

COMMONWEALTH OF MASSACHUSETTS



CONTRACT DOCUMENTS AND SPECIAL PROVISIONS

PROPOSAL NO.	612874-136561
P.V. =	\$26,112,000.00
PLANS	NO

FOR

**Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB)
over Lake Quinsigamond and Lake Avenue North**

in the Town and City of

SHREWSBURY-WORCESTER

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

This Proposal to be opened and read:

TUESDAY, OCTOBER 27, 2026 at 2:00 P.M.

THIS PAGE IS INTENTIONALLY LEFT BLANK

DOCUMENT 00010

TABLE OF CONTENTS

DOCUMENT 00010	
TABLE OF CONTENTS	00010-1 through 2
DOCUMENT 00102	
NOTICE TO CONTRACTORS.....	00102- 1 through 2
DOCUMENT 00210	
REQUIREMENTS OF MASSACHUSETTS GENERAL LAWS CHAPTER 30 SECTION 39R; CHAPTER 30, SECTION 39O.....	00210-1 through 4
DOCUMENT 00331	
LOCUS MAP	00331-1 through 2
DOCUMENT 00439	
CONTRACTOR PROJECT EVALUATION FORM.....	00439-1 through 2
DOCUMENT 00440	
SUBCONTRACTOR PROJECT EVALUATION FORM	00440-1 through 2
DOCUMENT 00710	
GENERAL CONTRACT PROVISIONS.....	00710-1 through 2
DOCUMENT 00715	
SUPPLEMENTAL SPECIFICATIONS	00715-1 through 20
DOCUMENT 00761	
SPECIAL PROVISIONS FOR CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION.....	00761-1 through 4
DOCUMENT 00811	
MONTHLY PRICE ADJUSTMENT FOR HOT MIX ASPHALT (HMA) MIXTURES.....	00811-1 through 2
DOCUMENT 00812	
MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL AND GASOLINE	00812-1 through 2
DOCUMENT 00813	
PRICE ADJUSTMENT FOR STRUCTURAL STEEL AND REINFORCING STEEL	00813-1 through 4
DOCUMENT 00814	
PRICE ADJUSTMENT FOR PORTLAND CEMENT CONCRETE MIXES	00814-1 through 2
DOCUMENT 00820	
THE COMMONWEALTH OF MASSACHUSETTS SUPPLEMENTAL EQUAL EMPLOYMENT OPPORTUNITY, NON-DISCRIMINATION AND AFFIRMATIVE ACTION PROGRAM.....	00820-1 through 6
DOCUMENT 00821	
ELECTRONIC REPORTING REQUIREMENTS CIVIL RIGHTS PROGRAM AND CERTIFIED PAYROLL	00821-1 through 2
DOCUMENT 00859	
CONTRACTOR/SUBCONTRACTOR CERTIFICATION FORM.....	00859-1 through 2

TABLE OF CONTENTS (Continued)

DOCUMENT 00860

COMMONWEALTH OF MASSACHUSETTS PUBLIC EMPLOYMENT LAWS 00860-1 through 2

DOCUMENT 00861

STATE PREVAILING WAGE RATES 00861-1 through 74

DOCUMENT A00801

SPECIAL PROVISIONS A00801-1 through 98

DOCUMENT A00803

DRAWINGS AND SKETCHES A00803-1 through 90

DOCUMENT A00816

RUMBLE STRIP DETAILS A00816-1 through 2

DOCUMENT A00817

BRIDGE ROUTINE INSPECTION REPORTS A00817-1 through 68

DOCUMENT A00820

REQUEST FOR RELEASE OF MASSDOT AUTOCAD FILES FORM..... A00820-1 through 2

DOCUMENT A00875

POLICY DIRECTIVE P-22-001 AND POLICY DIRECTIVE P-22-002 A00875-1 through 8

DOCUMENT B00420

PROPOSAL.....B00420-1 through 10

*** END OF DOCUMENT ***

DOCUMENT 00102

**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, OCTOBER 27, 2026 at 2:00 P.M. ****SHREWSBURY-WORCESTER****Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB)
over Lake Quinsigamond and Lake Avenue North******Date Subject to Change****PROJECT VALUE = \$26,112,000.00**

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.

PRICE ADJUSTMENTS

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

<https://www.mass.gov/massdot-contract-price-adjustments>

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

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

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

BY: Phillip Eng, Interim MassDOT Secretary
Jonathan L. Gulliver, Undersecretary and Highway Administrator
SATURDAY, AUGUST 29, 2026

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, § 390: 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.

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

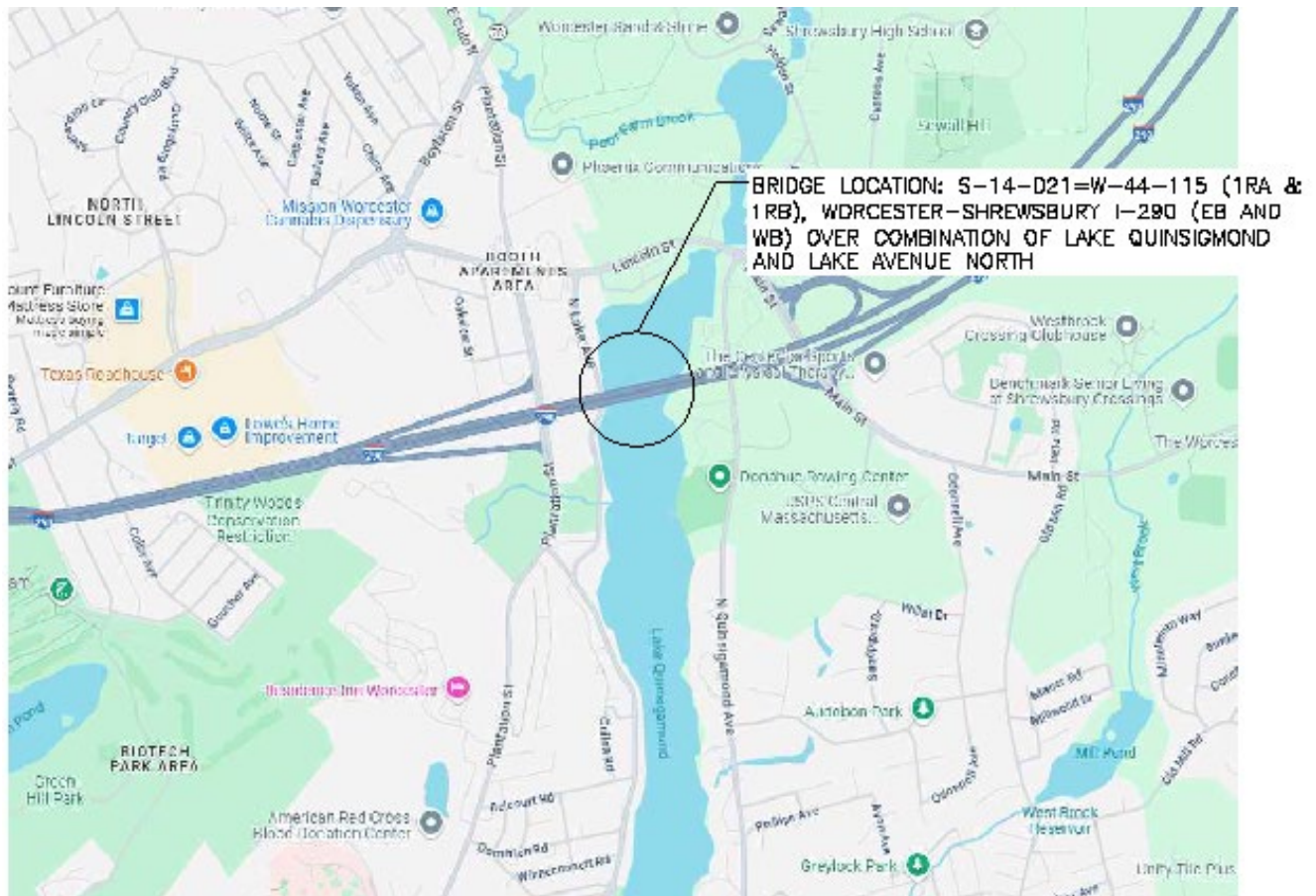
END OF DOCUMENT

THIS PAGE IS INTENTIONALLY LEFT BLANK

DOCUMENT 00331

LOCUS MAP**SHREWSBURY-WORCESTER**

**Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB)
over Lake Quinsigamond and Lake Avenue North**

**LOCUS MAP**

SCALE: N.T.S.

NOT TO SCALE

THIS PAGE IS INTENTIONALLY LEFT BLANK

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: _____

[illegible]

WORK NOT COMPLETED WITHIN SPECIFIED TIME:

Revised: 04/28/17

*** END OF DOCUMENT ***



DOCUMENT 00440

Final Report ☐Interim Report ☐**SUBCONTRACTOR PROJECT EVALUATION FORM***For instructions on using this form, see Engineering Directive E-10-002, Dated 4/20/2010*

Date: _____

City/Town: _____

Subcontractor: _____

Project: _____

Address: _____

F.A. No.: _____

Contract Number: _____

Prime Contractor _____

Current Contract Completion Date: _____

Date Work Started: _____

Date Work Completed*: _____

Subcontractor's Superintendent: _____

Type of Work Performed by Subcontractor: _____

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

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

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

District Construction Engineer's Signature/Date _____

Resident Engineer's Signature/Date _____

Contractor Signature Acknowledging Report/Date _____

Subcontractor Signature Acknowledging Report/Date _____

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

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

Contractor's Comments: _____

SUBCONTRACTOR PROJECT EVALUATION FORM (Continued)

Date: _____ Contract Number: _____

INFORMATION FOR DISTRICT HIGHWAY DIRECTORS RELATING TO PREQUALIFICATION

A deduction shall be recommended for unsatisfactory performance if computed overall rating is under 80%.

A deduction may be recommended for this project being completed late due to the Contractor's fault.

RECOMMENDATIONS FOR DEDUCTIONS FROM CONTRACTORS' ASSIGNED FACTOR

(Write Yes or No in space provided)

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

I recommend a deduction for project completed late: _____

Signed: _____

District Highway Director

EXPLANATION OF RATINGS 1 – 8: _____

[illegible]

WORK NOT COMPLETED WITHIN SPECIFIED TIME: _____

Revised: 04/28/17

*** END OF DOCUMENT ***

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

NOTICE OF AVAILABILITY

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

SPECIAL PROVISIONS FOR RIGHT-TO-KNOW ACT REQUIREMENTS

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

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

1. Deliver to the Department, prior to the start of any work under this contract, copies of MSDS for all MSL substances to be used, stored, processed or manufactured at the worksite by the Contractor.
2. Train employees of the Department, who may be exposed to MSL substances as a result of the Contractor's work under this contract, with regard to those specific substances in accordance with requirements of the Right-To-Know Act.
3. Observe all safety precautions recommended on the MSDS for any MSL substance to be used, stored, processed, or manufactured at the worksite by the Contractor.
4. Inform the Department in writing regarding specific protective equipment recommended in the MSDS for MSL substances to which employees of the Department may be exposed as a result of the Contractor's work under this contract.

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

ALTERNATIVE DISPUTE RESOLUTION

Forum, Choice of Law and Mediations:

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

*** END OF DOCUMENT ***

THIS PAGE IS INTENTIONALLY LEFT BLANK

DOCUMENT 00715



SUPPLEMENTAL SPECIFICATIONS

JUNE 30, 2026

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

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

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

DIVISION I

GENERAL REQUIREMENTS AND COVENANTS

SECTION 5.00: CONTROL OF WORK

Subsection 5.03: Conformity with Plans and Specifications

Change the MGL reference in the first sentence to Chapter 30, Section 39I (from Section 39L).

DIVISION II

CONSTRUCTION DETAILS

SECTION 200: DRAINAGE

SUBSECTION 227: DRAINAGE SYSTEM SEDIMENT

Subsection 227.30, Method of Measurement

Change the subsection number to 227.80

Subsection 227.31, Basis of Payment

Change the subsection number to 227.81

Subsection 227.31, Payment Items

Change the subsection number to 227.82

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

SUBSECTION 430: CEMENT CONCRETE BASE COURSE

Subsection 430.40: General

Change Applied Crack Sealer to Hot Applied Crack Sealer.

SUBSECTION 476: CEMENT CONCRETE PAVEMENT**Subsection 476.20: Materials**

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

Preformed Expansion Joint Filler	M9.14.0
----------------------------------	---------

SUBSECTION 477: MILLED RUMBLE STRIPS**Subsection 477: Milled Rumble Strips**

Replace this subsection with the following:

DESCRIPTION**477.20: General**

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

CONSTRUCTION METHODS**477.61: Equipment**

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

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

477.62: Installation of Rumble Strips

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

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

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

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

477.63: Control of the Work Area

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

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

COMPENSATION**477.80: Method of Measurement**

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

477.81: Basis of Payment

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

477.82: Payment Items

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

SUBSECTION 482: SAWCUTTINGSubsection 482.80: Method of Measurement

Replace this subsection with the following:

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

SECTION 600: HIGHWAY GUARD, FENCES AND WALLS**SUBSECTION 628: IMPACT ATTENUATORS**Subsection 628.82: Payment Items

Replace this subsection with the following:

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

SECTION 800: TRAFFIC CONTROL DEVICES

SUBSECTION 813: WIRING, GROUNDING AND SERVICE CONNECTIONS

Subsection 813.20: General

Replace this subsection with the following:

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

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

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

Subsection 813.41: Grounding and Bonding Conductions

Replace this subsection with the following:

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

Subsection 813.42: Ground Rods

Replace this subsection with the following:

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

Subsection 813.44: Power Pedestal

Add this subsection in numerical order:

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

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

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

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

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

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

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

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

Subsection 813.64: Power Pedestal

Add this subsection in numerical order:

No work shall commence until Shop Drawings have been approved.

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

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

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

Subsection 813.80.E: Power Pedestal

Add this subsection in numerical order:

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

Subsection 813.81.E: Power Pedestal

Add this subsection in numerical order:

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

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

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

Subsection 813.82: Payment Items

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

Subsection 815.82: Payment Items

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

Add the following payment item:

813.90	Power Pedestal	Each
--------	----------------	------

SUBSECTION 819: TRAFFIC SIGNAL DETECTIONSubsection 819: Traffic Signal Detection*Add this subsection:***DESCRIPTION****819.20: General**

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

MATERIALS**819.40: General**

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

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

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

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

819.40.A: Vehicle Detection Systems

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

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

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

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

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

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

819.40.B: Pedestrian Detectors

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

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

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

819.41: Video Monitoring System

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

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

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

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

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

Table 819.41-1: Minimum Camera Requirements

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

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

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

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

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

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

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

819.42: Material Warranties

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

Construction Methods

819.60: General

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

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

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

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

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

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

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

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

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

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

819.61: Programming APS Pushbuttons

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

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

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

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

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

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

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

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

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

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

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

*Note: See Plans for Street Name information.

The vibrotactile arrow shall vibrate during the walk interval.

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

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

819.62: VDS Testing and Evaluation

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

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

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

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

Compensation**819.80: Method of Measurement**

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

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

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

819.81: Basis of Payment

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

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

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

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

819.82: Payment Items

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

SUBSECTION 850: TRAFFIC CONTROLS FOR CONSTRUCTION AND MAINTENANCE OPERATIONS

Subsection 850.25: Arrow Board

Subsection 850.45: Arrow Board

Subsection 850.65: Arrow Board

Delete these subsections.

Subsection 850.80: Method of Measurement

Delete the 7th paragraph beginning with "Arrow Board will be measured ..."

Subsection 850.81: Basis of Payment

Delete the 7th paragraph beginning with "Arrow Board will be paid for ..."

Subsection 850.82: Payment Items

Revise description and unit of item 852. to Safety Signing for Traffic Management / Square Foot.

Delete item number 856.

SUBSECTION 856: CONNECTED WORK ZONE NOTIFICATION SYSTEM AND ASSOCIATED DEVICES

Subsection 856: Connected Work Zone Notification System and Associated Devices

Add this new subsection.

DESCRIPTION

856.20: General

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

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

MATERIALS

856.40: General

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

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

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

856.41: Arrow Board

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

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

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

Table 856.41-1: Arrow Board Dimensions and Elements

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

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

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

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

856.42: Shop Drawings

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

CONSTRUCTION METHODS

856.60: General

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

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

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

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

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

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

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

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

COMPENSATION

856.80: Method of Measurement

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

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

856.81: Basis of Payment

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

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

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

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

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

856.82: Payment Items

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

SECTION 900: STRUCTURES

SUBSECTION 901: CEMENT CONCRETE

Subsection 901.20: Materials

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

Preformed Expansion Joint Filler	M9.14.0
----------------------------------	---------

SUBSECTION 983: REVETMENT

Subsection 983.40: General

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

Preformed Expansion Joint Filler	M9.14.0
----------------------------------	---------

DIVISION III

MATERIALS SPECIFICATIONS

SECTION M3: ASPHALTIC MATERIALS

Subsection M3.05.5: Preformed Bituminous Joint Filler for Concrete

Delete this subsection.

SECTION M9: MISCELLANEOUS MATERIALS

Subsection M9.14.0: Preformed Expansion Joint Filler

Replace this subsection with the following:

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

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

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

Subsection M9.14.2: Closed Cell Foam Joint Filler

Delete this subsection:

M10.03.1: Field Monitoring Unit

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

Subsection M9.14.2: Closed Cell Foam Joint Filler

Delete this subsection:

SECTION M10: TRAFFIC CONTROL DEVICES

Subsection M10.03.1: Field Monitoring Unit

Add these new subsections:

M10.03.1: Field Monitoring Unit

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

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

M10.03.1.A: Hardware

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

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

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

M10.03.1.B: Software

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

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

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

M10.03.1.C: Wireless Connectivity

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

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

M10.03.1.D: Remote Access

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

Subsection M10.08.0: Vehicle Detection Systems

Subsection M10.08.0: Vehicle Detection Systems

Subsection M10.08.0: Vehicle Detection Systems

Add these new subsections:

M10.08.0: Vehicle Detection Systems

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

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

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

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

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

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

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

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

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

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

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

M10.08.1: Passive Stop Line Detectors

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

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

M10.08.2: Passive Advanced Detectors

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

Subsection M10.09.0: Pedestrian Detectors

Subsection M10.09.1: Pedestrian Pushbutton Assembly

Subsection M10.09.2: APS Pushbutton Assembly

Add these new subsections:

M10.09.0: Pedestrian Detectors

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

Pedestrian Detectors may be pushbuttons or passive detection devices.

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

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

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

M10.09.1: Pedestrian Pushbutton Assembly

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

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

The pushbutton shall meet one of the following criteria:

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

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

The housing shall be yellow.

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

M10.09.2: APS Pushbutton Assembly

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

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

APS Pushbutton Assembly shall be capable of the following:

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

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

THIS PAGE IS INTENTIONALLY LEFT BLANK

DOCUMENT 00761

**SPECIAL PROVISIONS FOR CERTIFICATION REGARDING DEBARMENT,
SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION**

Revised: 02/09/16

I. Instructions for Certification - Primary Covered Transactions:

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

1. 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 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 MassDOT's determination whether to enter into this transaction. However, failure of the prospective primary participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.
2. The certification in this clause is a material representation of fact upon which reliance was placed when the MassDOT determined to enter into this transaction. If it is later determined that the prospective primary participant knowingly rendered an erroneous certification, in addition to other remedies available, the MassDOT may terminate this transaction for cause of default.
3. The prospective primary participant shall provide immediate written notice to the MassDOT if any time the prospective primary participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction," "debarred," "suspended," "ineligible," "lower tier covered transaction," "participant," "person," "primary covered transaction," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the MassDOT for assistance in obtaining a copy of those regulations.
5. The prospective primary 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 MassDOT.
6. The prospective primary 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 Transaction," provided by the MassDOT, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
7. 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 may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the nonprocurement portion of the "Lists of Parties Excluded From Federal Procurement or Nonprocurement Programs" (Nonprocurement List) which is compiled by the General Services Administration and the Debarment Lists compiled by both the Massachusetts Office of the Attorney General and the Department of Capital Asset Management and Maintenance (DCAMM) and published separately in the Central Register.
8. 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.
9. Except for transactions authorized under paragraph 5 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, the MassDOT may terminate this transaction for cause or default.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion -- Primary Covered Transactions

The prospective primary 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 covered transactions by any Federal, State or local department or agency;
2. Have not within a 3-year period preceding this proposal been convicted of or had a civil judgement 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;
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 2 of this certification; and
4. Have not within a 3-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

II. Instructions for Certification - Lower Tier Covered Transactions:

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

1. 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 the MassDOT may pursue available remedies, including suspension and/or debarment.
2. 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.
3. The terms "covered transaction," "debarred," "suspended," "ineligible," "primary covered transaction," "participant," "person," "principal," "proposal," and "voluntarily excluded," as used in this clause, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549. You may contact the MassDOT for assistance in obtaining a copy of those regulations.
4. 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 MassDOT.
5. 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.
6. 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 may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Nonprocurement List and the Debarment Lists.

7. 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.
8. Except for transactions authorized under paragraph 4 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, the MassDOT may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions

The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal, State or local department or agency.

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

*** END OF DOCUMENT ***

THIS PAGE IS INTENTIONALLY LEFT BLANK

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.

***** END OF DOCUMENT *****

THIS PAGE IS INTENTIONALLY LEFT BLANK

DOCUMENT 00812

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

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

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

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

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

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

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

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

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

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

*** END OF DOCUMENT ***

THIS PAGE IS INTENTIONALLY LEFT BLANK

DOCUMENT 00813

SPECIAL PROVISIONS

PRICE ADJUSTMENTS FOR STRUCTURAL STEEL AND REINFORCING STEEL

September 10, 2026

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

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

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

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

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

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

Base Prices and Period Prices are defined as follows:

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

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

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

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

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

Period Prices are determined as follows:

Period Price = Base Price X Index Factor

Index Factor = Period Price Index / Base Price Index

Example of a Period Price Calculation:

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

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

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

Index Factor = Period Price Index / Base Price Index = $218.0 / 229.4 = 0.950$

Period Price = Base Price X Index Factor = $\$0.82/\text{Pound} \times 0.950 = \$0.78/\text{Pound}$

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

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

* To access the PPI website and obtain a Base Price Index or a Period Price Index, go to

<http://data.bls.gov/cgi-bin/srgate>

End of example.

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

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

Structural Steel

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

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

Reinforcing Steel

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

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

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

TABLE

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

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

END OF DOCUMENT

THIS PAGE IS INTENTIONALLY LEFT BLANK

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.

*** END OF DOCUMENT ***

THIS PAGE IS INTENTIONALLY LEFT BLANK

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 151 B).

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

III. Minority and Women Workforce Participation

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

IV. Liaison Committee

At the discretion of the agency that administers the contract for the construction project there may be established for the life of the contract a body to be known as the Liaison Committee. The Liaison Committee shall be composed of one representative each from the agency or agencies administering the contract for the construction project, hereinafter called the administering agency, a representative from the Office of Affirmative action, and such other representatives as may be designated by the administering agency. The Contractor (or his/her agent, if any, designated by him/her as the on-site equal employment opportunity officer) shall recognize the Liaison Committee as an affirmative action body, and shall establish a continuing working relationship with the Liaison Committee, consulting with the Liaison Committee on all matters related to minority recruitment, referral, employment and training.

V. Reports and Records

The Contractor shall prepare projected workforce tables on a quarterly basis when required by the administering agency. These shall be broken down into projections, by week, of workers required in each trade. Copies shall be furnished one week in advance of the commencement of the period covered, and also, when updated, to the administering agency and the Liaison Committee when required.

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

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

The Contractor will provide all information and reports required by the administering agency on instructions issued by the administering agency and will permit access to its facilities and any books, records, accounts and other sources of information which may be determined by the administering agency to effect the employment of personnel. This provision shall apply only to information pertinent to the Commonwealth's supplementary non-discrimination, equal opportunity and access and opportunity contract requirements. Where information required is in the exclusive possession of another who fails or refuses to furnish this information, the Contractor shall so certify to the administering agency and shall set forth what efforts he has made to obtain the information.

VI. Access to Work Site

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

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

In all solicitations either by competitive bidding or negotiation made by the Contractor either for work to be performed under a subcontract or for the procurement of materials or equipment, each potential subcontractor or supplier shall be notified in writing by the Contractor of the Contractor's obligations under this contract relative to non-discrimination and equal opportunity.

VIII. Sanctions

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

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

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

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

IX. Severability

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

X. Contractor's Certification

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

XI. Subcontractor Requirements

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

Rev'd 03/07/14

*** END OF DOCUMENT ***

THIS PAGE IS INTENTIONALLY LEFT BLANK

DOCUMENT 00821

**ELECTRONIC REPORTING REQUIREMENTS
CIVIL RIGHTS PROGRAMS AND CERTIFIED PAYROLL**

Implemented on March 2, 2009

Revised June 04, 2019

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

Contractor and Sub-Contractor EBO User Certification

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

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

Vetting of Firms and Designated Firm Individuals

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

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

Interim Reporting Requirements

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

*** END OF DOCUMENT ***

THIS PAGE IS INTENTIONALLY LEFT BLANK

DOCUMENT 00859

CONTRACTOR/SUBCONTRACTOR CERTIFICATION FORM ‡*The contractor shall submit this completed document 00859 to MassDOT for each subcontract.*_____
(Contractor) Date: __________
(Subcontractor) ☐ District Approved SubcontractorContract No: 136561 Project No. 612874 Federal Aid No.: NFALocation: SHREWSBURY-WORCESTERProject Description: Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB) over Lake Quinsigamond and Lake Avenue North

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

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

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

- ☐ 00718 – Participation By Minority Or Women's Business Enterprises and SDVOBE†
- ☐ 00761 – Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion
- ☐ 00820 – MA Supplemental Equal Employment Opportunity, Non-Discrimination, and Affirmative Action Program
- ☐ 00821 – Electronic Reporting Requirements, Civil Rights Programs, and Certified Payroll
- ☐ 00859 – Contractor/Subcontractor Certification Form (this document)
- ☐ 00860 – MA Employment Laws
- ☐ 00861 – Applicable State Wage Rates in the Contract Proposal**
- ☐ B00842 – MA Schedule of Participation By Minority or Women Business Enterprises (M/WBEs)†
- ☐ B00843 – MA Letter of Intent – M/WBEs†
 - ** Does not apply to Material Suppliers, unless performing work on-site
 - † Applies only if Subcontractor is a M/WBE; only include these forms for the particular M/WBE Entity
- ☐ B00844 - Schedule of Participation By SDVOBE
- ☐ B00845 - Letter of Intent – SDVOBE
- ☐ B00846 – M/WBE or SDVOBE Joint Check Arrangement Approval Form
- ☐ B00847 – Joint Venture Affidavit

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

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

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

*Applicable only to Contracts or Subcontracts in excess of \$10,000

**Does not apply to Material Suppliers, unless performing work on-site

† Applies only if Subcontractor is a DBE; only include these forms for the particular DBE Entity

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

(Print Name and Title)

(Authorized Signature)

PART 2

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

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

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

Firm: _____

Address: _____

(Print Name and Title)

Telephone Number: _____

Federal I.D. Number: _____

Estimated Start Date: _____

Estimated Completion Date: _____

Estimated Dollar Amount: _____

(Authorized Signature)

(Date)

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 than two weeks 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

THIS PAGE IS INTENTIONALLY LEFT BLANK



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

MAURA HEALEY
Governor
KIM DRISCOLL
Lt. Governor

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

LAUREN JONES
Secretary
MICHAEL FLANAGAN
Director

Awarding Authority:	Massachusetts Highway	City/Town:	SHREWSBURY
Wage Request No:	20260828130237-S1	Job Location:	over Lake Quinsigamond and Lake Avenue North
Description of Work:	SHREWSBURY-WORCESTER – Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB) over Lake Quinsigamond and Lake Avenue North		
Contract Number:	136561		

§§ 26-27D Construction Project

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

Awarding Authority Responsibilities

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

Contractor Responsibilities

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

Employees who are **not** paid the wage listed on the Prevailing Wage Schedule (PWS) may file a complaint with the Attorney General's Fair Labor

Division: www.mass.gov/ago/fld; (617) 727-3465.

