152) | 60 (1,524) | 9.19 | (4.17) |
| 5 | SW | 50B-SW-94-P | 50D-SW-94-P | 5.14 (131) | 6 (152) | 60 (1,524) | 7.51 | (3.41) |
| 5 | MW | 50B-MW-94-P | 50D-MW-94-P | 5.19 (132) | 6 (152) | 60 (1,524) | 9.98 | (4.53) |
| 5 | HW | 50B-HW-94-P | 50D-HW-94-P | 5.22 (132) | 6 (152) | 60 (1,524) | 11.66 | (5.29) |
| 6 | SW | 60B-SW-94-P | 60D-SW-94-P | 6.14 (156) | 6 (152) | 60 (1,524) | 9.01 | (4.09) |
| 6 | MW | 60B-MW-94-P | 60D-MW-94-P | 6.19 (157) | 6 (152) | 60 (1,524) | 11.93 | (5.42) |
| 6 | HW | 60B-HW-94-P | 60D-HW-94-P | 6.22 (158) | 6 (152) | 60 (1,524) | 13.96 | (6.34) |

| Nominal Size | Type | Item No. Belowground | Item No. Aboveground | M | O-Tangent (min) | R - Radius (min) | Weight lbs | Weight kg |
|---|---|---|---|---|---|---|---|---|
| 2 | XW | 20B-XW-94-P | 20D-XW-94-P | 2.50 (65) | 6 (152) | 60 (1,524) | 11.13 | (5.05) |
| 2½ | XW | 25B-XW-94-P | 25D-XW-94-P | 3.00 (76) | 6 (152) | 60 (1,524) | 13.61 | (6.18) |
| 3 | XW | 30B-XW-94-P | 30D-XW-94-P | 3.50 (89) | 6 (152) | 60 (1,524) | 16.08 | (7.30) |
| 3½ | XW | 35B-XW-94-P | 35D-XW-94-P | 4.00 (102) | 6 (152) | 60 (1,524) | 18.55 | (8.42) |
| 4 | XW | 40B-XW-94-P | 40D-XW-94-P | 4.50 (114) | 6 (152) | 60 (1,524) | 21.02 | (9.54) |
| 5 | XW | 50B-XW-94-P | 50D-XW-94-P | 5.50 (140) | 6 (152) | 60 (1,524) | 25.97 | (11.79) |
| 6 | XW | 60B-XW-94-P | 60D-XW-94-P | 6.50 (165) | 6 (152) | 60 (1,524) | 30.92 | (14.04) |

## IPS STANDARD RADIUS ELBOWS

Standard radius elbows are available in 11¼, 22½, 30 and 45 degree bends as well. Please contact factory for additional information regarding pricing, dimensions, weights and part numbers.

| Nominal Size | Type | IPS Item No. Belowground | IPS Item No. Aboveground | M | O-Tangent (min) | R-Radius (min) | Weight lbs | Weight kg |
|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07A-SW-9SR-P | 07C-SW-9SR-P | 1.05 (27) | 6 (152) | 4.50 (114) | 0.27 | (0.1) |
| 1 | SW | 10A-SW-9SR-P | 10C-SW-9SR-P | 1.32 (33) | 6 (152) | 5.75 (146) | 0.33 | (0.2) |
| 1¼ | SW | 12A-SW-9SR-P | 12C-SW-9SR-P | 1.66 (42) | 6 (152) | 7.25 (184) | 0.46 | (0.2) |
| 1½ | SW | 15A-SW-9SR-P | 15C-SW-9SR-P | 1.90 (48) | 6 (152) | 8.25 (210) | 0.68 | (0.3) |
| 2 | SW | 20A-SW-9SR-P | 20C-SW-9SR-P | 2.37 (60) | 6 (152) | 9.50 (241) | 0.87 | (0.4) |

## XW STANDARD RADIUS ELBOWS

Standard radius elbows are available in 11¼, 22½, 30 and 45 degree bends as well. Please contact factory for additional information regarding pricing, dimensions, weights and part numbers.

| Nominal Size | Type | Item No. | M | O-Tangent (min) | R - Radius (min) | Weight lbs | Weight kg |
|---|---|---|---|---|---|---|---|
| ¾ | XW | 07C-XW-9SR-P | 1.05 (27) | 6 (152) | 4.50 (114) | .98 | (0.4) |
| 1 | XW | 10C-XW-9SR-P | 1.32 (33) | 6 (152) | 5.75 (146) | 1.19 | (0.5) |
| 1¼ | XW | 12C-XW-9SR-P | 1.66 (42) | 6 (152) | 7.25 (184) | 1.62 | (0.7) |
| 1½ | XW | 15C-XW-9SR-P | 1.90 (48) | 6 (152) | 8.25 (210) | 2.42 | (1.1) |
| 2 | XW | 20D-XW-9SR-P | 2.37 (60) | 6 (152) | 9.50 (241) | 2.87 | (1.3) |

## ELBOWS WITH BONDED ON PVC COUPLINGS

Standard PVC Coupling

Deep Socket PVC Coupling

**Standard PVC Coupling** bonded onto fiberglass elbow.

Elbows can be supplied with one or two PVC bonded couplings. Replace P suffix with: 1V for one coupling or 2V for two couplings.

**Deep Socket PVC Coupling** bonded onto fiberglass elbow.

Elbows can be supplied with one or two PVC bonded couplings. Replace P suffix with: 1D for one coupling or 2D for two couplings.



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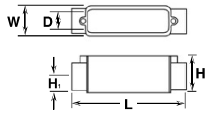
## CONDUIT BODIES

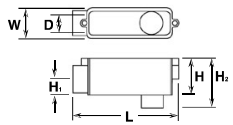
All conduit bodies are manufactured by compression molding for ultimate strength. The conduit bodies are made of vinyl ester resin with high glass content, flame retardant per UL 2515 and CSA C22.2 No. 2515 and halogen free. Each conduit body is supplied with a high performance rubber gasket to provide a water tight seal between the cover and conduit body. Provided hardware is stainless steel.

### TYPE C



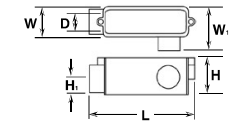

| Nominal Size | Type | IPS Item No. Aboveground | L inch (mm) | H inch (mm) | W inch (mm) | H1 inch (mm) | D inch (mm) | Volume cu in (cm3) | Weight lbs (kg) |
|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07C-SW-C | 8.375 (213) | 2.375 (60) | 1.840 (47) | 1.000 (25) | 1.075 (27) | 13.90 (228) | 0.70 (0.32) |
| 1 | SW | 10C-SW-C | 8.375 (213) | 2.375 (60) | 1.840 (47) | 1.000 (25) | 1.340 (34) | 13.90 (228) | 0.70 (0.32) |
| 1¼ | SW | 12C-SW-C | 10.125 (257) | 2.875 (73) | 2.540 (64) | 1.188 (30) | 1.685 (43) | 32.00 (524) | 1.20 (0.54) |
| 1½ | SW | 15C-SW-C | 10.125 (257) | 2.875 (73) | 2.540 (64) | 1.188 (30) | 1.910 (48) | 32.00 (524) | 1.10 (0.50) |
| 2 | SW | 20C-SW-C | 13.375 (340) | 4.000 (102) | 3.040 (77) | 1.812 (46) | 2.390 (61) | 70.75 (1160) | 2.50 (1.13) |
| 2½ | SW | 25C-SW-C | 21.750 (552) | 6.000 (152) | 5.875 (149) | 3.000 (76) | 3.508 (89) | 425.00 (6964) | 4.24 (1.92) |
| 3 | SW | 30C-SW-C | 21.750 (552) | 6.000 (152) | 5.875 (149) | 3.000 (76) | 3.508 (89) | 425.00 (6964) | 4.24 (1.92) |
| 4 | SW | 40C-SW-C | 21.750 (552) | 6.000 (152) | 5.875 (149) | 3.000 (76) | 4.508 (114) | 425.00 (6964) | 4.24 (1.92) |

### TYPE LB




| Nominal Size | Type | IPS Item No. Aboveground | L inch (mm) | H inch (mm) | W inch (mm) | H1 inch (mm) | H2 inch (mm) | D inch (mm) | Volume cu in (cm3) | Weight lbs (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07C-SW-LB | 7.375 (187) | 2.375 (60) | 1.840 (47) | 1.000 (25) | 3.900 (99) | 1.075 (27) | 13.90 (228) | 0.70 (0.32) |
| 1 | SW | 10C-SW-LB | 7.375 (187) | 2.375 (60) | 1.840 (47) | 1.000 (25) | 3.900 (99) | 1.340 (34) | 13.90 (228) | 0.70 (0.32) |
| 1¼ | SW | 12C-SW-LB | 9.000 (229) | 2.875 (73) | 2.540 (64) | 1.188 (30) | 4.875 (124) | 1.685 (43) | 32.00 (524) | 1.20 (0.54) |
| 1½ | SW | 15C-SW-LB | 9.000 (229) | 2.875 (73) | 2.540 (64) | 1.188 (30) | 4.875 (124) | 1.910 (48) | 32.00 (524) | 1.10 (0.50) |
| 2 | SW | 20C-SW-LB | 11.250 (286) | 4.000 (102) | 3.040 (77) | 1.812 (46) | 6.687 (170) | 2.390 (61) | 70.75 (1160) | 2.50 (1.13) |
| 2½ | SW | 25C-SW-LB | 16.125 (410) | 6.000 (152) | 5.875 (149) | 3.000 (76) | 8.750 (222) | 3.508 (89) | 425.00 (6964) | 4.24 (1.92) |
| 3 | SW | 30C-SW-LB | 16.125 (410) | 6.000 (152) | 5.875 (149) | 3.000 (76) | 8.750 (222) | 3.508 (89) | 425.00 (6964) | 4.24 (1.92) |
| 4 | SW | 40C-SW-LB | 16.125 (410) | 6.000 (152) | 5.875 (149) | 3.000 (76) | 8.750 (222) | 4.508 (114) | 425.00 (6964) | 4.24 (1.92) |

### TYPE LL




| Nominal Size | Type | IPS Item No. Aboveground | L inch (mm) | H inch (mm) | W inch (mm) | W1 inch (mm) | H1 inch (mm) | D inch (mm) | Volume cu in (cm3) | Weight lbs (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07C-SW-LL | 7.375 (187) | 2.375 (60) | 1.840 (47) | 3.500 (89) | 1.000 (25) | 1.075 (27) | 13.90 (228) | 0.70 (0.32) |
| 1 | SW | 10C-SW-LL | 7.375 (187) | 2.375 (60) | 1.840 (47) | 3.500 (89) | 1.000 (25) | 1.340 (34) | 13.90 (228) | 0.70 (0.32) |
| 1¼ | SW | 12C-SW-LL | 9.000 (229) | 2.875 (73) | 2.540 (64) | 4.500 (114) | 1.188 (30) | 1.685 (43) | 32.00 (524) | 1.20 (0.54) |
| 1½ | SW | 15C-SW-LL | 9.000 (229) | 2.875 (73) | 2.540 (64) | 4.500 (114) | 1.188 (30) | 1.910 (48) | 32.00 (524) | 1.10 (0.50) |
| 2 | SW | 20C-SW-LL | 11.250 (286) | 4.000 (102) | 3.040 (77) | 5.500 (140) | 1.812 (46) | 2.390 (61) | 70.75 (1160) | 2.50 (1.13) |
| 2½ | SW | 25C-SW-LL | 16.125 (410) | 6.000 (152) | 5.875 (149) | 8.750 (222) | 3.000 (76) | 3.508 (89) | 425.00 (6964) | 4.24 (1.92) |
| 3 | SW | 30C-SW-LL | 16.125 (410) | 6.000 (152) | 5.875 (149) | 8.750 (222) | 3.000 (76) | 3.508 (89) | 425.00 (6964) | 4.24 (1.92) |
| 4 | SW | 40C-SW-LL | 16.125 (410) | 6.000 (152) | 5.875 (149) | 8.750 (222) | 3.000 (76) | 4.508 (114) | 425.00 (6964) | 4.24 (1.92) |

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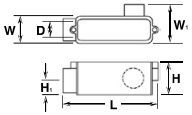
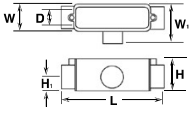
Proposal No. 608616-131225

## TYPE LR



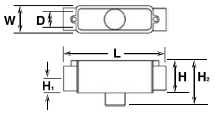

| Nominal Size | Type | IPS Item No. Aboveground | L inch (mm) | H inch (mm) | W inch (mm) | W1 inch (mm) | H1 inch (mm) | D inch (mm) | Volume cu in (cm³) | Weight lbs (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07C-SW-LR | 7.375 (187) | 2.375 (60) | 1.840 (47) | 3.500 (89) | 1.000 (25) | 1.075 (27) | 13.90 (228) | 0.70 (0.32) |
| 1 | SW | 10C-SW-LR | 7.375 (187) | 2.375 (60) | 1.840 (47) | 3.500 (89) | 1.000 (25) | 1.340 (34) | 13.90 (228) | 0.70 (0.32) |
| 1¼ | SW | 12C-SW-LR | 9.000 (229) | 2.875 (73) | 2.540 (64) | 4.500 (114) | 1.188 (30) | 1.685 (43) | 32.00 (524) | 1.20 (0.54) |
| 1½ | SW | 15C-SW-LR | 9.000 (229) | 2.875 (73) | 2.540 (64) | 4.500 (114) | 1.188 (30) | 1.910 (48) | 32.00 (524) | 1.10 (0.50) |
| 2 | SW | 20C-SW-LR | 11.250 (286) | 4.000 (102) | 3.040 (77) | 5.500 (140) | 1.812 (46) | 2.390 (61) | 70.75 (1160) | 2.50 (1.13) |
| 2½ | SW | 25C-SW-LR | 16.125 (410) | 6.000 (152) | 5.875 (149) | 8.750 (222) | 3.000 (76) | 3.508 (89) | 425.00 (6964) | 4.24 (1.92) |
| 3 | SW | 30C-SW-LR | 16.125 (410) | 6.000 (152) | 5.875 (149) | 8.750 (222) | 3.000 (76) | 3.508 (89) | 425.00 (6964) | 4.24 (1.92) |
| 4 | SW | 40C-SW-LR | 16.125 (410) | 6.000 (152) | 5.875 (149) | 8.750 (222) | 3.000 (76) | 4.508 (114) | 425.00 (6964) | 4.24 (1.92) |

## TYPE T



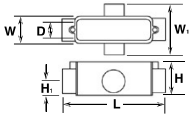

| Nominal Size | Type | IPS Item No. Aboveground | L inch (mm) | H inch (mm) | W inch (mm) | W1 inch (mm) | H1 inch (mm) | D inch (mm) | Volume cu in (cm³) | Weight lbs (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07C-SW-T | 8.375 (213) | 2.375 (60) | 1.840 (47) | 3.500 (89) | 1.000 (25) | 1.075 (27) | 13.90 (228) | 0.70 (0.32) |
| 1 | SW | 10C-SW-T | 8.375 (213) | 2.375 (60) | 1.840 (47) | 3.500 (89) | 1.000 (25) | 1.340 (34) | 13.90 (228) | 0.70 (0.32) |
| 1¼ | SW | 12C-SW-T | 10.125 (257) | 3.000 (76) | 2.540 (64) | 4.437 (113) | 1.188 (30) | 1.685 (43) | 32.00 (524) | 1.40 (0.64) |
| 1½ | SW | 15C-SW-T | 10.125 (257) | 3.000 (76) | 2.540 (64) | 4.437 (113) | 1.188 (30) | 1.910 (48) | 32.00 (524) | 1.30 (0.59) |
| 2 | SW | 20C-SW-T | 13.375 (340) | 4.000 (102) | 3.040 (77) | 5.500 (140) | 1.812 (46) | 2.390 (61) | 70.75 (1160) | 2.80 (1.27) |
| 2½ | SW | 25C-SW-T | 21.750 (552) | 6.000 (152) | 5.875 (149) | 8.750 (222) | 3.000 (76) | 3.508 (89) | 425.00 (6964) | 4.24 (1.92) |
| 3 | SW | 30C-SW-T | 21.750 (552) | 6.000 (152) | 5.875 (149) | 8.750 (222) | 3.000 (76) | 3.508 (89) | 425.00 (6964) | 4.24 (1.92) |
| 4 | SW | 40C-SW-T | 21.750 (552) | 6.000 (152) | 5.875 (149) | 8.750 (222) | 3.000 (76) | 4.508 (114) | 425.00 (6964) | 4.24 (1.92) |

## TYPE TB




| Nominal Size | Type | IPS Item No. Aboveground | L inch (mm) | H inch (mm) | W inch (mm) | H1 inch (mm) | H2 inch (mm) | D inch (mm) | Volume cu in (cm³) | Weight lbs (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07C-SW-TB | 8.375 (213) | 2.375 (60) | 1.840 (47) | 1.000 (25) | 3.900 (99) | 1.075 (27) | 13.90 (228) | 0.70 (0.32) |
| 1 | SW | 10C-SW-TB | 8.375 (213) | 2.375 (60) | 1.840 (47) | 1.000 (25) | 3.900 (99) | 1.340 (34) | 13.90 (228) | 0.70 (0.32) |
| 1¼ | SW | 12C-SW-TB | 10.125 (257) | 3.000 (76) | 2.540 (64) | 1.188 (30) | 4.875 (124) | 1.685 (43) | 32.00 (524) | 1.40 (0.64) |
| 1½ | SW | 15C-SW-TB | 10.125 (257) | 3.000 (76) | 2.540 (64) | 1.188 (30) | 4.875 (124) | 1.910 (48) | 32.00 (524) | 1.30 (0.59) |
| 2 | SW | 20C-SW-TB | 13.375 (340) | 4.000 (102) | 3.040 (77) | 1.812 (46) | 6.687 (170) | 2.390 (61) | 70.75 (1160) | 2.80 (1.27) |
| 2½ | SW | 25C-SW-TB | 21.750 (552) | 6.000 (152) | 5.875 (149) | 3.000 (76) | 8.750 (222) | 3.508 (89) | 425.00 (6964) | 4.24 (1.92) |
| 3 | SW | 30C-SW-TB | 21.750 (552) | 6.000 (152) | 5.875 (149) | 3.000 (76) | 8.750 (222) | 3.508 (89) | 425.00 (6964) | 4.24 (1.92) |
| 4 | SW | 40C-SW-TB | 21.750 (552) | 6.000 (152) | 5.875 (149) | 3.000 (76) | 8.750 (222) | 4.508 (114) | 425.00 (6964) | 4.24 (1.92) |