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
(2 AXLE) DRIVER - EQUIPMENT	6/1/2026	\$41.95	\$16.17	\$21.78	\$0.00	\$0.00	\$79.90
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	\$41.95	\$16.17	\$23.52	\$0.00	\$0.00	\$81.64
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	\$41.95	\$16.77	\$23.52	\$0.00	\$0.00	\$82.24
(3 AXLE) DRIVER - EQUIPMENT	6/1/2026	\$42.02	\$16.17	\$21.78	\$0.00	\$0.00	\$79.97
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	\$42.02	\$16.17	\$23.52	\$0.00	\$0.00	\$81.71
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	\$42.02	\$16.77	\$23.52	\$0.00	\$0.00	\$82.31
(4 & 5 AXLE) DRIVER - EQUIPMENT	6/1/2026	\$42.14	\$16.17	\$21.78	\$0.00	\$0.00	\$80.09
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	\$42.14	\$16.17	\$23.52	\$0.00	\$0.00	\$81.83
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	\$42.14	\$16.77	\$23.52	\$0.00	\$0.00	\$82.43
ADS/SUBMERSIBLE PILOT	8/1/2024	\$117.16	\$10.08	\$11.62	\$12.67	\$0.00	\$151.53
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 2)							
For apprentice rates see "Apprentice- PILE DRIVER"							
AIR TRACK OPERATOR	6/1/2026	\$42.41	\$10.90	\$9.75	\$9.11	\$0.00	\$72.17
LABORERS	12/1/2026	\$43.85	\$10.90	\$9.75	\$9.11	\$0.00	\$73.61
LABORERS - ZONE 2	6/1/2027	\$45.30	\$10.90	\$9.75	\$9.11	\$0.00	\$75.06
	12/1/2027	\$46.75	\$10.90	\$9.75	\$9.11	\$0.00	\$76.51
	6/1/2028	\$48.25	\$10.90	\$9.75	\$9.11	\$0.00	\$78.01
	12/1/2028	\$49.75	\$10.90	\$9.75	\$9.11	\$0.00	\$79.51
For apprentice rates see "Apprentice- LABORER"							
AIR TRACK OPERATOR (HEAVY & HIGHWAY)	6/1/2026	\$42.41	\$10.90	\$9.75	\$9.21	\$0.00	\$72.27
LABORERS	12/1/2026	\$43.85	\$10.90	\$9.75	\$9.21	\$0.00	\$73.71
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
ASBESTOS WORKER (PIPES & TANKS)	12/1/2025	\$44.80	\$14.50	\$4.30	\$6.75	\$0.00	\$70.35
HEAT & FROST INSULATORS LOCAL 6							
HEAT & FROST INSULATORS LOCAL 6 (WORCESTER)							
ASPHALT RAKER	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
ASPHALT RAKER (HEAVY & HIGHWAY)	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.21	\$0.00	\$71.77
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.21	\$0.00	\$73.21
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE	6/1/2026	\$59.38	\$17.05	\$13.35	\$3.25	\$0.00	\$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.83	\$17.05	\$13.35	\$3.25	\$0.00	\$94.48
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
BACKHOE/FRONT-END LOADER	6/1/2026	\$59.38	\$17.05	\$13.35	\$3.25	\$0.00	\$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.83	\$17.05	\$13.35	\$3.25	\$0.00	\$94.48
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

BARCO-TYPE JUMPING TAMPER	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

BLOCK PAVER, RAMMER / CURB SETTER	6/1/2026	\$42.41	\$10.90	\$9.75	\$9.11	\$0.00	\$72.17
LABORERS	12/1/2026	\$43.85	\$10.90	\$9.75	\$9.11	\$0.00	\$73.61
LABORERS - ZONE 2	6/1/2027	\$45.30	\$10.90	\$9.75	\$9.11	\$0.00	\$75.06
	12/1/2027	\$46.75	\$10.90	\$9.75	\$9.11	\$0.00	\$76.51
	6/1/2028	\$48.25	\$10.90	\$9.75	\$9.11	\$0.00	\$78.01
	12/1/2028	\$49.75	\$10.90	\$9.75	\$9.11	\$0.00	\$79.51

For apprentice rates see "Apprentice- LABORER"

BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY)	6/1/2026	\$42.41	\$10.90	\$9.75	\$9.21	\$0.00	\$72.27
LABORERS	12/1/2026	\$43.85	\$10.90	\$9.75	\$9.21	\$0.00	\$73.71
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

BOILER MAKER	1/1/2024	\$48.12	\$7.07	\$14.60	\$6.00	\$0.00	\$75.79
BOILERMAKERS LOCAL 29							
BOILERMAKERS LOCAL 29							

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

Apprentice to Journeyworker Ratio: 1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	8/1/2026	\$68.01	\$12.84	\$15.57	\$7.33	\$0.00	\$103.75
BRICKLAYERS LOCAL 3	2/1/2027	\$69.41	\$12.84	\$15.57	\$7.33	\$0.00	\$105.15
BRICKLAYERS LOCAL 3 (WORCESTER)							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)							
Effective Date: 8/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$34.01	\$12.84	\$15.57	\$7.33	\$0.00	\$69.75
2	60.00	\$40.81	\$12.84	\$15.57	\$7.33	\$0.00	\$76.55
3	70.00	\$47.61	\$12.84	\$15.57	\$7.33	\$0.00	\$83.35
4	80.00	\$54.41	\$12.84	\$15.57	\$7.33	\$0.00	\$90.15
5	90.00	\$61.21	\$12.84	\$15.57	\$7.33	\$0.00	\$96.95
Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)							
Effective Date: 2/1/2027							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$34.71	\$12.84	\$15.57	\$7.33	\$0.00	\$70.45
2	60.00	\$41.65	\$12.84	\$15.57	\$7.33	\$0.00	\$77.39
3	70.00	\$48.59	\$12.84	\$15.57	\$7.33	\$0.00	\$84.33
4	80.00	\$55.53	\$12.84	\$15.57	\$7.33	\$0.00	\$91.27
5	90.00	\$62.47	\$12.84	\$15.57	\$7.33	\$0.00	\$98.21
Apprentice to Journeyworker Ratio: 1:5							
BULLDOZER/GRADER/SCRAPER	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
CAISSON & UNDERPINNING BOTTOM MAN	6/1/2026	\$50.40	\$10.90	\$9.75	\$9.80	\$0.00	\$80.85
LABORERS	12/1/2026	\$51.90	\$10.90	\$9.75	\$9.80	\$0.00	\$82.35
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING LABORER	6/1/2026	\$49.25	\$10.90	\$9.75	\$9.80	\$0.00	\$79.70
LABORERS	12/1/2026	\$50.75	\$10.90	\$9.75	\$9.80	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING TOP MAN	6/1/2026	\$49.58	\$10.90	\$9.75	\$9.80	\$0.00	\$80.03
LABORERS	12/1/2026	\$51.08	\$10.90	\$9.75	\$9.80	\$0.00	\$81.53
For apprentice rates see "Apprentice- LABORER"							
CARBIDE CORE DRILL OPERATOR	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
CARPENTER	3/1/2026	\$50.85	\$11.08	\$11.47	\$8.50	\$0.00	\$81.90
CARPENTERS	9/1/2026	\$52.10	\$11.08	\$11.47	\$8.50	\$0.00	\$83.15
CARPENTERS -ZONE 2 (Eastern Massachusetts)	3/1/2027	\$53.35	\$11.08	\$11.47	\$8.50	\$0.00	\$84.40

Apprentice: CARPENTER**Effective Date: 3/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$22.88	\$11.08	\$0.00	\$1.73	\$0.00	\$35.69
2	45.00	\$22.88	\$11.08	\$0.00	\$1.73	\$0.00	\$35.69
3	55.00	\$27.97	\$11.08	\$0.00	\$3.40	\$0.00	\$42.45
4	55.00	\$27.97	\$11.08	\$0.00	\$3.40	\$0.00	\$42.45
5	70.00	\$35.60	\$11.08	\$11.41	\$5.10	\$0.00	\$63.19
6	70.00	\$35.60	\$11.08	\$11.41	\$5.10	\$0.00	\$63.19
7	80.00	\$40.68	\$11.08	\$11.44	\$6.80	\$0.00	\$70.00
8	80.00	\$40.68	\$11.08	\$11.44	\$6.80	\$0.00	\$70.00

Apprentice: CARPENTER**Effective Date: 9/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$23.45	\$11.08	\$0.00	\$1.73	\$0.00	\$36.26
2	45.00	\$23.45	\$11.08	\$0.00	\$1.73	\$0.00	\$36.26
3	55.00	\$28.66	\$11.08	\$0.00	\$3.40	\$0.00	\$43.14
4	55.00	\$28.66	\$11.08	\$0.00	\$3.40	\$0.00	\$43.14
5	70.00	\$36.47	\$11.08	\$11.41	\$5.10	\$0.00	\$64.06
6	70.00	\$36.47	\$11.08	\$11.41	\$5.10	\$0.00	\$64.06
7	80.00	\$41.68	\$11.08	\$11.44	\$6.80	\$0.00	\$71.00
8	80.00	\$41.68	\$11.08	\$11.44	\$6.80	\$0.00	\$71.00

Apprentice to Journeyworker Ratio: 1:5

CARPENTER WOOD FRAME	10/1/2025	\$27.37	\$7.38	\$4.47	\$1.00	\$0.00	\$40.22
CARPENTERS	10/1/2026	\$28.47	\$7.38	\$4.47	\$1.00	\$0.00	\$41.32

All Aspects of New Wood Frame Work

Apprentice: CARPENTER WOOD FRAME**Effective Date: 10/1/2025**

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

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: CARPENTER WOOD FRAME							
Effective Date: 10/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
7	85.00	\$23.26	\$7.38	\$3.80	\$1.00	\$0.00	\$35.44
8	90.00	\$24.63	\$7.38	\$3.80	\$1.00	\$0.00	\$36.81

Apprentice: CARPENTER WOOD FRAME							
Effective Date: 10/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$17.08	\$7.38	\$0.00	\$0.00	\$0.00	\$24.46
2	60.00	\$17.08	\$7.38	\$0.00	\$0.00	\$0.00	\$24.46
3	65.00	\$18.51	\$7.38	\$0.00	\$1.00	\$0.00	\$26.89
4	70.00	\$19.93	\$7.38	\$0.00	\$1.00	\$0.00	\$28.31
5	75.00	\$21.35	\$7.38	\$3.80	\$1.00	\$0.00	\$33.53
6	80.00	\$22.78	\$7.38	\$3.80	\$1.00	\$0.00	\$34.96
7	85.00	\$24.20	\$7.38	\$3.80	\$1.00	\$0.00	\$36.38
8	90.00	\$25.62	\$7.38	\$3.80	\$1.00	\$0.00	\$37.80

Apprentice to Journeyworker Ratio: 1:5

CEMENT MASONRY/PLASTERING	7/1/2026	\$54.49	\$13.35	\$16.43	\$7.78	\$1.80	\$93.85
PLASTERERS AND CEMENT MASONS LOCAL 534	1/1/2027	\$55.94	\$13.35	\$16.43	\$7.78	\$1.80	\$95.30
Plasterers and Cement Masons - Zone 1	7/1/2027	\$57.29	\$13.35	\$16.43	\$7.78	\$1.80	\$96.65
	1/1/2028	\$58.64	\$13.35	\$16.43	\$7.78	\$1.80	\$98.00

Apprentice: CEMENT MASONRY/PLASTERING							
Effective Date: 7/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$27.25	\$13.35	\$16.43	\$0.00	\$0.00	\$57.03
2	60.00	\$32.69	\$13.35	\$16.43	\$7.78	\$1.80	\$72.05
3	65.00	\$35.42	\$13.35	\$16.43	\$7.78	\$1.80	\$74.78
4	70.00	\$38.14	\$13.35	\$16.43	\$7.78	\$1.80	\$77.50
5	75.00	\$40.87	\$13.35	\$16.43	\$7.78	\$1.80	\$80.23
6	80.00	\$43.59	\$13.35	\$16.43	\$7.78	\$1.80	\$82.95
7	90.00	\$49.04	\$13.35	\$0.00	\$7.78	\$0.00	\$70.17

Apprentice: CEMENT MASONRY/PLASTERING							
Effective Date: 1/1/2027							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$27.97	\$13.35	\$16.43	\$0.00	\$0.00	\$57.75
2	60.00	\$33.56	\$13.35	\$16.43	\$7.78	\$1.80	\$72.92

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: CEMENT MASONRY/PLASTERING Effective Date: 1/1/2027							
		Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
3	65.00	\$36.36	\$13.35	\$16.43	\$7.78	\$1.80	\$75.72
4	70.00	\$39.16	\$13.35	\$16.43	\$7.78	\$1.80	\$78.52
5	75.00	\$41.96	\$13.35	\$16.43	\$7.78	\$1.80	\$81.32
6	80.00	\$44.75	\$13.35	\$16.43	\$7.78	\$1.80	\$84.11
7	90.00	\$50.35	\$0.00	\$16.43	\$0.00	\$0.00	\$66.78
Apprentice to Journeyworker Ratio: 1:5							
CHAIN SAW OPERATOR	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES	6/1/2026	\$60.61	\$17.05	\$13.35	\$3.25	\$0.00	\$94.26
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$62.09	\$17.05	\$13.35	\$3.25	\$0.00	\$95.74
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
COMPRESSOR OPERATOR	6/1/2026	\$37.63	\$17.05	\$13.35	\$3.25	\$0.00	\$71.28
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$38.58	\$17.05	\$13.35	\$3.25	\$0.00	\$72.23
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
DELEADER (BRIDGE)	1/1/2026	\$59.56	\$10.35	\$12.00	\$12.60	\$0.00	\$94.51
PAINTERS LOCAL 35							
PAINTERS LOCAL 35 - ZONE 2							
Apprentice: DELEADER (BRIDGE) Effective Date: 1/1/2026							
		Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$29.78	\$10.35	\$0.00	\$0.00	\$0.00	\$40.13
2	55.00	\$32.76	\$10.35	\$0.00	\$6.93	\$0.00	\$50.04
3	60.00	\$35.74	\$10.35	\$0.00	\$7.56	\$0.00	\$53.65
4	65.00	\$38.71	\$10.35	\$0.00	\$8.19	\$0.00	\$57.25
5	70.00	\$41.69	\$10.35	\$12.00	\$8.82	\$0.00	\$72.86
6	75.00	\$44.67	\$10.35	\$12.00	\$9.45	\$0.00	\$76.47
7	80.00	\$47.65	\$10.35	\$12.00	\$10.08	\$0.00	\$80.08
8	90.00	\$53.60	\$10.35	\$12.00	\$11.34	\$0.00	\$87.29
Apprentice to Journeyworker Ratio: 1:1							
DEMO: ADZEMAN	6/1/2026	\$49.30	\$10.90	\$9.75	\$9.65	\$0.00	\$79.60

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS	12/7/2026	\$50.80	\$10.90	\$9.75	\$9.65	\$0.00	\$81.10
LABORERS - ZONE 2	6/7/2027	\$52.40	\$10.90	\$9.75	\$9.65	\$0.00	\$82.70
	12/6/2027	\$54.00	\$10.90	\$9.75	\$9.65	\$0.00	\$84.30
	6/5/2028	\$55.68	\$10.90	\$9.75	\$9.65	\$0.00	\$85.98
	12/4/2028	\$57.35	\$10.90	\$9.75	\$9.65	\$0.00	\$87.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BACKHOE/LOADER/HAMMER OPERATOR	6/1/2026	\$50.30	\$10.90	\$9.75	\$9.65	\$0.00	\$80.60
LABORERS	12/7/2026	\$51.80	\$10.90	\$9.75	\$9.65	\$0.00	\$82.10
LABORERS - ZONE 2	6/7/2027	\$53.40	\$10.90	\$9.75	\$9.65	\$0.00	\$83.70
	12/6/2027	\$55.00	\$10.90	\$9.75	\$9.65	\$0.00	\$85.30
	6/5/2028	\$56.68	\$10.90	\$9.75	\$9.65	\$0.00	\$86.98
	12/4/2028	\$58.35	\$10.90	\$9.75	\$9.65	\$0.00	\$88.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BURNERS	6/1/2026	\$50.05	\$10.90	\$9.75	\$9.65	\$0.00	\$80.35
LABORERS	12/7/2026	\$51.55	\$10.90	\$9.75	\$9.65	\$0.00	\$81.85
LABORERS - ZONE 2	6/7/2027	\$53.15	\$10.90	\$9.75	\$9.65	\$0.00	\$83.45
	12/6/2027	\$54.75	\$10.90	\$9.75	\$9.65	\$0.00	\$85.05
	6/5/2028	\$56.43	\$10.90	\$9.75	\$9.65	\$0.00	\$86.73
	12/4/2028	\$58.10	\$10.90	\$9.75	\$9.65	\$0.00	\$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: CONCRETE CUTTER/SAWYER	6/1/2026	\$50.30	\$10.90	\$9.75	\$9.65	\$0.00	\$80.60
LABORERS	12/7/2026	\$51.80	\$10.90	\$9.75	\$9.65	\$0.00	\$82.10
LABORERS - ZONE 2	6/7/2027	\$53.40	\$10.90	\$9.75	\$9.65	\$0.00	\$83.70
	12/6/2027	\$55.00	\$10.90	\$9.75	\$9.65	\$0.00	\$85.30
	6/5/2028	\$56.68	\$10.90	\$9.75	\$9.65	\$0.00	\$86.98
	12/4/2028	\$58.35	\$10.90	\$9.75	\$9.65	\$0.00	\$88.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: JACKHAMMER OPERATOR	6/1/2026	\$50.05	\$10.90	\$9.75	\$9.65	\$0.00	\$80.35
LABORERS	12/7/2026	\$51.55	\$10.90	\$9.75	\$9.65	\$0.00	\$81.85
LABORERS - ZONE 2	6/7/2027	\$53.15	\$10.90	\$9.75	\$9.65	\$0.00	\$83.45
	12/6/2027	\$54.75	\$10.90	\$9.75	\$9.65	\$0.00	\$85.05
	6/5/2028	\$56.43	\$10.90	\$9.75	\$9.65	\$0.00	\$86.73
	12/4/2028	\$58.10	\$10.90	\$9.75	\$9.65	\$0.00	\$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: WRECKING LABORER	6/1/2026	\$49.30	\$10.90	\$9.75	\$9.65	\$0.00	\$79.60
LABORERS	12/7/2026	\$50.80	\$10.90	\$9.75	\$9.65	\$0.00	\$81.10
LABORERS - ZONE 2	6/7/2027	\$52.40	\$10.90	\$9.75	\$9.65	\$0.00	\$82.70
	12/6/2027	\$54.00	\$10.90	\$9.75	\$9.65	\$0.00	\$84.30
	6/5/2028	\$55.68	\$10.90	\$9.75	\$9.65	\$0.00	\$85.98
	12/4/2028	\$57.35	\$10.90	\$9.75	\$9.65	\$0.00	\$87.65
For apprentice rates see "Apprentice- LABORER"							
DIRECTIONAL DRILL MACHINE OPERATOR	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
DIVER	8/1/2024	\$78.11	\$10.08	\$11.62	\$12.67	\$0.00	\$112.48
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 2)							
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	\$51.97	\$10.08	\$11.62	\$12.67	\$0.00	\$86.34
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 2)							
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 2)							
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 2)							
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	9/7/2025	\$48.16	\$14.98	\$14.30	\$5.30	\$0.00	\$82.74
ELECTRICIANS LOCAL 96	9/6/2026	\$49.38	\$15.96	\$14.57	\$5.43	\$0.00	\$85.34
ELECTRICIANS LOCAL 96							

Apprentice: ELECTRICIAN**Effective Date: 9/7/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	\$19.26	\$14.98	\$0.58	\$0.00	\$0.00	\$34.82
2	45.00	\$21.67	\$14.98	\$0.65	\$0.00	\$0.00	\$37.30
3	48.00	\$23.12	\$14.98	\$13.55	\$2.54	\$0.00	\$54.19
4	55.00	\$26.49	\$14.98	\$13.65	\$2.92	\$0.00	\$58.04
5	65.00	\$31.30	\$14.98	\$13.80	\$3.45	\$0.00	\$63.53
6	80.00	\$38.53	\$14.98	\$14.02	\$4.24	\$0.00	\$71.77

Apprentice: ELECTRICIAN**Effective Date: 9/6/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	\$19.75	\$15.96	\$0.59	\$0.00	\$0.00	\$36.30
2	45.00	\$22.22	\$15.96	\$0.67	\$0.00	\$0.00	\$38.85
3	48.00	\$23.70	\$15.96	\$13.80	\$2.61	\$0.00	\$56.07
4	55.00	\$27.16	\$15.96	\$13.90	\$2.99	\$0.00	\$60.01
5	65.00	\$32.10	\$15.96	\$14.05	\$3.53	\$0.00	\$65.64
6	80.00	\$39.50	\$15.96	\$14.28	\$4.35	\$0.00	\$74.09

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice to Journeyworker Ratio: 2:3							
ELEVATOR CONSTRUCTOR	1/1/2026	\$69.23	\$16.38	\$11.06	\$10.70	\$0.00	\$107.37
ELEVATOR CONSTRUCTORS LOCAL 41	1/1/2027	\$72.23	\$16.48	\$11.16	\$11.00	\$0.00	\$110.87
ELEVATOR CONSTRUCTORS LOCAL 41							

Apprentice: ELEVATOR CONSTRUCTOR**Effective Date: 1/1/2026**

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

Apprentice: ELEVATOR CONSTRUCTOR**Effective Date: 1/1/2027**

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

Apprentice to Journeyworker Ratio: 1:1

ELEVATOR CONSTRUCTOR HELPER	1/1/2026	\$48.46	\$16.38	\$11.06	\$10.70	\$0.00	\$86.60
ELEVATOR CONSTRUCTORS LOCAL 41	1/1/2027	\$50.56	\$16.48	\$11.16	\$11.00	\$0.00	\$89.20
ELEVATOR CONSTRUCTORS LOCAL 41							

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) LABORERS	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.21	\$0.00	\$71.77
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.21	\$0.00	\$73.21

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY	5/1/2026	\$54.40	\$16.55	\$13.35	\$3.25	\$0.00	\$87.55
OPERATING ENGINEERS LOCAL 4	11/1/2026	\$55.69	\$16.55	\$13.35	\$3.25	\$0.00	\$88.84
OPERATING ENGINEERS LOCAL 4	5/1/2027	\$57.12	\$16.55	\$13.35	\$3.25	\$0.00	\$90.27

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY	5/1/2026	\$56.02	\$16.55	\$13.35	\$3.25	\$0.00	\$89.17
OPERATING ENGINEERS LOCAL 4	11/1/2026	\$57.32	\$16.55	\$13.35	\$3.25	\$0.00	\$90.47
OPERATING ENGINEERS LOCAL 4	5/1/2027	\$58.77	\$16.55	\$13.35	\$3.25	\$0.00	\$91.92

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY	5/1/2026	\$26.28	\$16.55	\$13.35	\$3.25	\$0.00	\$59.43
--	----------	---------	---------	---------	--------	--------	---------

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
OPERATING ENGINEERS LOCAL 4	11/1/2026	\$27.04	\$16.55	\$13.35	\$3.25	\$0.00	\$60.19
OPERATING ENGINEERS LOCAL 4	5/1/2027	\$27.89	\$16.55	\$13.35	\$3.25	\$0.00	\$61.04

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIRE ALARM INSTALLER	9/7/2025	\$48.16	\$14.98	\$14.30	\$5.30	\$0.00	\$82.74
ELECTRICIANS LOCAL 96	9/6/2026	\$49.38	\$15.96	\$14.57	\$5.43	\$0.00	\$85.34
ELECTRICIANS LOCAL 96							

For apprentice rates see "Apprentice- ELECTRICIAN"

FIRE ALARM REPAIR / MAINT/COMMISSIONING	9/7/2025	\$48.16	\$14.98	\$14.30	\$5.30	\$0.00	\$82.74
ELECTRICIANS LOCAL 96	9/6/2026	\$49.38	\$15.96	\$14.57	\$5.43	\$0.00	\$85.34
ELECTRICIANS LOCAL 96							

For apprentice rates see "Apprentice- ELECTRICIAN"

FIREMAN (ASST. ENGINEER)	6/1/2026	\$47.55	\$17.05	\$13.35	\$3.25	\$0.00	\$81.20
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$48.73	\$17.05	\$13.35	\$3.25	\$0.00	\$82.38
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FLAGGER & SIGNALER (HEAVY & HIGHWAY)	6/1/2026	\$29.21	\$10.90	\$9.75	\$9.21	\$0.00	\$59.07
LABORERS	12/1/2026	\$29.21	\$10.90	\$9.75	\$9.21	\$0.00	\$59.07
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

FLOORCOVERER	3/1/2024	\$48.93	\$10.33	\$11.47	\$8.80	\$0.00	\$79.53
FLOORCOVERERS LOCAL 2168							
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	\$24.47	\$10.33	\$0.00	\$1.76	\$0.00	\$36.56
2	55.00	\$26.91	\$10.33	\$0.00	\$1.76	\$0.00	\$39.00
3	60.00	\$29.36	\$10.33	\$0.00	\$3.52	\$0.00	\$43.21
4	65.00	\$31.80	\$10.33	\$0.00	\$3.52	\$0.00	\$45.65
5	70.00	\$34.25	\$10.33	\$11.47	\$5.28	\$0.00	\$61.33
6	75.00	\$36.70	\$10.33	\$11.47	\$5.28	\$0.00	\$63.78
7	80.00	\$39.14	\$10.33	\$11.47	\$7.04	\$0.00	\$67.98
8	85.00	\$41.59	\$10.33	\$11.47	\$7.04	\$0.00	\$70.43

Apprentice Notes

Steps are 750 hrs.