## TYPE X




| Nominal Size | Type | IPS Item No. Aboveground | L inch (mm) | H inch (mm) | W inch (mm) | W1 inch (mm) | H1 inch (mm) | D inch (mm) | Volume cu in (cm³) | Weight lbs (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| ¾ | SW | 07C-SW-X | 8.375 (213) | 2.375 (60) | 1.840 (47) | 4.750 (121) | 1.000 (25) | 1.075 (27) | 13.90 (228) | 0.70 (0.32) |
| 1 | SW | 10C-SW-X | 8.375 (213) | 2.375 (60) | 1.840 (47) | 4.750 (121) | 1.000 (25) | 1.340 (34) | 13.90 (228) | 0.70 (0.32) |
| 1¼ | SW | 12C-SW-X | 10.125 (257) | 3.000 (76) | 2.540 (64) | 6.437 (163) | 1.188 (30) | 1.685 (43) | 32.00 (524) | 1.60 (0.73) |
| 1½ | SW | 15C-SW-X | 10.125 (257) | 3.000 (76) | 2.540 (64) | 6.437 (163) | 1.188 (30) | 1.910 (48) | 32.00 (524) | 1.50 (0.68) |
| 2 | SW | 20C-SW-X | 13.375 (340) | 4.000 (102) | 3.040 (77) | 7.188 (182) | 1.812 (46) | 2.390 (61) | 70.75 (1160) | 3.00 (1.36) |
| 2½ | SW | 25C-SW-X | 21.750 (552) | 6.000 (152) | 5.875 (149) | 11.500 (292) | 3.000 (76) | 3.508 (89) | 425.00 (6964) | 4.24 (1.92) |
| 3 | SW | 30C-SW-X | 21.750 (552) | 6.000 (152) | 5.875 (149) | 11.500 (292) | 3.000 (76) | 3.508 (89) | 425.00 (6964) | 4.24 (1.92) |
| 4 | SW | 40C-SW-X | 21.750 (552) | 6.000 (152) | 5.875 (149) | 11.500 (292) | 3.000 (76) | 4.508 (114) | 425.00 (6964) | 4.24 (1.92) |



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A00894 - 26

## CHAMPION MIX®

(Epoxy Adhesive)

The **CHAMPION MIX** system is a two part adhesive, epoxy resin system, designed to permanently bond fittings and joints of fiberglass reinforced epoxy conduit. It is also designed for use with pultruded polyester and vinyl ester components. Each cartridge system contains resin, hardener, and one plastic static mixer. An adhesive gun is required for applying the adhesive (ordered separately).

Under normal conditions, it takes approximately 45 minutes for the CM-2040 and CM-2070 adhesives to harden at their rated temperatures. If a faster setting adhesive is desired, there are Champion Mix adhesives available that gel much faster.

The "Fast Gel" adhesives can be specified by adding the suffixes, "FG" or "SFG" to the part numbers. Because the "Fast Gel" and "Super-Fast Gel" adhesives set up quicker, additional mixing tubes may be required.

*Note: Proper mixing can be visually ascertained when the epoxy mixture is evenly gray.*

| Part Number | Temperature Range | Approximate Curing Time |
|---|---|---|
| CM-2040 | 40° - 70° F (4° C - 21° C) | 30 – 45 minutes |
| CM-2040 - FG | 40° - 70° F (4° C - 21° C) | 20 – 30 minutes |
| CM-2040 - SFG | 40° - 70° F (4° C - 21° C) | 3 – 7 minutes |
| CM-2070 | 70° F (21° C) and above | 30 – 45 minutes |
| CM-2070 - FG | 70° F (21° C) and above | 20 – 30 minutes |
| CM-2070 - SFG | 70° F (21° C) and above | 3 – 7 minutes |

| | |
|---|---|
| CM-MT | Mixing Tip |
| CM-AG | Adhesive Gun |

| Estimated Number of Joints Per Container (estimated only, as it varies depending on the amount of adhesive applied per application) | | | | | | |
|---|---|---|---|---|---|---|
| ¾" | 100 Joints | 1½" | 60 Joints | 3" | 35 Joints | 5" | 20 Joints |
| 1" | 85 Joints | 2" | 50 Joints | 3½" | 30 Joints | 6" | 15 Joints |
| 1¼" | 75 Joints | 2½" | 40 Joints | 4" | 25 Joints | | |

*Adhesive gun*

*Epoxy Cartridge & Mixer Tip*

*Assembled Unit*

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Proposal No. 608616-131225

## EPOXY ADHESIVE KIT

Champion Fiberglass Adhesive Kit, contains two cans, one with base adhesive (black color) and the other with hardener (white color), stir sticks, sand paper for abrading conduit surfaces and instruction sheet. When properly mixed, the adhesive will be evenly gray.

The adhesive kit is offered for three different ambient curing temperatures:

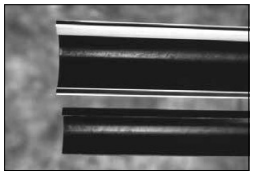
- Item# CF-1070, for 70°F ***(21°C)*** ambient temperature (standard grade)
- Item# CF-1040, for 40°F ***(4°C)*** ambient temperature (special grade)
- Item# CF-1020, for 20°F ***(-7°C)*** ambient temperature (special grade)

Adhesive curing time is dependent on the ambient temperature. As a guideline, the CF-1070 adhesive is cured at 75°F ***(29°C)*** in 1 hour. Contact Champion Fiberglass for curing information at extreme temperatures (high or low). Champion Fiberglass adhesive can be used for bonding fiberglass and PVC together.

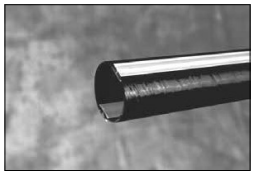
| Estimated Number of Joints Per Kit (estimated only, as it varies depending on the amount of adhesive applied per application) | | | | | | | |
|---|---|---|---|---|---|---|---|
| ¾" | 40 Joints | 1½" | 25 Joints | 3" | 15 Joints | 5" | 8 Joints |
| 1" | 35 Joints | 2" | 20 Joints | 3½" | 13 Joints | 6" | 6 Joints |
| 1¼" | 30 Joints | 2½" | 18 Joints | 4" | 10 Joints | 8" | 4 Joints |

## SPLIT DUCT

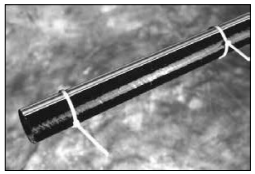
For making field repairs when the cable cannot be removed, Champion Fiberglass offers Split Duct conduit. For ease of installation, the duct is split lengthwise in two halves. The duct is then joined by using thermoplastic H-strips. Tie straps are applied every 2-3 feet for securing the duct. Champion Fiberglass also offers elbows and fittings in split configuration. H-strips are ordered separately.



*Unassembled Unit*



*Duct joined together with H-Strips*



*Assembled Unit*



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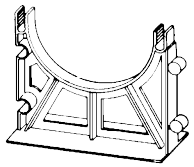
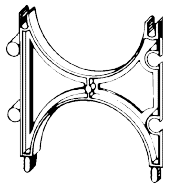


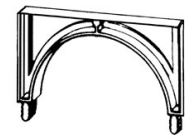
## BASE SPACERS*

| 1½" Separation - Base Spacer | | | |
|---|---|---|---|
| Duct Size | Item No. | Weight lbs/ft | Weight kgs/m |
| 2 *(51)* | BS-215 | 0.010 | *(.045)* |
| 3 *(76)* | BS-315 | 0.014 | *(.064)* |
| 4 *(107)* | BS-415 | 0.020 | *(.091)* |
| 5 *(127)* | BS-515 | 0.028 | *(.127)* |
| 6 *(152)* | BS-615 | 0.030 | *(.136)* |
| **2" Separation - Base Spacer** | | | |
| 2 *(51)* | BS-220 | 0.010 | *(.045)* |
| 3 *(76)* | BS-320 | 0.016 | *(.073)* |
| 4 *(107)* | BS-420 | 0.022 | *(.100)* |
| 5 *(127)* | BS-520 | 0.027 | *(.123)* |
| 6 *(152)* | BS-620 | 0.034 | *(.154)* |
| **3" Separation - Base Spacer** | | | |
| 2 *(51)* | BS-230 | 0.014 | *(.064)* |
| 3 *(76)* | BS-330 | 0.018 | *(.082)* |
| 4 *(107)* | BS-430 | 0.027 | *(.123)* |
| 5 *(127)* | BS-530 | 0.029 | *(.132)* |
| 6 *(152)* | BS-630 | 0.037 | *(.168)* |



## INTERMEDIATE SPACERS*

| 1½" Separation - Intermediate Spacer | | | |
|---|---|---|---|
| Duct Size | Item No. | Weight lbs/ft | Weight kgs/m |
| 2 *(51)* | IS-215 | 0.012 | *(.054)* |
| 3 *(76)* | IS-315 | 0.018 | *(.082)* |
| 4 *(107)* | IS-415 | 0.028 | *(.127)* |
| 5 *(127)* | IS-515 | 0.032 | *(.145)* |
| 6 *(152)* | IS-615 | 0.035 | *(.159)* |
| **2" Separation - Intermediate Spacer** | | | |
| 2 *(51)* | IS-220 | 0.015 | *(.068)* |
| 3 *(76)* | IS-320 | 0.018 | *(.082)* |
| 4 *(107)* | IS-420 | 0.030 | *(.136)* |
| 5 *(127)* | IS-520 | 0.038 | *(.173)* |
| 6 *(152)* | IS-620 | 0.041 | *(.186)* |
| **3" Separation - Intermediate Spacer** | | | |
| 2 *(51)* | IS-230 | 0.016 | *(.073)* |
| 3 *(76)* | IS-330 | 0.021 | *(.095)* |
| 4 *(107)* | IS-430 | 0.036 | *(.163)* |
| 5 *(127)* | IS-530 | 0.038 | *(.173)* |
| 6 *(152)* | IS-630 | 0.040 | *(.182)* |



## CAP-LOK*

| Cap-Loc | | | | |
|---|---|---|---|---|
| Duct Size | Item No. | Part No. | Weight lbs/ft | Weight kgs/m |
| 2 *(51)* | CL-20 | 94 | 0.04 | *(.018)* |
| 3 *(76)* | CL-30 | 95 | 0.04 | *(.018)* |
| 4 *(107)* | CL-40 | 96 | 0.05 | *(.023)* |
| 5 *(127)* | CL-50 | 97 | 0.07 | *(.032)* |
| 6 *(152)* | CL-60 | 98 | 0.07 | *(.032)* |

*NO RETURNS ALLOWED ON SPACERS.

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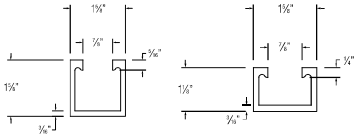
Champion Fiberglass, Inc. offers a complete support system for installations of above ground conduit. The strut, pipe clamps etc. are manufactured in house and made from high quality fiberglass. **Please note that for standard support systems, only IPS type of fiberglass conduit can be used (If ID/Tubular type of conduit is used, Please consult factory prior to installation).** For bridge installations, refer to Hangers on page 63.

## SINGLE STRUT

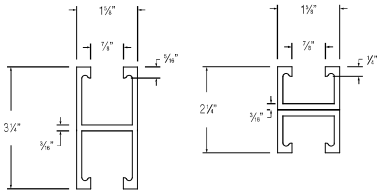
**CS-S-15-10-P/V*** **CS-S-11-10-P/V***




** Use P for polyester resin and V for vinyl ester resin.*

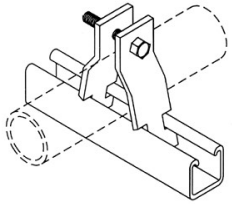
## DOUBLE "BACK TO BACK" STRUT

**CS-S-15D-10-P/V*** **CS-S-11D-10-P/V***




** Use P for polyester resin and V for vinyl ester resin.*

## "NON-METALLIC" UNIVERSAL PIPE CLAMPS



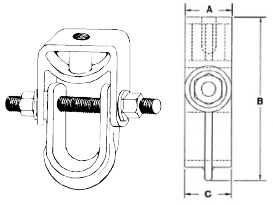
If stainless steel fasteners are preferred, add letter "S" to part nos. below.

| Part No. | Pipe Size | Conduit Outside Dimension - inches *(metric)* PVC Schedule 40 & 80 | PVC Coated Steel | Rigid Steel | Epoxy Fiberglass IPS Type* |
|---|---|---|---|---|---|
| CS-PC-3/4-V | ¾ | 1.050 *(27)* | 1.130 *(29)* | 1.050 *(27)* | 1.050 *(27)* |
| CS-PC-1-V | 1 | 1.315 *(33)* | 1.395 *(35)* | 1.315 *(33)* | 1.315 *(33)* |
| CS-PC-1.25-V | 1¼ | 1.660 *(42)* | 1.740 *(44)* | 1.660 *(42)* | 1.660 *(42)* |
| CS-PC-1.5-V | 1½ | 1.900 *(48)* | 1.980 *(50)* | 1.900 *(48)* | 1.900 *(48)* |
| CS-PC-2-V | 2 | 2.375 *(60)* | 2.455 *(62)* | 2.375 *(60)* | 2.340 *(59)* |
| CS-PC-2.5-V | 2½ | 2.875 *(73)* | 2.950 *(75)* | 2.875 *(73)* | 2.875 *(73)* |
| CS-PC-3-V | 3 | 3.500 *(89)* | 3.580 *(91)* | 3.500 *(89)* | 3.450 *(88)* |
| CS-PC-3.5-V | 3½ | 4.000 *(102)* | 4.090 *(104)* | 4.000 *(102)* | 4.000 *(102)* |
| CS-PC-4-V | 4 | 4.500 *(114)* | 4.580 *(116)* | 4.500 *(114)* | 4.460 *(113)* |

** Epoxy Fiberglass conduit, tubular dimensions (ID Type), does not fit into standard pipe clamps. Please consult factory.*

For rigid steel, PVC coated steel, PVC schedule 40 & 80 and filament wound epoxy fiberglass conduit (IPS only). Made from a special grade of glass reinforced vinyl ester resin. Standard fasteners are non-metallic bolts and hex nuts. See page 51 in this catalog.

## FIBERGLASS CLEVIS HANGERS




| Part No. | Nominal Diameter in | Max Pipe OD in *(mm)* | Hanger Rod in *(mm)* | Maximum Load (lbs) | A in *(mm)* | B in *(mm)* | C in *(mm)* |
|---|---|---|---|---|---|---|---|
| CS-CH-3/4 | ¾ | 1 *(25)* | ½ *(13)* | 200 *(90)* | 2.53 *(64)* | 4.52 *(115)* | 1.25 *(32)* |
| CS-CH-1 | 1 | 1⅛ *(38)* | ½ *(13)* | 200 *(90)* | 2.53 *(64)* | 4.52 *(115)* | 1.25 *(32)* |
| CS-CH-1.25 | 1¼ | 1⅝ *(44)* | ½ *(13)* | 200 *(90)* | 3.06 *(78)* | 5.14 *(131)* | 1.25 *(32)* |
| CS-CH-1.5 | 1½ | 2 *(51)* | ½ *(13)* | 200 *(90)* | 3.06 *(78)* | 5.14 *(131)* | 1.25 *(32)* |
| CS-CH-2 | 2 | 2⅝ *(67)* | ½ *(13)* | 300 *(135)* | 3.68 *(93)* | 6.52 *(166)* | 1.25 *(32)* |
| CS-CH-2.5 | 2½ | 3¼ *(83)* | ½ *(13)* | 400 *(180)* | 3.68 *(93)* | 6.52 *(166)* | 1.25 *(32)* |
| CS-CH-3 | 3 | 3⅞ *(98)* | ½ *(13)* | 600 *(270)* | 7.04 *(179)* | 10.00 *(254)* | 1.50 *(38)* |
| CS-CH-4 | 4 | 5⅛ *(130)* | ½ *(13)* | 600 *(270)* | 7.04 *(179)* | 10.00 *(254)* | 1.50 *(38)* |
| CS-CH-6 | 6 | 7⅛ *(181)* | ½ *(13)* | 600 *(270)* | 9.36 *(238)* | 12.33 *(313)* | 2.04 *(52)* |

Design loads have a 3:1 safety factor at 120°F. Insulation may be required at higher temperatures.



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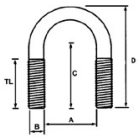
Proposal No. 608616-131225



**Champion Thread™** Fasteners and Hanging Systems are specially developed to give optimum strength and chemical corrosion resistance. The systems are excellent for all structural, mechanical and electrical applications where components must be corrosion resistant. All nuts are hex type and standard tools can be used for easy assembly.