Apprentice to Journeyworker Ratio: 1:1

FORK LIFT/CHERRY PICKER	6/1/2026	\$59.38	\$17.05	\$13.35	\$3.25	\$0.00	\$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.83	\$17.05	\$13.35	\$3.25	\$0.00	\$94.48
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
GENERATOR/LIGHTING PLANT/HEATERS	6/1/2026	\$37.63	\$17.05	\$13.35	\$3.25	\$0.00	\$71.28
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$38.58	\$17.05	\$13.35	\$3.25	\$0.00	\$72.23
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)	1/1/2026	\$49.06	\$10.35	\$12.00	\$12.60	\$0.00	\$84.01
GLAZIERS LOCAL 35							
GLAZIERS LOCAL 35 (ZONE 2)							

Apprentice: GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)**Effective Date: 1/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$24.53	\$10.35	\$0.00	\$0.00	\$0.00	\$34.88
2	55.00	\$26.98	\$10.35	\$0.00	\$6.88	\$0.00	\$44.21
3	60.00	\$29.44	\$10.35	\$0.00	\$7.50	\$0.00	\$47.29
4	65.00	\$31.89	\$10.35	\$0.00	\$8.13	\$0.00	\$50.37
5	70.00	\$34.34	\$10.35	\$12.00	\$8.75	\$0.00	\$65.44
6	75.00	\$36.80	\$10.35	\$12.00	\$9.38	\$0.00	\$68.53
7	80.00	\$39.25	\$10.35	\$12.00	\$10.00	\$0.00	\$71.60
8	90.00	\$44.15	\$10.35	\$12.00	\$11.25	\$0.00	\$77.75

Apprentice to Journeyworker Ratio: 1:1

HOISTING ENGINEER/CRANES/GRADALLS	6/1/2026	\$59.38	\$17.05	\$13.35	\$3.25	\$0.00	\$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.83	\$17.05	\$13.35	\$3.25	\$0.00	\$94.48
OPERATING ENGINEERS LOCAL 4							

Apprentice: HOISTING ENGINEER/CRANES/GRADALLS**Effective Date: 6/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	\$32.66	\$0.00	\$0.00	\$0.00	\$0.00	\$32.66
2	60.00	\$35.63	\$17.05	\$13.35	\$3.25	\$0.00	\$69.28
3	65.00	\$38.60	\$17.05	\$13.35	\$3.25	\$0.00	\$72.25
4	70.00	\$41.57	\$17.05	\$13.35	\$3.25	\$0.00	\$75.22
5	75.00	\$44.54	\$17.05	\$13.35	\$3.25	\$0.00	\$78.19
6	80.00	\$47.50	\$17.05	\$13.35	\$3.25	\$0.00	\$81.15
7	85.00	\$50.47	\$17.05	\$13.35	\$3.25	\$0.00	\$84.12
8	90.00	\$53.44	\$17.05	\$13.35	\$3.25	\$0.00	\$87.09

Apprentice: HOISTING ENGINEER/CRANES/GRADALLS**Effective Date: 12/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	\$33.46	\$0.00	\$0.00	\$0.00	\$0.00	\$33.46
2	60.00	\$36.50	\$17.05	\$13.35	\$3.25	\$0.00	\$70.15
3	65.00	\$39.54	\$17.05	\$13.35	\$3.25	\$0.00	\$73.19

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: HOISTING ENGINEER/CRANES/GRADALLS Effective Date: 12/1/2026							
	Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment Total Rate
	4	70.00	\$42.58	\$17.05	\$13.35	\$3.25	\$0.00 \$76.23
	5	75.00	\$45.62	\$17.05	\$13.35	\$3.25	\$0.00 \$79.27
	6	80.00	\$48.66	\$17.05	\$13.35	\$3.25	\$0.00 \$82.31
	7	85.00	\$51.71	\$17.05	\$13.35	\$3.25	\$0.00 \$85.36
	8	90.00	\$54.75	\$17.05	\$13.35	\$3.25	\$0.00 \$88.40
Apprentice to Journeyworker Ratio: 1:6							
HVAC (DUCTWORK)	7/1/2026	\$43.48	\$13.24	\$11.01	\$9.92	\$2.13	\$79.78
SHEETMETAL WORKERS LOCAL 63	1/1/2027	\$43.48	\$13.54	\$11.01	\$11.12	\$2.13	\$81.28
SHEETMETAL WORKERS LOCAL 63	7/1/2027	\$44.98	\$13.54	\$11.01	\$11.12	\$2.13	\$82.78
	1/1/2028	\$46.48	\$13.54	\$11.01	\$11.12	\$2.13	\$84.28
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (ELECTRICAL CONTROLS)	9/7/2025	\$48.16	\$14.98	\$14.30	\$5.30	\$0.00	\$82.74
ELECTRICIANS LOCAL 96	9/6/2026	\$49.38	\$15.96	\$14.57	\$5.43	\$0.00	\$85.34
ELECTRICIANS LOCAL 96							
For apprentice rates see "Apprentice- ELECTRICIAN"							
HVAC (TESTING AND BALANCING - AIR)	7/1/2026	\$43.48	\$13.24	\$11.01	\$9.92	\$2.13	\$79.78
SHEETMETAL WORKERS LOCAL 63	1/1/2027	\$43.48	\$13.54	\$11.01	\$11.12	\$2.13	\$81.28
SHEETMETAL WORKERS LOCAL 63	7/1/2027	\$44.98	\$13.54	\$11.01	\$11.12	\$2.13	\$82.78
	1/1/2028	\$46.48	\$13.54	\$11.01	\$11.12	\$2.13	\$84.28
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (TESTING AND BALANCING -WATER)	3/1/2026	\$55.90	\$13.10	\$9.71	\$8.06	\$0.00	\$86.77
PLUMBERS LOCAL 4							
PLUMBERS LOCAL 4							
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HVAC MECHANIC	3/1/2026	\$55.90	\$13.10	\$9.71	\$8.06	\$0.00	\$86.77
PLUMBERS LOCAL 4							
PLUMBERS LOCAL 4							
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HYDRAULIC DRILLS	6/1/2026	\$42.41	\$10.90	\$9.75	\$9.11	\$0.00	\$72.17
LABORERS	12/1/2026	\$43.85	\$10.90	\$9.75	\$9.11	\$0.00	\$73.61
LABORERS - ZONE 2	6/1/2027	\$45.30	\$10.90	\$9.75	\$9.11	\$0.00	\$75.06
	12/1/2027	\$46.75	\$10.90	\$9.75	\$9.11	\$0.00	\$76.51
	6/1/2028	\$48.25	\$10.90	\$9.75	\$9.11	\$0.00	\$78.01
	12/1/2028	\$49.75	\$10.90	\$9.75	\$9.11	\$0.00	\$79.51
For apprentice rates see "Apprentice- LABORER"							
HYDRAULIC DRILLS (HEAVY & HIGHWAY)	6/1/2026	\$42.41	\$10.90	\$9.75	\$9.21	\$0.00	\$72.27
LABORERS	12/1/2026	\$43.85	\$10.90	\$9.75	\$9.21	\$0.00	\$73.71
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
INSULATOR (PIPES & TANKS)	9/1/2025	\$54.31	\$14.75	\$9.52	\$10.09	\$0.00	\$88.67
HEAT & FROST INSULATORS LOCAL 6	9/1/2026	\$53.12	\$16.15	\$11.46	\$11.49	\$0.00	\$92.22
HEAT & FROST INSULATORS LOCAL 6 (WORCESTER)							

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

Apprentice: INSULATOR (PIPES & TANKS)**Effective Date: 9/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$26.56	\$16.15	\$11.21	\$5.75	\$0.00	\$59.67
2	60.00	\$31.87	\$16.15	\$11.26	\$6.89	\$0.00	\$66.17
3	70.00	\$37.18	\$16.15	\$11.31	\$8.04	\$0.00	\$72.68
4	80.00	\$42.50	\$16.15	\$11.36	\$9.19	\$0.00	\$79.20

Apprentice to Journeyworker Ratio: 1:4

IRONWORKER/WELDER	3/16/2026	\$58.35	\$9.25	\$12.75	\$15.00	\$0.00	\$95.35
IRONWORKERS LOCAL 7							
IRONWORKERS LOCAL 7 (WORCESTER AREA)							

Apprentice: IRONWORKER/WELDER**Effective Date: 3/16/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	70.00	\$40.85	\$9.25	\$12.75	\$5.00	\$0.00	\$67.85
2	80.00	\$46.68	\$9.25	\$12.75	\$5.00	\$0.00	\$73.68
3	90.00	\$52.52	\$9.25	\$12.75	\$5.00	\$0.00	\$79.52
4	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
5	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
6	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Apprentice to Journeyworker Ratio: 1:4

JACKHAMMER & PAVING BREAKER OPERATOR	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORER	6/1/2026	\$41.66	\$10.90	\$9.75	\$9.11	\$0.00	\$71.42
LABORERS	12/1/2026	\$43.10	\$10.90	\$9.75	\$9.11	\$0.00	\$72.86
LABORERS - ZONE 2	6/1/2027	\$44.55	\$10.90	\$9.75	\$9.11	\$0.00	\$74.31
	12/1/2027	\$46.00	\$10.90	\$9.75	\$9.11	\$0.00	\$75.76
	6/1/2028	\$47.50	\$10.90	\$9.75	\$9.11	\$0.00	\$77.26
	12/1/2028	\$49.00	\$10.90	\$9.75	\$9.11	\$0.00	\$78.76

Apprentice: LABORER**Effective Date: 6/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$25.00	\$10.90	\$9.75	\$9.11	\$0.00	\$54.76
2	70.00	\$29.16	\$10.90	\$9.75	\$9.11	\$0.00	\$58.92
3	80.00	\$33.33	\$10.90	\$9.75	\$9.11	\$0.00	\$63.09
4	90.00	\$37.49	\$10.90	\$9.75	\$9.11	\$0.00	\$67.25

Apprentice: LABORER**Effective Date: 12/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$25.86	\$10.90	\$9.75	\$9.11	\$0.00	\$55.62
2	70.00	\$30.17	\$10.90	\$9.75	\$9.11	\$0.00	\$59.93
3	80.00	\$34.48	\$10.90	\$9.75	\$9.11	\$0.00	\$64.24
4	90.00	\$38.79	\$10.90	\$9.75	\$9.11	\$0.00	\$68.55

Apprentice to Journeyworker Ratio: 1:5

LABORER (HEAVY & HIGHWAY)	6/1/2026	\$41.66	\$10.90	\$9.75	\$9.21	\$0.00	\$71.52
LABORERS	12/1/2026	\$43.10	\$10.90	\$9.75	\$9.21	\$0.00	\$72.96
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							

Apprentice: LABORER (HEAVY & HIGHWAY)**Effective Date: 6/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$25.00	\$10.90	\$9.75	\$9.21	\$0.00	\$54.86
2	70.00	\$29.16	\$10.90	\$9.75	\$9.21	\$0.00	\$59.02
3	80.00	\$33.33	\$10.90	\$9.75	\$9.21	\$0.00	\$63.19
4	90.00	\$37.49	\$10.90	\$9.75	\$9.10	\$0.00	\$67.24

Apprentice: LABORER (HEAVY & HIGHWAY)**Effective Date: 12/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$25.86	\$10.90	\$9.75	\$9.21	\$0.00	\$55.72

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate																																
Apprentice: LABORER (HEAVY & HIGHWAY) Effective Date: 12/1/2026 <table><thead><tr><th>Step</th><th>Percent</th><th>Apprentice Base Wage</th><th>Health</th><th>Pension</th><th>Annuity</th><th>Supplemental Unemployment</th><th>Total Rate</th></tr></thead><tbody><tr><td>2</td><td>70.00</td><td>\$30.17</td><td>\$10.90</td><td>\$9.75</td><td>\$9.21</td><td>\$0.00</td><td>\$60.03</td></tr><tr><td>3</td><td>80.00</td><td>\$34.48</td><td>\$10.90</td><td>\$9.75</td><td>\$9.21</td><td>\$0.00</td><td>\$64.34</td></tr><tr><td>4</td><td>90.00</td><td>\$38.79</td><td>\$10.90</td><td>\$9.75</td><td>\$9.21</td><td>\$0.00</td><td>\$68.65</td></tr></tbody></table> Apprentice to Journeyworker Ratio: 1:5								Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate	2	70.00	\$30.17	\$10.90	\$9.75	\$9.21	\$0.00	\$60.03	3	80.00	\$34.48	\$10.90	\$9.75	\$9.21	\$0.00	\$64.34	4	90.00	\$38.79	\$10.90	\$9.75	\$9.21	\$0.00	\$68.65
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate																																
2	70.00	\$30.17	\$10.90	\$9.75	\$9.21	\$0.00	\$60.03																																
3	80.00	\$34.48	\$10.90	\$9.75	\$9.21	\$0.00	\$64.34																																
4	90.00	\$38.79	\$10.90	\$9.75	\$9.21	\$0.00	\$68.65																																
LABORER: CARPENTER TENDER	6/1/2026	\$41.66	\$10.90	\$9.75	\$9.11	\$0.00	\$71.42																																
LABORERS	12/1/2026	\$43.10	\$10.90	\$9.75	\$9.11	\$0.00	\$72.86																																
LABORERS - ZONE 2	6/1/2027	\$44.55	\$10.90	\$9.75	\$9.11	\$0.00	\$74.31																																
	12/1/2027	\$46.00	\$10.90	\$9.75	\$9.11	\$0.00	\$75.76																																
	6/1/2028	\$47.50	\$10.90	\$9.75	\$9.11	\$0.00	\$77.26																																
	12/1/2028	\$49.00	\$10.90	\$9.75	\$9.11	\$0.00	\$78.76																																
For apprentice rates see "Apprentice- LABORER"																																							
LABORER: CEMENT FINISHER TENDER	6/1/2026	\$41.66	\$10.90	\$9.75	\$9.11	\$0.00	\$71.42																																
LABORERS	12/1/2026	\$43.10	\$10.90	\$9.75	\$9.11	\$0.00	\$72.86																																
LABORERS - ZONE 2	6/1/2027	\$44.55	\$10.90	\$9.75	\$9.11	\$0.00	\$74.31																																
	12/1/2027	\$46.00	\$10.90	\$9.75	\$9.11	\$0.00	\$75.76																																
	6/1/2028	\$47.50	\$10.90	\$9.75	\$9.11	\$0.00	\$77.26																																
	12/1/2028	\$49.00	\$10.90	\$9.75	\$9.11	\$0.00	\$78.76																																
For apprentice rates see "Apprentice- LABORER"																																							
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER	6/1/2026	\$41.75	\$10.90	\$9.75	\$9.65	\$0.00	\$72.05																																
LABORERS	12/7/2026	\$43.19	\$10.90	\$9.75	\$9.65	\$0.00	\$73.49																																
LABORERS - ZONE 2	6/7/2027	\$44.64	\$10.90	\$9.75	\$9.65	\$0.00	\$74.94																																
	12/6/2027	\$46.09	\$10.90	\$9.75	\$9.65	\$0.00	\$76.39																																
	6/5/2028	\$47.59	\$10.90	\$9.75	\$9.65	\$0.00	\$77.89																																
	12/4/2028	\$49.09	\$10.90	\$9.75	\$9.65	\$0.00	\$79.39																																
For apprentice rates see "Apprentice- LABORER"																																							
LABORER: MASON TENDER	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67																																
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11																																
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56																																
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01																																
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51																																
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01																																
For apprentice rates see "Apprentice- LABORER"																																							
LABORER: MASON TENDER (HEAVY & HIGHWAY)	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.21	\$0.00	\$71.77																																
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.21	\$0.00	\$73.21																																
LABORERS - ZONE 2 (HEAVY & HIGHWAY)																																							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"																																							
LABORER: MULTI-TRADE TENDER	6/1/2026	\$41.66	\$10.90	\$9.75	\$9.11	\$0.00	\$71.42																																
LABORERS	12/1/2026	\$43.10	\$10.90	\$9.75	\$9.11	\$0.00	\$72.86																																
LABORERS - ZONE 2	6/1/2027	\$44.55	\$10.90	\$9.75	\$9.11	\$0.00	\$74.31																																

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2027	\$46.00	\$10.90	\$9.75	\$9.11	\$0.00	\$75.76
	6/1/2028	\$47.50	\$10.90	\$9.75	\$9.11	\$0.00	\$77.26
	12/1/2028	\$49.00	\$10.90	\$9.75	\$9.11	\$0.00	\$78.76

For apprentice rates see "Apprentice- LABORER"

LABORER: TREE REMOVER	6/1/2026	\$41.66	\$10.90	\$9.75	\$9.11	\$0.00	\$71.42
LABORERS	12/1/2026	\$43.10	\$10.90	\$9.75	\$9.11	\$0.00	\$72.86
LABORERS - ZONE 2	6/1/2027	\$44.55	\$10.90	\$9.75	\$9.11	\$0.00	\$74.31
	12/1/2027	\$46.00	\$10.90	\$9.75	\$9.11	\$0.00	\$75.76
	6/1/2028	\$47.50	\$10.90	\$9.75	\$9.11	\$0.00	\$77.26
	12/1/2028	\$49.00	\$10.90	\$9.75	\$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"

LASER BEAM OPERATOR	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

LASER BEAM OPERATOR (HEAVY & HIGHWAY)	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.21	\$0.00	\$71.77
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.21	\$0.00	\$73.21
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

MARBLE & TILE FINISHERS	8/1/2026	\$53.84	\$12.84	\$15.57	\$5.78	\$0.00	\$88.03
BRICKLAYERS LOCAL 3	2/1/2027	\$54.96	\$12.84	\$15.57	\$5.78	\$0.00	\$89.15
BRICKLAYERS LOCAL 3 - MARBLE & TILE							

Apprentice: MARBLE & TILE FINISHERS

Effective Date: 8/1/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$26.92	\$12.84	\$15.57	\$5.78	\$0.00	\$61.11
2	60.00	\$32.30	\$12.84	\$15.57	\$5.78	\$0.00	\$66.49
3	70.00	\$37.69	\$12.84	\$15.57	\$5.78	\$0.00	\$71.88
4	80.00	\$43.07	\$12.84	\$15.57	\$5.78	\$0.00	\$77.26
5	90.00	\$48.46	\$12.84	\$15.57	\$5.78	\$0.00	\$82.65

Apprentice: MARBLE & TILE FINISHERS

Effective Date: 2/1/2027

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$27.48	\$12.84	\$15.57	\$5.78	\$0.00	\$61.67
2	60.00	\$32.98	\$12.84	\$15.57	\$5.78	\$0.00	\$67.17
3	70.00	\$38.47	\$12.84	\$15.57	\$5.78	\$0.00	\$72.66

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: MARBLE & TILE FINISHERS Effective Date: 2/1/2027							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
4	80.00	\$43.97	\$12.84	\$15.57	\$5.78	\$0.00	\$78.16
5	90.00	\$49.46	\$12.84	\$15.57	\$5.78	\$0.00	\$83.65
Apprentice to Journeyworker Ratio: 1:5							

MARBLE MASONS,TILELAYERS & TERRAZZO MECH	8/1/2026	\$70.17	\$12.84	\$15.57	\$7.99	\$0.00	\$106.57
BRICKLAYERS LOCAL 3	2/1/2027	\$71.57	\$12.84	\$15.57	\$7.99	\$0.00	\$107.97
BRICKLAYERS LOCAL 3 - MARBLE & TILE							

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH Effective Date: 8/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$35.09	\$12.84	\$15.57	\$7.99	\$0.00	\$71.49
2	60.00	\$42.10	\$12.84	\$15.57	\$7.99	\$0.00	\$78.50
3	70.00	\$49.12	\$12.84	\$15.57	\$7.99	\$0.00	\$85.52
4	80.00	\$56.14	\$12.84	\$15.57	\$7.99	\$0.00	\$92.54
5	90.00	\$63.15	\$12.84	\$15.57	\$7.99	\$0.00	\$99.55

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH Effective Date: 2/1/2027							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$35.79	\$12.84	\$15.57	\$7.99	\$0.00	\$72.19
2	60.00	\$42.94	\$12.84	\$15.57	\$7.99	\$0.00	\$79.34
3	70.00	\$50.10	\$12.84	\$15.57	\$7.99	\$0.00	\$86.50
4	80.00	\$57.26	\$12.84	\$15.57	\$7.99	\$0.00	\$93.66
5	90.00	\$64.41	\$12.84	\$15.57	\$7.99	\$0.00	\$100.81

Apprentice to Journeyworker Ratio: 1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES)	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 2)	1/5/2026	\$46.86	\$10.58	\$11.47	\$10.00	\$0.00	\$78.91
MILLWRIGHTS LOCAL 1121							
MILLWRIGHTS LOCAL 1121 - Zone 2							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: MILLWRIGHT (Zone 2) Effective Date: 1/5/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	\$25.77	\$10.58	\$0.00	\$5.50	\$0.00	\$41.85
2	65.00	\$30.46	\$10.58	\$0.00	\$6.50	\$0.00	\$47.54
3	75.00	\$35.15	\$10.58	\$11.47	\$7.50	\$0.00	\$64.70
4	85.00	\$39.83	\$10.58	\$11.47	\$8.50	\$0.00	\$70.38
Apprentice Notes Step 1&2 Appr. indentured after 1/6/2020 receive no pension,							
Apprentice to Journeyworker Ratio: 1:4							
MORTAR MIXER	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
OILER (OTHER THAN TRUCK CRANES,GRADALLS)	6/1/2026	\$25.07	\$17.05	\$13.35	\$3.25	\$0.00	\$58.72
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$25.74	\$17.05	\$13.35	\$3.25	\$0.00	\$59.39
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
OILER (TRUCK CRANES, GRADALLS)	6/1/2026	\$31.17	\$17.05	\$13.35	\$3.25	\$0.00	\$64.82
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$31.97	\$17.05	\$13.35	\$3.25	\$0.00	\$65.62
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
OTHER POWER DRIVEN EQUIPMENT - CLASS II	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PAINTER (BRIDGES/TANKS)	1/1/2026	\$59.56	\$10.35	\$12.00	\$12.50	\$0.00	\$94.41
PAINTERS LOCAL 35							
PAINTERS LOCAL 35 - ZONE 2							

Apprentice: PAINTER (BRIDGES/TANKS) Effective Date: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$29.78	\$10.35	\$0.00	\$0.00	\$0.00	\$40.13
2	55.00	\$32.76	\$10.35	\$0.00	\$6.93	\$0.00	\$50.04
3	60.00	\$35.74	\$10.35	\$0.00	\$7.56	\$0.00	\$53.65

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: PAINTER (BRIDGES/TANKS)							
Effective Date: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
4	65.00	\$38.71	\$10.35	\$0.00	\$8.19	\$0.00	\$57.25
5	70.00	\$41.69	\$10.35	\$12.00	\$8.82	\$0.00	\$72.86
6	75.00	\$44.67	\$10.35	\$12.00	\$9.45	\$0.00	\$76.47
7	80.00	\$47.65	\$10.35	\$12.00	\$10.08	\$0.00	\$80.08
8	90.00	\$53.60	\$10.35	\$12.00	\$11.34	\$0.00	\$87.29

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	1/1/2026	\$50.46	\$10.35	\$12.00	\$12.60	\$0.00	\$85.41
-------------------------------------	----------	---------	---------	---------	---------	--------	---------

* 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: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$25.23	\$10.35	\$0.00	\$0.00	\$0.00	\$35.58
2	55.00	\$27.75	\$10.35	\$0.00	\$6.93	\$0.00	\$45.03
3	60.00	\$30.28	\$10.35	\$0.00	\$7.56	\$0.00	\$48.19
4	65.00	\$32.80	\$10.35	\$0.00	\$8.19	\$0.00	\$51.34
5	70.00	\$35.32	\$10.35	\$12.00	\$8.82	\$0.00	\$66.49
6	75.00	\$37.85	\$10.35	\$12.00	\$9.45	\$0.00	\$69.65
7	80.00	\$40.37	\$10.35	\$12.00	\$10.08	\$0.00	\$72.80
8	90.00	\$45.41	\$10.35	\$12.00	\$11.34	\$0.00	\$79.10

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	1/1/2026	\$48.52	\$10.35	\$12.00	\$12.60	\$0.00	\$83.47
---------------------------------------	----------	---------	---------	---------	---------	--------	---------

PAINTERS LOCAL 35

PAINTERS LOCAL 35 - ZONE 2

Apprentice: PAINTER (SPRAY OR SANDBLAST, REPAINT)							
Effective Date: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$24.26	\$10.35	\$0.00	\$0.00	\$0.00	\$34.61
2	55.00	\$26.69	\$10.35	\$0.00	\$6.93	\$0.00	\$43.97
3	60.00	\$29.11	\$10.35	\$0.00	\$7.56	\$0.00	\$47.02
4	65.00	\$31.54	\$10.35	\$0.00	\$8.19	\$0.00	\$50.08
5	70.00	\$33.96	\$10.35	\$12.00	\$8.82	\$0.00	\$65.13
6	75.00	\$36.39	\$10.35	\$12.00	\$9.45	\$0.00	\$68.19
7	80.00	\$38.82	\$10.35	\$12.00	\$10.08	\$0.00	\$71.25

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: PAINTER (SPRAY OR SANDBLAST, REPAINT)							
Effective Date: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
8	90.00	\$43.67	\$10.35	\$12.00	\$11.34	\$0.00	\$77.36
Apprentice to Journeyworker Ratio: 1:1							
PAINTER / TAPER (BRUSH, NEW) *	1/1/2026	\$49.06	\$10.35	\$12.00	\$12.60	\$0.00	\$84.01
* 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: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$24.53	\$10.35	\$0.00	\$0.00	\$0.00	\$34.88
2	55.00	\$26.98	\$10.35	\$0.00	\$6.93	\$0.00	\$44.26
3	60.00	\$29.44	\$10.35	\$0.00	\$7.56	\$0.00	\$47.35
4	65.00	\$31.89	\$10.35	\$0.00	\$8.19	\$0.00	\$50.43
5	70.00	\$34.34	\$10.35	\$12.00	\$8.82	\$0.00	\$65.51
6	75.00	\$36.80	\$10.35	\$12.00	\$9.45	\$0.00	\$68.60
7	80.00	\$39.25	\$10.35	\$12.00	\$10.08	\$0.00	\$71.68
8	90.00	\$44.15	\$10.35	\$12.00	\$11.34	\$0.00	\$77.84
Apprentice to Journeyworker Ratio: 1:1							

PAINTER / TAPER (BRUSH, REPAINT)	1/1/2026	\$47.12	\$10.35	\$12.00	\$12.60	\$0.00	\$82.07
PAINTERS LOCAL 35							
PAINTERS LOCAL 35 - ZONE 2							

Apprentice: PAINTER / TAPER (BRUSH, REPAINT)							
Effective Date: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$23.56	\$10.35	\$0.00	\$0.00	\$0.00	\$33.91
2	55.00	\$25.92	\$10.35	\$0.00	\$6.93	\$0.00	\$43.20
3	60.00	\$28.27	\$10.35	\$0.00	\$7.56	\$0.00	\$46.18
4	65.00	\$30.63	\$10.35	\$0.00	\$8.19	\$0.00	\$49.17
5	70.00	\$32.98	\$10.35	\$12.00	\$8.82	\$0.00	\$64.15
6	75.00	\$35.34	\$10.35	\$12.00	\$9.45	\$0.00	\$67.14
7	80.00	\$37.70	\$10.35	\$12.00	\$10.08	\$0.00	\$70.13
8	90.00	\$42.41	\$10.35	\$12.00	\$11.34	\$0.00	\$76.10
Apprentice to Journeyworker Ratio: 1:1							

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)	6/1/2026	\$41.66	\$10.90	\$9.75	\$9.21	\$0.00	\$71.52
--	----------	---------	---------	--------	--------	--------	---------

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS	12/1/2026	\$43.10	\$10.90	\$9.75	\$9.21	\$0.00	\$72.96
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
PANEL & PICKUP TRUCKS DRIVER	6/1/2026	\$41.78	\$16.17	\$21.78	\$0.00	\$0.00	\$79.73
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	\$41.78	\$16.17	\$23.52	\$0.00	\$0.00	\$81.47
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	\$41.78	\$16.77	\$23.52	\$0.00	\$0.00	\$82.07
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	8/1/2024	\$51.97	\$10.08	\$11.62	\$12.67	\$0.00	\$86.34
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 2)							
For apprentice rates see "Apprentice- PILE DRIVER"							
PILE DRIVER	8/1/2024	\$51.97	\$10.08	\$11.62	\$12.67	\$0.00	\$86.34
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 2)							

Apprentice: PILE DRIVER**Effective Date: 8/1/2024**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$23.39	\$10.08	\$0.00	\$2.53	\$0.00	\$36.00
2	55.00	\$28.58	\$10.08	\$0.00	\$5.07	\$0.00	\$43.73
3	70.00	\$36.38	\$10.08	\$11.62	\$7.60	\$0.00	\$65.68
4	80.00	\$41.58	\$10.08	\$11.62	\$10.14	\$0.00	\$73.42

Apprentice to Journeyworker Ratio: 1:5

PIPELAYER	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2							
	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

PIPELAYER (HEAVY & HIGHWAY)	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.21	\$0.00	\$71.77
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.21	\$0.00	\$73.21
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