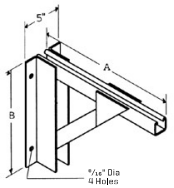
## NON-METALLIC U-BOLT




| Part No. | Pipe Nom Dia | Dimensions A in *(mm)* | B in *(mm)* | C in *(mm)* | D in *(mm)* | TL in *(mm)* | Load Ratings Max Rec Load lbs *(kg)* | Max Rec Torque ft lbs *(kgm)* |
|---|---|---|---|---|---|---|---|---|
| CS-UB-1/2 | ½ | 0.93 *(24)* | 0.375 *(10)* | 1.56 *(40)* | 2.41 *(61)* | 1.25 *(32)* | 75 *(34)* | 20 *(2.8)* |
| CS-UB-3/4 | ¾ | 1.12 *(28)* | 0.375 *(10)* | 1.66 *(42)* | 2.60 *(66)* | 1.25 *(32)* | 75 *(34)* | 20 *(2.8)* |
| CS-UB-1 | 1 | 1.37 *(35)* | 0.375 *(10)* | 1.78 *(45)* | 2.85 *(72)* | 1.25 *(32)* | 75 *(34)* | 20 *(2.8)* |
| CS-UB-1.25 | 1¼ | 1.68 *(43)* | 0.375 *(10)* | 1.94 *(49)* | 3.16 *(80)* | 1.25 *(32)* | 75 *(34)* | 20 *(2.8)* |
| CS-UB-1.5 | 1½ | 2.00 *(51)* | 0.375 *(10)* | 2.10 *(53)* | 3.47 *(88)* | 1.25 *(32)* | 75 *(34)* | 20 *(2.8)* |
| CS-UB-2 | 2 | 2.43 *(62)* | 0.500 *(13)* | 2.46 *(62)* | 4.18 *(106)* | 1.50 *(38)* | 150 *(68)* | 40 *(5.5)* |
| CS-UB-2.5 | 2½ | 2.93 *(74)* | 0.500 *(13)* | 2.71 *(69)* | 4.68 *(119)* | 1.50 *(38)* | 150 *(68)* | 40 *(5.5)* |
| CS-UB-3 | 3 | 3.56 *(90)* | 0.500 *(13)* | 3.03 *(77)* | 5.31 *(135)* | 1.50 *(38)* | 150 *(68)* | 40 *(5.5)* |
| CS-UB-3.5 | 3½ | 4.06 *(103)* | 0.500 *(13)* | 3.28 *(83)* | 5.81 *(148)* | 1.50 *(38)* | 150 *(68)* | 40 *(5.5)* |
| CS-UB-4 | 4 | 4.56 *(116)* | 0.500 *(13)* | 3.53 *(90)* | 6.31 *(160)* | 1.50 *(38)* | 150 *(68)* | 40 *(5.5)* |

U-Bolts are made from a fiberglass reinforced urethane material and are recommended for temperatures ranging from -40°F to +150°F. 2 FRP nuts included with each U-Bolt.

## SUPPORT RACKS




| Part No. | Tray Width | Dimensions A | B |
|---|---|---|---|
| CS-SR-06-P/V* | 6 *(152)* | 10 *(254)* | 10 *(254)* |
| CS-SR-09-P/V* | 9 *(229)* | 13 *(330)* | 12 *(305)* |
| CS-SR-12-P/V* | 12 *(305)* | 16 *(406)* | 13 *(330)* |
| CS-SR-18-P/V* | 18 *(457)* | 22 *(559)* | 16 *(406)* |
| CS-SR-24-P/V* | 24 *(610)* | 28 *(711)* | 19 *(483)* |
| CS-SR-30-P/V* | 30 *(762)* | 34 *(864)* | 22 *(559)* |
| CS-SR-36-P/V* | 36 *(914)* | 40 *(1016)* | 25 *(635)* |

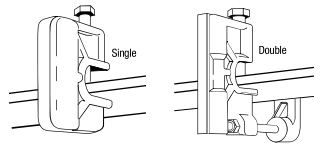
Allowable load = 750 lbs.- based on total load, uniformly distributed over the width of the rack. Safety factor = 2

** Use P for polyester resin and V for vinyl ester resin.*

## BEAM CLAMPS

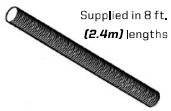
| Part No. | Vinyl Ester Beam Clamps | |
|---|---|---|
| CS-BC-3/8 | Single for ⅜ | FRP Threaded Rod |
| CS-BC-1/2 | Single for ½ | FRP Threaded Rod |
| CS-DC-3/8 | Double for ⅜ | FRP Threaded Rod |
| CS-DC-1/2 | Double for ½ | FRP Threaded Rod |

Allowable load = 300 lbs. Recommended safety factor of 3. Set screws included with clamps.




## FRP THREADED RODS

| Part No. | Size |
|---|---|
| CS-TR-3/8 | ⅜ - 16 UNC |
| CS-TR-1/2 | ½ - 13 UNC |
| CS-TR-5/8 | ⅝ - 11 UNC |
| CS-TR-3/4 | ¾ - 10 UNC |
| CS-TR-1 | 1 - 8 UNC |



Supplied in 8 ft. *(2.4m)* lengths

## FRP CHANNEL NUTS & ROD COUPLERS

| Part No. | Size |
|---|---|
| CS-CN-3/8-V | ⅜ - 16 UNC |
| CS-CN-1/2-V | ½ - 13 UNC |

| Part No. | Size |
|---|---|
| CS-RC-3/8 | ⅜ - 16 UNC |
| CS-RC-1/2 | ½ - 13 UNC |
| CS-RC-5/8 | ⅝ - 11 UNC |
| CS-RC-3/4 | ¾ - 10 UNC |
| CS-RC-1 | 1 - 8 UNC |

## FRP HEX NUTS & WASHERS

| Part No. | Size |
|---|---|
| CS-HN-3/8 | ⅜ - 16 UNC |
| CS-HN-1/2 | ½ - 13 UNC |
| CS-HN-5/8 | ⅝ - 11 UNC |
| CS-HN-3/4 | ¾ - 10 UNC |
| CS-HN-1 | 1 - 8 UNC |

| Part No. | Size |
|---|---|
| CS-FW-3/8 | ⅜ - 16 UNC |
| CS-FW-1/2 | ½ - 13 UNC |
| CS-FW-5/8 | ⅝ - 11 UNC |
| CS-FW-3/4 | ¾ - 10 UNC |
| CS-FW-1 | 1 - 8 UNC |

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Proposal No. 608616-131225

## GENERAL

**Fiberglass Conduit Specifications for Use Below Ground**

The conduit shall be fiberglass conduit, also known as Reinforced Thermosetting Resin Conduit (RTRC), manufactured using the single circuit filament winding process. Multi circuit windings are not allowed. The conduit shall have a winding angle as close as possible to 54.75 degrees.

The resin system shall be epoxy based, with no fillers, using an anhydride curing agent. The fiberglass shall consist of continuous E-glass roving. The conduit shall not contain any halogen compounds containing chlorine, bromine, flourine and iodine in more than trace amounts when burning.

Conduit and elbows shall be manufactured from the same resin/hardener/glass systems manufactured by the same filament wound system.

Fiberglass conduit fittings and accessories shall be manufactured using one of two manufacturing procedures. The first method shall use the same process, methods, and components as used to manufacture the fiberglass conduit. The second method shall use the compression molding process, Sheet Molding Compound (SMC), for the manufacture of the finished component. The SMC material shall be a vinyl ester resin with +30% reinforcement of glass. The glass fibers should be approximately 1" in length. The SMC material shall be fire resistant to UL 2515.

Conduit shall be integral bell and spigot or bonded coupling and spigot.

Conduit, elbows and fittings are specified for use throughout a temperature range of -60°F ***(-51°C)*** to 250°F ***(121°C)***.

Manufacturer shall have a current Certificate of Compliance, issued by an independent and accredited company, with an ISO 9001:2008 Quality Management System.

## ELECTRICAL PROPERTIES

| | | |
|---|---|---|
| • Volume Resistivity | 3.8 x $10^{14}$ ohm-cm | ASTM D 257 |
| • Surface Resistivity | 1.1 x $10^{14}$ ohms | ASTM D 257 |
| • Dielectric Constant | 3.5 (at $10^{3}$ cps) | ASTM D 150 |
| • Dissipation Factor | 0.005 (at $10^{3}$ cps) | ASTM D 150 |
| • Dielectric Strength | 500 volts/mil. ***(19.7 kv/mm)*** | ASTM D 149 |

## PHYSICAL AND MECHANICAL PROPERTIES

| | | |
|---|---|---|
| • Tensile Strength (Axial) | 11,000 psi ***(76 MPa)*** | ASTM D 2105 |
| • Compressive Strength (Axial) | 12,000 psi ***(83 MPa)*** | ASTM D 695 |
| • Ultimate Elongation | 2% psi ***(9.6 GPa)*** | ASTM D 2105 |
| • Modulus of Elasticity (4" conduit) | 1.4 X $10^{+6}$ psi ***(9.6 GPa)*** | ASTM D 2105 |
| • Thermal Conductivity | 2.0 BTU/(ft$^2$)(hr.)(°F/in) ***(0.3mk)*** | ASTM D 5930-01 |
| • Specific Gravity | 1.9 | ASTM D 792 |
| • Glass Content | 70% ± 5% | API SPEC 15 LR |



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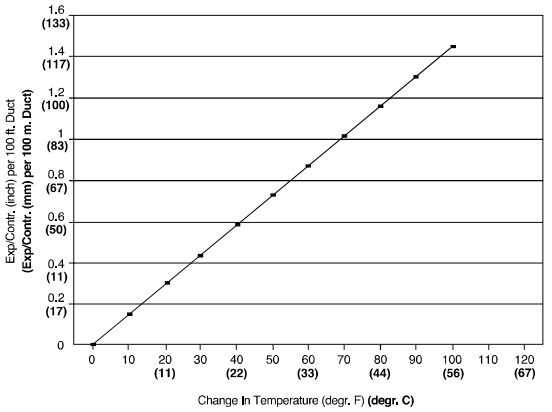
## PHYSICAL AND MECHANICAL PROPERTIES (CONT.)

| | | |
|---|---|---|
| • Water Absorption | Less than 1% | ASTM D 570 |
| • Barcol Hardness | 54 ± 2 | ASTM D2583 |
| • Flammability | | |
| Above Ground Conduit | Conform to UL 2515 & CSA C22.2 | No. 211.3-96 |
| Below Ground Conduit | HB Rating | UL 94 |
| • Coefficient of Thermal Expansion | 1.2 x $10^{-5}$ in/in/°F ***(2.2 $10^{-5}$ m/m/°C)*** | ASTM D 696 |




## HEAT DISTORTION

The minimum heat distortion temperature shall be 230°F ***(110°C)*** when tested at 264 psi in accordance with ASTM D 648.

## JOINT PULLOUT

A 12-inch length shall be cut from both the belled end and spigot end of a length of conduit. The two parts shall be assembled in accordance with Champion's instructions. The assembly shall be tested in accordance with ASTM D 2105 and shall meet the requirements of the table below.

| Joint Pullout Resistance / Minimum Force - lbs *(N)* | | | | |
|---|---|---|---|---|
| Nominal Size | Interference Joint | Gasket with Interference Joint | Gasket without Interference Joint | Tight Lock Joints (Adhesive) |
| All | 1,000 ***(4,450)*** | 2,000 ***(8,900)*** | 500 ***(2,220)*** | 11,000 psi x (cross sectional area of conduit) |

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Proposal No. 608616-131225

## TOXICITY

CHAMPION DUCT conduit does not contain any compounds that can release halogens - bromine or chlorine - when burning.

| Gases | Values (max P.P.M.) |
|---|---|
| Hydrogen Chloride | 0 |
| Hydrogen Bromide | 0 |
| Hydrogen Cyanide | <1 |
| Hydrogen Sulphide | 0 |
| Ammonia | 0 |
| Aldehydes as HCHO | <10 |
| Oxides of Nitrogen | <50 |
| Carbon Dioxide | <12,500 |
| Carbon Monoxide | <250 |

## SURFACE FINISH

- Exterior Surface — Normally less than 2,000 microinches (50.8 micron)
- Interior Surface — Normally less than 125 microinches (3.2 micron)

## COLOR

Standard color is black, using carbon black as pigment. Optional available colors are gray, red, orange and blue.
*Note: When ordering optional colors, the finished product may exhibit slight to extreme color variations.*

## WATER TIGHTNESS

There should be no evidence of water leakage through the joint when tested in accordance to UL 2515 and CSA C22.2 No. 2515. In order to achieve water tightness use **CHAMPION MIX**® or Epoxy Adhesive Kit for Tight Lock Joint. See page 47-48 of this catalog.

## COEFFICIENT OF FRICTION

The following data for static coefficient of friction is for dry conduit and non-lubricated cable at a temperature of 72° F ***(22° C)***.

| Cable Material | Conduit Material: Epoxy Fiberglass Conduit | PVC Conduit | Steel Conduit | Aluminum Conduit | Concrete Conduit | Polyethylene Conduit |
|---|---|---|---|---|---|---|
| PVC | .38 | .90 | .55 | .25 | .95 | 1.90 |
| XLP (Cross-linked Polyethylene) | .23 | .90 | .75 | 1.50 | .75 | 2.00 |
| LDPE (Polyethylene) | .25 | .50 | .50 | .62 | .60 | 1.70 |
| Neoprene | .53 | 2.60 | 1.60 | .26 | 1.35 | 3.30 |
| Concentric Neutral | .16 | -- | -- | -- | -- | -- |
| Tech (Armored) Cable | .16 | 2.60 | 1.60 | .26 | 1.35 | 3.30 |



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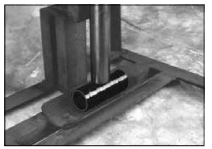
## IMPACT RESISTANCE

The minimum impact resistance values for the conduit shall be as shown in the table below when tested in accordance with ASTM D2444.

| Nominal Size | At 73.4°F *(23°C)* Impact Resistance lbs. ft. *(Nm)* SW | MW | HW | XW | At 32°F *(0°C)* Impact Resistance lbs. ft. *(Nm)* SW | MW | HW | XW |
|---|---|---|---|---|---|---|---|---|
| ¾ | 20 *(27)* | -- -- | -- -- | 150 *(202)* | 20 *(27)* | -- -- | -- -- | 150 *(202)* |
| 1 | 25 *(34)* | -- -- | -- -- | 400 *(540)* | 25 *(34)* | -- -- | -- -- | 400 *(540)* |
| 1¼ | 30 *(41)* | -- -- | -- -- | 400 *(540)* | 30 *(41)* | -- -- | -- -- | 400 *(540)* |
| 1½ | 35 *(47)* | -- -- | -- -- | 500 *(675)* | 35 *(47)* | -- -- | -- -- | 500 *(675)* |
| 2 | 40 *(54)* | -- -- | -- -- | 550 *(742)* | 40 *(54)* | -- -- | -- -- | 550 *(742)* |
| 2½ | 55 *(75)* | | | 600 *(810)* | 55 *(75)* | | | 600 *(810)* |
| 3 | 70 *(95)* | -- -- | -- -- | 700 *(945)* | 70 *(95)* | -- -- | -- -- | 700 *(945)* |
| 3½ | 80 *(108)* | -- -- | -- -- | 850 *(1,150)* | 80 *(108)* | -- -- | -- -- | 850 *(1,150)* |
| 4 | 85 *(115)* | -- -- | 120 *(163)* | 1,000 *(1,350)* | 85 *(115)* | -- -- | 120 *(163)* | 1,000 *(1,350)* |
| 5 | 110 *(149)* | 140 *(190)* | 160 *(217)* | 1,200 *(1,620)* | 110 *(149)* | 140 *(190)* | 160 *(217)* | 1,200 *(1,620)* |
| 6 | 130 *(176)* | 160 *(217)* | 200 *(271)* | 1,300 *(1,755)* | 130 *(179)* | 160 *(217)* | 200 *(271)* | 1,300 *(1,755)* |

*For high impact situations as well as during cold weather, PVC can shatter and/or flatten.*

*For high impact, steel conduit will collapse and can pinch the cable. This will make repair of damaged conduit more difficult.*

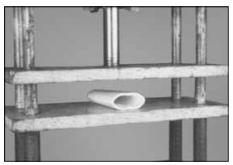


*X-wall conduit has the highest impact value of all conduit materials available. If impacted, it will flex back close to its original diameter. SW, MW and HW will also flex back similarly after impact. They will not shatter.*

## STIFFNESS

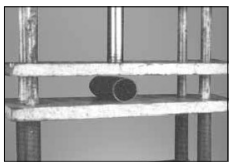
The minimum conduit stiffness at five percent deflection for all sizes of conduit shall not be less than the values given in table below when tested in accordance with ASTM D2412

| Nominal Size | Pipe Stiffness (PS) = (F/ΔY) At 73.4°F *(23°C)* lbf/in² *(MPa)* SW | MW | HW | XW | At 32°F *(0°C)* lbf/in² *(MPa)* SW | MW | HW | XW |
|---|---|---|---|---|---|---|---|---|
| ¾ | 1,500 *(10.3)* | -- | -- | 2,500 *(17.5)* | 1,500 *(10.3)* | -- | -- | 2,500 *(17.5)* |
| 1 | 1,200 *(8.3)* | -- | -- | 2,400 *(16.8)* | 1,200 *(8.3)* | -- | -- | 2,400 *(16.8)* |
| 1¼ | 850 *(5.9)* | -- | -- | 2,100 *(14.7)* | 850 *(5.9)* | -- | -- | 2,100 *(14.7)* |
| 1½ | 600 *(4.1)* | -- | -- | 2,000 *(14)* | 600 *(4.1)* | -- | -- | 2,000 *(14)* |
| 2 | 320 *(2.2)* | -- | -- | 1,300 *(9.0)* | 320 *(2.2)* | -- | -- | 1,300 *(9.0)* |
| 2½ | 200 *(1.4)* | -- | -- | 800 *(5.6)* | 200 *(1.4)* | -- | -- | 800 *(5.6)* |
| 3 | 140 *(1.0)* | -- | -- | 600 *(4.1)* | 140 *(1.0)* | -- | -- | 600 *(4.1)* |
| 3½ | 85 *(0.6)* | -- | -- | 450 *(3.1)* | 85 *(0.6)* | -- | -- | 450 *(3.1)* |
| 4 | 50 *(0.3)* | -- | 130 *(0.7)* | 250 *(1.7)* | 50 *(0.3)* | -- | 130 *(0.7)* | 250 *(1.7)* |
| 5 | 40 *(0.3)* | 75 *(0.5)* | 90 *(0.6)* | 180 *(1.2)* | 40 *(0.3)* | 75 *(0.5)* | 90 *(0.6)* | 180 *(1.2)* |
| 6 | 30 *(0.2)* | 55 *(0.4)* | 65 *(0.4)* | 150 *(1.0)* | 30 *(0.2)* | 55 *(0.4)* | 65 *(0.4)* | 150 *(1.0)* |