PLUMBER & PIPEFITTER	3/1/2026	\$55.90	\$13.10	\$9.71	\$8.06	\$0.00	\$86.77
PLUMBERS LOCAL 4							
PLUMBERS LOCAL 4							

Apprentice: PLUMBER & PIPEFITTER**Effective Date: 3/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: PLUMBER & PIPEFITTER Effective Date: 3/1/2026							
		Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	\$22.36	\$13.10	\$0.00	\$0.00	\$0.00	\$35.46
2	50.00	\$27.95	\$13.10	\$0.00	\$0.00	\$0.00	\$41.05
3	60.00	\$33.54	\$13.10	\$0.00	\$0.00	\$0.00	\$46.64
4	70.00	\$39.13	\$13.10	\$0.00	\$8.06	\$0.00	\$60.29
5	80.00	\$44.72	\$13.10	\$0.00	\$8.06	\$0.00	\$65.88
Apprentice to Journeyworker Ratio: 1:3							
PNEUMATIC CONTROLS (TEMP.)	3/1/2026	\$55.90	\$13.10	\$9.71	\$8.06	\$0.00	\$86.77
PLUMBERS LOCAL 4							
PLUMBERS LOCAL 4							
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
PNEUMATIC DRILL/TOOL OPERATOR	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY)	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.21	\$0.00	\$71.77
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.21	\$0.00	\$73.21
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
POWDERMAN & BLASTER	6/1/2026	\$42.66	\$10.90	\$9.75	\$9.11	\$0.00	\$72.42
LABORERS	12/1/2026	\$44.10	\$10.90	\$9.75	\$9.11	\$0.00	\$73.86
LABORERS - ZONE 2	6/1/2027	\$45.55	\$10.90	\$9.75	\$9.11	\$0.00	\$75.31
	12/1/2027	\$47.00	\$10.90	\$9.75	\$9.11	\$0.00	\$76.76
	6/1/2028	\$48.50	\$10.90	\$9.75	\$9.11	\$0.00	\$78.26
	12/1/2028	\$50.00	\$10.90	\$9.75	\$9.11	\$0.00	\$79.76
For apprentice rates see "Apprentice- LABORER"							
POWDERMAN & BLASTER (HEAVY & HIGHWAY)	6/1/2026	\$42.66	\$10.90	\$9.75	\$9.21	\$0.00	\$72.52
LABORERS	12/1/2026	\$44.10	\$10.90	\$9.75	\$9.21	\$0.00	\$73.96
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
POWER SHOVEL/DERRICK/TRENCHING MACHINE	6/1/2026	\$59.38	\$17.05	\$13.35	\$3.25	\$0.00	\$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.83	\$17.05	\$13.35	\$3.25	\$0.00	\$94.48
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PUMP OPERATOR (CONCRETE)	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
PUMP OPERATOR (DEWATERING, OTHER)	6/1/2026	\$37.63	\$17.05	\$13.35	\$3.25	\$0.00	\$71.28
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$38.58	\$17.05	\$13.35	\$3.25	\$0.00	\$72.23
OPERATING ENGINEERS LOCAL 4							
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	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
RIDE-ON MOTORIZED BUGGY OPERATOR	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
ROLLER/SPREADER/MULCHING MACHINE	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
ROOFER (Inc.Roofers Waterproofing &Roofers Damproofg)	2/1/2026	\$53.53	\$14.53	\$12.67	\$9.03	\$0.00	\$89.76
ROOFERS LOCAL 33							
ROOFERS LOCAL 33							

Apprentice: ROOFER (Inc.Roofers Waterproofing &Roofers Damproofg)**Effective Date: 2/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$26.77	\$14.53	\$6.52	\$9.03	\$0.00	\$56.85
2	60.00	\$32.12	\$14.53	\$12.67	\$9.03	\$0.00	\$68.35
3	65.00	\$34.79	\$14.53	\$12.67	\$9.03	\$0.00	\$71.02
4	75.00	\$40.15	\$14.53	\$12.67	\$9.03	\$0.00	\$76.38
5	85.00	\$45.50	\$14.53	\$12.67	\$9.03	\$0.00	\$81.73

Apprentice Notes**** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1****Apprentice to Journeyworker Ratio: 1:5**

ROOFER SLATE / TILE / PRECAST CONCRETE	2/1/2026	\$53.78	\$14.53	\$12.67	\$9.03	\$0.00	\$90.01
ROOFERS LOCAL 33							
ROOFERS LOCAL 33							
For apprentice rates see "Apprentice- ROOFER"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
SHEETMETAL WORKER	7/1/2026	\$43.48	\$13.24	\$11.01	\$9.92	\$2.13	\$79.78
SHEETMETAL WORKERS LOCAL 63	1/1/2027	\$43.48	\$13.54	\$11.01	\$11.12	\$2.13	\$81.28
SHEETMETAL WORKERS LOCAL 63	7/1/2027	\$44.98	\$13.54	\$11.01	\$11.12	\$2.13	\$82.78
	1/1/2028	\$46.48	\$13.54	\$11.01	\$11.12	\$2.13	\$84.28

Apprentice: SHEETMETAL WORKER**Effective Date: 7/1/2026**

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

Apprentice: SHEETMETAL WORKER**Effective Date: 1/1/2027**

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

Apprentice to Journeyworker Ratio: 1:3

SPECIALIZED EARTH MOVING EQUIP < 35 TONS	6/1/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$0.00	\$80.19
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$0.00	\$81.93
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$0.00	\$82.53
SPECIALIZED EARTH MOVING EQUIP > 35 TONS	6/1/2026	\$42.53	\$16.17	\$21.78	\$0.00	\$0.00	\$80.48
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	\$42.53	\$16.17	\$23.52	\$0.00	\$0.00	\$82.22
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	\$42.53	\$16.77	\$23.52	\$0.00	\$0.00	\$82.82
SPRINKLER FITTER	1/1/2026	\$72.05	\$13.45	\$7.45	\$18.25	\$0.00	\$111.20
SPRINKLER FITTERS LOCAL 550							
SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: SPRINKLER FITTER							
Effective Date: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	35.00	\$25.22	\$13.45	\$13.84	\$0.00	\$0.00	\$52.51
2	40.00	\$28.82	\$13.45	\$14.75	\$0.00	\$0.00	\$57.02
3	45.00	\$32.42	\$13.45	\$15.67	\$0.00	\$0.00	\$61.54
4	50.00	\$36.03	\$13.45	\$16.57	\$0.00	\$0.00	\$66.05
5	55.00	\$39.63	\$13.45	\$17.49	\$0.00	\$0.00	\$70.57
6	60.00	\$43.23	\$13.45	\$18.40	\$0.00	\$0.00	\$75.08
7	65.00	\$46.83	\$13.45	\$19.32	\$0.00	\$0.00	\$79.60
8	70.00	\$50.44	\$13.45	\$20.22	\$0.00	\$0.00	\$84.11
9	75.00	\$54.04	\$13.45	\$21.15	\$0.00	\$0.00	\$88.64
10	80.00	\$57.64	\$13.45	\$22.05	\$0.00	\$0.00	\$93.14

Apprentice Notes

Apprentice entered prior 9/30/10:

Apprentice to Journeyworker Ratio: 1:3

STEAM BOILER OPERATOR	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TERRAZZO FINISHERS	8/1/2026	\$69.09	\$12.84	\$15.57	\$8.02	\$0.00	\$105.52
BRICKLAYERS LOCAL 3	2/1/2027	\$70.49	\$12.84	\$15.57	\$8.02	\$0.00	\$106.92
BRICKLAYERS LOCAL 3 - MARBLE & TILE							

Apprentice: TERRAZZO FINISHERS							
Effective Date: 8/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$34.55	\$12.84	\$15.57	\$8.02	\$0.00	\$70.98
2	60.00	\$41.45	\$12.84	\$15.57	\$8.02	\$0.00	\$77.88
3	70.00	\$48.36	\$12.84	\$15.57	\$8.02	\$0.00	\$84.79
4	80.00	\$55.27	\$12.84	\$15.57	\$8.02	\$0.00	\$91.70
5	90.00	\$62.18	\$12.84	\$15.57	\$8.02	\$0.00	\$98.61

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: TERRAZZO FINISHERS Effective Date: 2/1/2027							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$35.25	\$12.84	\$15.57	\$8.02	\$0.00	\$71.68
2	60.00	\$42.29	\$12.84	\$15.57	\$8.02	\$0.00	\$78.72
3	70.00	\$49.34	\$12.84	\$15.57	\$8.02	\$0.00	\$85.77
4	80.00	\$56.39	\$12.84	\$15.57	\$8.02	\$0.00	\$92.82
5	90.00	\$63.44	\$12.84	\$15.57	\$8.02	\$0.00	\$99.87
Apprentice to Journeyworker Ratio: 1:5							
TEST BORING DRILLER	6/1/2026	\$53.25	\$10.90	\$9.75	\$9.80	\$0.00	\$83.70
LABORERS	12/1/2026	\$54.75	\$10.90	\$9.75	\$9.80	\$0.00	\$85.20
LABORERS - FOUNDATION AND MARINE							
For apprentice rates see "Apprentice- LABORER"							
TEST BORING DRILLER HELPER	6/1/2026	\$49.37	\$10.90	\$9.75	\$9.80	\$0.00	\$79.82
LABORERS	12/1/2026	\$50.87	\$10.90	\$9.75	\$9.80	\$0.00	\$81.32
LABORERS - FOUNDATION AND MARINE							
For apprentice rates see "Apprentice- LABORER"							
TEST BORING LABORER	6/1/2026	\$49.25	\$10.90	\$9.75	\$9.80	\$0.00	\$79.70
LABORERS	12/1/2026	\$50.75	\$10.90	\$9.75	\$9.80	\$0.00	\$81.20
LABORERS - FOUNDATION AND MARINE							
For apprentice rates see "Apprentice- LABORER"							
TRACTORS/PORTABLE STEAM GENERATORS	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
TRAILERS FOR EARTH MOVING EQUIPMENT	6/1/2026	\$42.82	\$16.17	\$21.78	\$0.00	\$0.00	\$80.77
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	\$42.82	\$16.17	\$23.52	\$0.00	\$0.00	\$82.51
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	\$42.82	\$16.77	\$23.52	\$0.00	\$0.00	\$83.11
TUNNEL WORK - COMPRESSED AIR	6/1/2026	\$61.48	\$10.90	\$9.75	\$10.25	\$0.00	\$92.38
LABORERS	12/1/2026	\$62.98	\$10.90	\$9.75	\$10.25	\$0.00	\$93.88
LABORERS (COMPRESSED AIR)							
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	6/1/2026	\$63.48	\$10.90	\$9.75	\$10.25	\$0.00	\$94.38
LABORERS	12/1/2026	\$64.98	\$10.90	\$9.75	\$10.25	\$0.00	\$95.88
LABORERS (COMPRESSED AIR)							
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR	6/1/2026	\$53.55	\$10.90	\$9.75	\$10.25	\$0.00	\$84.45
LABORERS	12/1/2026	\$55.05	\$10.90	\$9.75	\$10.25	\$0.00	\$85.95
LABORERS (FREE AIR TUNNEL)							
For apprentice rates see "Apprentice- LABORER"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
TUNNEL WORK - FREE AIR (HAZ. WASTE) LABORERS	6/1/2026	\$55.55	\$10.90	\$9.75	\$10.25	\$0.00	\$86.45
LABORERS (FREE AIR TUNNEL)	12/1/2026	\$57.05	\$10.90	\$9.75	\$10.25	\$0.00	\$87.95
For apprentice rates see "Apprentice- LABORER"							
VAC-HAUL	6/1/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$0.00	\$80.19
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$0.00	\$81.93
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$0.00	\$82.53
VOICE-DATA-VIDEO TECHNICIAN	9/7/2025	\$36.12	\$14.98	\$13.94	\$3.97	\$0.00	\$69.01
ELECTRICIANS LOCAL 96	9/6/2026	\$37.04	\$15.96	\$14.20	\$4.07	\$0.00	\$71.27
ELECTRICIANS LOCAL 96							

Apprentice: VOICE-DATA-VIDEO TECHNICIAN**Effective Date: 9/7/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$18.06	\$14.98	\$0.54	\$3.97	\$0.00	\$37.55
2	55.00	\$19.87	\$14.98	\$0.60	\$3.97	\$0.00	\$39.42
3	60.00	\$21.67	\$14.98	\$13.51	\$3.97	\$0.00	\$54.13
4	65.00	\$23.48	\$14.98	\$13.56	\$3.97	\$0.00	\$55.99
5	70.00	\$25.28	\$14.98	\$13.62	\$3.97	\$0.00	\$57.85
6	75.00	\$27.09	\$14.98	\$13.67	\$3.97	\$0.00	\$59.71
7	80.00	\$28.90	\$14.98	\$13.73	\$3.97	\$0.00	\$61.58
8	85.00	\$30.70	\$14.98	\$13.78	\$3.97	\$0.00	\$63.43

Apprentice: VOICE-DATA-VIDEO TECHNICIAN**Effective Date: 9/6/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$18.52	\$15.96	\$0.56	\$4.07	\$0.00	\$39.11
2	55.00	\$20.37	\$15.96	\$0.61	\$4.07	\$0.00	\$41.01
3	60.00	\$22.22	\$15.96	\$13.76	\$4.07	\$0.00	\$56.01
4	65.00	\$24.08	\$15.96	\$13.81	\$4.07	\$0.00	\$57.92
5	70.00	\$25.93	\$15.96	\$13.87	\$4.07	\$0.00	\$59.83
6	75.00	\$27.78	\$15.96	\$13.92	\$4.07	\$0.00	\$61.73
7	80.00	\$29.63	\$15.96	\$13.98	\$4.07	\$0.00	\$63.64
8	85.00	\$31.48	\$15.96	\$14.03	\$4.07	\$0.00	\$65.54

Apprentice to Journeyworker Ratio: 1:1

WAGON DRILL OPERATOR	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
WAGON DRILL OPERATOR (HEAVY & HIGHWAY)	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.21	\$0.00	\$71.77
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.21	\$0.00	\$73.21
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
WASTE WATER PUMP OPERATOR	6/1/2026	\$59.38	\$17.05	\$13.35	\$3.25	\$0.00	\$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.83	\$17.05	\$13.35	\$3.25	\$0.00	\$94.48
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
WATER METER INSTALLER	3/1/2026	\$55.90	\$13.10	\$9.71	\$8.06	\$0.00	\$86.77
PLUMBERS LOCAL 4							
PLUMBERS LOCAL 4							
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 MARINE DRILLING MARINE DRILLING	1/1/2018	\$41.82	\$7.63	\$2.35	\$1.25	\$0.00	\$53.05
BOAT CAPTAIN MARINE DRILLING MARINE DRILLING	1/1/2018	\$33.87	\$7.63	\$2.35	\$0.95	\$0.00	\$44.80
BOAT CAPTAIN / Over 1,000 hp MARINE DRILLING MARINE DRILLING	1/1/2018	\$38.06	\$7.63	\$2.35	\$1.25	\$0.00	\$49.29
CORE DRILLER MARINE DRILLING MARINE DRILLING	1/1/2018	\$31.43	\$7.63	\$2.25	\$0.65	\$0.00	\$41.96
CORE DRILLER HELPER MARINE DRILLING MARINE DRILLING	1/1/2018	\$28.47	\$7.63	\$2.35	\$0.65	\$0.00	\$39.10
DRILLER MARINE DRILLING MARINE DRILLING	1/1/2018	\$39.70	\$7.63	\$2.35	\$1.25	\$0.00	\$50.93
ENGINEER MARINE DRILLING MARINE DRILLING	1/1/2018	\$39.69	\$7.63	\$2.25	\$1.25	\$0.00	\$50.82
HELPER MARINE DRILLING MARINE DRILLING	1/1/2018	\$34.24	\$7.63	\$2.35	\$0.65	\$0.00	\$44.87
MACHINIST MARINE DRILLING MARINE DRILLING	1/1/2018	\$38.88	\$7.63	\$2.35	\$0.95	\$0.00	\$49.81
OILER - MARINE DRILLING MARINE DRILLING MARINE DRILLING	1/1/2018	\$34.24	\$7.63	\$2.35	\$0.65	\$0.00	\$44.87
TUG DECKHAND MARINE DRILLING MARINE DRILLING	1/1/2018	\$27.61	\$7.63	\$2.35	\$0.65	\$0.00	\$38.24
WELDER MARINE DRILLING 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 OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$29.26	\$7.63	\$2.35	\$0.95	\$0.00	\$40.19
CERTIFIED WELDER OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$31.09	\$7.63	\$2.35	\$1.25	\$0.00	\$42.32
CHIEF WELDER/ CHIEF MATE OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$33.02	\$7.63	\$2.35	\$1.25	\$0.00	\$44.25
DERRICK / SPIDER / SPILLBARGE OPERATOR OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$33.02	\$7.63	\$2.35	\$1.25	\$0.00	\$44.25
DRAG BARGE OPERATOR / WELDER / MATE OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$30.24	\$7.63	\$2.35	\$0.95	\$0.00	\$41.17
ENGINEER / ELECTRICIAN OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$33.02	\$7.63	\$2.35	\$1.25	\$0.00	\$44.25
LICENSED BOAT OPERATOR OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$33.02	\$7.63	\$2.35	\$1.25	\$0.00	\$44.25
LICENSED TUG OPERATOR OVER 1000HP OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$38.18	\$7.63	\$2.35	\$1.25	\$0.00	\$49.41
MAINTENANCE ENGINEER OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$33.03	\$7.63	\$2.35	\$1.25	\$0.00	\$44.26
OILER - MARINE DIVISION OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$24.30	\$7.63	\$2.35	\$0.65	\$0.00	\$34.93
OPERATOR / LEVERMAN OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$38.18	\$7.63	\$2.35	\$1.25	\$0.00	\$49.41
RODMAN / SCOWMAN OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$24.30	\$7.63	\$2.35	\$0.65	\$0.00	\$34.93
SHOREMAN / DECKHAND OPERATING ENGINEERS LOCAL 4 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)	8/30/2026	\$38.13	\$11.00	\$1.14	\$1.00	\$0.00	\$51.27
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$39.65	\$11.25	\$1.19	\$1.00	\$0.00	\$53.09
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
CABLEMAN (Underground Ducts & Cables)	8/30/2026	\$54.02	\$11.00	\$1.62	\$11.14	\$0.00	\$77.78
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$56.17	\$11.25	\$1.69	\$11.57	\$0.00	\$80.68
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
DRIVER / GROUNDMAN CDL	8/30/2026	\$44.49	\$11.00	\$1.33	\$10.80	\$0.00	\$67.62
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$46.26	\$11.25	\$1.39	\$11.15	\$0.00	\$70.05
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs)	8/30/2026	\$34.95	\$11.00	\$1.05	\$1.00	\$0.00	\$48.00
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$36.64	\$11.25	\$1.09	\$1.00	\$0.00	\$49.98
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
EQUIPMENT OPERATOR (Class A CDL)	8/30/2026	\$54.02	\$11.00	\$1.62	\$15.22	\$0.00	\$81.86
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$56.17	\$11.25	\$1.69	\$15.65	\$0.00	\$84.76
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
EQUIPMENT OPERATOR (Class B CDL)	8/30/2026	\$47.66	\$11.00	\$1.43	\$11.65	\$0.00	\$71.74
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$49.56	\$11.25	\$1.49	\$12.03	\$0.00	\$74.33
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
GROUNDMAN	8/30/2026	\$34.95	\$11.00	\$1.05	\$1.00	\$0.00	\$48.00
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$36.34	\$11.25	\$1.09	\$1.00	\$0.00	\$49.68
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
GROUNDMAN -Inexperienced (<2000 Hrs.)	8/30/2026	\$28.60	\$11.00	\$0.86	\$1.00	\$0.00	\$41.46
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$29.74	\$11.25	\$0.89	\$1.00	\$0.00	\$42.88
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
JOURNEYMAN LINEMAN	8/30/2026	\$63.55	\$11.00	\$1.91	\$18.50	\$0.00	\$94.96
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$66.08	\$11.25	\$1.98	\$19.00	\$0.00	\$98.31
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							

Apprentice: JOURNEYMAN LINEMAN**Effective Date: 8/30/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$38.13	\$11.00	\$1.14	\$2.50	\$0.00	\$52.77
2	65.00	\$41.31	\$11.00	\$1.24	\$2.50	\$0.00	\$56.05
3	70.00	\$44.49	\$11.00	\$1.33	\$2.50	\$0.00	\$59.32
4	75.00	\$47.66	\$11.00	\$1.43	\$4.00	\$0.00	\$64.09

Outside Electrical

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: JOURNEYMAN LINEMAN Effective Date: 8/30/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
5	80.00	\$50.84	\$11.00	\$1.53	\$4.00	\$0.00	\$67.37
6	85.00	\$54.02	\$11.00	\$1.62	\$4.00	\$0.00	\$70.64
7	90.00	\$57.20	\$11.00	\$1.72	\$6.00	\$0.00	\$75.92
Apprentice: JOURNEYMAN LINEMAN Effective Date: 8/29/2027							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$39.65	\$11.25	\$1.19	\$2.50	\$0.00	\$54.59
2	65.00	\$42.95	\$11.25	\$1.29	\$2.50	\$0.00	\$57.99
3	70.00	\$46.26	\$11.25	\$1.39	\$2.50	\$0.00	\$61.40
4	75.00	\$49.56	\$11.25	\$1.49	\$4.00	\$0.00	\$66.30
5	80.00	\$52.86	\$11.25	\$1.59	\$4.00	\$0.00	\$69.70
6	85.00	\$56.17	\$11.25	\$1.69	\$4.00	\$0.00	\$73.11
7	90.00	\$59.47	\$11.25	\$1.79	\$6.00	\$0.00	\$78.51
Apprentice to Journeyworker Ratio: 1:2							
TELEDATA CABLE SPLICER OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 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 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 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 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 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.

THIS PAGE IS INTENTIONALLY LEFT BLANK



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

MAURA HEALEY
Governor

KIM DRISCOLL
Lt. Governor

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

LAUREN JONES
Secretary
MICHAEL FLANAGAN
Director

Awarding Authority:	Massachusetts Highway	City/Town:	WORCESTER
Wage Request No:	20260828130237-S2	Job Location:	over Lake Quinsigamond and Lake Avenue North
Description of Work:	SHREWSBURY-WORCESTER – Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB) over Lake Quinsigamond and Lake Avenue North		
Contract Number:	136561		

§§ 26-27D Construction Project

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

Awarding Authority Responsibilities

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

Contractor Responsibilities

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

Employees who are **not** paid the wage listed on the Prevailing Wage Schedule (PWS) may file a complaint with the Attorney General's Fair Labor

Division: www.mass.gov/ago/fld; (617) 727-3465.

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
(2 AXLE) DRIVER - EQUIPMENT	6/1/2026	\$41.95	\$16.17	\$21.78	\$0.00	\$0.00	\$79.90
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	\$41.95	\$16.17	\$23.52	\$0.00	\$0.00	\$81.64
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	\$41.95	\$16.77	\$23.52	\$0.00	\$0.00	\$82.24
(3 AXLE) DRIVER - EQUIPMENT	6/1/2026	\$42.02	\$16.17	\$21.78	\$0.00	\$0.00	\$79.97
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	\$42.02	\$16.17	\$23.52	\$0.00	\$0.00	\$81.71
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	\$42.02	\$16.77	\$23.52	\$0.00	\$0.00	\$82.31
(4 & 5 AXLE) DRIVER - EQUIPMENT	6/1/2026	\$42.14	\$16.17	\$21.78	\$0.00	\$0.00	\$80.09
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	\$42.14	\$16.17	\$23.52	\$0.00	\$0.00	\$81.83
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	\$42.14	\$16.77	\$23.52	\$0.00	\$0.00	\$82.43
ADS/SUBMERSIBLE PILOT	8/1/2024	\$117.16	\$10.08	\$11.62	\$12.67	\$0.00	\$151.53
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 2)							
For apprentice rates see "Apprentice- PILE DRIVER"							
AIR TRACK OPERATOR	6/1/2026	\$42.41	\$10.90	\$9.75	\$9.11	\$0.00	\$72.17
LABORERS	12/1/2026	\$43.85	\$10.90	\$9.75	\$9.11	\$0.00	\$73.61
LABORERS - ZONE 2	6/1/2027	\$45.30	\$10.90	\$9.75	\$9.11	\$0.00	\$75.06
	12/1/2027	\$46.75	\$10.90	\$9.75	\$9.11	\$0.00	\$76.51
	6/1/2028	\$48.25	\$10.90	\$9.75	\$9.11	\$0.00	\$78.01
	12/1/2028	\$49.75	\$10.90	\$9.75	\$9.11	\$0.00	\$79.51
For apprentice rates see "Apprentice- LABORER"							
AIR TRACK OPERATOR (HEAVY & HIGHWAY)	6/1/2026	\$42.41	\$10.90	\$9.75	\$9.21	\$0.00	\$72.27
LABORERS	12/1/2026	\$43.85	\$10.90	\$9.75	\$9.21	\$0.00	\$73.71
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
ASBESTOS WORKER (PIPES & TANKS)	12/1/2025	\$44.80	\$14.50	\$4.30	\$6.75	\$0.00	\$70.35
HEAT & FROST INSULATORS LOCAL 6							
HEAT & FROST INSULATORS LOCAL 6 (WORCESTER)							
ASPHALT RAKER	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
ASPHALT RAKER (HEAVY & HIGHWAY)	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.21	\$0.00	\$71.77
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.21	\$0.00	\$73.21
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE	6/1/2026	\$59.38	\$17.05	\$13.35	\$3.25	\$0.00	\$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.83	\$17.05	\$13.35	\$3.25	\$0.00	\$94.48
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
BACKHOE/FRONT-END LOADER	6/1/2026	\$59.38	\$17.05	\$13.35	\$3.25	\$0.00	\$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.83	\$17.05	\$13.35	\$3.25	\$0.00	\$94.48
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

BARCO-TYPE JUMPING TAMPER	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

BLOCK PAVER, RAMMER / CURB SETTER	6/1/2026	\$42.41	\$10.90	\$9.75	\$9.11	\$0.00	\$72.17
LABORERS	12/1/2026	\$43.85	\$10.90	\$9.75	\$9.11	\$0.00	\$73.61
LABORERS - ZONE 2	6/1/2027	\$45.30	\$10.90	\$9.75	\$9.11	\$0.00	\$75.06
	12/1/2027	\$46.75	\$10.90	\$9.75	\$9.11	\$0.00	\$76.51
	6/1/2028	\$48.25	\$10.90	\$9.75	\$9.11	\$0.00	\$78.01
	12/1/2028	\$49.75	\$10.90	\$9.75	\$9.11	\$0.00	\$79.51

For apprentice rates see "Apprentice- LABORER"

BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY)	6/1/2026	\$42.41	\$10.90	\$9.75	\$9.21	\$0.00	\$72.27
LABORERS	12/1/2026	\$43.85	\$10.90	\$9.75	\$9.21	\$0.00	\$73.71
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

BOILER MAKER	1/1/2024	\$48.12	\$7.07	\$14.60	\$6.00	\$0.00	\$75.79
BOILERMAKERS LOCAL 29							
BOILERMAKERS LOCAL 29							

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

Apprentice to Journeyworker Ratio: 1:4

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	8/1/2026	\$68.01	\$12.84	\$15.57	\$7.33	\$0.00	\$103.75
BRICKLAYERS LOCAL 3	2/1/2027	\$69.41	\$12.84	\$15.57	\$7.33	\$0.00	\$105.15
BRICKLAYERS LOCAL 3 (WORCESTER)							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)							
Effective Date: 8/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$34.01	\$12.84	\$15.57	\$7.33	\$0.00	\$69.75
2	60.00	\$40.81	\$12.84	\$15.57	\$7.33	\$0.00	\$76.55
3	70.00	\$47.61	\$12.84	\$15.57	\$7.33	\$0.00	\$83.35
4	80.00	\$54.41	\$12.84	\$15.57	\$7.33	\$0.00	\$90.15
5	90.00	\$61.21	\$12.84	\$15.57	\$7.33	\$0.00	\$96.95
Apprentice: BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)							
Effective Date: 2/1/2027							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$34.71	\$12.84	\$15.57	\$7.33	\$0.00	\$70.45
2	60.00	\$41.65	\$12.84	\$15.57	\$7.33	\$0.00	\$77.39
3	70.00	\$48.59	\$12.84	\$15.57	\$7.33	\$0.00	\$84.33
4	80.00	\$55.53	\$12.84	\$15.57	\$7.33	\$0.00	\$91.27
5	90.00	\$62.47	\$12.84	\$15.57	\$7.33	\$0.00	\$98.21
Apprentice to Journeyworker Ratio: 1:5							
BULLDOZER/GRADER/SCRAPER	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
CAISSON & UNDERPINNING BOTTOM MAN	6/1/2026	\$50.40	\$10.90	\$9.75	\$9.80	\$0.00	\$80.85
LABORERS	12/1/2026	\$51.90	\$10.90	\$9.75	\$9.80	\$0.00	\$82.35
LABORERS - FOUNDATION AND MARINE							
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING LABORER	6/1/2026	\$49.25	\$10.90	\$9.75	\$9.80	\$0.00	\$79.70
LABORERS	12/1/2026	\$50.75	\$10.90	\$9.75	\$9.80	\$0.00	\$81.20
LABORERS - FOUNDATION AND MARINE							
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING TOP MAN	6/1/2026	\$49.58	\$10.90	\$9.75	\$9.80	\$0.00	\$80.03
LABORERS	12/1/2026	\$51.08	\$10.90	\$9.75	\$9.80	\$0.00	\$81.53
LABORERS - FOUNDATION AND MARINE							
For apprentice rates see "Apprentice- LABORER"							
CARBIDE CORE DRILL OPERATOR	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
CARPENTER	3/1/2026	\$50.85	\$11.08	\$11.47	\$8.50	\$0.00	\$81.90
CARPENTERS	9/1/2026	\$52.10	\$11.08	\$11.47	\$8.50	\$0.00	\$83.15
CARPENTERS -ZONE 2 (Eastern Massachusetts)	3/1/2027	\$53.35	\$11.08	\$11.47	\$8.50	\$0.00	\$84.40