***PVC Conduit***

*PVC conduit will stay compressed if it is crushed. (Same for steel conduit.)*



***Fiberglass Conduit***

*Epoxy Fiberglass conduit will flex back to almost its original shape after crushing.*

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Proposal No. 608616-131225

## WIRE FILL

Maximum allowable percentage wire fill per National Electric Code 2011 (Chapter 9, Table 1)

| IPS sizes | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Percent of cross section of conduit & tubing for conductors | | | | |
| Trade Size | | Internal Diameter in | (mm) | Total Area 100% in² | (mm²) | 1 Wire 53% in² | (mm²) | 2 Wire 31% in² | (mm²) | Over 2 Wire 40% in² | (mm²) |
| ¾ | (19) | 0.910 | (23) | 0.650 | (419) | 0.345 | (222) | 0.202 | (130) | 0.260 | (168) |
| 1 | (25) | 1.175 | (30) | 1.084 | (697) | 0.574 | (370) | 0.336 | (216) | 0.434 | (279) |
| 1¼ | (32) | 1.520 | (39) | 1.815 | (1170) | 0.962 | (620) | 0.563 | (363) | 0.726 | (468) |
| 1½ | (38) | 1.760 | (45) | 2.433 | (1569) | 1.289 | (832) | 0.754 | (486) | 0.973 | (628) |
| 2 | (51) | 2.235 | (57) | 3.923 | (2525) | 2.079 | (1338) | 1.216 | (783) | 1.569 | (1010) |
| 2½ | (64) | 2.740 | (70) | 5.896 | (3805) | 3.125 | (2016) | 1.828 | (1179) | 2.359 | (1522) |
| 3 | (76) | 3.360 | (85) | 8.867 | (5715) | 4.699 | (3029) | 2.749 | (1772) | 3.547 | (2286) |
| 4 | (102) | 4.320 | (110) | 14.657 | (9452) | 7.768 | (5009) | 4.544 | (2930) | 5.863 | (3781) |
| 5 | (127) | 5.380 | (137) | 22.733 | (14677) | 12.048 | (7779) | 7.047 | (4550) | 9.093 | (5871) |
| 6 | (152) | 6.435 | (163) | 32.523 | (20970) | 17.237 | (11114) | 10.082 | (6501) | 13.009 | (8388) |

| ID sizes | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Percent of cross section of conduit & tubing for conductors | | | | |
| Trade Size | | Internal Diameter in | (mm) | Total Area in² | (mm²) | 1 Wire 53% in² | (mm²) | 2 Wire 31% in² | (mm²) | Over 2 Wire 40% in² | (mm²) |
| 2 | (51) | 2.000 | (51) | 3.142 | (2027) | 1.665 | (1074) | 0.974 | (628) | 1.257 | (811) |
| 2½ | (64) | 2.500 | (64) | 4.909 | (3167) | 2.602 | (1678) | 1.522 | (982) | 1.963 | (1267) |
| 3 | (76) | 3.000 | (76) | 7.069 | (4560) | 3.746 | (2417) | 2.191 | (1414) | 2.827 | (1824) |
| 3½ | (89) | 3.500 | (89) | 9.621 | (6207) | 5.099 | (3290) | 2.983 | (1924) | 3.848 | (2483) |
| 4 | (102) | 4.00 | (102) | 12.566 | (8107) | 6.660 | (4297) | 3.896 | (2513) | 5.027 | (3243) |
| 5 | (127) | 5.000 | (127) | 19.635 | (12668) | 10.407 | (6714) | 6.087 | (3927) | 7.854 | (5067) |
| 6 | (152) | 6.000 | (152) | 28.274 | (18241) | 14.985 | (9668) | 8.765 | (5655) | 11.310 | (7297) |



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## CONDUIT CONDUCTOR FILL

Based on Wire Fill Data on page 58 and Table 5, Chapter 9 of National Electric Code 2011

RHW*

| IPS sizes | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Trade Size | | Allowable Conduit in² | Max. 1 Conductor Size | in² of 1 Conductor | Allowable Conduit in² | Max. 2 Conductor Size | in² of 2 Conductors | Allowable Conduit in² | Max. 3 Conductor Size | in² of 3 Conductors | Allowable Conduit in² | Max. 4 Conductor Size | in² of 4 Conductors |
| ¾ | (19) | 0.345 | 3/0 | 0.3117 | 0.202 | 4 | 0.1946 | 0.260 | 6 | 0.2178 | 0.260 | 8 | 0.2223 |
| 1 | (25) | 0.575 | 300 | 0.5281 | 0.336 | 2 | 0.2666 | 0.434 | 2 | 0.3999 | 0.434 | 4 | 0.3893 |
| 1¼ | (32) | 0.962 | 500 | 0.7901 | 0.563 | 2/0 | 0.5248 | 0.726 | 1/0 | 0.6669 | 0.726 | 2 | 0.5333 |
| 1½ | (38) | 1.289 | 800 | 1.2272 | 0.754 | 4/0 | 0.7435 | 0.973 | 3/0 | 0.9352 | 0.973 | 1/0 | 0.8891 |
| 2 | (51) | 2.079 | 1250 | 1.8602 | 1.216 | 350 | 1.1917 | 1.569 | 250 | 1.3789 | 1.569 | 4/0 | 1.4871 |
| 2½ | (64) | 3.125 | 2000 | 2.7818 | 1.828 | 500 | 1.5802 | 2.359 | 400 | 1.9856 | 2.359 | 300 | 2.1124 |
| 3 | (76) | 4.699 | | | 2.749 | 900 | 2.7121 | 3.547 | 750 | 3.4955 | 3.547 | 500 | 3.1605 |
| 4 | (102) | 7.768 | | | 4.544 | 1500 | 4.3389 | 5.863 | 1250 | 5.5807 | 5.863 | 900 | 5.4243 |
| 5 | (127) | 12.048 | | | 7.047 | 2000 | 5.5636 | 9.093 | 2000 | 8.3455 | 9.093 | 1750 | 9.9091 |
| 6 | (152) | 17.237 | | | 10.082 | | | 13.009 | | | 13.009 | 2000 | 11.1273 |

RHW*

| ID sizes | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Trade Size | | Allowable Conduit in² | Max. 1 Conductor Size | in² of 1 Conductor | Allowable Conduit in² | Max. 2 Conductor Size | in² of 2 Conductors | Allowable Conduit in² | Max. 3 Conductor Size | in² of 3 Conductors | Allowable Conduit in² | Max. 4 Conductor Size | in² of 4 Conductors |
| 2 | (51) | 1.665 | 1000 | 1.4784 | 0.974 | 250 | 0.9193 | 1.257 | 4/0 | 1.1153 | 1.257 | 3/0 | 1.2469 |
| 2½ | (64) | 2.602 | 1750 | 2.4773 | 1.522 | 400 | 1.3237 | 1.963 | 350 | 1.7875 | 1.963 | 250 | 1.8385 |
| 3 | (76) | 3.746 | 2000 | 2.7818 | 2.191 | 600 | 1.9459 | 2.827 | 500 | 2.3704 | 2.827 | 400 | 2.6475 |
| 3½ | (89) | 5.099 | | | 2.983 | 900 | 2.7121 | 3.848 | 800 | 3.6816 | 3.848 | 500 | 3.1605 |
| 4 | (102) | 6.660 | | | 3.896 | 1250 | 3.7205 | 5.027 | 1000 | 4.4353 | 5.027 | 800 | 4.9087 |
| 5 | (127) | 10.407 | | | 6.087 | 2000 | 5.5636 | 7.854 | 1750 | 7.4319 | 7.854 | 1250 | 7.4409 |
| 6 | (152) | 14.985 | | | 8.765 | | | 11.310 | 2000 | 8.3455 | 11.310 | 2000 | 11.1273 |

THHN

| IPS sizes | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Trade Size | | Allowable Conduit in² | Max. 1 Conductor Size | in² of 1 Conductor | Allowable Conduit in² | Max. 2 Conductor Size | in² of 2 Conductors | Allowable Conduit in² | Max. 3 Conductor Size | in² of 3 Conductors | Allowable Conduit in² | Max. 4 Conductor Size | in² of 4 Conductors |
| ¾ | (19) | 0.345 | 4/0 | 0.3237 | 0.202 | 3 | 0.1946 | 0.260 | 4 | 0.2472 | 0.260 | 6 | 0.2028 |
| 1 | (25) | 0.575 | 350 | 0.5242 | 0.336 | 1 | 0.3124 | 0.434 | 2 | 0.3474 | 0.434 | 3 | 0.3892 |
| 1¼ | (32) | 0.962 | 600 | 0.8676 | 0.563 | 3/0 | 0.5358 | 0.726 | 2/0 | 0.6669 | 0.726 | 1 | 0.6248 |
| 1½ | (38) | 1.289 | 900 | 1.2311 | 0.754 | 4/0 | 0.6474 | 0.973 | 4/0 | 0.9711 | 0.973 | 2/0 | 0.8892 |
| 2 | (51) | 2.079 | 1000 | 1.3478 | 1.216 | 400 | 1.1726 | 1.569 | 300 | 1.3824 | 1.569 | 4/0 | 1.2948 |
| 2½ | (64) | 3.125 | | | 1.828 | 600 | 1.7352 | 2.359 | 500 | 2.1219 | 2.359 | 400 | 2.3452 |
| 3 | (76) | 4.699 | | | 2.749 | 1000 | 2.6956 | 3.547 | 800 | 3.3255 | 3.547 | 600 | 3.4704 |
| 4 | (102) | 7.768 | | | 4.544 | | | 5.863 | 1000 | 4.0434 | 5.863 | 1000 | 5.3912 |
| 5 | (127) | 12.048 | | | 7.047 | | | 9.093 | | | 9.093 | | |
| 6 | (152) | 17.237 | | | 10.082 | | | 13.009 | | | 13.009 | | |

THHN

| ID sizes | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Trade Size | | Allowable Conduit in² | Max. 1 Conductor Size | in² of 1 Conductor | Allowable Conduit in² | Max. 2 Conductor Size | in² of 2 Conductors | Allowable Conduit in² | Max. 3 Conductor Size | in² of 3 Conductors | Allowable Conduit in² | Max. 4 Conductor Size | in² of 4 Conductors |
| 2 | (51) | 1.665 | 1000 | 0.3237 | 0.974 | 300 | 0.9216 | 1.257 | 250 | 1.1910 | 1.257 | 3/0 | 1.0716 |
| 2½ | (64) | 2.602 | | | 1.522 | 500 | 1.4146 | 1.963 | 400 | 1.7589 | 1.963 | 300 | 1.8432 |
| 3 | (76) | 3.746 | | | 2.191 | 750 | 2.0992 | 2.827 | 600 | 2.6028 | 2.827 | 400 | 2.3452 |
| 3½ | (89) | 5.099 | | | 2.983 | 1000 | 2.6956 | 3.848 | 900 | 3.6933 | 3.848 | 600 | 3.4704 |
| 4 | (102) | 6.660 | | | 3.896 | | | 5.027 | 1000 | 4.0434 | 5.027 | 900 | 4.9244 |
| 5 | (127) | 10.407 | | | 6.087 | | | 7.854 | | | 7.854 | 1000 | 5.3912 |
| 6 | (152) | 14.985 | | | 8.765 | | | 11.310 | | | 11.310 | | |

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## DEFLECTION

Deflection is always determined at midspan.

The empirical formula for deflection is:

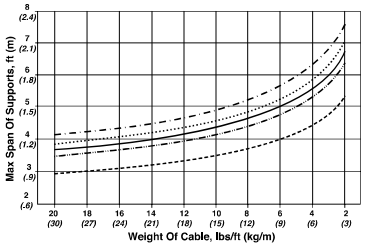
$$D = \frac{131 \cdot W \cdot L^4}{E(OD^4 - ID^4)}$$

Where:
- D = Midspan deflection (in.)
- OD = Outside diameter of conduit (in.)
- ID = Inside diameter of conduit (in.)
- E = Modulus of elasticity of conduit (psi), which is 1,400,000 for epoxy fiberglass conduit
- L = Distance between hangers (ft.)
- W = Total weight of cable and conduit (lbs/ft.)

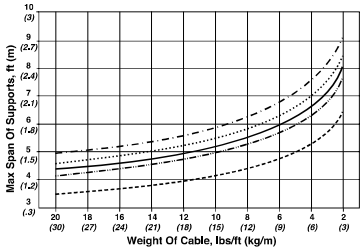
**It is recommended that midspan deflection never exceeds ⅝ inches *(16 mm)*.**

Below are easy graphs for determining support distance between hangers for various diameters and wall thicknesses of conduit.

### ¾" SW DIAMETER




### 1" SW DIAMETER




¼" *(6)* Deflection · ½" *(13)* Deflection · ⅝" *(16)* Deflection · ¾" *(19)* Deflection · 1" *(25)* Deflection



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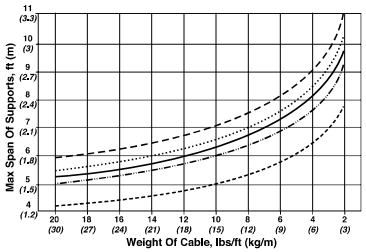
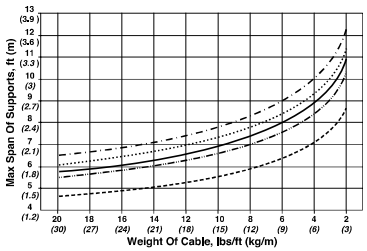
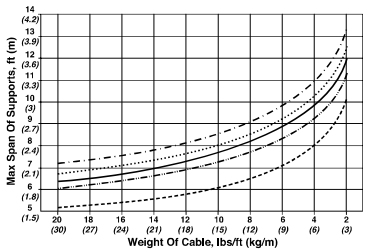
### 1¼" SW DIAMETER



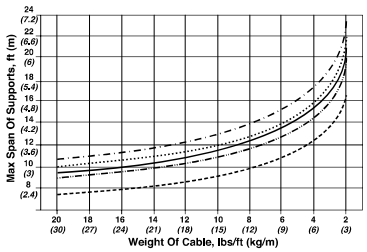

### 1½" SW DIAMETER



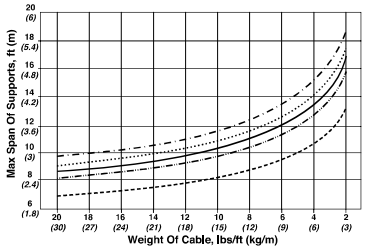

### 2" SW DIAMETER



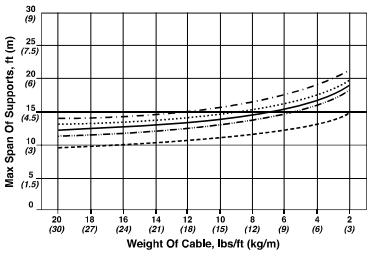

### 2" XW DIAMETER




### 3" SW DIAMETER




### 3" XW DIAMETER




¼" *(6)* Deflection · ½" *(13)* Deflection · ⅝" *(16)* Deflection · ¾" *(19)* Deflection · 1" *(25)* Deflection

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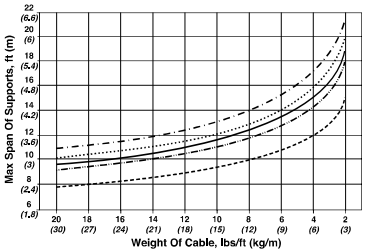
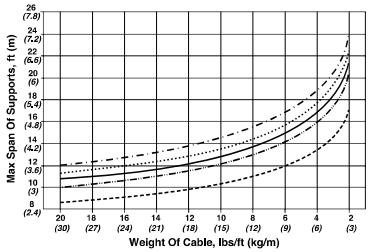
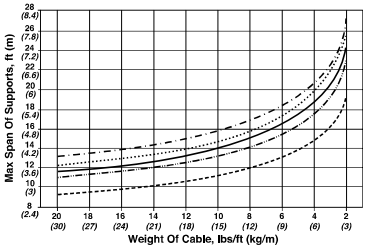
### 3½" SW DIAMETER



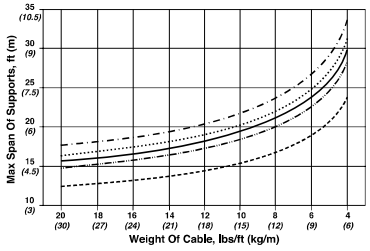

### 4" SW DIAMETER



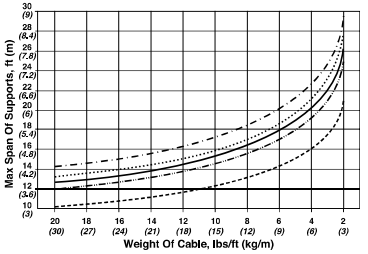

### 4" HW DIAMETER



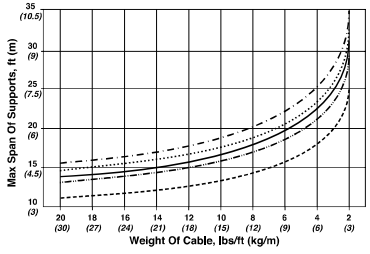

### 4" XW DIAMETER




### 5" SW DIAMETER




### 5" MW DIAMETER




¼" *(6)* Deflection ⅜" *(13)* Deflection ⅝" *(16)* Deflection ¾" *(19)* Deflection 1" *(25)* Deflection



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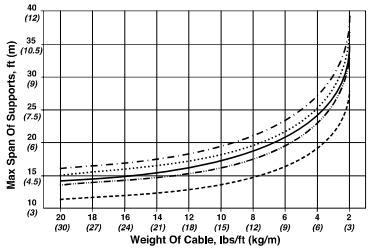
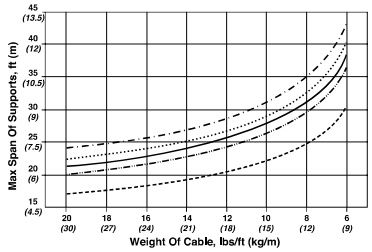
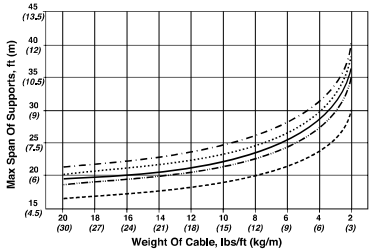
### 5" HW DIAMETER



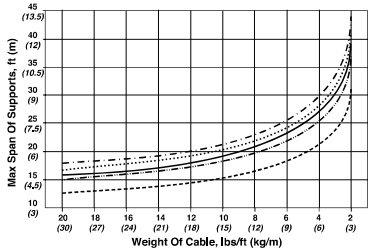

### 5" XW DIAMETER



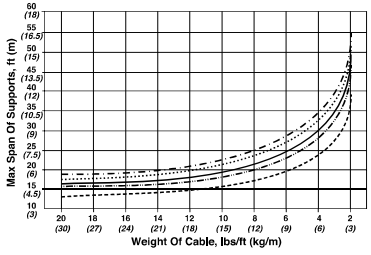

### 6" SW DIAMETER



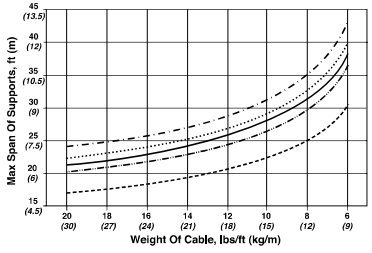

### 6" MW DIAMETER




### 6" HW DIAMETER




### 6" XW DIAMETER




¼" *(6)* Deflection ⅜" *(13)* Deflection ⅝" *(16)* Deflection ¾" *(19)* Deflection 1" *(25)* Deflection

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## CORROSION RESISTANCE GUIDE

The corrosion guidelines tests were performed by immersing epoxy coupons for 30 days in the chemical at the temperature shown. This is a very severe test. It has been shown that **CHAMPION DUCT**® can often be used for chemicals listed as "Not Recommended" (NR). Real cases often are limited to fumes, vapors and occasional splashes at the temperatures indicated.

This information is provided solely as a guide since it is impossible to anticipate all individual site conditions. For specific applications which are not covered in this guide, and may require screening tests to evaluate resin system suitability, consultation with Champion Fiberglass, Inc. is recommended.

| Chemical | °F | °C | Chemical | °F | °C |
|---|---|---|---|---|---|
| Acetic Acid 15% | 175 | ***79*** | Lactic Acid | 150 | ***66*** |
| Acetic Acid 50% | NR | ***NR*** | Lime Slurry, Sat'd | 100 | ***38*** |
| Acetic Acid (Glacial) | NR | ***NR*** | Magnesium Salts | 150 | ***66*** |
| Acetone | NR | ***NR*** | Methyl Alcohol, 10% | 100 | ***38*** |
| Aluminum Chloride, 1% | 200 | ***93*** | Methyl Ethyl Ketone, 100% | NR | ***NR*** |
| Aluminum Hydroxide 30% | NR | ***NR*** | Mineral Oils | 200 | ***93*** |
| Aluminum Sulphate, 25% | 150 | ***66*** | Naphtha | 100 | ***38*** |
| Ammonium Chloride, Sat'd | 150 | ***66*** | Nickel Salts | 100 | ***38*** |
| Ammonium Hydroxide 20% | NR | ***NR*** | Nitric Acid | NR | ***NR*** |
| Ammonium Nitrate, Sat'd | 150 | ***66*** | Oleic Acid | 150 | ***66*** |
| Ammonium Sulfate, Sat'd | 150 | ***66*** | Oxalic Acid | 150 | ***66*** |
| Benzene, 10% | 70 | ***21*** | Perchloroethylene | 70 | ***21*** |
| Benzene Sulfonic Acid 30% | NR | ***NR*** | Phenol, 0-2% | 75 | ***24*** |
| Benzoic Acid, Sat'd | 140 | ***60*** | Phosphoric Acid, 10% | 125 | ***52*** |
| Calcium Salts | 150 | ***66*** | Potassium Carbonate, 0-15% | NR | ***NR*** |
| Carbon Dioxide | 150 | ***66*** | Potassium Permanganate, 5% | 75 | ***24*** |
| Carbon Tetrachloride | NR | ***NR*** | Potassium Sulfate, 10% | 100 | ***38*** |
| Chlorine, Wet Gas | NR | ***NR*** | Sodium Bicarbonate | 125 | ***52*** |
| Chlorine Water | 150 | ***66*** | Sodium Bisulfate | 180 | ***82*** |
| Chlorobenzene | NR | ***NR*** | Sodium Carbonate, 10% | 75 | ***24*** |
| Citric Acid, Sat'd | 150 | ***66*** | Sodium Chloride | 200 | ***93*** |
| Diesel Fuel | 150 | ***66*** | Sodium Dichromate | 75 | ***24*** |
| Ethyl Alcohol | 75 | ***24*** | Sodium Hydroxide, 1% | 75 | ***24*** |
| Ethylene Glycol | 190 | ***88*** | Sodium Hypochlorite | NR | ***NR*** |
| Ferrous Sulfate | 150 | ***66*** | Sodium Nitrate | 100 | ***38*** |
| Fuel Oil | 150 | ***66*** | Sodium Sulfate, 10% | 100 | ***38*** |
| Gasoline | 140 | ***60*** | Sodium Sulfide, 10% | 75 | ***24*** |
| Glycerine | 200 | ***93*** | Sodium Thiosulfate | NR | ***NR*** |
| Hydrochloric Acid 0-10% | 125 | ***52*** | Styrene | NR | ***NR*** |
| Hydrochloric Acid 10-36% | NR | ***NR*** | Sulfur Dioxide, Dry or Wet Gas | 150 | ***66*** |
| Hydrofluoric Acid | NR | ***NE*** | Sulfuric Acid, Vapor | 100 | ***38*** |
| Hydrogen Chloride, Dry or Wet Gas | 100 | ***38*** | Tannic Acid, 15% | 150 | ***66*** |
| Hydrogen Peroxide | NR | ***NR*** | Tartaric Acid | 150 | ***66*** |
| Hydrogen Sulfide, Dry or Wet Gas | 125 | ***52*** | Toluene | NR | ***NR*** |
| Kerosene | 150 | ***66*** | Water, City | 170 | ***77*** |

***NR = Not Recommended***

Information in this table is based on data supplied by raw material suppliers and collected from many years of similar industrial applications.

Temperatures represent standard test conditions and are not minimums or maximums. **CHAMPION DUCT** products may be acceptable at other temperatures for some chemicals, but should be tested to determine specific suitability.

The recommendations or suggestions contained in this table are made without guarantee or representation as to results. We suggest that you evaluate these recommendations and suggestions in your own laboratory or field trial prior to use.



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## LOCATION OF SUPPORTS

The actual location of supports are determined by two factors,

1) What the National Electrical Code (NEC) allows.
2) If not guided by NEC, see pages 58-61 in this catalog for determination of support distance. All of the graphs are shown for five (5) different mid-span locations. After determining the total weight of the cable, the support span distance is determined based on maximum allowable mid-span deflection. A rule of thumb is that the mid-span deflection should not exceed 5⁄8" ***(16 mm)***.

If PVC conduit or any other material is used, please consult NEC and the manufacturers guidelines.

## INSTALLATION OF EXPANSION JOINTS

If the fiberglass conduit is subject to expansion and contraction due to changes in the ambient temperature, Champion Fiberglass, Inc. suggests following guidelines for installing expansion joints.

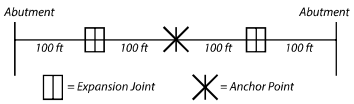
(see also page 7 in this catalog for expansion chart):

**Conduit Length Less Than 50 ft. *(15 m)* No Expansion Joint Needed.**

**If conduit length is between 50 ft. *(15 m)* up to 200 ft. *(61 m)*, install one expansion joint mid-way.**

**If conduit length is over 200 ft. *(61 m)*, install one expansion joint every 200 ft. *(61 m)* apart.** When commencing, install the first expansion joint 100 ft. ***(30 m)*** maximum from each abutment, and then space the expansion joints equally every 200 ft. ***(61 m)*** maximum.

Expansion joints should preferably be placed ¼ away from any hanger. This is the point where the load is at minimum and will therefore allow for smooth operation.



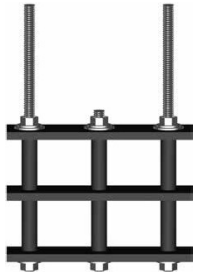

## ANCHOR POINT

If more than one expansion joint is installed in a conduit run, split anchor rings need to be installed around the hanger that is closest to mid-way between each expansion joint.

The hangers that have split anchor rings, need to be braced as these hangers can be distorted, (because of the bending forces from the conduit contracting and expanding as ambient temperature varies). A hanger that is braced is most commonly referred to as an anchor hanger. The bracing is supplied using adjustable rods.

## INTERMEDIATE HANGER

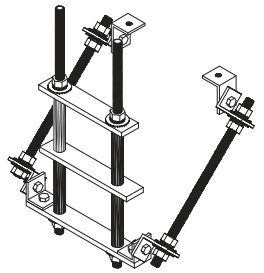
This is the most widely used type of hanger for support under bridges. It is a trapeze hanging system, using threaded rods that are attached to the bridge. The horizontal components are fiberglass flatbars, 2" wide x ⅛" ***(52 mm x 13 mm)*** thick, and the threaded rods are sleeved over using 1" ***(25 mm)*** fiberglass pultruded pipe, in order not to abrade the conduit.
For more information see our website www.championfiberglass.com.



## ANCHOR HANGER

Wherever split anchor rings are used around a hanger, this hanger needs to be braced and is often referred to as an anchor hanger. It has the same construction as an intermediate hanger, except that the bottom horizontal crossmember is 2" ***(51 mm)*** longer on each side. From this extended crossmember, bracing members are attached. The bracing can be an adjustable brace or made from angle iron.

In some instances, hangers are not supported from the bridge, but instead "standing" on top of I-beams. For such instances, the support rods are shorter and instead extended downwards for attachment to an I-beam.



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Proposal No. 608616-131225

## NATIONAL ELECTRICAL CODE, NEC (2011)

(Copyright 2008 NFPA)

Article 355 - Reinforced Thermosetting Resin Conduit Type (RTRC)

**I. General**
**355.1 Scope.**
This article covers the use, installation, and construction specification for reinforced thermosetting resin conduit (RTRC) and associated fittings.

Informational Note: Refer to Article 352 for Rigid Polyvinyl Chloride Conduit: Type PVC, and Article 353 for High Density Polyethylene Conduit: Type HDPE.

**355.2 Definition.**
Reinforced Thermosetting Resin Conduit (RTRC). A rigid nonmetallic conduit of circular cross section, with integral or associated couplings, connectors, and fittings for the installation of electrical conductors and cables.

**355.6 Listing Requirements.**
RTRC, factory elbows, and associated fittings shall be listed.

**II. Installation**
**355.10 Uses Permitted.**
The use of RTRC shall be permitted in accordance with 355.10 (A) through (I).

(A) Concealed. RTRC shall be permitted in walls, floors, and ceilings
(B) Corrosive Influences. RTRC shall be permitted in locations subject to severe corrosive influences as covered in 300.6 and where subject to chemicals for which the materials are specifically approved.
(C) Cinders. RTRC shall be permitted in cinder fill.
(D) Wet Locations. RTRC shall be permitted in portions of dairies, laundries, canneries, or other wet locations and in locations where walls are frequently washed, the entire conduit system, including boxes and fittings used therewith, shall be installed and equipped so as to prevent water from entering the conduit. All supports, bolts, straps, screws, and so forth, shall be of corrosion-resistant materials or be protected against corrosion by approved corrosion-resistant materials.
(E) Dry and Damp Locations. RTRC shall be permitted for use in dry and damp locations not prohibited by 355.12.
(F) Exposed. RTRC shall be permitted for exposed work if identified for such use.

Informational Note: RTRC, Type XW, is identified for areas of physical damage.

(G) Underground Installations. For underground installations, see 300.5 and 300.50.
(H) Support of Conduit Bodies. RTRC shall be permitted to support nonmetallic conduit bodies not larger than the largest trade size of an entering raceway. These conduit bodies shall not support luminaires or other equipment and shall not contain devices other than splicing devices as permitted by 110.14(B) and 314.16(C)(2).
(I) Insulated temperature Limitations: Conductors or cables rated at temperature higher than the listed temperature rating of RTRC conduit shall be permitted to be installed in RTRC conduit, if the conductors or cables are not operated at a temperature higher than the listed temperature rating of the RTRC conduit.**

**355.12 Uses Not Permitted.**
RTRC shall not be used in the following conditions.

(A) Hazardous (Classified) Locations.
1. In hazardous (classified) locations, except as permitted by other articles in this Code
2. In Class I, Division 2 locations, except as permitted in 501. 10(B)(3)

(B) Support of Luminaries. For the support of luminaries or other equipment not described in 355.10(H).
(C) Physical Damage. Where subject to physical damage unless identified for such use.*
(D) Ambient Temperatures. Where subject to ambient temperatures in excess of 50°C (122°F) unless listed otherwise.**
(E) Insulation Temperature Limitations. For conductors or cables operating at temperature higher than the RTRC listed operating temperature rating.
(F) Theaters and Similar Locations. In theaters and similar locations, except as provided in Articles 518.4 and 520.5.

(*) Champion Haz Duct® is identified for such use, i.e. can be used where Physical Damage is of concern.
(**) Champion Duct® and Haz Duct® are listed for 110°C (230°F).

## CANADIAN ELECTRICAL CODE, CEC (2009)

**Rigid RTRC Conduit**

**12-1200 Scope**
Rules 12-1202 to 12-1220 apply only to the installation of rigid RTRC conduit Type AG and Type BG.

**12-1202 Use**
(1) Rigid RTRC conduit Type AG and Type BG shall be permitted to be installed
  (a) underground in accordance with Rule 12-012; and
  (b) in walls, floors, and ceilings where encased or embedded in at least 50 mm of masonry or poured concrete.
(2) Rigid RTRC conduit Type AG shall, in addition to the locations permitted in Subrule (1), be permitted for exposed and concealed locations.

**12-1204 Restrictions on use (see Appendix B)**
Rigid RTRC conduit shall not be used in buildings required to be of non-combustible construction, unless it has a flame spread rating and smoke developed classification as specified in the National Building Code of Canada.

**12-1206 Mechanical protection**
Rigid RTRC conduit shall be provided with mechanical protection where exposed to damage either during installation or afterwards.

**12-1208 Field bends**
Rigid RTRC conduit shall not be bent in the field.

**12-1210 Temperature limitations**
Rigid RTRC conduit shall not be used where normal conditions are such that any part of the conduit is subjected to a temperature in excess of 110°C.

**12-1212 Fittings**
Rigid RTRC conduit shall not be threaded but shall be used with adapters and couplings specifically designed for the purpose.

**12-1214 Expansion joints (see Appendix B)**
Except where encased in concrete, at least one expansion joint shall be installed in any conduit run where the expansion of the conduit due to the maximum probable temperature change during and after installation will exceed 45 mm.

**12-1216 Conduit supports**
Where rigid RTRC conduit Type AG is run in accordance with Rule 12-1202(2), it shall be supported with hangers or clamps
  (a) in such a manner as to permit adequate linear movement to allow for expansion and contraction due to temperature change; and
  (b) with the spacings of the supports not greater than permitted by Rule 12-1010.

**12-1218 Maximum number of conductors**
The maximum number of conductors in rigid RTRC conduit shall be determined in accordance with Rule 12-1014.

**12-1220 Provision for bonding**
A separate bonding conductor shall be installed in rigid RTRC conduit in compliance with Rule 10-404.