Apprentice: CARPENTER**Effective Date: 3/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$22.88	\$11.08	\$0.00	\$1.73	\$0.00	\$35.69
2	45.00	\$22.88	\$11.08	\$0.00	\$1.73	\$0.00	\$35.69
3	55.00	\$27.97	\$11.08	\$0.00	\$3.40	\$0.00	\$42.45
4	55.00	\$27.97	\$11.08	\$0.00	\$3.40	\$0.00	\$42.45
5	70.00	\$35.60	\$11.08	\$11.41	\$5.10	\$0.00	\$63.19
6	70.00	\$35.60	\$11.08	\$11.41	\$5.10	\$0.00	\$63.19
7	80.00	\$40.68	\$11.08	\$11.44	\$6.80	\$0.00	\$70.00
8	80.00	\$40.68	\$11.08	\$11.44	\$6.80	\$0.00	\$70.00

Apprentice: CARPENTER**Effective Date: 9/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$23.45	\$11.08	\$0.00	\$1.73	\$0.00	\$36.26
2	45.00	\$23.45	\$11.08	\$0.00	\$1.73	\$0.00	\$36.26
3	55.00	\$28.66	\$11.08	\$0.00	\$3.40	\$0.00	\$43.14
4	55.00	\$28.66	\$11.08	\$0.00	\$3.40	\$0.00	\$43.14
5	70.00	\$36.47	\$11.08	\$11.41	\$5.10	\$0.00	\$64.06
6	70.00	\$36.47	\$11.08	\$11.41	\$5.10	\$0.00	\$64.06
7	80.00	\$41.68	\$11.08	\$11.44	\$6.80	\$0.00	\$71.00
8	80.00	\$41.68	\$11.08	\$11.44	\$6.80	\$0.00	\$71.00

Apprentice to Journeyworker Ratio: 1:5

CARPENTER WOOD FRAME	10/1/2025	\$27.37	\$7.38	\$4.47	\$1.00	\$0.00	\$40.22
CARPENTERS	10/1/2026	\$28.47	\$7.38	\$4.47	\$1.00	\$0.00	\$41.32

All Aspects of New Wood Frame Work

Apprentice: CARPENTER WOOD FRAME**Effective Date: 10/1/2025**

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

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: CARPENTER WOOD FRAME							
Effective Date: 10/1/2025							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
7	85.00	\$23.26	\$7.38	\$3.80	\$1.00	\$0.00	\$35.44
8	90.00	\$24.63	\$7.38	\$3.80	\$1.00	\$0.00	\$36.81

Apprentice: CARPENTER WOOD FRAME							
Effective Date: 10/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$17.08	\$7.38	\$0.00	\$0.00	\$0.00	\$24.46
2	60.00	\$17.08	\$7.38	\$0.00	\$0.00	\$0.00	\$24.46
3	65.00	\$18.51	\$7.38	\$0.00	\$1.00	\$0.00	\$26.89
4	70.00	\$19.93	\$7.38	\$0.00	\$1.00	\$0.00	\$28.31
5	75.00	\$21.35	\$7.38	\$3.80	\$1.00	\$0.00	\$33.53
6	80.00	\$22.78	\$7.38	\$3.80	\$1.00	\$0.00	\$34.96
7	85.00	\$24.20	\$7.38	\$3.80	\$1.00	\$0.00	\$36.38
8	90.00	\$25.62	\$7.38	\$3.80	\$1.00	\$0.00	\$37.80

Apprentice to Journeyworker Ratio: 1:5

CEMENT MASONRY/PLASTERING	7/1/2026	\$54.49	\$13.35	\$16.43	\$7.78	\$1.80	\$93.85
PLASTERERS AND CEMENT MASONS LOCAL 534	1/1/2027	\$55.94	\$13.35	\$16.43	\$7.78	\$1.80	\$95.30
Plasterers and Cement Masons - Zone 1	7/1/2027	\$57.29	\$13.35	\$16.43	\$7.78	\$1.80	\$96.65
	1/1/2028	\$58.64	\$13.35	\$16.43	\$7.78	\$1.80	\$98.00

Apprentice: CEMENT MASONRY/PLASTERING							
Effective Date: 7/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$27.25	\$13.35	\$16.43	\$0.00	\$0.00	\$57.03
2	60.00	\$32.69	\$13.35	\$16.43	\$7.78	\$1.80	\$72.05
3	65.00	\$35.42	\$13.35	\$16.43	\$7.78	\$1.80	\$74.78
4	70.00	\$38.14	\$13.35	\$16.43	\$7.78	\$1.80	\$77.50
5	75.00	\$40.87	\$13.35	\$16.43	\$7.78	\$1.80	\$80.23
6	80.00	\$43.59	\$13.35	\$16.43	\$7.78	\$1.80	\$82.95
7	90.00	\$49.04	\$13.35	\$0.00	\$7.78	\$0.00	\$70.17

Apprentice: CEMENT MASONRY/PLASTERING							
Effective Date: 1/1/2027							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$27.97	\$13.35	\$16.43	\$0.00	\$0.00	\$57.75
2	60.00	\$33.56	\$13.35	\$16.43	\$7.78	\$1.80	\$72.92

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: CEMENT MASONRY/PLASTERING Effective Date: 1/1/2027							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
3	65.00	\$36.36	\$13.35	\$16.43	\$7.78	\$1.80	\$75.72
4	70.00	\$39.16	\$13.35	\$16.43	\$7.78	\$1.80	\$78.52
5	75.00	\$41.96	\$13.35	\$16.43	\$7.78	\$1.80	\$81.32
6	80.00	\$44.75	\$13.35	\$16.43	\$7.78	\$1.80	\$84.11
7	90.00	\$50.35	\$0.00	\$16.43	\$0.00	\$0.00	\$66.78
Apprentice to Journeyworker Ratio: 1:5							
CHAIN SAW OPERATOR	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES	6/1/2026	\$60.61	\$17.05	\$13.35	\$3.25	\$0.00	\$94.26
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$62.09	\$17.05	\$13.35	\$3.25	\$0.00	\$95.74
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
COMPRESSOR OPERATOR	6/1/2026	\$37.63	\$17.05	\$13.35	\$3.25	\$0.00	\$71.28
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$38.58	\$17.05	\$13.35	\$3.25	\$0.00	\$72.23
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
DELEADER (BRIDGE)	1/1/2026	\$59.56	\$10.35	\$12.00	\$12.60	\$0.00	\$94.51
PAINTERS LOCAL 35							
PAINTERS LOCAL 35 - ZONE 2							
Apprentice: DELEADER (BRIDGE) Effective Date: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$29.78	\$10.35	\$0.00	\$0.00	\$0.00	\$40.13
2	55.00	\$32.76	\$10.35	\$0.00	\$6.93	\$0.00	\$50.04
3	60.00	\$35.74	\$10.35	\$0.00	\$7.56	\$0.00	\$53.65
4	65.00	\$38.71	\$10.35	\$0.00	\$8.19	\$0.00	\$57.25
5	70.00	\$41.69	\$10.35	\$12.00	\$8.82	\$0.00	\$72.86
6	75.00	\$44.67	\$10.35	\$12.00	\$9.45	\$0.00	\$76.47
7	80.00	\$47.65	\$10.35	\$12.00	\$10.08	\$0.00	\$80.08
8	90.00	\$53.60	\$10.35	\$12.00	\$11.34	\$0.00	\$87.29
Apprentice to Journeyworker Ratio: 1:1							
DEMO: ADZEMAN	6/1/2026	\$49.30	\$10.90	\$9.75	\$9.65	\$0.00	\$79.60

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS	12/7/2026	\$50.80	\$10.90	\$9.75	\$9.65	\$0.00	\$81.10
LABORERS - ZONE 2	6/7/2027	\$52.40	\$10.90	\$9.75	\$9.65	\$0.00	\$82.70
	12/6/2027	\$54.00	\$10.90	\$9.75	\$9.65	\$0.00	\$84.30
	6/5/2028	\$55.68	\$10.90	\$9.75	\$9.65	\$0.00	\$85.98
	12/4/2028	\$57.35	\$10.90	\$9.75	\$9.65	\$0.00	\$87.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BACKHOE/LOADER/HAMMER OPERATOR	6/1/2026	\$50.30	\$10.90	\$9.75	\$9.65	\$0.00	\$80.60
LABORERS	12/7/2026	\$51.80	\$10.90	\$9.75	\$9.65	\$0.00	\$82.10
LABORERS - ZONE 2	6/7/2027	\$53.40	\$10.90	\$9.75	\$9.65	\$0.00	\$83.70
	12/6/2027	\$55.00	\$10.90	\$9.75	\$9.65	\$0.00	\$85.30
	6/5/2028	\$56.68	\$10.90	\$9.75	\$9.65	\$0.00	\$86.98
	12/4/2028	\$58.35	\$10.90	\$9.75	\$9.65	\$0.00	\$88.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BURNERS	6/1/2026	\$50.05	\$10.90	\$9.75	\$9.65	\$0.00	\$80.35
LABORERS	12/7/2026	\$51.55	\$10.90	\$9.75	\$9.65	\$0.00	\$81.85
LABORERS - ZONE 2	6/7/2027	\$53.15	\$10.90	\$9.75	\$9.65	\$0.00	\$83.45
	12/6/2027	\$54.75	\$10.90	\$9.75	\$9.65	\$0.00	\$85.05
	6/5/2028	\$56.43	\$10.90	\$9.75	\$9.65	\$0.00	\$86.73
	12/4/2028	\$58.10	\$10.90	\$9.75	\$9.65	\$0.00	\$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: CONCRETE CUTTER/SAWYER	6/1/2026	\$50.30	\$10.90	\$9.75	\$9.65	\$0.00	\$80.60
LABORERS	12/7/2026	\$51.80	\$10.90	\$9.75	\$9.65	\$0.00	\$82.10
LABORERS - ZONE 2	6/7/2027	\$53.40	\$10.90	\$9.75	\$9.65	\$0.00	\$83.70
	12/6/2027	\$55.00	\$10.90	\$9.75	\$9.65	\$0.00	\$85.30
	6/5/2028	\$56.68	\$10.90	\$9.75	\$9.65	\$0.00	\$86.98
	12/4/2028	\$58.35	\$10.90	\$9.75	\$9.65	\$0.00	\$88.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: JACKHAMMER OPERATOR	6/1/2026	\$50.05	\$10.90	\$9.75	\$9.65	\$0.00	\$80.35
LABORERS	12/7/2026	\$51.55	\$10.90	\$9.75	\$9.65	\$0.00	\$81.85
LABORERS - ZONE 2	6/7/2027	\$53.15	\$10.90	\$9.75	\$9.65	\$0.00	\$83.45
	12/6/2027	\$54.75	\$10.90	\$9.75	\$9.65	\$0.00	\$85.05
	6/5/2028	\$56.43	\$10.90	\$9.75	\$9.65	\$0.00	\$86.73
	12/4/2028	\$58.10	\$10.90	\$9.75	\$9.65	\$0.00	\$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: WRECKING LABORER	6/1/2026	\$49.30	\$10.90	\$9.75	\$9.65	\$0.00	\$79.60
LABORERS	12/7/2026	\$50.80	\$10.90	\$9.75	\$9.65	\$0.00	\$81.10
LABORERS - ZONE 2	6/7/2027	\$52.40	\$10.90	\$9.75	\$9.65	\$0.00	\$82.70
	12/6/2027	\$54.00	\$10.90	\$9.75	\$9.65	\$0.00	\$84.30
	6/5/2028	\$55.68	\$10.90	\$9.75	\$9.65	\$0.00	\$85.98
	12/4/2028	\$57.35	\$10.90	\$9.75	\$9.65	\$0.00	\$87.65
For apprentice rates see "Apprentice- LABORER"							
DIRECTIONAL DRILL MACHINE OPERATOR	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
DIVER	8/1/2024	\$78.11	\$10.08	\$11.62	\$12.67	\$0.00	\$112.48
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 2)							
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	\$51.97	\$10.08	\$11.62	\$12.67	\$0.00	\$86.34
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 2)							
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 2)							
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 2)							
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	9/7/2025	\$48.16	\$14.98	\$14.30	\$5.30	\$0.00	\$82.74
ELECTRICIANS LOCAL 96	9/6/2026	\$49.38	\$15.96	\$14.57	\$5.43	\$0.00	\$85.34
ELECTRICIANS LOCAL 96							

Apprentice: ELECTRICIAN**Effective Date: 9/7/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	\$19.26	\$14.98	\$0.58	\$0.00	\$0.00	\$34.82
2	45.00	\$21.67	\$14.98	\$0.65	\$0.00	\$0.00	\$37.30
3	48.00	\$23.12	\$14.98	\$13.55	\$2.54	\$0.00	\$54.19
4	55.00	\$26.49	\$14.98	\$13.65	\$2.92	\$0.00	\$58.04
5	65.00	\$31.30	\$14.98	\$13.80	\$3.45	\$0.00	\$63.53
6	80.00	\$38.53	\$14.98	\$14.02	\$4.24	\$0.00	\$71.77

Apprentice: ELECTRICIAN**Effective Date: 9/6/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	\$19.75	\$15.96	\$0.59	\$0.00	\$0.00	\$36.30
2	45.00	\$22.22	\$15.96	\$0.67	\$0.00	\$0.00	\$38.85
3	48.00	\$23.70	\$15.96	\$13.80	\$2.61	\$0.00	\$56.07
4	55.00	\$27.16	\$15.96	\$13.90	\$2.99	\$0.00	\$60.01
5	65.00	\$32.10	\$15.96	\$14.05	\$3.53	\$0.00	\$65.64
6	80.00	\$39.50	\$15.96	\$14.28	\$4.35	\$0.00	\$74.09

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice to Journeyworker Ratio: 2:3							
ELEVATOR CONSTRUCTOR	1/1/2026	\$69.23	\$16.38	\$11.06	\$10.70	\$0.00	\$107.37
ELEVATOR CONSTRUCTORS LOCAL 41	1/1/2027	\$72.23	\$16.48	\$11.16	\$11.00	\$0.00	\$110.87
ELEVATOR CONSTRUCTORS LOCAL 41							

Apprentice: ELEVATOR CONSTRUCTOR**Effective Date: 1/1/2026**

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

Apprentice: ELEVATOR CONSTRUCTOR**Effective Date: 1/1/2027**

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

Apprentice to Journeyworker Ratio: 1:1

ELEVATOR CONSTRUCTOR HELPER	1/1/2026	\$48.46	\$16.38	\$11.06	\$10.70	\$0.00	\$86.60
ELEVATOR CONSTRUCTORS LOCAL 41	1/1/2027	\$50.56	\$16.48	\$11.16	\$11.00	\$0.00	\$89.20
ELEVATOR CONSTRUCTORS LOCAL 41							

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY)	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.21	\$0.00	\$71.77
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.21	\$0.00	\$73.21
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY	5/1/2026	\$54.40	\$16.55	\$13.35	\$3.25	\$0.00	\$87.55
OPERATING ENGINEERS LOCAL 4	11/1/2026	\$55.69	\$16.55	\$13.35	\$3.25	\$0.00	\$88.84
OPERATING ENGINEERS LOCAL 4	5/1/2027	\$57.12	\$16.55	\$13.35	\$3.25	\$0.00	\$90.27

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY	5/1/2026	\$56.02	\$16.55	\$13.35	\$3.25	\$0.00	\$89.17
OPERATING ENGINEERS LOCAL 4	11/1/2026	\$57.32	\$16.55	\$13.35	\$3.25	\$0.00	\$90.47
OPERATING ENGINEERS LOCAL 4	5/1/2027	\$58.77	\$16.55	\$13.35	\$3.25	\$0.00	\$91.92

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY	5/1/2026	\$26.28	\$16.55	\$13.35	\$3.25	\$0.00	\$59.43
--	----------	---------	---------	---------	--------	--------	---------

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
OPERATING ENGINEERS LOCAL 4	11/1/2026	\$27.04	\$16.55	\$13.35	\$3.25	\$0.00	\$60.19
OPERATING ENGINEERS LOCAL 4	5/1/2027	\$27.89	\$16.55	\$13.35	\$3.25	\$0.00	\$61.04

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIRE ALARM INSTALLER	9/7/2025	\$48.16	\$14.98	\$14.30	\$5.30	\$0.00	\$82.74
ELECTRICIANS LOCAL 96	9/6/2026	\$49.38	\$15.96	\$14.57	\$5.43	\$0.00	\$85.34
ELECTRICIANS LOCAL 96							

For apprentice rates see "Apprentice- ELECTRICIAN"

FIRE ALARM REPAIR / MAINT/COMMISSIONING	9/7/2025	\$48.16	\$14.98	\$14.30	\$5.30	\$0.00	\$82.74
ELECTRICIANS LOCAL 96	9/6/2026	\$49.38	\$15.96	\$14.57	\$5.43	\$0.00	\$85.34
ELECTRICIANS LOCAL 96							

For apprentice rates see "Apprentice- ELECTRICIAN"

FIREMAN (ASST. ENGINEER)	6/1/2026	\$47.55	\$17.05	\$13.35	\$3.25	\$0.00	\$81.20
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$48.73	\$17.05	\$13.35	\$3.25	\$0.00	\$82.38
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FLAGGER & SIGNALER (HEAVY & HIGHWAY)	6/1/2026	\$29.21	\$10.90	\$9.75	\$9.21	\$0.00	\$59.07
LABORERS	12/1/2026	\$29.21	\$10.90	\$9.75	\$9.21	\$0.00	\$59.07
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

FLOORCOVERER	3/1/2024	\$48.93	\$10.33	\$11.47	\$8.80	\$0.00	\$79.53
FLOORCOVERERS LOCAL 2168							
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	\$24.47	\$10.33	\$0.00	\$1.76	\$0.00	\$36.56
2	55.00	\$26.91	\$10.33	\$0.00	\$1.76	\$0.00	\$39.00
3	60.00	\$29.36	\$10.33	\$0.00	\$3.52	\$0.00	\$43.21
4	65.00	\$31.80	\$10.33	\$0.00	\$3.52	\$0.00	\$45.65
5	70.00	\$34.25	\$10.33	\$11.47	\$5.28	\$0.00	\$61.33
6	75.00	\$36.70	\$10.33	\$11.47	\$5.28	\$0.00	\$63.78
7	80.00	\$39.14	\$10.33	\$11.47	\$7.04	\$0.00	\$67.98
8	85.00	\$41.59	\$10.33	\$11.47	\$7.04	\$0.00	\$70.43

Apprentice Notes

Steps are 750 hrs.

Apprentice to Journeyworker Ratio: 1:1

FORK LIFT/CHERRY PICKER	6/1/2026	\$59.38	\$17.05	\$13.35	\$3.25	\$0.00	\$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.83	\$17.05	\$13.35	\$3.25	\$0.00	\$94.48
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
GENERATOR/LIGHTING PLANT/HEATERS	6/1/2026	\$37.63	\$17.05	\$13.35	\$3.25	\$0.00	\$71.28
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$38.58	\$17.05	\$13.35	\$3.25	\$0.00	\$72.23
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)	1/1/2026	\$49.06	\$10.35	\$12.00	\$12.60	\$0.00	\$84.01
GLAZIERS LOCAL 35							
GLAZIERS LOCAL 35 (ZONE 2)							

Apprentice: GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)**Effective Date: 1/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$24.53	\$10.35	\$0.00	\$0.00	\$0.00	\$34.88
2	55.00	\$26.98	\$10.35	\$0.00	\$6.88	\$0.00	\$44.21
3	60.00	\$29.44	\$10.35	\$0.00	\$7.50	\$0.00	\$47.29
4	65.00	\$31.89	\$10.35	\$0.00	\$8.13	\$0.00	\$50.37
5	70.00	\$34.34	\$10.35	\$12.00	\$8.75	\$0.00	\$65.44
6	75.00	\$36.80	\$10.35	\$12.00	\$9.38	\$0.00	\$68.53
7	80.00	\$39.25	\$10.35	\$12.00	\$10.00	\$0.00	\$71.60
8	90.00	\$44.15	\$10.35	\$12.00	\$11.25	\$0.00	\$77.75

Apprentice to Journeyworker Ratio: 1:1

HOISTING ENGINEER/CRANES/GRADALLS	6/1/2026	\$59.38	\$17.05	\$13.35	\$3.25	\$0.00	\$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.83	\$17.05	\$13.35	\$3.25	\$0.00	\$94.48
OPERATING ENGINEERS LOCAL 4							

Apprentice: HOISTING ENGINEER/CRANES/GRADALLS**Effective Date: 6/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	\$32.66	\$0.00	\$0.00	\$0.00	\$0.00	\$32.66
2	60.00	\$35.63	\$17.05	\$13.35	\$3.25	\$0.00	\$69.28
3	65.00	\$38.60	\$17.05	\$13.35	\$3.25	\$0.00	\$72.25
4	70.00	\$41.57	\$17.05	\$13.35	\$3.25	\$0.00	\$75.22
5	75.00	\$44.54	\$17.05	\$13.35	\$3.25	\$0.00	\$78.19
6	80.00	\$47.50	\$17.05	\$13.35	\$3.25	\$0.00	\$81.15
7	85.00	\$50.47	\$17.05	\$13.35	\$3.25	\$0.00	\$84.12
8	90.00	\$53.44	\$17.05	\$13.35	\$3.25	\$0.00	\$87.09

Apprentice: HOISTING ENGINEER/CRANES/GRADALLS**Effective Date: 12/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	\$33.46	\$0.00	\$0.00	\$0.00	\$0.00	\$33.46
2	60.00	\$36.50	\$17.05	\$13.35	\$3.25	\$0.00	\$70.15
3	65.00	\$39.54	\$17.05	\$13.35	\$3.25	\$0.00	\$73.19

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: HOISTING ENGINEER/CRANES/GRADALLS Effective Date: 12/1/2026							
	Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment Total Rate
	4	70.00	\$42.58	\$17.05	\$13.35	\$3.25	\$0.00 \$76.23
	5	75.00	\$45.62	\$17.05	\$13.35	\$3.25	\$0.00 \$79.27
	6	80.00	\$48.66	\$17.05	\$13.35	\$3.25	\$0.00 \$82.31
	7	85.00	\$51.71	\$17.05	\$13.35	\$3.25	\$0.00 \$85.36
	8	90.00	\$54.75	\$17.05	\$13.35	\$3.25	\$0.00 \$88.40
Apprentice to Journeyworker Ratio: 1:6							
HVAC (DUCTWORK)	7/1/2026	\$43.48	\$13.24	\$11.01	\$9.92	\$2.13	\$79.78
SHEETMETAL WORKERS LOCAL 63	1/1/2027	\$43.48	\$13.54	\$11.01	\$11.12	\$2.13	\$81.28
SHEETMETAL WORKERS LOCAL 63	7/1/2027	\$44.98	\$13.54	\$11.01	\$11.12	\$2.13	\$82.78
	1/1/2028	\$46.48	\$13.54	\$11.01	\$11.12	\$2.13	\$84.28
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (ELECTRICAL CONTROLS)	9/7/2025	\$48.16	\$14.98	\$14.30	\$5.30	\$0.00	\$82.74
ELECTRICIANS LOCAL 96	9/6/2026	\$49.38	\$15.96	\$14.57	\$5.43	\$0.00	\$85.34
ELECTRICIANS LOCAL 96							
For apprentice rates see "Apprentice- ELECTRICIAN"							
HVAC (TESTING AND BALANCING - AIR)	7/1/2026	\$43.48	\$13.24	\$11.01	\$9.92	\$2.13	\$79.78
SHEETMETAL WORKERS LOCAL 63	1/1/2027	\$43.48	\$13.54	\$11.01	\$11.12	\$2.13	\$81.28
SHEETMETAL WORKERS LOCAL 63	7/1/2027	\$44.98	\$13.54	\$11.01	\$11.12	\$2.13	\$82.78
	1/1/2028	\$46.48	\$13.54	\$11.01	\$11.12	\$2.13	\$84.28
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (TESTING AND BALANCING -WATER)	3/1/2026	\$55.90	\$13.10	\$9.71	\$8.06	\$0.00	\$86.77
PLUMBERS LOCAL 4							
PLUMBERS LOCAL 4							
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HVAC MECHANIC	3/1/2026	\$55.90	\$13.10	\$9.71	\$8.06	\$0.00	\$86.77
PLUMBERS LOCAL 4							
PLUMBERS LOCAL 4							
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HYDRAULIC DRILLS	6/1/2026	\$42.41	\$10.90	\$9.75	\$9.11	\$0.00	\$72.17
LABORERS	12/1/2026	\$43.85	\$10.90	\$9.75	\$9.11	\$0.00	\$73.61
LABORERS - ZONE 2	6/1/2027	\$45.30	\$10.90	\$9.75	\$9.11	\$0.00	\$75.06
	12/1/2027	\$46.75	\$10.90	\$9.75	\$9.11	\$0.00	\$76.51
	6/1/2028	\$48.25	\$10.90	\$9.75	\$9.11	\$0.00	\$78.01
	12/1/2028	\$49.75	\$10.90	\$9.75	\$9.11	\$0.00	\$79.51
For apprentice rates see "Apprentice- LABORER"							
HYDRAULIC DRILLS (HEAVY & HIGHWAY)	6/1/2026	\$42.41	\$10.90	\$9.75	\$9.21	\$0.00	\$72.27
LABORERS	12/1/2026	\$43.85	\$10.90	\$9.75	\$9.21	\$0.00	\$73.71
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
INSULATOR (PIPES & TANKS)	9/1/2025	\$54.31	\$14.75	\$9.52	\$10.09	\$0.00	\$88.67
HEAT & FROST INSULATORS LOCAL 6	9/1/2026	\$53.12	\$16.15	\$11.46	\$11.49	\$0.00	\$92.22
HEAT & FROST INSULATORS LOCAL 6 (WORCESTER)							

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

Apprentice: INSULATOR (PIPES & TANKS)**Effective Date: 9/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$26.56	\$16.15	\$11.21	\$5.75	\$0.00	\$59.67
2	60.00	\$31.87	\$16.15	\$11.26	\$6.89	\$0.00	\$66.17
3	70.00	\$37.18	\$16.15	\$11.31	\$8.04	\$0.00	\$72.68
4	80.00	\$42.50	\$16.15	\$11.36	\$9.19	\$0.00	\$79.20

Apprentice to Journeyworker Ratio: 1:4

IRONWORKER/WELDER	3/16/2026	\$58.35	\$9.25	\$12.75	\$15.00	\$0.00	\$95.35
IRONWORKERS LOCAL 7							
IRONWORKERS LOCAL 7 (WORCESTER AREA)							

Apprentice: IRONWORKER/WELDER**Effective Date: 3/16/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	70.00	\$40.85	\$9.25	\$12.75	\$5.00	\$0.00	\$67.85
2	80.00	\$46.68	\$9.25	\$12.75	\$5.00	\$0.00	\$73.68
3	90.00	\$52.52	\$9.25	\$12.75	\$5.00	\$0.00	\$79.52
4	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
5	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
6	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Apprentice to Journeyworker Ratio: 1:4

JACKHAMMER & PAVING BREAKER OPERATOR	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORER	6/1/2026	\$41.66	\$10.90	\$9.75	\$9.11	\$0.00	\$71.42
LABORERS	12/1/2026	\$43.10	\$10.90	\$9.75	\$9.11	\$0.00	\$72.86
LABORERS - ZONE 2	6/1/2027	\$44.55	\$10.90	\$9.75	\$9.11	\$0.00	\$74.31
	12/1/2027	\$46.00	\$10.90	\$9.75	\$9.11	\$0.00	\$75.76
	6/1/2028	\$47.50	\$10.90	\$9.75	\$9.11	\$0.00	\$77.26
	12/1/2028	\$49.00	\$10.90	\$9.75	\$9.11	\$0.00	\$78.76

Apprentice: LABORER							
Effective Date: 6/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$25.00	\$10.90	\$9.75	\$9.11	\$0.00	\$54.76
2	70.00	\$29.16	\$10.90	\$9.75	\$9.11	\$0.00	\$58.92
3	80.00	\$33.33	\$10.90	\$9.75	\$9.11	\$0.00	\$63.09
4	90.00	\$37.49	\$10.90	\$9.75	\$9.11	\$0.00	\$67.25

Apprentice: LABORER							
Effective Date: 12/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$25.86	\$10.90	\$9.75	\$9.11	\$0.00	\$55.62
2	70.00	\$30.17	\$10.90	\$9.75	\$9.11	\$0.00	\$59.93
3	80.00	\$34.48	\$10.90	\$9.75	\$9.11	\$0.00	\$64.24
4	90.00	\$38.79	\$10.90	\$9.75	\$9.11	\$0.00	\$68.55

Apprentice to Journeyworker Ratio: 1:5

LABORER (HEAVY & HIGHWAY)	6/1/2026	\$41.66	\$10.90	\$9.75	\$9.21	\$0.00	\$71.52
LABORERS	12/1/2026	\$43.10	\$10.90	\$9.75	\$9.21	\$0.00	\$72.96
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							

Apprentice: LABORER (HEAVY & HIGHWAY)							
Effective Date: 6/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$25.00	\$10.90	\$9.75	\$9.21	\$0.00	\$54.86
2	70.00	\$29.16	\$10.90	\$9.75	\$9.21	\$0.00	\$59.02
3	80.00	\$33.33	\$10.90	\$9.75	\$9.21	\$0.00	\$63.19
4	90.00	\$37.49	\$10.90	\$9.75	\$9.10	\$0.00	\$67.24

Apprentice: LABORER (HEAVY & HIGHWAY)							
Effective Date: 12/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$25.86	\$10.90	\$9.75	\$9.21	\$0.00	\$55.72

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate																																
Apprentice: LABORER (HEAVY & HIGHWAY) Effective Date: 12/1/2026 <table><thead><tr><th>Step</th><th>Percent</th><th>Apprentice Base Wage</th><th>Health</th><th>Pension</th><th>Annuity</th><th>Supplemental Unemployment</th><th>Total Rate</th></tr></thead><tbody><tr><td>2</td><td>70.00</td><td>\$30.17</td><td>\$10.90</td><td>\$9.75</td><td>\$9.21</td><td>\$0.00</td><td>\$60.03</td></tr><tr><td>3</td><td>80.00</td><td>\$34.48</td><td>\$10.90</td><td>\$9.75</td><td>\$9.21</td><td>\$0.00</td><td>\$64.34</td></tr><tr><td>4</td><td>90.00</td><td>\$38.79</td><td>\$10.90</td><td>\$9.75</td><td>\$9.21</td><td>\$0.00</td><td>\$68.65</td></tr></tbody></table>								Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate	2	70.00	\$30.17	\$10.90	\$9.75	\$9.21	\$0.00	\$60.03	3	80.00	\$34.48	\$10.90	\$9.75	\$9.21	\$0.00	\$64.34	4	90.00	\$38.79	\$10.90	\$9.75	\$9.21	\$0.00	\$68.65
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate																																
2	70.00	\$30.17	\$10.90	\$9.75	\$9.21	\$0.00	\$60.03																																
3	80.00	\$34.48	\$10.90	\$9.75	\$9.21	\$0.00	\$64.34																																
4	90.00	\$38.79	\$10.90	\$9.75	\$9.21	\$0.00	\$68.65																																
Apprentice to Journeyworker Ratio: 1:5																																							
LABORER: CARPENTER TENDER	6/1/2026	\$41.66	\$10.90	\$9.75	\$9.11	\$0.00	\$71.42																																
LABORERS	12/1/2026	\$43.10	\$10.90	\$9.75	\$9.11	\$0.00	\$72.86																																
LABORERS - ZONE 2	6/1/2027	\$44.55	\$10.90	\$9.75	\$9.11	\$0.00	\$74.31																																
	12/1/2027	\$46.00	\$10.90	\$9.75	\$9.11	\$0.00	\$75.76																																
	6/1/2028	\$47.50	\$10.90	\$9.75	\$9.11	\$0.00	\$77.26																																
	12/1/2028	\$49.00	\$10.90	\$9.75	\$9.11	\$0.00	\$78.76																																
For apprentice rates see "Apprentice- LABORER"																																							
LABORER: CEMENT FINISHER TENDER	6/1/2026	\$41.66	\$10.90	\$9.75	\$9.11	\$0.00	\$71.42																																
LABORERS	12/1/2026	\$43.10	\$10.90	\$9.75	\$9.11	\$0.00	\$72.86																																
LABORERS - ZONE 2	6/1/2027	\$44.55	\$10.90	\$9.75	\$9.11	\$0.00	\$74.31																																
	12/1/2027	\$46.00	\$10.90	\$9.75	\$9.11	\$0.00	\$75.76																																
	6/1/2028	\$47.50	\$10.90	\$9.75	\$9.11	\$0.00	\$77.26																																
	12/1/2028	\$49.00	\$10.90	\$9.75	\$9.11	\$0.00	\$78.76																																
For apprentice rates see "Apprentice- LABORER"																																							
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER	6/1/2026	\$41.75	\$10.90	\$9.75	\$9.65	\$0.00	\$72.05																																
LABORERS	12/7/2026	\$43.19	\$10.90	\$9.75	\$9.65	\$0.00	\$73.49																																
LABORERS - ZONE 2	6/7/2027	\$44.64	\$10.90	\$9.75	\$9.65	\$0.00	\$74.94																																
	12/6/2027	\$46.09	\$10.90	\$9.75	\$9.65	\$0.00	\$76.39																																
	6/5/2028	\$47.59	\$10.90	\$9.75	\$9.65	\$0.00	\$77.89																																
	12/4/2028	\$49.09	\$10.90	\$9.75	\$9.65	\$0.00	\$79.39																																
For apprentice rates see "Apprentice- LABORER"																																							
LABORER: MASON TENDER	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67																																
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11																																
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56																																
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01																																
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51																																
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01																																
For apprentice rates see "Apprentice- LABORER"																																							
LABORER: MASON TENDER (HEAVY & HIGHWAY)	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.21	\$0.00	\$71.77																																
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.21	\$0.00	\$73.21																																
LABORERS - ZONE 2 (HEAVY & HIGHWAY)																																							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"																																							
LABORER: MULTI-TRADE TENDER	6/1/2026	\$41.66	\$10.90	\$9.75	\$9.11	\$0.00	\$71.42																																
LABORERS	12/1/2026	\$43.10	\$10.90	\$9.75	\$9.11	\$0.00	\$72.86																																
LABORERS - ZONE 2	6/1/2027	\$44.55	\$10.90	\$9.75	\$9.11	\$0.00	\$74.31																																

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2027	\$46.00	\$10.90	\$9.75	\$9.11	\$0.00	\$75.76
	6/1/2028	\$47.50	\$10.90	\$9.75	\$9.11	\$0.00	\$77.26
	12/1/2028	\$49.00	\$10.90	\$9.75	\$9.11	\$0.00	\$78.76

For apprentice rates see "Apprentice- LABORER"

LABORER: TREE REMOVER	6/1/2026	\$41.66	\$10.90	\$9.75	\$9.11	\$0.00	\$71.42
LABORERS	12/1/2026	\$43.10	\$10.90	\$9.75	\$9.11	\$0.00	\$72.86
LABORERS - ZONE 2	6/1/2027	\$44.55	\$10.90	\$9.75	\$9.11	\$0.00	\$74.31
	12/1/2027	\$46.00	\$10.90	\$9.75	\$9.11	\$0.00	\$75.76
	6/1/2028	\$47.50	\$10.90	\$9.75	\$9.11	\$0.00	\$77.26
	12/1/2028	\$49.00	\$10.90	\$9.75	\$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"

LASER BEAM OPERATOR	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01

For apprentice rates see "Apprentice- LABORER"

LASER BEAM OPERATOR (HEAVY & HIGHWAY)	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.21	\$0.00	\$71.77
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.21	\$0.00	\$73.21
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

MARBLE & TILE FINISHERS	8/1/2026	\$53.84	\$12.84	\$15.57	\$5.78	\$0.00	\$88.03
BRICKLAYERS LOCAL 3	2/1/2027	\$54.96	\$12.84	\$15.57	\$5.78	\$0.00	\$89.15
BRICKLAYERS LOCAL 3 - MARBLE & TILE							

Apprentice: MARBLE & TILE FINISHERS							
Effective Date: 8/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$26.92	\$12.84	\$15.57	\$5.78	\$0.00	\$61.11
2	60.00	\$32.30	\$12.84	\$15.57	\$5.78	\$0.00	\$66.49
3	70.00	\$37.69	\$12.84	\$15.57	\$5.78	\$0.00	\$71.88
4	80.00	\$43.07	\$12.84	\$15.57	\$5.78	\$0.00	\$77.26
5	90.00	\$48.46	\$12.84	\$15.57	\$5.78	\$0.00	\$82.65

Apprentice: MARBLE & TILE FINISHERS							
Effective Date: 2/1/2027							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$27.48	\$12.84	\$15.57	\$5.78	\$0.00	\$61.67
2	60.00	\$32.98	\$12.84	\$15.57	\$5.78	\$0.00	\$67.17
3	70.00	\$38.47	\$12.84	\$15.57	\$5.78	\$0.00	\$72.66

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: MARBLE & TILE FINISHERS							
Effective Date: 2/1/2027							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
4	80.00	\$43.97	\$12.84	\$15.57	\$5.78	\$0.00	\$78.16
5	90.00	\$49.46	\$12.84	\$15.57	\$5.78	\$0.00	\$83.65
Apprentice to Journeyworker Ratio: 1:5							

MARBLE MASONS,TILELAYERS & TERRAZZO MECH	8/1/2026	\$70.17	\$12.84	\$15.57	\$7.99	\$0.00	\$106.57
BRICKLAYERS LOCAL 3	2/1/2027	\$71.57	\$12.84	\$15.57	\$7.99	\$0.00	\$107.97
BRICKLAYERS LOCAL 3 - MARBLE & TILE							

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH							
Effective Date: 8/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$35.09	\$12.84	\$15.57	\$7.99	\$0.00	\$71.49
2	60.00	\$42.10	\$12.84	\$15.57	\$7.99	\$0.00	\$78.50
3	70.00	\$49.12	\$12.84	\$15.57	\$7.99	\$0.00	\$85.52
4	80.00	\$56.14	\$12.84	\$15.57	\$7.99	\$0.00	\$92.54
5	90.00	\$63.15	\$12.84	\$15.57	\$7.99	\$0.00	\$99.55

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH							
Effective Date: 2/1/2027							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$35.79	\$12.84	\$15.57	\$7.99	\$0.00	\$72.19
2	60.00	\$42.94	\$12.84	\$15.57	\$7.99	\$0.00	\$79.34
3	70.00	\$50.10	\$12.84	\$15.57	\$7.99	\$0.00	\$86.50
4	80.00	\$57.26	\$12.84	\$15.57	\$7.99	\$0.00	\$93.66
5	90.00	\$64.41	\$12.84	\$15.57	\$7.99	\$0.00	\$100.81

Apprentice to Journeyworker Ratio: 1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES)	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: MILLWRIGHT (Zone 3) Effective Date: 1/5/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	\$24.86	\$10.58	\$0.00	\$5.36	\$0.00	\$40.80
2	65.00	\$29.38	\$10.58	\$0.00	\$6.34	\$0.00	\$46.30
3	75.00	\$33.90	\$10.58	\$11.47	\$7.31	\$0.00	\$63.26
4	85.00	\$38.42	\$10.58	\$11.47	\$8.29	\$0.00	\$68.76
Apprentice Notes Step 1&2 Appr. indentured after 1/6/2020 receive no pension,							
Apprentice to Journeyworker Ratio: 1:4							
MORTAR MIXER	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
OILER (OTHER THAN TRUCK CRANES,GRADALLS)	6/1/2026	\$25.07	\$17.05	\$13.35	\$3.25	\$0.00	\$58.72
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$25.74	\$17.05	\$13.35	\$3.25	\$0.00	\$59.39
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
OILER (TRUCK CRANES, GRADALLS)	6/1/2026	\$31.17	\$17.05	\$13.35	\$3.25	\$0.00	\$64.82
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$31.97	\$17.05	\$13.35	\$3.25	\$0.00	\$65.62
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
OTHER POWER DRIVEN EQUIPMENT - CLASS II	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PAINTER (BRIDGES/TANKS)	1/1/2026	\$59.56	\$10.35	\$12.00	\$12.50	\$0.00	\$94.41
PAINTERS LOCAL 35							
PAINTERS LOCAL 35 - ZONE 2							

Apprentice: PAINTER (BRIDGES/TANKS) Effective Date: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$29.78	\$10.35	\$0.00	\$0.00	\$0.00	\$40.13
2	55.00	\$32.76	\$10.35	\$0.00	\$6.93	\$0.00	\$50.04
3	60.00	\$35.74	\$10.35	\$0.00	\$7.56	\$0.00	\$53.65

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: PAINTER (BRIDGES/TANKS)							
Effective Date: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
4	65.00	\$38.71	\$10.35	\$0.00	\$8.19	\$0.00	\$57.25
5	70.00	\$41.69	\$10.35	\$12.00	\$8.82	\$0.00	\$72.86
6	75.00	\$44.67	\$10.35	\$12.00	\$9.45	\$0.00	\$76.47
7	80.00	\$47.65	\$10.35	\$12.00	\$10.08	\$0.00	\$80.08
8	90.00	\$53.60	\$10.35	\$12.00	\$11.34	\$0.00	\$87.29

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, NEW) *	1/1/2026	\$50.46	\$10.35	\$12.00	\$12.60	\$0.00	\$85.41
-------------------------------------	----------	---------	---------	---------	---------	--------	---------

* 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: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$25.23	\$10.35	\$0.00	\$0.00	\$0.00	\$35.58
2	55.00	\$27.75	\$10.35	\$0.00	\$6.93	\$0.00	\$45.03
3	60.00	\$30.28	\$10.35	\$0.00	\$7.56	\$0.00	\$48.19
4	65.00	\$32.80	\$10.35	\$0.00	\$8.19	\$0.00	\$51.34
5	70.00	\$35.32	\$10.35	\$12.00	\$8.82	\$0.00	\$66.49
6	75.00	\$37.85	\$10.35	\$12.00	\$9.45	\$0.00	\$69.65
7	80.00	\$40.37	\$10.35	\$12.00	\$10.08	\$0.00	\$72.80
8	90.00	\$45.41	\$10.35	\$12.00	\$11.34	\$0.00	\$79.10

Apprentice to Journeyworker Ratio: 1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT)	1/1/2026	\$48.52	\$10.35	\$12.00	\$12.60	\$0.00	\$83.47
---------------------------------------	----------	---------	---------	---------	---------	--------	---------

PAINTERS LOCAL 35

PAINTERS LOCAL 35 - ZONE 2

Apprentice: PAINTER (SPRAY OR SANDBLAST, REPAINT)							
Effective Date: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$24.26	\$10.35	\$0.00	\$0.00	\$0.00	\$34.61
2	55.00	\$26.69	\$10.35	\$0.00	\$6.93	\$0.00	\$43.97
3	60.00	\$29.11	\$10.35	\$0.00	\$7.56	\$0.00	\$47.02
4	65.00	\$31.54	\$10.35	\$0.00	\$8.19	\$0.00	\$50.08
5	70.00	\$33.96	\$10.35	\$12.00	\$8.82	\$0.00	\$65.13
6	75.00	\$36.39	\$10.35	\$12.00	\$9.45	\$0.00	\$68.19
7	80.00	\$38.82	\$10.35	\$12.00	\$10.08	\$0.00	\$71.25

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: PAINTER (SPRAY OR SANDBLAST, REPAINT)							
Effective Date: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
8	90.00	\$43.67	\$10.35	\$12.00	\$11.34	\$0.00	\$77.36

Apprentice to Journeyworker Ratio: 1:1

PAINTER / TAPER (BRUSH, NEW) *	1/1/2026	\$49.06	\$10.35	\$12.00	\$12.60	\$0.00	\$84.01
--------------------------------	----------	---------	---------	---------	---------	--------	---------

* 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: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$24.53	\$10.35	\$0.00	\$0.00	\$0.00	\$34.88
2	55.00	\$26.98	\$10.35	\$0.00	\$6.93	\$0.00	\$44.26
3	60.00	\$29.44	\$10.35	\$0.00	\$7.56	\$0.00	\$47.35
4	65.00	\$31.89	\$10.35	\$0.00	\$8.19	\$0.00	\$50.43
5	70.00	\$34.34	\$10.35	\$12.00	\$8.82	\$0.00	\$65.51
6	75.00	\$36.80	\$10.35	\$12.00	\$9.45	\$0.00	\$68.60
7	80.00	\$39.25	\$10.35	\$12.00	\$10.08	\$0.00	\$71.68
8	90.00	\$44.15	\$10.35	\$12.00	\$11.34	\$0.00	\$77.84

Apprentice to Journeyworker Ratio: 1:1

PAINTER / TAPER (BRUSH, REPAINT)	1/1/2026	\$47.12	\$10.35	\$12.00	\$12.60	\$0.00	\$82.07
----------------------------------	----------	---------	---------	---------	---------	--------	---------

PAINTERS LOCAL 35

PAINTERS LOCAL 35 - ZONE 2

Apprentice: PAINTER / TAPER (BRUSH, REPAINT)							
Effective Date: 1/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$23.56	\$10.35	\$0.00	\$0.00	\$0.00	\$33.91
2	55.00	\$25.92	\$10.35	\$0.00	\$6.93	\$0.00	\$43.20
3	60.00	\$28.27	\$10.35	\$0.00	\$7.56	\$0.00	\$46.18
4	65.00	\$30.63	\$10.35	\$0.00	\$8.19	\$0.00	\$49.17
5	70.00	\$32.98	\$10.35	\$12.00	\$8.82	\$0.00	\$64.15
6	75.00	\$35.34	\$10.35	\$12.00	\$9.45	\$0.00	\$67.14
7	80.00	\$37.70	\$10.35	\$12.00	\$10.08	\$0.00	\$70.13
8	90.00	\$42.41	\$10.35	\$12.00	\$11.34	\$0.00	\$76.10

Apprentice to Journeyworker Ratio: 1:1

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)	6/1/2026	\$41.66	\$10.90	\$9.75	\$9.21	\$0.00	\$71.52
--	----------	---------	---------	--------	--------	--------	---------

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LABORERS	12/1/2026	\$43.10	\$10.90	\$9.75	\$9.21	\$0.00	\$72.96
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
PANEL & PICKUP TRUCKS DRIVER	6/1/2026	\$41.78	\$16.17	\$21.78	\$0.00	\$0.00	\$79.73
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	\$41.78	\$16.17	\$23.52	\$0.00	\$0.00	\$81.47
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	\$41.78	\$16.77	\$23.52	\$0.00	\$0.00	\$82.07
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	8/1/2024	\$51.97	\$10.08	\$11.62	\$12.67	\$0.00	\$86.34
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 2)							
For apprentice rates see "Apprentice- PILE DRIVER"							
PILE DRIVER	8/1/2024	\$51.97	\$10.08	\$11.62	\$12.67	\$0.00	\$86.34
PILE DRIVER LOCAL 56							
PILE DRIVER LOCAL 56 (ZONE 2)							

Apprentice: PILE DRIVER							
Effective Date: 8/1/2024							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	\$23.39	\$10.08	\$0.00	\$2.53	\$0.00	\$36.00
2	55.00	\$28.58	\$10.08	\$0.00	\$5.07	\$0.00	\$43.73
3	70.00	\$36.38	\$10.08	\$11.62	\$7.60	\$0.00	\$65.68
4	80.00	\$41.58	\$10.08	\$11.62	\$10.14	\$0.00	\$73.42

Apprentice to Journeyworker Ratio: 1:5

PIPELAYER	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2							
	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
PIPELAYER (HEAVY & HIGHWAY)	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.21	\$0.00	\$71.77
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.21	\$0.00	\$73.21
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
PLUMBER & PIPEFITTER	3/1/2026	\$55.90	\$13.10	\$9.71	\$8.06	\$0.00	\$86.77
PLUMBERS LOCAL 4							
PLUMBERS LOCAL 4							

Apprentice: PLUMBER & PIPEFITTER							
Effective Date: 3/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: PLUMBER & PIPEFITTER Effective Date: 3/1/2026							
		Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	\$22.36	\$13.10	\$0.00	\$0.00	\$0.00	\$35.46
2	50.00	\$27.95	\$13.10	\$0.00	\$0.00	\$0.00	\$41.05
3	60.00	\$33.54	\$13.10	\$0.00	\$0.00	\$0.00	\$46.64
4	70.00	\$39.13	\$13.10	\$0.00	\$8.06	\$0.00	\$60.29
5	80.00	\$44.72	\$13.10	\$0.00	\$8.06	\$0.00	\$65.88
Apprentice to Journeyworker Ratio: 1:3							
PNEUMATIC CONTROLS (TEMP.) PLUMBERS LOCAL 4 PLUMBERS LOCAL 4	3/1/2026	\$55.90	\$13.10	\$9.71	\$8.06	\$0.00	\$86.77
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
PNEUMATIC DRILL/TOOL OPERATOR LABORERS LABORERS - ZONE 2	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.21	\$0.00	\$71.77
	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.21	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
POWDERMAN & BLASTER LABORERS LABORERS - ZONE 2	6/1/2026	\$42.66	\$10.90	\$9.75	\$9.11	\$0.00	\$72.42
	12/1/2026	\$44.10	\$10.90	\$9.75	\$9.11	\$0.00	\$73.86
	6/1/2027	\$45.55	\$10.90	\$9.75	\$9.11	\$0.00	\$75.31
	12/1/2027	\$47.00	\$10.90	\$9.75	\$9.11	\$0.00	\$76.76
	6/1/2028	\$48.50	\$10.90	\$9.75	\$9.11	\$0.00	\$78.26
	12/1/2028	\$50.00	\$10.90	\$9.75	\$9.11	\$0.00	\$79.76
For apprentice rates see "Apprentice- LABORER"							
POWDERMAN & BLASTER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 2 (HEAVY & HIGHWAY)	6/1/2026	\$42.66	\$10.90	\$9.75	\$9.21	\$0.00	\$72.52
	12/1/2026	\$44.10	\$10.90	\$9.75	\$9.21	\$0.00	\$73.96
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
POWER SHOVEL/DERRICK/TRENCHING MACHINE OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2026	\$59.38	\$17.05	\$13.35	\$3.25	\$0.00	\$93.03
	12/1/2026	\$60.83	\$17.05	\$13.35	\$3.25	\$0.00	\$94.48
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PUMP OPERATOR (CONCRETE) OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
PUMP OPERATOR (DEWATERING, OTHER)	6/1/2026	\$37.63	\$17.05	\$13.35	\$3.25	\$0.00	\$71.28
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$38.58	\$17.05	\$13.35	\$3.25	\$0.00	\$72.23
OPERATING ENGINEERS LOCAL 4							
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	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
RIDE-ON MOTORIZED BUGGY OPERATOR	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
ROLLER/SPREADER/MULCHING MACHINE	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
ROOFER (Inc.Roofers Waterproofing &Roofers Damproofg)	2/1/2026	\$53.53	\$14.53	\$12.67	\$9.03	\$0.00	\$89.76
ROOFERS LOCAL 33							
ROOFERS LOCAL 33							

Apprentice: ROOFER (Inc.Roofers Waterproofing &Roofers Damproofg)**Effective Date: 2/1/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$26.77	\$14.53	\$6.52	\$9.03	\$0.00	\$56.85
2	60.00	\$32.12	\$14.53	\$12.67	\$9.03	\$0.00	\$68.35
3	65.00	\$34.79	\$14.53	\$12.67	\$9.03	\$0.00	\$71.02
4	75.00	\$40.15	\$14.53	\$12.67	\$9.03	\$0.00	\$76.38
5	85.00	\$45.50	\$14.53	\$12.67	\$9.03	\$0.00	\$81.73

Apprentice Notes**** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1****Apprentice to Journeyworker Ratio: 1:5**

ROOFER SLATE / TILE / PRECAST CONCRETE	2/1/2026	\$53.78	\$14.53	\$12.67	\$9.03	\$0.00	\$90.01
ROOFERS LOCAL 33							
ROOFERS LOCAL 33							
For apprentice rates see "Apprentice- ROOFER"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
SHEETMETAL WORKER	7/1/2026	\$43.48	\$13.24	\$11.01	\$9.92	\$2.13	\$79.78
SHEETMETAL WORKERS LOCAL 63	1/1/2027	\$43.48	\$13.54	\$11.01	\$11.12	\$2.13	\$81.28
SHEETMETAL WORKERS LOCAL 63	7/1/2027	\$44.98	\$13.54	\$11.01	\$11.12	\$2.13	\$82.78
	1/1/2028	\$46.48	\$13.54	\$11.01	\$11.12	\$2.13	\$84.28

Apprentice: SHEETMETAL WORKER**Effective Date: 7/1/2026**

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

Apprentice: SHEETMETAL WORKER**Effective Date: 1/1/2027**

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

Apprentice to Journeyworker Ratio: 1:3

SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10	6/1/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$0.00	\$80.19
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/1/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$0.00	\$81.93
	1/1/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$0.00	\$82.53
SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10	6/1/2026	\$42.53	\$16.17	\$21.78	\$0.00	\$0.00	\$80.48
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/1/2026	\$42.53	\$16.17	\$23.52	\$0.00	\$0.00	\$82.22
	1/1/2027	\$42.53	\$16.77	\$23.52	\$0.00	\$0.00	\$82.82
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 669	7/1/2026	\$56.54	\$13.60	\$7.45	\$9.41	\$0.00	\$87.00
SPRINKLER FITTERS LOCAL 669	10/1/2026	\$56.54	\$13.60	\$7.45	\$9.41	\$0.00	\$87.00
	1/1/2027	\$56.54	\$14.55	\$7.50	\$9.41	\$0.00	\$88.00

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	4/1/2027	\$59.83	\$14.55	\$7.50	\$9.41	\$0.00	\$91.29
	7/1/2027	\$59.83	\$14.55	\$7.50	\$9.41	\$0.00	\$91.29
	10/1/2027	\$59.83	\$14.55	\$7.50	\$9.41	\$0.00	\$91.29
	1/1/2028	\$59.83	\$15.50	\$7.55	\$9.41	\$0.00	\$92.29