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## PACKAGING INFORMATION FOR CONDUIT

| Nominal Size | Iron Pipe Size | | | Tubular Size | | |
|---|---|---|---|---|---|---|
| | Truckload Quantities (ft) | Crate Quantities (ft) | Approx Crate Dimensions (ft) | Truckload Quantities (ft) | Crate Quantities (ft) | Approx Crate Dimensions (ft) |
| ¾ | * | 3,600 | 3 x 2 x 10 | | | |
| 1 | * | 2,400 | 2.7 x 2 x 10 | | | |
| 1¼ | * | 3,840 | 4 x 1.5 x 20 | | | |
| 1½ | * | 3,680 | 4 x 1.8 x 20 | | | |
| 2 | * | 2,480 | 4 x 2 x 20 | * | 3,000 | 4 x 2 x 20 |
| 3 | 25,760 | 3,220 | 4 x 4 x 20 | 34,560 | 4,320 | 4 x 4 x 20 |
| 3½ | - | | | 25,760 | 3,220 | 4 x 4 x 20 |
| 4 | 15,040 | 1,880 | 4 x 4 x 20 | 18,240 | 2,280 | 4 x 4 x 20 |
| 5 | 10,880 | 1,360 | 4 x 4 x 20 | 12,000 | 1,500 | 4 x 4 x 20 |
| 6 | 7,040 | 880 | 4 x 4 x 20 | 8,320 | 1,040 | 4 x 4 x 20 |

** Contact Champion Fiberglass, Inc. for Information. For XWall Conduit, Contact Champion Fiberglass, Inc. for Packaging Information.*

## LIMITED WARRANTY

This warranty covers any Champion Fiberglass, Inc. ("Champion") electrical conduit products ("Product").

Subject to the terms and conditions of this warranty, Champion warrants that the Product is free from defects in workmanship and materials for a period of one (1) year from the date of purchase. During the applicable terms of this warranty, and subject to the terms and conditions thereof, in the event that the Product is proven to be defective and the defect is not caused by any misuse or damage to the Product while in the possession of the user, Champion will remedy the failure or defect without charge to the user except for labor. The remedy will consist of repair or replacement of the Product and or defective part, at Champion's option. Repair will be made, at Champion's option, either at user's location or at a facility designated by Champion. Any replacement part provided under this warranty assumed as its warranty period only the unexpired term of this warranty, which is fixed when such part replaces a defective part. This warranty does not cover defects, failure or damages caused by normal wear and tear, act of God, accident, misuse or unreasonable use of the Product, lack of proper maintenance, fire, flood, or any circumstances or events beyond Champion's control.

Champion's sole obligation under this warranty is to repair or replace the product, as provided herein. Champion shall have no liability for any direct, incidental, special or consequential damages resulting from breach of this or any other warranty (no warranty being implied from this reference) on the product. Except to the extent prohibited by applicable law, any implied warranty, including without limitation, of merchantability or fitness for any particular purchase with respect to the product, is limited in duration to the term of this warranty. This warranty is in lieu of any other express warranties and of any other obligation on the part of Champion. Any other express warranties are expressly excluded and disclaimed. No Champion representative is authorized to give any warranty (other than this warranty) with respect to the product, and any such warranty given by a Champion representative shall not constitute a Champion warranty or be binding in any respect upon Champion.

Note: Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. Some states do not allow limitation on how long an implied warranty lasts, so the above limitations may not apply to you.

To obtain performance of any obligation of Champion under this warranty, the user must provide proof of the date of purchase, notify Champion of any warranty claim at the following address:

**CHAMPION FIBERGLASS, INC.**
6400 Spring Stuebner Rd
Spring, TX 77389
Attention: Warranty Claims
Telephone: (281) 655-8900

Notify the nearest Champion authorized representative for inspection of the Product. For the name of the nearest authorized representative, refer to our web site: www.championfiberglass.com / Locate a Rep Tab / or you can contact our corporate offices for the appropriate Representative's contact information. Any written correspondence can be mailed to our corporate offices at the address above.

**This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.**

**NO RETURNS ALLOWED ON PRODUCTS SHIPPED TO JOB SITES.**

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DOCUMENT A00895

# CHAMPION FIBERGLASS BELOW GROUND CONDUIT SPECIFICATIONS

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# FIBERGLASS CONDUIT BELOW GROUND SPECIFICATIONS

## I. References

When a standard or other referenced document referred to in this specification is superseded by an approved revision, the revision shall apply.

## II. Listing

The conduit shall be listed by UL, Underwriters Laboratories, to the UL 2420 Below Ground standard. All conduit shipped shall contain UL labels.

## III. Manufacturing

The conduit shall be fiberglass conduit, also known as Reinforced Thermosetting Resin Conduit (RTRC), manufactured using the **single circuit filament winding process**. Multi circuit windings are not allowed. The conduit shall have a winding angle as close as possible to 54.75 degrees. Winding mandrels shall be straight and true so as to produce a non-tapered conduit. Tapering is allowed at the belled end.

The resin system shall be epoxy based, with no fillers, using an anhydride curing agent. The fiberglass shall consist of continuous **E-glass Grade "A" roving**. All additives for increasing flame spread and lowering smoke density shall be halogen free, i.e. not contain chlorine or bromine.

Carbon black shall be used as ultra violet inhibitor to protect the conduit and fittings during storage and exposure to the outdoors. Conduit and elbows shall be black in color.

Curing shall be done using an oven and shall take place in two steps. The first curing zone shall bring the conduit slowly to the gel temperature. The second zone shall post-cure the conduit at no less than 350° F. The pipe has to be properly cured so that when measuring the glass transition temperature with a differential calorimeter the difference between the first measurement and the second shall not exceed 5° F.

The internal conduit and elbow walls shall be smooth and all fibers embedded in the epoxy.

All elbows shall meet the nominal radius + or – 2°. The wall thickness shall meet tolerance as shown below and the "Out of Rounds" as shown in NEMA TC 14.

All elbows shall have either straight ends or deep socket PVC couplings.
All conduits and elbows shall be durably and legibly marked in accordance to NEMA TC 14. In addition the following information shall be included:

NEMA TC 14
UL 2420 BG (Below Ground)
Manufacturer and Reseller (if the conduit was modified or bent other than by the manufacturer)
Date of Manufacturing of conduit and elbows
Elbows shall be marked with the angle and radius
Special customer markings (per request)

All conduit, elbows and fittings shall be **manufactured in the U.S.A. and marked as such.**

**FIBERGLASS CONDUIT BELOW GROUND SPECIFICATIONS**

## IV. Dimensions

Conduit shall be manufactured with following nominal dimensions:

| | | Outside Diameter (inch) | Inside Diameter (inch) | Wall Thickness (inch) |
|---|---|---|---|---|
| 3/4" | SW | 1.050 | 0.910 | .070 |
| 1" | SW | 1.315 | 1.175 | .070 |
| 1-1/4" | SW | 1.660 | 1.520 | .070 |
| 1-1/2" | SW | 1.900 | 1.760 | .070 |
| 2" | SW | 2.375 | 2.235 | .070 |
| 2-1/2" | SW | 2.875 | 2.735 | .070 |
| 3" | SW | 3.500 | 3.360 | .070 |
| 3-1/2" | SW | 4.000 | 3.860 | .070 |
| 4" | SW | 4.460 | 4.320 | .070 |
| 5" | MW | 5.572 | 5.380 | .096 |
| 6" | MW | 6.627 | 6.435 | .096 |

Conduit shall be manufactured having **non-tapered sections** (except for integral belled ends).

## V. Electrical Characteristics

| | | |
|---|---|---|
| Volume Resistivity | 3.8 x $10^{14}$ ohm-cm | ASTM D257 |
| Surface Resistivity | 1.1 x $10^{14}$ ohms | ASTM D257 |
| Dielectric Constant | 3.5 (at $10^{3}$ cps) | ASTM D150 |
| Dissipation Factor | 0.005 (at $10^{3}$ cps) | ASTM D150 |
| Dielectric strength | 500 volts/mil | ASTM D149 |

## VI. Mechanical Characteristics

The conduit shall have following mechanical strength when tested in accordance with referenced test method:

| | | |
|---|---|---|
| Tensile strength, axial | 11,000 psi | ASTM D2105 |
| Compressive strength | 12,000 psi | ASTM D695 |
| Ultimate elongation | 2% psi | ASTM D2105 |
| Modulus of elasticity (4" conduit) | 1.4 x $10^{+6}$ psi | ASTM D2105 |
| Thermal conductivity | 2.0 BTU/($ft^2$)(hr)($^{o}$F/in) | ASTM D5930-1 |

## FIBERGLASS CONDUIT BELOW GROUND SPECIFICATIONS

| | | |
|---|---|---|
| Specific gravity | 1.9 | ASTM D792 |
| Glass content | 65-75% | API 15LR |
| Water absorption | 1% max | ASTM D570 |
| Barcol Hardness | 52-56 | ASTM D2583 |
| Coefficient of thermal expansion | 1.2 x $10^{-5}$ in/in/$^{o}$F | ASTM D696 |

Impact resistance: ASTM D2444

| Size | | |
|---|---|---|
| | 3/4" SW | 20 ft.lbs. |
| | 1" SW | 25 ft.lbs. |
| | 1-1/4" SW | 30 ft.lbs. |
| | 1-1/2"SW | 35 ft.lbs. |
| | 2" SW | 40 ft.lbs. |
| | 2-1/2" SW | 55 ft.lbs. |
| | 3" SW | 70 ft.lbs. |
| | 3-1/2" SW | 80 ft.lbs. |
| | 4" SW | 85 ft.lbs. |
| | 5" MW | 140 ft.lbs. |
| | 6" MW | 160 ft.lbs. |

Stiffness at 5% Deflection: ASTM D2412

| Size | | |
|---|---|---|
| | 3/4" SW | 1,500 lb/in/in |
| | 1" SW | 1,200 lb/in/in |
| | 1-1/4" SW | 850 lb/in/in |
| | 1-1/2" SW | 600 lb/in/in |
| | 2" SW | 320 lb/in/in |
| | 2-1/2" SW | 200 lb/in/in |
| | 3" SW | 140 lb/in/in |
| | 3-1/2" SW | 85 lb/in/in |
| | 4" SW | 50 lb/in/in |
| | 5" MW | 75 lb/in/in |
| | 6" MW | 55 lb/in/in |

### VII. Quality Assurance Program

Manufacturer shall have a current Certificate, issued by an independent and accredited company, of compliance with an **ISO 9001:2008 Quality Management System**.

## VIII. Joining System

A. Conduit Subjected to Changes in Ambient Temperature
The conduit shall be supplied with a bonded coupling or an integral wound bell on one end and a machined spigot on the other end. A two part adhesive, epoxy resin system, designed to permanently bond fittings and joints of conduit shall be properly mixed and applied to the spigot end before joining the conduits together. The adhesive shall be available for use in three different ambient temperatures, 70°F, 40°F and 20°F. The adhesive shall be supplied from the same manufacturer of conduit and fittings in order not to void the listing by UL.

B. Constant Ambient Temperature – Gasketed Joining System
The conduit shall be supplied with a gasketed joining system which can be used for concrete encasement as well as direct burial installations. This gasketed conduit shall consist of a three-ribbed gasket made from water resistant rubber material. The gasket shall be fit into a permanent groove in the belled end of the conduit. Retainer rings etc. are not permitted and shall not be used in order to create the gasket groove.

C. Constant Ambient Temperature – Interference Joining System
The conduit shall be supplied with an interference joining system which can be used for concrete encasement (only). The interference joining system consists of an integral bell and spigot. The spigot end has a buttress type male thread for easy installation into the belled end female mating threads. The tapered buttress threads make the joining system easy to assemble while providing a high pull-out strength of 1,000 lbs. The joining system is concrete tight but not water tight.

## X. Toxicity

The conduit shall not contain any compounds that can release halogens, i.e. chlorine, bromine, flour and iodine in more than trace amounts when burning. Following shall be the maximum values when tested in accordance to ASTM E-800:

| Gases | Values (max p.p.m.) |
|---|---|
| Hydrogen Chloride | 0 |
| Hydrogen Bromide | 0 |
| Hydrogen Cyanide | < 1 |
| Hydrogen Sulfide | 0 |
| Ammonia | 0 |
| Aldehydes as HCHO | < 10 |
| Oxides of Nitrogen | < 50 |
| Carbon Dioxide | < 12,500 |
| Carbon Monoxide | < 250 |

FIBERGLASS CONDUIT BELOW GROUND SPECIFICATIONS

## XI. Fittings and Accessories

Fiberglass conduit fittings, elbows, and accessories shall be manufactured using one of two manufacturing procedures. The first method shall use the same process, methods, and components as used to manufacture the fiberglass conduit. The second method shall use the compression molding process, Sheet Molding Compound (SMC), for the manufacture of the finished component. The SMC material shall be a vinyl ester resin with +30% reinforcement of glass. The glass fibers should be approximately 1" in length. The SMC material shall be fire resistant to UL 2515 specifications and shall be halogen free. Plastic duct plugs shall be manufactured from PVC.

## XII. Environmental

Manufacturer shall have a current Certificate, issued by an independent and accredited company, of compliance with an **ISO 14001 : Environmental Management Systems and Performance**.

## XIII. Installation Training

Manufacturer shall provide contractor installation training and certification for field cutting, joint preparation, joint assembly, field bending and RTRC field cut sealing (with field cutting sealant).

Specification of Fiberglass Conduit for Below Ground Use

CHAMPION FIBERGLASS™

## FIBERGLASS CONDUIT BELOW GROUND SPECIFICATIONS

# CERTIFICATE OF REGISTRATION

This is to certify that

**Champion Fiberglass Inc.**
6400 Spring Stuebner Rd., Spring, Texas 77389 USA

operates a

**Quality Management System**

which complies with the requirements of

**ISO 9001:2008**

for the following scope of registration

**Manufacture of fiberglass conduit and fittings.**

| | | | |
|---|---|---|---|
| Certificate No.: | CERT-0065909 | Original Certification Date: | November 6, 2009 |
| File No.: | 1058413 | Current Certification Date: | November 5, 2012 |
| Issue Date: | September 28, 2012 | Certificate Expiry Date: | November 4, 2015 |

Chris Jouppi
President,
QMI-SAI Canada Limited

Guillaume Gignac, Ing.f
Vice President, Corporate Operations, Accreditation & Quality
QMI-SAI Canada Limited

Certified System

ANAB ACCREDITED

ISO 9001

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SAI GLOBAL

DOCUMENT A00896

# TAUNTON MUNICIPAL LIGHT PLANT (TMLP) SPECIFICATIONS

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# TMLP CONDUIT/DUCTS INSTALLATION

**CONDUIT(S)** (Underground) – The Contractor shall provide and install all conduit(s) as described in bid and on any attached drawing(s). All conduits shall be Schedule 40 PVC. All conduits shall be encased in concrete a minimum of 4" of concrete around the entire circumference of the conduits. No other utility shall be installed within 12" of the electric utilities. The electric utility conduits shall be encased in its own concrete envelope and separate from all other utilities encasement(s). The conduits should be installed to form a separate electric ductbank. The ductbank shall have forms on its outer edges to construct a uniform ductbank after concrete encasement has been performed. The forms are to be stripped and removed once the concrete encasement has hardened to the satisfaction of the TMLP Project Engineer and any other authoritative agency pertaining to the task (i.e. MassDOT Engineers, Municipal Inspectors).

**WARNING TAPE** – The Contractor shall provide and install a warning tape 12" above the concrete encasement. The warning tape shall read "Caution: Buried Electric Cables Below".

**INSPECTIONS/APPROVALS** - The Contractor shall install all the electric infrastructure under the direction of the TMLP Project Engineer or his assigned designee. All work pertaining to the construction and build of TMLP's infrastructure should be inspected and approved as required by TMLP before any final backfilling and covering of the infrastructure; this includes concrete encasement. Typically, inspections are in 3 phases, but not limited to 3 phases. The first inspection is typically a site meeting to review and agree to the actual layout of the infrastructure. The second inspection is typically when a manhole, hand-hole, switch box, street light foundation, conduits, etc. is/are installed and ready for encasement or backfill. The third inspection is typically after the encasement or backfill is completed and rough grading is starting or finished. Inspection procedures may vary slightly as deemed by the TMLP Project Engineer.

**TMLP UNDERGROUND SPECIFICTIONS**

***RE:. MassDOT Proj. 608616 Taunton: Scadding St. Bridge over Snake River***

**I.** **RISER POLE(S)** - The Owner/Contractor shall install a 4"/5" galvanized steel pipe and a 4"/5" galvanized steel, 36" radius sweep to the 10' level on each primary feed pole(s) # 68 & 70 Scadding St. including grounding provisions. This pole will be installed by the Verizon and should not have more than three riser pipes total attached to it. Note, pole(s) # 68 & 76 are located in the Verizon maintenance area. Therefore, they will be installed by Verizon. Verizon will be responsible for the legal petitioning of these poles which have to be petitioned to the township for approval of their location before it can be installed.

**II.** **PRIMARY CABLE** - The TMLP shall supply and install sufficient 15KV URD jacketed cable as per the attached specs. Cable size to be 350 MCM EPR primary cables and are to be installed a
minimum of 44" below final grade, as illustrated on the attached drawing. A spare 4"/5" and 2" Sch. 40 PVC conduits shall be installed the full length of the installation. The conduits shall be concrete encased the full length of the installation. Provide sufficient slack to reach the pole top at the riser(s) and sufficient slack to make up elbows at the transformer(s). TMLP shall identify and mark each phase at all riser poles, transformers, and splice boxes.

**III.** **RISER POLE TERMINATOR(S)** – The TMLP shall provide and install three (3) – 350 MCM Al., 15KV modular outdoor cable terminators with mounting brackets. Easy on (spring-loaded) terminators are not acceptable. Use ELASTIMOLD Cat. #PCT-1240-4 or a TMLP approved equivalent.

**IV.** **TRANSFORMER(S)** – The TMLP will provide the necessary transformer(s) to supply a

**V.** **SECONDARY CABLE** – The TMLP shall provide and install all secondary cables according to the National Electric Code and the governing wire inspector. The TMLP shall identify and mark each phase and neutral at each transformer and handhole. The TMLP shall provide and install 3 – 4/0 Al., 600 volt, underground type approved cable to provide secondary service from the transformers to the handholes as shown on the drawing.

**VI.** **SECONDARY CONNECTORS** – The TMLP shall provide and install adequate submersible secondary connectors with 3-6 positions, #6-350 (UTILCO Cat. #PED6-350SSP) as needed.

**VII.** **STREET LIGHT CABLE** – The TMLP shall provide and install adequate 2/C-#6 Al. underground approved, 600 volt cable to power street lights (if any).

**VIII.** **STREET LIGHT POLES/FIXTURES** – Street lights can be installed upon the request of the Owner and approval of the governing township. It is the responsibility of the Owner to

obtain legal approval for the requested lights and their locations. The TMLP shall provide, install, and maintain the light fixtures, and associated equipment on a rental basis to the ownership of Association. The Owner shall provide, install, and maintain the pole(s), wire(s), and conduits with TMLP approved lighting poles. There are three types of poles offered to the Rentee and they are: wood poles, aluminum standards, or antique Washington Posts.

**IX.** **SECONDARY HANDHOLES** – The Owner/Contractor shall provide and install secondary fiberglass handholes (splice boxes) as shown on drawing. These handholes should be installed level with the final grade and maintained by the Owner. Use CDR Cat. #PA10-1730-30, or a TMLP approved equivalent.

**X.** **PRIMARY SPLICE BOX(ES)** – The Owner/Contractor shall proved and install fiberglass splice boxes as shown on drawing #. The splice boxes should be installed so the bottom of the door opening is 6" – 12" above final grade and maintained by the Owner. Use POWER DESIGN, INC. Cat. # CJP-30-56-L2-2415 splice box with three ELASTIMOLD Cat. # 163J4R four-position junction modules, or a TMLP approved equivalent.

**XI.** **CONDUIT(S)** – The Owner/Contractor shall provide and install all conduit(s) as described below and/or on attached drawing. All conduits shall be Schedule 40 PVC. All conduits shall be encased in concrete a minimum of 4" around the entire circumference of the conduits. No other utility shall be installed within 12" of the electric utilities. The electric utility conduits shall be encased in its own concrete envelope and separate from all other utilities encasement(s). This project will require the installation of one 2" and two 4"/5" conduits for the electric utility service from the riser pole to the transformer pad.

1. **4"/5" PVC** – Should be used to house all primary cables, plus one additional for a spare conduit as shown in attached specs.
   - Should be installed on all road crossings that house primary or secondary cables, plus one (1) spare conduit.

2. **2" PVC** – Should be used to low voltage cable(s) only. No spare is needed.

**XII.** **WARNING TAPE** – The Owner/Contractor shall provide and install a warning tape 12" above the concrete encasement. The warning tape shall read "Caution: Buried Electric Cables Below".

**XV.** **ELECTRIC LOAD(S)** – The Owner/Contractor shall furnish to the TMLP, in writing, the projected connected and diversified loads prior to any commitment by the TMLP to supply electric service to the customer(s). These loads shall be submitted in Kilowatts (KW) and Kilovolt Amperes (KVA) demands. If you have any questions, contact the TMLP Engineer assigned to your project.

**XVI. INSPECTIONS** - The Owner/Contractor shall notify and schedule a pre-construction meeting prior to commencing the installation of all utilities. Its is recommended that the local electric, telephone, gas, and cable TV utilities be present at this meeting to coordinate all installations with the General Contractor and Site Contractor. The TMLP will inspect the installation of the electric utilities in multiple stages: usually (1) after the trench has been dug and conduits installed prior to encasement, (2) after encasement, but prior to backfilling, and (3) after ground grid, cadwelds, and primary cables are complete. The TMLP Project Engineer assigned to your project shall be notified a minimum of 48 hours prior to each inspection; this notification is the responsibility of the General Contractor.

DOCUMENT B00420

PROPOSAL

# TAUNTON

For: **Bridge Replacement, T-01-024, Scadding Street over Snake River**

COMMONWEALTH OF MASSACHUSETTS

LOCATION

The work referred to herein is in the City of TAUNTON in Bristol 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:

**Scadding Street**

**Beginning – Station 10+40.00 +/-**
**Ending –Station 18+80.00 +/-**

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 **1114 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 # 608616 | Contract # 131225 | | | |
|---|---|---|---|---|
| Location : TAUNTON | | | | |
| Description : Bridge Replacement, T-01-024, Scadding Street over Snake River | | | | |
| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 101. | 0.4 | CLEARING AND GRUBBING<br>AT _____<br>PER ACRE | | |
| 102.2 | 1 | TREE TRIMMING<br>AT _____<br>LUMP SUM | | |
| 102.3 | 12 | HERBICIDE TREATMENT OF INVASIVE PLANTS<br>AT _____<br>PER HOUR | | |
| 102.33 | 20 | INVASIVE PLANT MANAGEMENT STRATEGY<br>AT _____<br>PER HOUR | | |
| 102.521 | 95 | TREE AND PLANT PROTECTION FENCE<br>AT _____<br>PER FOOT | | |
| 114.1 | 1 | DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. T-01-024 (3LY)<br>AT _____<br>LUMP SUM | | |
| 120.1 | 1,483 | UNCLASSIFIED EXCAVATION<br>AT _____<br>PER CUBIC YARD | | |
| 123. | 254 | MUCK EXCAVATION<br>AT _____<br>PER CUBIC YARD | | |
| 127.1 | 5 | REINFORCED CONCRETE EXCAVATION<br>AT _____<br>PER CUBIC YARD | | |

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| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 140. | 2,520 | BRIDGE EXCAVATION<br>AT _____<br>PER CUBIC YARD | | |
| 141. | 3 | CLASS A TRENCH EXCAVATION<br>AT _____<br>PER CUBIC YARD | | |
| 141.1 | 30 | TEST PIT FOR EXPLORATION<br>AT _____<br>PER CUBIC YARD | | |
| 142. | 10 | CLASS B TRENCH EXCAVATION<br>AT _____<br>PER CUBIC YARD | | |
| 143. | 420 | CHANNEL EXCAVATION<br>AT _____<br>PER CUBIC YARD | | |
| 144. | 20 | CLASS B ROCK EXCAVATION<br>AT _____<br>PER CUBIC YARD | | |
| 148. | 31 | DREDGING AND DISPOSING OF MATERIAL<br>AT _____<br>PER CUBIC YARD | | |
| 150.1 | 430 | SPECIAL BORROW<br>AT _____<br>PER CUBIC YARD | | |
| 151. | 1,275 | GRAVEL BORROW<br>AT _____<br>PER CUBIC YARD | | |

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| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 151.2 | 1,056 | GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES<br>AT _____<br>PER CUBIC YARD | | |
| 156. | 446 | CRUSHED STONE<br>AT _____<br>PER TON | | |
| 156.1 | 254 | CRUSHED STONE FOR BRIDGE FOUNDATIONS<br>AT _____<br>PER TON | | |
| 170. | 2,550 | FINE GRADING AND COMPACTING - SUBGRADE AREA<br>AT _____<br>PER SQUARE YARD | | |
| 180.01 | 1 | ENVIRONMENTAL HEALTH AND SAFETY PROGRAM<br>AT _____<br>LUMP SUM | | |
| 180.02 | 40 | PERSONAL PROTECTION LEVEL C UPGRADE<br>AT _____<br>PER HOUR | | |
| 180.03 | 40 | LICENSED SITE PROFESSIONAL SERVICES<br>AT _____<br>PER HOUR | | |
| 181.11 | 5,717 | DISPOSAL OF UNREGULATED SOIL<br>AT _____<br>PER TON | | |
| 181.12 | 673 | DISPOSAL OF REGULATED SOIL - IN-STATE FACILITY<br>AT _____<br>PER TON | | |

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| 181.13 | 202 | DISPOSAL OF REGULATED SOIL - OUT-OF-STATE FACILITY<br>AT _____<br>PER TON | | |
| 181.14 | 135 | DISPOSAL OF HAZARDOUS WASTE<br>AT _____<br>PER TON | | |
| 201.5 | 8 | CATCH BASIN - MUNICIPAL STANDARD<br>AT _____<br>EACH | | |
| 202.01 | 6 | MANHOLE - MUNICIPAL STANDARD<br>AT _____<br>EACH | | |
| 220. | 14 | DRAINAGE STRUCTURE ADJUSTED<br>AT _____<br>EACH | | |
| 222.3 | 14 | FRAME AND GRATE (OR COVER) MUNICIPAL STANDARD<br>AT _____<br>EACH | | |
| 224.10 | 8 | 10 INCH HOOD<br>AT _____<br>EACH | | |
| 227.3 | 5 | REMOVAL OF DRAINAGE STRUCTURE SEDIMENT<br>AT _____<br>PER CUBIC YARD | | |
| 227.31 | 25 | REMOVAL OF DRAINAGE PIPE SEDIMENT<br>AT _____<br>PER FOOT | | |

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| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 238.10 | 72 | 10 INCH DUCTILE IRON PIPE<br>AT _____<br>PER FOOT | | |
| 238.12 | 35 | 12 INCH DUCTILE IRON PIPE<br>AT _____<br>PER FOOT | | |
| 242.12 | 1 | 12 INCH REINFORCED CONCRETE PIPE FLARED END<br>AT _____<br>EACH | | |
| 244.12 | 68 | 12 INCH REINFORCED CONCRETE PIPE CLASS V<br>AT _____<br>PER FOOT | | |
| 258. | 6 | STONE FOR PIPE ENDS<br>AT _____<br>PER SQUARE YARD | | |
| 303.041 | 735 | 4 INCH CEMENT LINED DUCTILE IRON PIPE (RESTRAINED JOINT)<br>AT _____<br>PER FOOT | | |
| 303.121 | 735 | 12 INCH CEMENT LINED DUCTILE IRON PIPE (RESTRAINED JOINT)<br>AT _____<br>PER FOOT | | |
| 309. | 1,100 | DUCTILE IRON FITTINGS FOR WATER PIPE<br>AT _____<br>PER POUND | | |
| 350.12 | 2 | 12 INCH GATE AND GATE BOX<br>AT _____<br>EACH | | |

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| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 367.04 | 2 | 4 INCH CAST IRON PLUG<br>AT _____<br>EACH | | |
| 367.12 | 2 | 12 INCH CAST IRON PLUG<br>AT _____<br>EACH | | |
| 373.041 | 45 | 4 INCH SEWER PIPE INSULATION<br>AT _____<br>PER FOOT | | |
| 373.12 | 45 | 12 INCH WATER PIPE INSULATION<br>AT _____<br>PER FOOT | | |
| 402. | 63 | DENSE GRADED CRUSHED STONE FOR SUB-BASE<br>AT _____<br>PER CUBIC YARD | | |
| 402.13 | 310 | PAVEMENT MILLING MULCH FOR SHOULDERS<br>AT _____<br>PER FOOT | | |
| 415.3 | 198 | PAVEMENT MICRO MILLING<br>AT _____<br>PER SQUARE YARD | | |
| 443. | 4.1 | WATER FOR ROADWAY DUST CONTROL<br>AT _____<br>PER 1000 GALLONS | | |
| 450.22 | 200 | SUPERPAVE SURFACE COURSE – 9.5 (SSC – 9.5)<br>AT _____<br>PER TON | | |

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| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 450.32 | 315 | SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC - 19.0)<br>AT _____<br>PER TON | | |
| 450.601 | 12 | SUPERPAVE BRIDGE SURFACE COURSE - 9.5 POLYMER (SSC-B - 9.5 - P)<br>AT _____<br>PER TON | | |
| 450.701 | 12 | SUPERPAVE BRIDGE PROTECTIVE COURSE - 9.5 POLYMER (SPC-B - 9.5 - P)<br>AT _____<br>PER TON | | |
| 451. | 10 | HMA FOR PATCHING<br>AT _____<br>PER TON | | |
| 452. | 160 | ASPHALT EMULSION FOR TACK COAT<br>AT _____<br>PER GALLON | | |
| 453. | 1,680 | HMA JOINT ADHESIVE<br>AT _____<br>PER FOOT | | |
| 470. | 4 | HOT MIX ASPHALT BERM<br>AT _____<br>PER TON | | |
| 472. | 10 | TEMPORARY ASPHALT PATCHING<br>AT _____<br>PER TON | | |
| 482.3 | 110 | SAWCUTTING ASPHALT PAVEMENT<br>AT _____<br>PER FOOT | | |

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| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 482.31 | 52 | SAWING & SEALING JOINTS IN ASPHALT PAVEMENT AT BRIDGES<br>AT _____<br>PER FOOT | | |
| 505. | 50 | GRANITE CURB TYPE VA5 - STRAIGHT<br>AT _____<br>PER FOOT | | |
| 506. | 450 | GRANITE CURB TYPE VB - STRAIGHT<br>AT _____<br>PER FOOT | | |
| 509. | 38 | GRANITE TRANSITION CURB FOR PEDESTRIAN CURB RAMPS - STRAIGHT<br>AT _____<br>PER FOOT | | |
| 514. | 6 | GRANITE CURB INLET - STRAIGHT<br>AT _____<br>EACH | | |
| 620.12 | 360 | GUARDRAIL, TL-2 (SINGLE FACED)<br>AT _____<br>PER FOOT | | |
| 627.1 | 1 | TRAILING ANCHORAGE<br>AT _____<br>EACH | | |
| 627.82 | 2 | GUARDRAIL TANGENT END TREATMENT, TL-2<br>AT _____<br>EACH | | |
| 628.24 | 3 | TRANSITION TO BRIDGE RAIL<br>AT _____<br>EACH | | |

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| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 630.2 | 1,070 | HIGHWAY GUARD REMOVED AND DISCARDED<br>AT _____<br>PER FOOT | | |
| 657. | 60 | TEMPORARY FENCE<br>AT _____<br>PER FOOT | | |
| 669. | 32 | FENCE REMOVED AND STACKED<br>AT _____<br>PER FOOT | | |
| 670.1 | 85 | FENCE REMOVED AND DISPOSED<br>AT _____<br>PER FOOT | | |
| 697.3 | 940 | FLOATING TURBIDITY BARRIER<br>AT _____<br>PER FOOT | | |
| 698.3 | 220 | GEOTEXTILE FABRIC FOR SEPARATION<br>AT _____<br>PER SQUARE YARD | | |
| 698.4 | 230 | GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL<br>AT _____<br>PER SQUARE YARD | | |
| 701. | 410 | CEMENT CONCRETE SIDEWALK<br>AT _____<br>PER SQUARE YARD | | |
| 701.2 | 15 | CEMENT CONCRETE PEDESTRIAN CURB RAMP<br>AT _____<br>PER SQUARE YARD | | |

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| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 702. | 6 | HOT MIX ASPHALT SIDEWALK OR DRIVEWAY<br>AT _____<br>PER TON | | |
| 710.6 | 12 | TOWN LINE BOUND<br>AT _____<br>EACH | | |
| 715. | 1 | RURAL MAIL BOX REMOVED AND RESET<br>AT _____<br>EACH | | |
| 722.2 | 1 | SCHEDULE OF OPERATIONS (TYPE B) - FIXED PRICE $82,500.00<br>AT Eighty Two Thousand Five Hundred Dollars<br>LUMP SUM | $82,500.00 | $82,500.00 |
| 740. | 37 | ENGINEER'S FIELD OFFICE AND EQUIPMENT (TYPE A)<br>AT _____<br>PER MONTH | | |
| 748. | 1 | MOBILIZATION<br>AT _____<br>LUMP SUM | | |
| 751. | 95 | LOAM FOR ROADSIDES<br>AT _____<br>PER CUBIC YARD | | |
| 755.35 | 1 | INLAND WETLAND REPLICATION AREA<br>AT _____<br>LUMP SUM | | |
| 755.45 | 25 | WETLAND RESTORATION<br>AT _____<br>PER SQUARE YARD | | |

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| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 755.75 | 40 | WETLAND SPECIALIST<br>AT _____<br>PER HOUR | | |
| 755.76 | 1 | WETLANDS MONITORING REPORTS<br>AT _____<br>LUMP SUM | | |
| 756.1 | 1 | CONSTRUCTION PERIOD POLLUTION PREVENTION AND EROSION AND SEDIMENTATION CONTROL PLAN<br>AT _____<br>LUMP SUM | | |
| 765. | 120 | SEEDING<br>AT _____<br>PER SQUARE YARD | | |
| 765.442 | 3 | SEEDING - ROADSIDE RIVERBANK - PART SHADE MIX<br>AT _____<br>PER POUND | | |
| 765.555 | 0.3 | SEEDING - WETLAND MIX - PART SHADE MIX<br>AT _____<br>PER POUND | | |
| 765.635 | 560 | NATIVE SEEDING AND ESTABLISHMENT<br>AT _____<br>PER SQUARE YARD | | |
| 767.121 | 830 | SEDIMENT CONTROL BARRIER<br>AT _____<br>PER FOOT | | |
| 769. | 535 | PAVEMENT MILLING MULCH UNDER GUARD RAIL<br>AT _____<br>PER FOOT | | |