Apprentice: SPRINKLER FITTER**Effective Date: 7/1/2026**

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

Apprentice: SPRINKLER FITTER**Effective Date: 10/1/2026**

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

Apprentice to Journeyworker Ratio: 1:1

STEAM BOILER OPERATOR	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
OPERATING ENGINEERS LOCAL 4							

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

TERRAZZO FINISHERS	8/1/2026	\$69.09	\$12.84	\$15.57	\$8.02	\$0.00	\$105.52
BRICKLAYERS LOCAL 3	2/1/2027	\$70.49	\$12.84	\$15.57	\$8.02	\$0.00	\$106.92
BRICKLAYERS LOCAL 3 - MARBLE & TILE							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: TERRAZZO FINISHERS Effective Date: 8/1/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$34.55	\$12.84	\$15.57	\$8.02	\$0.00	\$70.98
2	60.00	\$41.45	\$12.84	\$15.57	\$8.02	\$0.00	\$77.88
3	70.00	\$48.36	\$12.84	\$15.57	\$8.02	\$0.00	\$84.79
4	80.00	\$55.27	\$12.84	\$15.57	\$8.02	\$0.00	\$91.70
5	90.00	\$62.18	\$12.84	\$15.57	\$8.02	\$0.00	\$98.61
Apprentice: TERRAZZO FINISHERS Effective Date: 2/1/2027							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$35.25	\$12.84	\$15.57	\$8.02	\$0.00	\$71.68
2	60.00	\$42.29	\$12.84	\$15.57	\$8.02	\$0.00	\$78.72
3	70.00	\$49.34	\$12.84	\$15.57	\$8.02	\$0.00	\$85.77
4	80.00	\$56.39	\$12.84	\$15.57	\$8.02	\$0.00	\$92.82
5	90.00	\$63.44	\$12.84	\$15.57	\$8.02	\$0.00	\$99.87
Apprentice to Journeyworker Ratio: 1:5							
TEST BORING DRILLER	6/1/2026	\$53.25	\$10.90	\$9.75	\$9.80	\$0.00	\$83.70
LABORERS	12/1/2026	\$54.75	\$10.90	\$9.75	\$9.80	\$0.00	\$85.20
For apprentice rates see "Apprentice- LABORER"							
TEST BORING DRILLER HELPER	6/1/2026	\$49.37	\$10.90	\$9.75	\$9.80	\$0.00	\$79.82
LABORERS	12/1/2026	\$50.87	\$10.90	\$9.75	\$9.80	\$0.00	\$81.32
For apprentice rates see "Apprentice- LABORER"							
TEST BORING LABORER	6/1/2026	\$49.25	\$10.90	\$9.75	\$9.80	\$0.00	\$79.70
LABORERS	12/1/2026	\$50.75	\$10.90	\$9.75	\$9.80	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"							
TRACTORS/PORTABLE STEAM GENERATORS	6/1/2026	\$58.70	\$17.05	\$13.35	\$3.25	\$0.00	\$92.35
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.14	\$17.05	\$13.35	\$3.25	\$0.00	\$93.79
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
TRAILERS FOR EARTH MOVING EQUIPMENT	6/1/2026	\$42.82	\$16.17	\$21.78	\$0.00	\$0.00	\$80.77
TEAMSTERS JOINT COUNCIL NO. 10	12/1/2026	\$42.82	\$16.17	\$23.52	\$0.00	\$0.00	\$82.51
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	1/1/2027	\$42.82	\$16.77	\$23.52	\$0.00	\$0.00	\$83.11
TUNNEL WORK - COMPRESSED AIR	6/1/2026	\$61.48	\$10.90	\$9.75	\$10.25	\$0.00	\$92.38
LABORERS	12/1/2026	\$62.98	\$10.90	\$9.75	\$10.25	\$0.00	\$93.88
LABORERS (COMPRESSED AIR)							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) LABORERS	6/1/2026	\$63.48	\$10.90	\$9.75	\$10.25	\$0.00	\$94.38
LABORERS (COMPRESSED AIR)	12/1/2026	\$64.98	\$10.90	\$9.75	\$10.25	\$0.00	\$95.88
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR LABORERS	6/1/2026	\$53.55	\$10.90	\$9.75	\$10.25	\$0.00	\$84.45
LABORERS (FREE AIR TUNNEL)	12/1/2026	\$55.05	\$10.90	\$9.75	\$10.25	\$0.00	\$85.95
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR (HAZ. WASTE) LABORERS	6/1/2026	\$55.55	\$10.90	\$9.75	\$10.25	\$0.00	\$86.45
LABORERS (FREE AIR TUNNEL)	12/1/2026	\$57.05	\$10.90	\$9.75	\$10.25	\$0.00	\$87.95
For apprentice rates see "Apprentice- LABORER"							
VAC-HAUL TEAMSTERS JOINT COUNCIL NO. 10	6/1/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$0.00	\$80.19
TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	12/1/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$0.00	\$81.93
	1/1/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$0.00	\$82.53
For apprentice rates see "Apprentice- LABORER"							
VOICE-DATA-VIDEO TECHNICIAN	9/7/2025	\$36.12	\$14.98	\$13.94	\$3.97	\$0.00	\$69.01
ELECTRICIANS LOCAL 96	9/6/2026	\$37.04	\$15.96	\$14.20	\$4.07	\$0.00	\$71.27
ELECTRICIANS LOCAL 96							

Apprentice: VOICE-DATA-VIDEO TECHNICIAN**Effective Date: 9/7/2025**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$18.06	\$14.98	\$0.54	\$3.97	\$0.00	\$37.55
2	55.00	\$19.87	\$14.98	\$0.60	\$3.97	\$0.00	\$39.42
3	60.00	\$21.67	\$14.98	\$13.51	\$3.97	\$0.00	\$54.13
4	65.00	\$23.48	\$14.98	\$13.56	\$3.97	\$0.00	\$55.99
5	70.00	\$25.28	\$14.98	\$13.62	\$3.97	\$0.00	\$57.85
6	75.00	\$27.09	\$14.98	\$13.67	\$3.97	\$0.00	\$59.71
7	80.00	\$28.90	\$14.98	\$13.73	\$3.97	\$0.00	\$61.58
8	85.00	\$30.70	\$14.98	\$13.78	\$3.97	\$0.00	\$63.43

Apprentice: VOICE-DATA-VIDEO TECHNICIAN**Effective Date: 9/6/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	\$18.52	\$15.96	\$0.56	\$4.07	\$0.00	\$39.11
2	55.00	\$20.37	\$15.96	\$0.61	\$4.07	\$0.00	\$41.01
3	60.00	\$22.22	\$15.96	\$13.76	\$4.07	\$0.00	\$56.01
4	65.00	\$24.08	\$15.96	\$13.81	\$4.07	\$0.00	\$57.92
5	70.00	\$25.93	\$15.96	\$13.87	\$4.07	\$0.00	\$59.83
6	75.00	\$27.78	\$15.96	\$13.92	\$4.07	\$0.00	\$61.73
7	80.00	\$29.63	\$15.96	\$13.98	\$4.07	\$0.00	\$63.64

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: VOICE-DATA-VIDEO TECHNICIAN Effective Date: 9/6/2026							
	Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment Total Rate
	8	85.00	\$31.48	\$15.96	\$14.03	\$4.07	\$0.00 \$65.54
Apprentice to Journeyworker Ratio: 1:1							
WAGON DRILL OPERATOR	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.11	\$0.00	\$71.67
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.11	\$0.00	\$73.11
LABORERS - ZONE 2	6/1/2027	\$44.80	\$10.90	\$9.75	\$9.11	\$0.00	\$74.56
	12/1/2027	\$46.25	\$10.90	\$9.75	\$9.11	\$0.00	\$76.01
	6/1/2028	\$47.75	\$10.90	\$9.75	\$9.11	\$0.00	\$77.51
	12/1/2028	\$49.25	\$10.90	\$9.75	\$9.11	\$0.00	\$79.01
For apprentice rates see "Apprentice- LABORER"							
WAGON DRILL OPERATOR (HEAVY & HIGHWAY)	6/1/2026	\$41.91	\$10.90	\$9.75	\$9.21	\$0.00	\$71.77
LABORERS	12/1/2026	\$43.35	\$10.90	\$9.75	\$9.21	\$0.00	\$73.21
LABORERS - ZONE 2 (HEAVY & HIGHWAY)							
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
WASTE WATER PUMP OPERATOR	6/1/2026	\$59.38	\$17.05	\$13.35	\$3.25	\$0.00	\$93.03
OPERATING ENGINEERS LOCAL 4	12/1/2026	\$60.83	\$17.05	\$13.35	\$3.25	\$0.00	\$94.48
OPERATING ENGINEERS LOCAL 4							
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
WATER METER INSTALLER	3/1/2026	\$55.90	\$13.10	\$9.71	\$8.06	\$0.00	\$86.77
PLUMBERS LOCAL 4							
PLUMBERS LOCAL 4							
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 MARINE DRILLING MARINE DRILLING	1/1/2018	\$41.82	\$7.63	\$2.35	\$1.25	\$0.00	\$53.05
BOAT CAPTAIN MARINE DRILLING MARINE DRILLING	1/1/2018	\$33.87	\$7.63	\$2.35	\$0.95	\$0.00	\$44.80
BOAT CAPTAIN / Over 1,000 hp MARINE DRILLING MARINE DRILLING	1/1/2018	\$38.06	\$7.63	\$2.35	\$1.25	\$0.00	\$49.29
CORE DRILLER MARINE DRILLING MARINE DRILLING	1/1/2018	\$31.43	\$7.63	\$2.25	\$0.65	\$0.00	\$41.96
CORE DRILLER HELPER MARINE DRILLING MARINE DRILLING	1/1/2018	\$28.47	\$7.63	\$2.35	\$0.65	\$0.00	\$39.10
DRILLER MARINE DRILLING MARINE DRILLING	1/1/2018	\$39.70	\$7.63	\$2.35	\$1.25	\$0.00	\$50.93
ENGINEER MARINE DRILLING MARINE DRILLING	1/1/2018	\$39.69	\$7.63	\$2.25	\$1.25	\$0.00	\$50.82
HELPER MARINE DRILLING MARINE DRILLING	1/1/2018	\$34.24	\$7.63	\$2.35	\$0.65	\$0.00	\$44.87
MACHINIST MARINE DRILLING MARINE DRILLING	1/1/2018	\$38.88	\$7.63	\$2.35	\$0.95	\$0.00	\$49.81
OILER - MARINE DRILLING MARINE DRILLING MARINE DRILLING	1/1/2018	\$34.24	\$7.63	\$2.35	\$0.65	\$0.00	\$44.87
TUG DECKHAND MARINE DRILLING MARINE DRILLING	1/1/2018	\$27.61	\$7.63	\$2.35	\$0.65	\$0.00	\$38.24
WELDER MARINE DRILLING 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 OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$29.26	\$7.63	\$2.35	\$0.95	\$0.00	\$40.19
CERTIFIED WELDER OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$31.09	\$7.63	\$2.35	\$1.25	\$0.00	\$42.32
CHIEF WELDER/ CHIEF MATE OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$33.02	\$7.63	\$2.35	\$1.25	\$0.00	\$44.25
DERRICK / SPIDER / SPILLBARGE OPERATOR OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$33.02	\$7.63	\$2.35	\$1.25	\$0.00	\$44.25
DRAG BARGE OPERATOR / WELDER / MATE OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$30.24	\$7.63	\$2.35	\$0.95	\$0.00	\$41.17
ENGINEER / ELECTRICIAN OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$33.02	\$7.63	\$2.35	\$1.25	\$0.00	\$44.25
LICENSED BOAT OPERATOR OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$33.02	\$7.63	\$2.35	\$1.25	\$0.00	\$44.25
LICENSED TUG OPERATOR OVER 1000HP OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$38.18	\$7.63	\$2.35	\$1.25	\$0.00	\$49.41
MAINTENANCE ENGINEER OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$33.03	\$7.63	\$2.35	\$1.25	\$0.00	\$44.26
OILER - MARINE DIVISION OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$24.30	\$7.63	\$2.35	\$0.65	\$0.00	\$34.93
OPERATOR / LEVERMAN OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$38.18	\$7.63	\$2.35	\$1.25	\$0.00	\$49.41
RODMAN / SCOWMAN OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS - MARINE DIVISION	10/1/2017	\$24.30	\$7.63	\$2.35	\$0.65	\$0.00	\$34.93
SHOREMAN / DECKHAND OPERATING ENGINEERS LOCAL 4 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)	8/30/2026	\$38.13	\$11.00	\$1.14	\$1.00	\$0.00	\$51.27
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$39.65	\$11.25	\$1.19	\$1.00	\$0.00	\$53.09
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
CABLEMAN (Underground Ducts & Cables)	8/30/2026	\$54.02	\$11.00	\$1.62	\$11.14	\$0.00	\$77.78
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$56.17	\$11.25	\$1.69	\$11.57	\$0.00	\$80.68
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
DRIVER / GROUNDMAN CDL	8/30/2026	\$44.49	\$11.00	\$1.33	\$10.80	\$0.00	\$67.62
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$46.26	\$11.25	\$1.39	\$11.15	\$0.00	\$70.05
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
DRIVER / GROUNDMAN -Inexperienced (<2000 Hrs)	8/30/2026	\$34.95	\$11.00	\$1.05	\$1.00	\$0.00	\$48.00
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$36.64	\$11.25	\$1.09	\$1.00	\$0.00	\$49.98
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
EQUIPMENT OPERATOR (Class A CDL)	8/30/2026	\$54.02	\$11.00	\$1.62	\$15.22	\$0.00	\$81.86
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$56.17	\$11.25	\$1.69	\$15.65	\$0.00	\$84.76
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
EQUIPMENT OPERATOR (Class B CDL)	8/30/2026	\$47.66	\$11.00	\$1.43	\$11.65	\$0.00	\$71.74
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$49.56	\$11.25	\$1.49	\$12.03	\$0.00	\$74.33
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
GROUNDMAN	8/30/2026	\$34.95	\$11.00	\$1.05	\$1.00	\$0.00	\$48.00
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$36.34	\$11.25	\$1.09	\$1.00	\$0.00	\$49.68
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
GROUNDMAN -Inexperienced (<2000 Hrs.)	8/30/2026	\$28.60	\$11.00	\$0.86	\$1.00	\$0.00	\$41.46
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$29.74	\$11.25	\$0.89	\$1.00	\$0.00	\$42.88
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							
For apprentice rates see "Apprentice- LINEMAN"							
JOURNEYMAN LINEMAN	8/30/2026	\$63.55	\$11.00	\$1.91	\$18.50	\$0.00	\$94.96
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104	8/29/2027	\$66.08	\$11.25	\$1.98	\$19.00	\$0.00	\$98.31
OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104							

Apprentice: JOURNEYMAN LINEMAN**Effective Date: 8/30/2026**

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$38.13	\$11.00	\$1.14	\$2.50	\$0.00	\$52.77
2	65.00	\$41.31	\$11.00	\$1.24	\$2.50	\$0.00	\$56.05
3	70.00	\$44.49	\$11.00	\$1.33	\$2.50	\$0.00	\$59.32
4	75.00	\$47.66	\$11.00	\$1.43	\$4.00	\$0.00	\$64.09

Outside Electrical

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: JOURNEYMAN LINEMAN Effective Date: 8/30/2026							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
5	80.00	\$50.84	\$11.00	\$1.53	\$4.00	\$0.00	\$67.37
6	85.00	\$54.02	\$11.00	\$1.62	\$4.00	\$0.00	\$70.64
7	90.00	\$57.20	\$11.00	\$1.72	\$6.00	\$0.00	\$75.92
Apprentice: JOURNEYMAN LINEMAN Effective Date: 8/29/2027							
Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	\$39.65	\$11.25	\$1.19	\$2.50	\$0.00	\$54.59
2	65.00	\$42.95	\$11.25	\$1.29	\$2.50	\$0.00	\$57.99
3	70.00	\$46.26	\$11.25	\$1.39	\$2.50	\$0.00	\$61.40
4	75.00	\$49.56	\$11.25	\$1.49	\$4.00	\$0.00	\$66.30
5	80.00	\$52.86	\$11.25	\$1.59	\$4.00	\$0.00	\$69.70
6	85.00	\$56.17	\$11.25	\$1.69	\$4.00	\$0.00	\$73.11
7	90.00	\$59.47	\$11.25	\$1.79	\$6.00	\$0.00	\$78.51
Apprentice to Journeyworker Ratio: 1:2							
TELEDATA CABLE SPLICER OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 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 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 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 OUTSIDE ELECTRICAL WORKERS - EAST LOCAL 104 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.

THIS PAGE IS INTENTIONALLY LEFT BLANK

DOCUMENT A00801

SPECIAL PROVISIONS**SHREWSBURY – WORCESTER****Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB)
over Lake Quinsigamond and Lake Avenue North**

Labor participation goals for this Project shall be 15.3% for minorities and 6.9% for women for each job category. The goals are applicable to both Contractor's and Subcontractor's on-site construction workforce. Refer to Document 00820 for details.

SCOPE OF WORK

All work under this Contract shall be done in conformance with the *2026 Standard Specifications for Highways and Bridges*, the *Supplemental Specifications* contained in this book, the *Construction Standard Details* in effect as of July 2026, the *1990 Standard Drawings for Signs and Supports*, the *2015 Overhead Signal Structure and Foundation Standard Drawings*, the *11th Edition of the Manual on Uniform Traffic Control Devices (MUTCD)* and the *January 2026 Massachusetts Amendments to the MUTCD*, the *1968 Standard Drawings for Traffic Signals and Highway Lighting*, the latest edition of *The American Standard for Nursery Stock*, the Plans and these Special Provisions.

The work under this contract includes cleaning (full removal of existing coating) and painting of all structural steel within the superstructure of the subject bridge, including all bearings. The work also includes the reconstruction of bridge coping, installation of a MASH-compliant bridge barrier and approach rail transition system, replacement of bridge joints at Pier 1 and the West abutment, drainage improvements, partial and full-depth deck repairs, various miscellaneous repairs, and the milling and repaving of the bridge deck and roadway approaches. Additional work includes concrete repairs at the East abutment, removal of graffiti, and the application of an elastomeric protective coating to concrete surfaces at the wingwalls, piers and abutments, within the limits shown on the drawings and as directed by the Engineer. Work applies to the eastbound and westbound bridge structures carrying I 290 over Lake Quinsigamond, located between the Town of Shrewsbury and the City of Worcester.

The scope of work includes implementing the Temporary Traffic Control Plan (TTCP) in accordance with the proposed construction phasing. Final milling and paving shall be conducted after completion of the work on the coping, joints, and transitions and shall be followed by the installation of the strip seal joints and headers.

When authorized by the Engineer, work under this Contract also includes providing various artisans, as specified in Item 100.1 "Base Labor Rate", along with the necessary materials, equipment, and engineering services.

SCOPE OF WORK (Continued)

All materials and equipment shall be approved by the Engineer prior to work commencing. Where work directed by the Engineer is not in the list of bid items, the work will be paid for as Non-Bid Items and Item 100.1 Base Labor Rate (Time and Materials).

Included under Time and Material is directed removal or repair to the Safety Catwalk, Access Ladder and steel repairs at the East Abutments.

All work shall be performed within, and accessed by, existing State, City or Town roadway layouts. No rights to enter on, or occupy, private property have been acquired for this project.

WORK SCHEDULE

All proposed work hours shall conform to Subsection 7.09 and be subject to the written approval of the Engineer.

The work schedule during the day shall be based on a normal 8-hour day (7:00 AM to 3:00 PM), 5-day week (Monday to Friday). Work schedules deviating from the normal work schedule above will be subject to prior approval by the Engineer. Approval shall be in writing.

Nighttime Work

All work requiring night hours, as approved by the Engineer, are restricted as follows:

Sunday	9:00 PM to 5:00 AM Monday
Monday	9:00 PM to 5:00 AM Tuesday
Tuesday	9:00 PM to 5:00 AM Wednesday
Wednesday	9:00 PM to 5:00 AM Thursday
Thursday	9:00 PM to 5:00 AM Friday

For operations in which the Contractor proposes to restrict travel lanes on Interstate 290 beyond those identified in the construction sequence (i.e., outside the barrier-protected construction zones) and the Temporary Traffic Control Plan (TTCP), lane closures may be limited, as closures on I-290 are permitted only during nighttime hours. Any proposed lane closures outside of these nighttime hours must be properly justified and coordinated with, and approved by, the District Operations/Traffic Section.

During Phase 3, work that requires double (multi) lane closures on I-290 is permitted only after 10:00 PM from Monday through Thursday, and after 11:00 PM on Fridays. All lanes must be fully reopened to traffic no later than 5:00 AM.

WORK SCHEDULE (Continued)

Approval to work beyond the scheduled hours will be granted only when special conditions exist that, in the judgment of the Engineer, justify extended working hours. Work shall not extend beyond the standard 8-hour workday unless prior approval is obtained from the Engineer for that specific day or in accordance with an approved schedule. No additional compensation will be provided for work performed during nighttime hours or for extended work shifts.

These time periods include the "set-up" and "breakdown" of any temporary traffic control pattern employed.

No operations, personnel, or equipment will be allowed on the roadways except during working hours. Under no circumstances shall work be left unattended outside of working hours without safety measures in place. All pertinent traffic warning devices, safety equipment and traffic barriers must be installed and maintained at all times.

The Contractor shall schedule work to ensure the final coat of paint is not damaged by other operations. Any damage to coatings due to other Contractor's operations shall be repaired at the Contractor's expense.

MassDOT requires the Contractor to schedule and perform work in a manner that accelerates the work, minimizing disruption to the impacted communities and roadway users while maintaining work zone safety. The Contractor must coordinate operations to allow for concurrent work on both the eastbound and westbound structures. This sequencing must be clearly shown in the baseline project schedule and reflected in all subsequent schedule updates.

Public notification shall be coordinated with the MassDOT District 3 Bridge, Traffic, and Operations Sections through the Resident Engineer. Notifications shall be issued four (4) weeks, two (2) weeks, and one (1) week prior to the scheduled start of operations. These notifications shall be delivered through email, social media, and strategically placed message boards.

The Contractor shall also notify the City of Worcester and the Shrewsbury Police, Fire, and EMS, along with the City Manager's Office and School Department, through direct contact. A written record of these calls shall be provided to the Resident Engineer.

Portable Changeable Message Signs are to be positioned as directed by Engineer for notification fourteen (14) days in advance of the work.

SITE ACCESS

No separate payment will be made for access roads to get equipment or personnel to the work site or for staging access to repair areas, etc., but all costs in connection therewith shall be included in the Contract.

CONTRACTOR QUESTIONS AND ADDENDUM ACKNOWLEDGEMENTS

Prospective bidders are required to submit all questions to the Construction Contracts Engineer by 3:00 P.M. on the Tuesday of the previous week before the scheduled bid opening date. Any questions received after this time will not be considered for review by the Department.

Contractors should email questions and addendum acknowledgements to the following email address massdotspecifications@dot.state.ma.us The MassDOT proposal number and municipality is to be placed in the subject line.

NOTICE TO CONTRACTORS

Access to the underside of the bridge is the responsibility of the Contractor and is considered incidental to the contract. The access will be provided via the containment system/platform constructed for the structural steel cleaning and painting operations installed and paid under Items 961.201 and 961.202. Unless the Contractor's means and methods involve alternative access provisions, the Contractor shall schedule and sequence operation including concrete deck patching, coping replacement, and joint reconstruction to take advantage of the erected containment system/platform. Additionally, the Contractor shall coordinate these activities to minimize redundant setup and ensure efficient use of the platform throughout the duration of the work.

Where joint reconstruction or deck patching is required, the Contractor shall either demonstrate that the platform provides adequate shielding protection and effective debris containment or shall provide the necessary shielding to ensure the safe execution of the work. This work shall be considered incidental to the contract without additional compensation.

The access platform design shall take into account its complete intended use in supporting the scope and activities required for the successful completion of work under this contract.

A review of the inspection reports for the subject bridges indicates that stay-in-place (SIP) metal forms were used in the construction of the concrete bridge decks in all bays, except for the deck cantilevers.

Where joint reconstruction or full or partial-depth deck repairs are required, the Contractor shall comply with all applicable special requirements included in the Contract Documents and shall provide all measures necessary to safely perform the work, protect, support, and maintain the integrity of the existing stay-in-place (SIP) forms, and prevent debris from falling below the bridge. The Contractor shall demonstrate that the containment system/platform provides adequate shielding and effective debris containment for the work or shall provide supplemental shielding as necessary. Such measures shall include, but not be limited to, providing protective shielding at locations where the SIP forms are damaged and directed to be removed, as well as at locations where SIP forms are not present, such as bridge joint locations.

No separate payment will be made for labor, materials, equipment, access, shielding, or incidental work necessary to accommodate, protect, support, or otherwise maintain the existing SIP forms during deck repair operations, including the design, furnishing, and installation of protective shielding, but all costs in connection therewith shall be included in the applicable deck repairs Contract unit price bid.

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.

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 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.

HOLIDAY WORK RESTRICTIONS (Continued)**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.

NONCONFORMING COMPRESSIVE STRENGTH OF CEMENT CONCRETE

Concrete with compressive strength test results failing to attain the limits specified in Table 901.64-3 of 901.64.B: Acceptance Testing shall be evaluated for structural adequacy and serviceability at the Contractors' expense. The Department will review all production records, the concrete test records, petrographic analysis report, field notes, and the placement records for the concrete in question. If the Engineer determines the material is found to be adequate to remain in place, payment shall be adjusted in accordance with the following formula:

$$P = \frac{2(fc - f'c)(UP)(Q)}{f'c}$$

Where:

P = pay adjustment for substandard concrete

f'c = specified minimum compressive strength at 28 days

fc = substandard concrete cylinder compressive strength at 56 days

Q = quantity of concrete represented by the acceptance cylinders tested

UP = unit contract price or the lump sum breakdown price per cubic yard
for the class of concrete involved complete in place

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.

SUBSECTION 8.02 SCHEDULE OF OPERATIONS

Replace this subsection with the following:

An integrated cost and schedule controls program shall be implemented by the Contractor to track and document the progress of the Work from Notice to Proceed (NTP) through the Contractor Field Completion (CFC) Milestone. The Contractor's schedules will be used by the Engineer to monitor project progress, plan the level-of-effort required by the Department's work force and consultants and as a critical decision-making tool. Accordingly, the Contractor shall ensure that it complies fully with the requirements specified herein and that its schedules are both accurate and updated as required by the specification throughout the life of the project. Detailed requirements are provided in Division II, Section 722 Construction Scheduling.

TRUCK SAFETY DEVICES

(Supplementing Subsection 7.04: Motor Vehicles)

All motor vehicles subject to Section 7 of Chapter 90 to be operated under this Contract shall be equipped with safety devices as provided therein and in 540 CMR 4.00.

The Contractor shall certify to the Registry of Motor Vehicles, in a manner prescribed by the Registrar, that all applicable vehicles are equipped with Lateral Protective Devices, Convex Mirrors, Cross Over Mirror(s) and Back Up Cameras in accordance with the requirements of 540 CMR 4.00.

The Contractor shall provide evidence satisfactory to the Department to demonstrate compliance with the above certification requirement for all applicable vehicles operated under this Contract by the Contractor and its subcontractors and vendors in a manner set forth by the Department. Thereafter, the Contractor shall have an affirmative obligation to continue to provide such evidence of compliance on an ongoing basis and no later than 7 days after certification with the Registry of Motor Vehicles of any additional vehicles operated under this Contract by the Contractor and its subcontractors and vendors.

Non-compliance with respect to a vehicle that is subject to 540 CMR 4.00 may subject the Contractor to statutory fines as established in M.G.L. c. 90, § 7 and/or contractual remedies up to and including termination of the Contract.

SUBSECTION 8.14 UTILITY COORDINATION, DOCUMENTATION, AND MONITORING RESPONSIBILITIES

A. GENERAL

In accordance with the provisions of Section 8.00 Prosecution and Progress, utility coordination is a critical aspect to this Contract. This section defines the responsibility of the Contractor and MassDOT, with regard to the initial utility relocation plan and changes that occur as the prosecution of the Work progresses. The Engineer, with assistance from the Contractor shall coordinate with Utility companies that are impacted by the Contractor's operations. To support this effort, the Contractor shall provide routine and accurate schedule updates, provide notification of delays, and provide documentation of the steps taken to resolve any conflicts for the temporary and/or permanent relocations of the impacted utilities. The Contractor shall provide copies to the Engineer of the Contractor communication with the Utility companies, including but not limited to:

- 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 Contractor 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.

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.

COORDINATION OF LAKE ACTIVITIES

The Contractor hereby advised that Lake Quinsigamond is actively used for recreational and organized water-based activities, including but not limited to rowing events.

The Contractor shall plan and perform all work in a manner that does not unreasonably impede or interfere with lake activities. Particular attention shall be given to maintaining safe and navigable conditions for all users of the lake.

The Contractor shall coordinate all construction activities with scheduled major events on the lake, including annual rowing events and similar large gatherings. Coordination shall include, but not be limited to, adjusting work schedules, suspending operations when necessary, and maintaining clear communication with the Engineer and relevant event organizers.

At all times, the Contractor shall take all reasonable measures to minimize disruptions and ensure the safety of the public and event participants.

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 traffic level 3 (≥ 10.0) million 18 kip ESALS.

ENVIRONMENTAL PERMITTING

The proposed work does not occur in jurisdictional wetland resources subject to section 401 or section 404 of the Clean Water Act; therefore, the project does not require a Water Quality Certification from the Massachusetts Department of Environmental Protection or 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 Highway Director and Resident Engineer in writing at least 60 days prior to desire commencement of the proposed activity. All environmental submittals, including any Contract with Local, State, or Federal environmental agencies, must be coordinated with the District 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.