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| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 801.44 | 630 | 4 INCH ELECTRICAL CONDUIT - TYPE NM (4 BANK)<br>AT _____<br>PER FOOT | | |
| 801.54 | 700 | 5 INCH ELECTRICAL CONDUIT - TYPE NM (4 BANK)<br>AT _____<br>PER FOOT | | |
| 804.2 | 240 | 2 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC (UL)<br>AT _____<br>PER FOOT | | |
| 804.4 | 1,000 | 4 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC -(UL)<br>AT _____<br>PER FOOT | | |
| 804.5 | 500 | 5 INCH ELECTRICAL CONDUIT TYPE NM - PLASTIC (UL)<br>AT _____<br>PER FOOT | | |
| 805.44 | 50 | 4 INCH ELECTRICAL CONDUIT TYPE NM - FIBERGLASS (UL) (4 BANK)<br>AT _____<br>PER FOOT | | |
| 805.54 | 50 | 5 INCH ELECTRICAL CONDUIT TYPE NM - FIBERGLASS (UL) (4 BANK)<br>AT _____<br>PER FOOT | | |
| 806.2 | 50 | 2 INCH ELECTRICAL CONDUIT TYPE RM - GALVANIZED STEEL<br>AT _____<br>PER FOOT | | |
| 806.4 | 680 | 4 INCH ELECTRICAL CONDUIT TYPE RM - GALVANIZED STEEL<br>AT _____<br>PER FOOT | | |

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| 806.5 | 340 | 5 INCH ELECTRICAL CONDUIT TYPE RM - GALVANIZED STEEL<br>AT _____<br>PER FOOT | | |
| 811.28 | 1 | COMMUNICATIONS HANDHOLE<br>AT _____<br>EACH | | |
| 811.72 | 1 | JUNCTION BOX 18 X 12 X 10 INCHES<br>AT _____<br>EACH | | |
| 811.91 | 2 | ELECTRIC VAULT<br>AT _____<br>EACH | | |
| 812.091 | 1 | STREET LIGHT FOUNDATION PRECAST<br>AT _____<br>EACH | | |
| 852. | 360 | SAFETY SIGNING FOR TRAFFIC MANAGEMENT<br>AT _____<br>PER SQUARE FOOT | | |
| 853.1 | 6 | PORTABLE BREAKAWAY BARRICADE TYPE III<br>AT _____<br>EACH | | |
| 853.2 | 40 | TEMPORARY BARRIER (TL-2)<br>AT _____<br>PER FOOT | | |
| 856.12 | 2,770 | PORTABLE CHANGEABLE MESSAGE SIGN<br>AT _____<br>PER DAY | | |

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| **Location : TAUNTON** | | | | |
| **Description : Bridge Replacement, T-01-024, Scadding Street over Snake River** | | | | |
| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 859. | 100 | REFLECTORIZED DRUM<br>AT _____<br>PER DAY | | |
| 859.1 | 100 | REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS<br>AT _____<br>PER DAY | | |
| 866.106 | 1,360 | 6 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)<br>AT _____<br>PER FOOT | | |
| 867.106 | 1,700 | 6 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC)<br>AT _____<br>PER FOOT | | |
| 874.8 | 4 | TRAFFIC SIGN REMOVED AND DISPOSED<br>AT _____<br>EACH | | |
| 942.124 | 14,630 | STEEL PILE HP 12 X 84<br>AT _____<br>PER FOOT | | |
| 944.124 | 166 | STEEL PILE SPLICE HP 12 X 84<br>AT _____<br>EACH | | |
| 948.41 | 8 | DYNAMIC LOAD TEST BY CONTRACTOR<br>AT _____<br>EACH | | |
| 948.5 | 166 | PILE SHOES<br>AT _____<br>EACH | | |

| Project # 608616 | Contract # 131225 | | | |
|---|---|---|---|---|
| Location : TAUNTON | | | | |
| Description : Bridge Replacement, T-01-024, Scadding Street over Snake River | | | | |
| **ITEM #** | **QUANTITY** | **ITEM WITH UNIT BID PRICE WRITTEN IN WORDS** | **UNIT PRICE** | **AMOUNT** |
| 950.32 | 1 | TEMPORARY EARTH SUPPORT SYSTEM<br>AT _____<br>LUMP SUM | | |
| 953.3 | 2,390 | EXCAVATION SUPPORT SYSTEM<br>AT _____<br>PER SQUARE YARD | | |
| 960. | 7,000 | STRUCTURAL STEEL<br>AT _____<br>PER POUND | | |
| 983.1 | 541 | RIPRAP<br>AT _____<br>PER TON | | |
| 983.521 | 155 | STREAMBED / BANK RESTORATION<br>AT _____<br>PER CUBIC YARD | | |
| 986. | 26 | MODIFIED ROCKFILL<br>AT _____<br>PER TON | | |
| 991.1 | 1 | CONTROL OF WATER - STRUCTURE NO. T-01-024 (C5H)<br>AT _____<br>LUMP SUM | | |
| 994.01 | 1 | TEMPORARY PROTECTIVE SHIELDING BRIDGE NO. T-01-024 (3LY)<br>AT _____<br>LUMP SUM | | |
| 995.01 | 1 | BRIDGE STRUCTURE, BRIDGE NO. T-01-024 (C5H)<br>AT _____<br>LUMP SUM | | |
| **Total Qty:** | 65,804.8 | | | |

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DOCUMENT B00853

SCHEDULE OF PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES (DBES)

PRIME BIDDER: _____

DATE OF BID OPENING: _____ PROJECT NO.: 608616

FEDERAL AID PROJECT NO. STP(BR-OFF)-003S(863)X

PROJECT LOCATION: TAUNTON

| Name, Address, and Phone Number(s) of DBE | Name of Activity | (a)† DBE Contractor Activity Amount *Construction Work* | (b) DBE Other Business Amount *Services, Supplies, Material* | (c) Total amount eligible for credit under rules in Section 6 of Document 00719 - DBE Special Provisions |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| Total Bid Amount | TOTALS: | $ | $ | $ |
| $ | DBE Percentage of Total Bid: | % | % | % |

†*Column (a) must be at least one-half of the DBE participation goal. Attach additional sheets as necessary.*

Is MassDOT Document B00855 (Joint Check Approval) being submitted for any of the above? ☐ Yes ☐ No ☐ Not Known at This Time

Will any of the contractors listed above be using a third party (i.e. manufacturer) to deliver materials or perform any portion of work by a third party? ☐ Yes ☐ No

**CERTIFICATION:** I HEREBY DECLARE, TO THE BEST OF MY KNOWLEDGE, THAT **I HAVE READ THE SPECIAL PROVISIONS FOR PARTICIPATION BY DISADVANTAGED BUSINESS ENTERPRISES - DOCUMENT 00719.** BOTH THIS SCHEDULE AND THE RELEVANT AND ACCOMPANYING LETTER(S) OF INTENT ARE IN FULL COMPLIANCE WITH THE PROVISIONS OF, AND IN ACCORDANCE WITH, TITLE 49 CODE OF FEDERAL REGULATIONS, PART 26 (49 CFR Part 26).

SIGNATURE:_____ DATE_____

NAME AND TITLE (*PRINT*):_____

EMAIL ADDRESS: _____TEL NO.:_____

*** END OF DOCUMENT ***

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DOCUMENT B00854

DISADVANTAGED BUSINESS ENTERPRISES (DBE) PARTICIPATION
LETTER OF INTENT
(To be completed by the DBE – Page 1 of 2)

TO: _____ (Prime Bidder)

FROM: _____ (DBE Firm)

RE: PROJECT NO.: 608616 FEDERAL AID PROJECT NO.: STP(BR-OFF)-003S(863)X

PROJECT LOCATION: TAUNTON

DATE OF BID OPENING: _____

**I, _____, authorized signatory of the above-referenced DBE firm hereby declare**:
*Print Name*

1. My company is currently certified as a Disadvantaged Business Enterprise (DBE) by the Massachusetts Supplier Diversity Office ("SDO"), formerly known as the State Office of Minority and Women Business Assistance (SOMWBA), as a: (check all applicable, see Section 1 of the Special Provisions For Participation By Disadvantaged Business Enterprises, MassDOT Document 00719 additional guidance is available at Title 49, Code of Federal Regulations, Part 26.55 (49 CFR Part 26.55)):

   ( ) CONTRACTOR ( ) REGULAR DEALER ( ) BROKER
   ( ) MANUFACTURER ( ) TRUCKING OPERATIONS ( ) PROFESSIONAL SERVICES

2. My firm has the ability to manage, supervise and perform the activity described on page 2 of this Letter of Intent. If you are awarded the contract, my company intends to enter into a contract with your firm to perform the items of work or other activity described on the following sheet for the prices indicated.

3. There have been no changes affecting the ownership, control or independence of my company since my last certification review on _____ ___, 20___. If any such change is planned or occurs prior to my company's completion of this proposed work, I will give prior written notification to your firm and to the Massachusetts Department of Transportation ("MassDOT") Office of Civil Rights and SDO.

4. I have read the MassDOT proposal for the Project which may be entitled "Project Contract Documents and Special Provisions" or the draft "Contract" which includes MassDOT Document 00719, and acknowledge that my company will comply with that document and the requirements of 49 CFR Part 26.

5. For the purpose of obtaining subcontractor approval from MassDOT, my firm will provide to you:

   A. ***The following construction work:***
      (i) a resume, stating the qualifications and experience, of the superintendent or foreperson who will supervise on site-work;
      (ii) a list of equipment owned or leased by my firm for use on this project; and
      (iii) a list of all projects (public or private) upon which my firm is currently performing, is committed to perform, or intends to make a commitment to perform. I shall also include, for each project: the name and telephone number of a contact person for the contracting authority, person, or organization; the dollar value of the work; a description of the work; and my firm's work schedule for the project.

   B. ***The following services, materials or supplies***:
      (i) a written agreement and invoices for the materials or supplies, and any other documents evidencing the terms of providing such items;
      (ii) information concerning brokers fees and commissions for providing services or materials; and
      (iii) a statement concerning whether my firm intends or will be required to use a joint check arrangement; and any other documents that may be required by MassDOT.

_____ Date_____
*DBE Company Authorized Signature*

DISADVANTAGED BUSINESS ENTERPRISES (DBE) PARTICIPATION
LETTER OF INTENT
(To be completed by the DBE – Page 2 of 2)

DATE OF BID OPENING: _____

PROJECT NUMBER: 608616

FEDERAL AID PROJECT NUMBER: STP(BR-OFF)-003S(863)X

PROJECT LOCATION: TAUNTON

PRIME BIDDER: _____

DBE COMPANY NAME: _____

| Item number if applicable | NAICS Code | Description of Activity with notations such as Services, or Brokerage, Installation Only, Material Only, or Complete | Quantity | Unit Price | Amount |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | TOTAL AMOUNT: | | |

*Please give full explanations, attach additional sheets if necessary*.

I HEREBY VERIFY THAT _____ WILL SOLELY
(DBE company name)
PERFORM THE WORK, OR PROVIDE THE SERVICES OR MATERIALS, AS DESCRIBED ABOVE.

DBE AUTHORIZED SIGNATURE: _____

NAME AND TITLE (PRINT):_____

TELEPHONE NUMBER: _____FAX NUMBER: _____

EMAIL ADDRESS: _____

*Rev'd 9/20/19*

*** END OF DOCUMENT ***

DOCUMENT B00855

# DBE JOINT CHECK ARRANGEMENT APPROVAL FORM

*(to be submitted by Prime Contractor)*

**Contract No:** 131225 **Project No.** 608616 **Federal Aid No.:** STP(BR-OFF)-003S(863)X

**Location:** TAUNTON **Bid Opening Date:** _____

**Project Description:** Bridge Replacement, T-01-024, Scadding Street over Snake River

We have received the attached request for the use of a joint check arrangement from _____ _____ , a DBE on the above- referenced Contract and _____ _____, a Material Supplier/Vendor for the subject Contract. The DBE has complied with the requirements of 49 CFR Part 26.55(c)(1). In particular, the DBE has:

- a written agreement with the material supplier/vendor;
- applied for credit with the subject material supplier and has supplied the vendor's response;
- shown that it will place all orders to the subject material supplier/vendor;
- made and retains all decision-making responsibilities concerning the materials; and
- provided a Joint Check Agreement that is acceptable to MassDOT;

As the Contractor for the Project, we agree to issue joint checks (made payable to the Material Supplier/Vendor and the DBE) for payment of sums due pursuant to invoices from the Supplier/Vendor and DBE.

**Contractor**:

_____ _____
Company Name Signature
Duly Authorized

_____
Printed Name

_____ _____
Date Title

**SubContractor**:

_____ _____
Company Name Signature –
Duly Authorized

_____
Printed Name

_____ _____
Date Title

*** END OF DOCUMENT ***

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DOCUMENT B00856

# JOINT VENTURE AFFIDAVIT

*(All Firms)*

- All Information Requested By This Schedule Must Be Answered. Additional Sheets May Be Attached.
- If, there is any change in the information submitted, the Joint Venture parties must inform MassDOT Pre-Qualifications Office (and, if one of the companies is a DBE, the Director of Contract Compliance, Office of Civil Rights) *prior* to such change, in writing, either directly or through the Prime Contractor if the Joint Venture is a subcontractor.
- If the Joint Venture Entity will be the bidder on a prime Contract, it must bid and submit all required documents (insurance, worker's compensation, bonds, etc.) in the name of the Joint Venture Entity.

**I. Name of Joint Venture:** _____

Type of Entity if applicable (Corp., LLC):_____Filing State _____

Address of joint venture: _____

_____

Phone No(s) for JV Entity: _____E-mail:_____

Contact Person(s)_____

Tax ID/EIN of Joint Venture: _____Vendor Code:_____

**II. Identify each firm or party to the Joint Venture:**

Name of Firm: _____

Address: _____

Phone : _____E-mail:_____

Contact person(s) _____

Name of Firm: _____

Address: _____

Phone: _____E-mail:_____

Contact Person(s)_____

**III. Describe the role(s) of the each party to the Joint Venture:**

_____

_____

**IV. Attach a copy of the Joint Venture Agreement.** The proposed Joint Venture Agreement should include specific details including, but not limited to: (1) the contributions of capital and equipment; (2) work items to be performed by each company's forces, (3) work items to be performed under the supervision of any DBE Venturer; (4) the commitment of management, supervisory and operative personnel employed by the DBE to be dedicated to the performance of the Project; and (5) warranty, guaranty, and indemnification clauses.

**V. Attach any applicable Corporate or LLC Votes, Authorizations, etc.**

**VI. Ownership of the Joint Venture:**

A. What is the percentage(s) of each company's ownership in the Joint Venture?

ownership percentage(s): _____

ownership percentage(s): _____

B. Specify percentages for each of the following (provide narrative descriptions and other detail as applicable):

1. Sharing of profit and loss: _____
2. Capital contributions:

(a) Dollar amounts of initial contribution: _____

(b) Dollar amounts of anticipated on-going contributions: _____

(c) Contributions of equipment (specify types, quality and quantities of equipment to be provided by each firm): _____

_____

4. Other applicable ownership interests, including ownership options or other agreements, which restrict or limit ownership and/or control:

_____

_____

5. Provide copies of all other written agreements between firms concerning bidding and operation of this Project or projects or contracts.

6. Identify all current contracts and contracts completed during the past two (2) years by either of the Joint Venture partners to this Joint Venture:

_____

_____

**VII. Control of and Participation in the Joint Venture.** Identify by name and firm those individuals who are, or will be, responsible for and have the authority to engage in the following management functions and policy decisions. (Indicate any limitations to their authority such as dollar limits and co-signatory requirements.):

A. Joint Venture check signing:

_____

_____

B. Authority to enter Contracts on behalf of the Joint Venture:

_____

_____

C. Signing, co-signing and/or collateralizing loans:

_____

_____

D. Acquisition of lines of credit:

E. Acquisition and indemnification of payment and performance bonds:

F. Negotiating and signing labor agreements:

G. Management of contract performance. *(Identify by name and firm only)*:

1. Supervision of field operations:
2. Major purchases:
3. Estimating:
4. Engineering:

**VIII. Financial Controls of Joint Venture:**

A. Which firm and/or individual will be responsible for keeping the books of account?

B. Identify the "Managing Partner," if any, and describe the means and measure of their compensation:

C. What authority does each firm have to commit or obligate the other to insurance and bonding companies, financing institutions, suppliers, subcontractors, and/or other parties participating in the performance of this Contract or the work of this Project?

**IX. Personnel of Joint Venture:** State the approximate number of personnel (by trade) needed to perform the Joint Venture's work under this Contract. Indicate whether they will be employees of the majority firm, DBE firm, or the Joint Venture.

| | Firm 1 (number) | Firm 2 (number) | Joint Venture (number) |
|---|---|---|---|
| Trade | | | |
| | | | |
| Professional | | | |
| | | | |
| Administrative/Clerical | | | |
| | | | |
| | | | |
| Unskilled Labor | | | |
| | | | |

Will any personnel proposed for this Project be employees of the Joint Venture?: _____

If so, who: _____

A. Are any proposed Joint Venture employees currently employed by either firm?

Employed by Firm 1: _____Employed by firm 2 _____

B. Identify by name and firm the individual who will be responsible for Joint Venture hiring: ____

_____

**X. Additional Information.** Please state any material facts and additional information pertinent to the control and structure of this Joint Venture.

_____

_____

**XI. AFFIDAVIT OF JOINT VENTURE PARTIES**. The undersigned affirm that the foregoing statements and attached documents are correct and include all material information necessary to identify and explain the terms and operations of our Joint Venture and the intended participation of each firm in the undertaking. Further, the undersigned covenant and agree to provide to MassDOT current, complete and accurate information regarding actual Joint Venture work, payments, and any proposed changes to any provisions of the Joint Venture, or the nature, character of each party to the Joint Venture. We understand that any material misrepresentation will be grounds for terminating any Contract awarded and for initiating action under Federal or State laws concerning false statements.

| Firm 1 | Firm 2 |
|---|---|
| Signature<br>Duly Authorized | Signature<br>Duly Authorized |
| Printed Name and Title | Printed Name and Title |
| Date | Date |

*** END OF DOCUMENT ***