PROPRIETARY PRODUCTS

A letter discussing the following proprietary products or approved equal as a proprietary specification pursuant to M.G.L. c. 30, sec. 39M(b) has been placed in the Project file.

- The UHPC mortar shall be CTS Rapid Set® UHPC Mortar, as manufactured by CTS Cement, or an approved equal
- The preformed marking material to be used shall be Stamark 380AW or Stamark 380AW-5 (Contrast) by 3M or approved equal.

**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 30 μ g/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.

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.

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.

NOTICE TO OWNERS OF UTILITIES

(Supplementing Subsection 7.13)

District 3 Utility/Constructability Engineer

Ross Goodale (857) 368-3204

Ross.A.Goodale@dot.state.ma.us

If available, existing bridge plans indicate the location of the existing known utilities in the vicinity of the work. As the accuracy and completeness of the plans are not guaranteed in any manner, it is the Contractor's responsibility to make their own investigation to assure that no damage to existing structures, drainage lines, traffic signal conduits, etc., will occur.

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 the Contractor's intention to commence operations affecting such utilities at least one week in advance of the commencement of such operations and the Contractor shall at that time file a copy of such notice with the Engineer.

A list of public and private utilities can be found on the MassDOT website at:

<https://www.mass.gov/info-details/utility-contacts-by-district-and-municipality>

Select District 3

Select the Town of Shrewsbury, and then locate the utility

Select the City of Worcester, and then locate the utility

The utility contact list is for guidance only and is not guaranteed to be complete or up to date.

NATIONAL GRID EMERGENCY TELEPHONE NUMBERS**ELECTRIC:**

Outage/ Emergency: 1-800-465-1212

New Service: 1-800-375-7405

Customer Support: 1-800-322-3223

EVERSOURCE EMERGENCY TELEPHONE NUMBERS**GAS:**

Outage/ Emergency: 800-592-2000

New Service: 866-678-2744

Customer Support: 800-592-2000

NOTIFICATION OF PUBLIC OFFICIALS

Town officials are shown at website <https://www.mass.gov/lists/massachusetts-cities-and-towns> and select the required City/Town website.

State Police are shown at website <https://www.mass.gov/info-details/massachusetts-state-police-troop-boundaries>. Select the area of jurisdiction to find the local station.

The Contractor shall inform the following officials in each area that he is assigned to work in:

Superintendent, Department of Public Works, or Town Engineer. Superintendent, Water Department, Superintendent, Sewer Departments. Police Department, Fire Department, Electric Company, Railroads.

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. As there is no Federal nexus (Federal funding or permits) for this project, Section 7 consultation was not required or conducted. However, Section 9 of the ESA prohibits anyone from “taking” or harming an endangered species, and the below language shall be adhered to in order to maintain compliance with the ESA.

If any of the project locations require work within U.S. Army Corps of Engineers (ACOE) jurisdictional wetlands, the ACOE will be the lead federal agency for ESA consultation with the U.S. Fish & Wildlife Service (USFWS). Most consultations for the NLEB take 30 days.

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 & Endangered Species Unit Supervisor (David Paulson, david.j.paulson@dot.state.ma.us, 857-262-3378) for questions about project limits, restrictions, or conservation measures.

The Resident Engineer can check on the status of AMM applicability by sending a locus map of the proposed work to MassDOT Highway Division’s Environmental Services Section - Wildlife & Endangered Species Unit Supervisor for review and a determination if some of the AMMs and TOY restriction can be waived.

Required AMM for all projects:

- 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 Bat 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.

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

If temporary lighting is proposed within the project scope, the following AMM is applicable:

Lighting AMM:

- Direct temporary lighting away from suitable habitat during the active season: **April 15 to October 31.**

If the Removal of Trees and/or Woody Vegetation >3-inch in diameter is proposed within the project scope, the following AMMs are applicable:

Tree AMMs:

- If additional cutting is proposed by the Contractor that is outside the scope of this contract, additional review is required by the MassDOT Highway Division's Environmental Services Section, and additional review and restrictions may be required by the USFWS.
- Ensure tree removal is limited to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field (e.g., install bright colored flagging/fencing prior to any tree clearing to ensure contractors stay within clearing limits).
- In order to protect northern long-eared bats and their young during their active season, **no tree cutting shall be conducted during the Time of Year (TOY) restriction of April 15 to October 31.**
- Do not remove **documented** or NLEB roosts that are still suitable for roosting, or trees within 0.25 miles of roosts, or **documented** foraging habitat any time of year (<http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/rare-mammals/northern-long-eared-bat.html>).
- The Contractor shall ensure all personnel working in on the project site are aware of all environmental commitments related to NLEB and TCB, including the **TOY** restriction.

If the Bridge Work is proposed within the project scope, the following AMMs are applicable:

Bridge AMMs:

- **Bridge AMM 1** - To completely avoid direct effects to roosting bats, perform any bridge removal, replacement, and/or maintenance work during the winter hibernation period unless a hibernating colony of bats is present (contact your local USFWS Field Office for exact dates). Also, follow Bridge AMM 4.
 - **Note:** Bridge AMM 1 is an avoidance measure for direct effects; the full implementation of which may not always be practicable. **If bridge removal, replacement, and/or maintenance work must be performed outside of the winter hibernation period, then follow Bridge AMMs 2-4.**

NORTHERN LONG-EARED BAT AND TRICOLORED BAT PROTECTION (Continued)**• Bridge AMM 2 - Colony or Assuming Presence of Bats**

- If assuming presence of bats or if bridge assessment or P/A surveys suggest presence of a colony of bats, and work is conducted during the active season, ensure activity will not disturb bats. The following types of bridge work can generally be conducted with the presence of bats:
 - above deck work where construction equipment or materials do not extend to the underside of deck where bats may be located (e.g., materials that may drip down to underside of deck), or does not include percussives (vibration) or noise levels above general traffic (e.g., road line painting, wing-wall work).
 - below deck work that is conducted away from roosting bats and does not involve percussives or noise level above general traffic (e.g., wing-wall work, some abutment, beam end, scour, or pier repair).

• Bridge AMM 3 - Small Number of Bats

- If bridge assessment or P/A surveys suggest presence of a small number of bats (≤5 – not a colony), and work is conducted during the active season, the following types of bridge work can generally be conducted with the presence of bats:
 - above deck work where construction equipment or materials do not extend to the underside of deck where bats may be located (e.g., materials that may drip down to underside of deck), or does not include percussives (vibration) or noise levels above general traffic (e.g., road line painting, wing-wall work).
 - below deck work that is conducted away from roosting bats and does not involve percussives or noise level above general traffic (e.g., wing-wall work, some abutment, beam end, scour, or pier repair).
 - any other bridge removal, replacement, and/or maintenance work (which may include activities with percussives) conducted in the evening while the bats are feeding, starting one hour after sunset, and ending one hour before daylight excluding the hours between 10 p.m. and midnight and keep the light localized.

- **Bridge AMM 4** - If assuming presence of bats, or if bridge assessment or P/A surveys suggest presence of bats, ensure suitable roosting habitat is maintained. Suitable roosting sites may be incorporated into the design of a new bridge.

VALUE ENGINEERING CHANGE PROPOSAL

This Subsection defines the conditions and requirements which apply to Value Engineering Change Proposals (“VECPs”). The purpose of this provision is to encourage the Contractor to propose changes in certain project requirements that will maintain the project’s functional requirements at a savings in contract time, contract price, or both. The net savings obtained by using a VECP that meets the conditions and requirements set forth here will be shared by the Contractor and MassDOT.

VECP’s under this provision are to be initiated, developed and submitted to MassDOT by the Contractor. The VECP must show the contemplated changes to the Drawings, Specifications and other requirements in the Contract. When a VECP submitted pursuant to this section is fully accepted by MassDOT, the VECP will be implemented by the Contractor and paid using the current cost and resource loaded schedule. Contractor shall demonstrate that the VECP is equal to, or better than, the original design or material; that there is an interest in public safety within the VECP; that there is a life-cycle cost benefit; and/or that end users will benefit from the shortened schedule. VECPs shall be consistent with the MassHighway/MassDOT Standard Specifications for Highways and Bridges and other applicable reference documents and directives. Any proposed deviation from these documents will need to be clearly identified in the VECP Proposal Documents, and must be approved by MassDOT’s Chief Engineer before accepting this VECP.

- A. In order to be considered for MassDOT review each VECP shall:
1. Be clearly labeled pursuant to this Subsection;
 2. Yield a net savings at least two hundred and fifty thousand (250,000.00) Dollars and/or a net saving of contract completion duration of at least three (3) months;
 3. The proposed changes to contract items must:
 - a. maintain the specified items’ required functions (service life, reliability);
 - b. meet applicable safety regulations and codes;
 - c. material substitutions must be in accordance with DOT prequalified/preapproved products and must be tested in accordance with standard material specs/testing methods (and considering all relevant environmental, load, and other relevant factors).
 - d. show economy of operation, ease of maintenance, ease of construction, and necessary standardized features and appearance; and
 4. Shall not require an extension of Contract Time or Contract Milestones, with the exception of cases when there are anticipated significant cost saving.

VALUE ENGINEERING CHANGE PROPOSAL (Continued)

The thresholds above are considered to be a general guideline. MassDOT will consider VECPs outside of these thresholds if a significant benefit is demonstrated. Additionally, notwithstanding this VECP process, MassDOT will consider minor revisions in the form of a Contract Modification.

Further, any VECP submitted shall be in sufficient detail to clearly define the proposed change. The Contractor's failure to provide information of the type, detail and in a format to facilitate the MassDOT's review, may be grounds for rejection of the VECP. Additionally, the Contractor will not be entitled to any equitable adjustment or increased Time, due to any aspect of any of the proposed VECP including permitting, right of way, utility coordination or delayed responses by MassDOT. If, after the progression of the work associated with the executed Contract Modification for the VECP, any additional costs are realized by the Contractor or any of the sub- consultants, sub-contractors, or suppliers, the Contractor shall be obligated to pay for any and all costs.

B. The following initial items shall be provided by the Contractor for MassDOT's review. *Items 1-6 need to be submitted prior to the start of MassDOT's review of the VECP and item 7 is an important consideration for the pricing of the VECP and the timeline of the proposed VECP schedule.*

1. ***VECP Description:*** A description of the difference between the existing and the proposed Contract requirements, and the comparative advantages and disadvantages of each;
2. ***VECP Change Listing:*** A listing of the Contract requirements that will need to be changed, modified, or reviewed as well as the proposed Contract document changes in the Instructions to Bidders, Contract, Standard Specifications, General Requirements and Special Provisions required by the VECP.
3. ***Construction Schedule Update:*** Any changes in the Contract Time(s) or Contract Milestone(s), that will result from acceptance of the VECP, shall be accompanied by a contemporaneous schedule analysis (*i.e., the Contractor's baseline schedule submission, all past/required monthly schedule updates, a detailed assessment of all past delays, and a resource loaded Critical Path Method schedule as specified in Section 8.0 / Subsection 8.02 of this Contract*) of the projected Work that remains including the proposed VECP related schedule changes (*inclusive of the timeline to review accept the VECP and the timeline for implementing the design changes*) in the remaining work. This shall be submitted in the form of a Proposal Schedule until the VECP has been formally accepted. Note: All of this information is to be updated, recertified, and formally accepted by MassDOT before final acceptance of this this VECP is issued.

VALUE ENGINEERING CHANGE PROPOSAL (Continued)

4. ***Date for MassDOT's Acceptance:*** A statement that clearly justifies the date by which the VECP must be accepted to obtain the maximum price reduction, noting any effect upon the Contract Time(s) and/or Contract Milestone(s). This statement must include a narrative that demonstrates the most recent construction schedule has been utilized to justify that proposed acceptance date (*e.g. "in order to start to fabricate critical materials, authorization must be provided to work on the shop drawings by no later than [date]"*). The Contractor should allow for at least sixty (60) to ninety (90) days for acceptance by MassDOT once all of the VECP documentation has been provided. Acceptance shall mean that MassDOT has received a finalized and executed contract modification. However, this is a proposed Contract change.

The Contractor is fully obligated to progress the Work of the original Contract and MassDOT is not liable for any delays or costs that may occur in the review phase of any VECP proposal.

5. ***Cost and Savings Estimates:*** A detailed estimate of the anticipated net savings, calculated as follows:
- a. ***Original Scope:*** Isolate the cost of performing the original contract construction activities, in accordance with the original Contract Documents, as originally bid by the Contractor, that are anticipated to be superseded by the VECP. *This cost is to include any original contract scope that is anticipated to be altered or eliminated by the VECP such as, shop drawing preparation, inspection work, testing, maintenance of traffic, or any other original contract costs, that have yet to have been performed at the time of this VECP submission.*
 - b. ***New VECP Scope:*** Calculate the cost of performing the comparable construction activities associated with the VECP.
 - c. ***Contractor's Engineer & Inspection:*** Calculate the cost of engineering, inspection, and design work by the Contractor's Engineer/Designer. This should be a realistic estimate of the costs of any required engineering, design and review work by the Contractor's Engineer.
 - d. ***MassDOT's Costs:*** MassDOT's estimate of costs to perform engineering/design reviews, cost estimate reviews, schedule reviews, and any other administrative costs to review and recommend implementation of the proposed VECP. (*including all anticipated increased costs to MassDOT on other Contracts and all anticipated follow-on increased costs to MassDOT, if any*) as provided by MassDOT. MassDOT's estimated costs must be included in the VECP calculation and will be provided by MassDOT in support of the VECP evaluation process.
 - e. ***Other Costs:*** Estimated costs associated with any revisions to other project-related costs, such as Environmental Permits or Right of Way acquisitions, including other agency or municipality costs, as provided by MassDOT.

VALUE ENGINEERING CHANGE PROPOSAL (Continued)**Net Savings:**

The net savings to be split between MassDOT and the Contractor shall be calculated using the items above as follows: $a - (b+c+d+e) = \text{net savings}$

6. The Contractor shall also provide:

- a. A proposed Change Order, which explains and justifies any required Equitable Adjustment in the Contract Price.
- b. The Contractor's actual costs expended for developing the VECP as of the date of the VECP submission;

7. Design Changes and Drawings: The costs that are outlined above should be inclusive of the following design and engineering responsibilities.

- a. Design changes shall be prepared and stamped by the Contractor's professional designer and/or engineer. In addition, in the development of the VECP; the Contractor is responsible for anticipating and managing all aspects associated with any VECP design work that must be performed by a licensed Engineer.
- b. The Contractor's engineer must analyze and stamp all components of any aspect of the project that has been redesigned, changed, or altered as a result of this VECP.
- c. The Contractor's engineer shall provide all calculations and supporting design/engineering documentation that was utilized to develop the changes and stamped drawings. These will be used by MassDOT's Designer-of-Record to review the VECP changes. The Contractor is limited to selecting only those engineer's that have been pre-qualified by MassDOT's A&E Board.
- d. MassDOT's Designer-of-Record will review and respond to all completed design submissions related to this VECP within thirty (30) calendar days, unless determined to be a non-critical path item.
- e. MassDOT will be responsible for estimating and managing MassDOT's Designer-of-Record during the VECP review and implementation. Should any significant conflicts arise between the Contractor's Engineer and MassDOT's Designer-of-Record, the DOT and the Contractor will work expeditiously to resolve the conflict. Should this type of conflict continue for greater than five (5) days, the Contractor is to bear all financial and time related impacts of such delay and must seek to resolve the design conflict, in an acceptable manner to MassDOT. The resolution of this conflict will be funded at the Contractor's expense – exclusive of the net saving that was agreed to at the execution of the contract modification for this VECP.
- f. The Contractor's Engineer may also be required to inspect the construction work. The Contractor is to include such anticipated inspection costs in the initial VECP.

VALUE ENGINEERING CHANGE PROPOSAL (Continued)

- g. MassDOT's Designer of Record will remain the Designer-of-Record for the entire Project. Any costs incurred in the use of MassDOT's Designer-of-Record by MassDOT or Contractor associated with the review of a VECP are to be included in the calculated net savings.
- C. Approval of the VECP shall not occur until a Contract Modification, incorporating the VECP, is issued by MassDOT and properly executed by the Contractor. MassDOT may accept or reject part or all of any VECP at any time prior to an executed Contract Modification for the applicable VECP. The decision of MassDOT, concerning acceptance or rejection of any VECP, shall be final and shall not be subject to dispute resolution.

It is expected that several weeks may go by before the final VECP documentation has been executed with a Contract Modification. Therefore, MassDOT intends to make certain that the initial cost estimate information has not changed before entering into a Contract Modification. As the VECP evaluation process is finalized, and prior to the signed Contract Modification for the VECP, the Contractor and MassDOT must re-certify the current status of the originally proposed cost and/or schedule savings.

Until a contract modification is issued and schedule and cost/savings re-certification is complete and accepted by MassDOT, the Contractor shall remain obligated to perform the Work in accordance with the terms and conditions of the original Contract Documents.

Upon completion of the work associated with the VECP, MassDOT may require verification that the VECP savings has been achieved.

- D. VECPs will be processed (distributed, reviewed, commented upon, accepted or rejected) expeditiously (pursuant to M.G.L. c. 30, § 39R); however, as this is an elective modification to the contract, MassDOT shall not be liable for any delay or cost in the review and acceptance of the VECP. During the review of the VECP, the Contractor remains obligated to progress the original Contract scope, and schedule, as planned; until a Contract Modification, accepting the Contractor re-certified VECP, has been executed by MassDOT.

The Contractor has the right to withdraw part, or all of any VECP, prior to acceptance by MassDOT. Such withdrawal shall be made in writing to the Engineer. The Contractor shall state the period of time, from the date of the initial VECP submittal, that the VECP shall remain valid and feasible. Revision of this validity and feasibility period shall be allowed only by mutual agreement of the Contractor and the Engineer in writing.

If the Contractor desires to withdraw the proposal prior to the expiration of this period for non-technical reason, MassDOT reserves the right to recover all actual costs that have been incurred to MassDOT.

VALUE ENGINEERING CHANGE PROPOSAL (Continued)

If the Contractor withdraws the VEC Proposal, MassDOT reserves the right to proceed with the VECP or any portion of the VECP as a normal change and the Contractor waives any right it may have had to share in net savings thereunder.

For purposes of this provision, expiration of the time established by the Contractor for approval shall be considered as withdrawal by the Contractor if MassDOT requests an extension of that time and the Contractor does not provide a written extension.

- E. With regard to unknown conditions or sub-surface work, in general, the expectation is that the Contractor and MassDOT will strive to gain enough knowledge about the risks in order to provide a forward-priced Change Proposal. Therefore, any costs to fully evaluate the proposal, such as additional borings and/or test pits, must be considered in the cost evaluation of whether the VECP is worth pursuing. However, if it is impractical to gather conclusive exploratory information, before the VECP is executed, MassDOT may consider provisions in the VECP that clearly identifies the risk sharing (cost and time) related specifically to the unknown/sub-surface conditions. If these VECP provisions are acceptable to MassDOT they are to include supplemental language to provide a determination of the final savings/cost, and time impacts, no later than 45 days after the sub-surface work is completed. All other aspects of the VECP, unrelated to these Provisions, will be binding upon execution of the VECP.

SUPPLEMENTAL REQUIREMENTS FOR NON-BID ITEMS

(Supplementing Subsection 3.04)

The Contractor will be paid for additional artisans, equipment rental, materials, engineering services and specialty services required to perform the work plus (10%) percent, plus actual increased bond premium.

The Contractor shall be required to furnish certified paid receipts for additional artisans, equipment rental, materials, engineering services and specialty services that are required to perform the work prior to payment by the Department. Increased bond premium for additional artisans, equipment rental, materials, engineering services and specialty services will be paid after a certified paid receipt is submitted showing payment of the increased bond.

NON-BID ITEMS

For work not covered by the various bid items in this Contract, it is the intent to pay for such related work on a time and materials basis, as directed by the Engineer. The payment for such work is outlined in the following sections: Payment for Materials, Payment for Rental Equipment, Payment for Engineering Services, Payment for Specialty Services/Additional Artisans.

NON-BID ITEMS (Continued)**A. PAYMENT FOR MATERIALS**

The Contractor will be paid the actual cost for materials that are required to maintain or repair a bridge but are not covered under the Contract bid Items plus ten (10) percent. Any arrangements for the purchase of materials will be considered incidental. Delivery charges will be incidental to the material charges. State and Federal taxes if billed will not be reimbursed by MassDOT. No materials shall be ordered until approved by the Engineer and competitive prices may be required if the Engineer directs.

The District may have surplus materials on hand that could be included into the work.

The transportation of materials and/or parts supplied by MassDOT will be included for payment under Item 100.1.

Payments for the installation of materials and/or parts will be made under Item 100.1

All materials which are necessary to perform the work under the various contract bid items shall be incidental to those Items at no additional compensation.

B. PAYMENT FOR RENTAL EQUIPMENT

The Contractor will be paid the actual rental cost for the equipment, which may be required to perform certain repair work that has not been included in the contract bid items, plus ten (10) percent. No equipment shall be rented until approved by the Engineer. The rental equipment shall not be part of the tradesman basic toolbox as specified under Item 100.1 Base Labor Rate.

Contractor-owned equipment required under this contract, (with the exception of equipment listed under the various artisans' descriptions in Item 100.1 Base Labor Rate will be reimbursed in the format outlined under Subsection 9.03 "Payment for extra Work" Section C of the Standard Specifications. Rental Equipment will not carry any overtime premium rate after being in full operation for more than 8 hours in a day.

Unless the rented equipment cost includes the operator, the Contractor will receive compensation for the operator of the "Rental Equipment" used for "Related Work" as specified in Item 100.1 Base Labor Rate.

The Contractor must get the authorization of the Resident Engineer before any equipment is rented and competitive prices may be required if the Engineer directs.

All rental equipment and tools shall be in excellent working condition. The Contractor shall not be paid for the time that the equipment is broken down.

The actual cost for rental equipment, including equipment that is required when working from water below (i.e., barge equipped with 60' or higher boom lift, boat, operator, and other safety equipment) shall be judged in accordance with the rate specified in the Rental Blue Book and it is the Contractor's responsibility to provide a copy of this Blue Book to the Department. The rental compensation shall also include the cost of a boat captain/tender crew. The rental for equipment will be paid on an hourly basis and will not carry any overtime rate after eight hours of operation.

All rental equipment and tools which are necessary to prosecute the work under the various contract bid items shall be incidental to those Items at no additional compensation.

NON-BID ITEMS (Continued)**C. PAYMENT FOR ENGINEERING SERVICES**

Each non-routine structural repair for which there is no Contract bid Item to cover the work, the Contractor shall submit a design by a Professional Engineer of the appropriate discipline registered in Massachusetts (who shall be from the Department's approved consultant list) within one week of notification (seven (7) calendar days after receipt of formal Work Order).

This design shall address all structural defects itemized in the Work Order. It shall be submitted to the Engineer. The Contractor must get the proposed design approved by the Engineer prior to commencing any work.

The Contractor will be paid the actual cost for the Engineering Services for the structural design by a Professional Engineer of the appropriate discipline registered in Massachusetts, plus ten (10) percent when any Engineering Services are required for work done on a time and materials basis for which there is no bid Item. The Engineer shall approve all engineering costs prior to any design work being undertaken.

All engineering services which are necessary to prosecute the work under the various Contract bid items shall be incidental to those Items at no additional compensation.

ENGINEERING SERVICES COST ESTIMATE

When engineering designs or other consulting services are deemed necessary by the Engineer, the design firm will submit a cost estimate of the proposed work. This estimate will include the classification, estimated hours needed, and actual hourly rate for each individual anticipated to be used in developing the finished product. The billable rates shall include overhead and profit. Overhead shall be as approved by MassDOT Audit Section or in absence of approved audited rates a maximum 155% shall apply for overhead. The profit fee is 10%. The billable rate shall be calculated using $1.10 \times (\text{Base Hourly Rate} + \text{Base Hourly Rate} \times \text{Overhead Rate } \%)$.

D. PAYMENT FOR SPECIALTY SERVICES/ ADDITIONAL ARTISANS

The Contractor will be paid for any artisans that are not categorized under Item 100.1 "Base Labor Rate" (Regardless of whether the additional artisans are hired by the Contractor as a specialty sub-contractor crew, or as an individual artisan) required to repair or maintain the bridges or any work that has not been included as incidental to any Contract Bid Item plus ten (10) percent. However, no artisans shall be hired until approved by the Engineer and competitive prices may be required if the Engineer so directs. The Contractor will not bid this item. If the Engineer has knowledge of source of additional artisans, which are competitive with the Contractor's choice, then the Contractor may be required to investigate and use an alternative choice.

COST ESTIMATES

Where the scope of a repair task can be adequately determined and described, the Contractor, when directed by the Engineer, shall be required to submit a Cost Estimate for the repair task.

Each Cost Estimate, submitted in writing, shall include an itemized scope of work, a working schedule (including the number of working days and hours worked each day by each category of artisan), work procedures and a NOT-TO-EXCEED cost breakdown itemized by the following: the number and type of workers, the number and type of equipment, barges, materials, specialty contractors, engineering services, traffic controls and police, etc. The Cost Estimate submittal must also state if roadway closures, and waterway and/or bridge closures will be required.

The Engineer will approve each Cost Estimate submittal in writing. A submittal does not guarantee the Contractor will be assigned the work. Payment will be based on actual hours worked at the contractual rates for various items as previously described up to the maximum task amount. Completion of the task is the sole responsibility of the Contractor once the not-to-exceed amount has been reached. Should unforeseen problems develop during the task completion, the Contractor will submit to the Engineer a revised scope of work with a comparison to the original scope of work along with a breakdown of the additional costs for approval by the Engineer. Approval for any increases to the agreed upon not-to-exceed cost will be dependent upon the justification of the additional work.

If the Contractor performs work which is not provided for in this Contract, or which was not authorized in writing by the Engineer, said Contractor shall receive no compensation for such work.

The management of the project and generating Cost Estimates, including such items as the planning of repair details, hiring of subcontractors, meetings with affected parties, scheduling of required artisans, purchasing of the necessary materials and the arrangement of equipment rentals, etc., will be considered incidental to the work and as such, no additional compensation will be provided.

RATES OF PAYMENT

Payment for Non-Bid Items and Item 100.1 Base Labor Rate will be made for time spent on the project doing actual work on the Department's bridges and shall NOT include travel time to and from the Contractor's place of business and it shall also not include time for investigative field trips to find out how much material, equipment, tools, etc., may be needed for the work.

All equipment, materials, engineering costs and artisans' compensation which are necessary to prosecute the work under the various contract bid items shall be incidental to those bid Items at no additional compensation.

RATES OF PAYMENT (Continued)

Note: For work covered by bid items in this contract and those not covered, there may be situations where the Department has pertinent materials or equipment stockpiled. The Department reserves the right to utilize these materials or equipment as seen fit in the prosecution of the work.

The Contractor will be reimbursed for the total actual cost (plus a percentage markup as indicated) for materials, equipment rental, additional artisans and engineering services required for related work directed by the Engineer. Artisans will be compensated as specified in Item 100.1 "Base Labor Rate". The Contractor will not bid the materials, equipment rental, additional artisan, and engineering services Items.

Payment for Non-Bid Items will be based on bills submitted, covering all charges for labor, materials, and equipment according to the respective terms of the contract. Bills covering the total charges incurred in any given month are to be submitted by the fifteenth of the following month for processing.

The Contractor is encouraged to submit bills/invoices of all charges to the Engineer by the 15th of the following month. It shall be required that the Contractor furnish certified copies of any or all payrolls for the Contract, showing the name, address, and occupational classification of each employee on said works, the hours worked by, and the wages paid to such employee.

PREPARATION OF CONCRETE SURFACES

All concrete surfaces to be patched shall be roughened, cleaned of all laitance, dirt, grease, oil, other contaminants, and all standing water. All reinforcing steel encountered in the excavation shall be thoroughly cleaned by abrasive blasting before being covered with new concrete.

In bonding new concrete to already set concrete, the surface of the concrete shall be thoroughly cleaned, roughened, and ponded with clean water to achieve Saturated Surface Dry (SSD) condition then it shall then be blown off with oil free compressed air.

ITEM 100.1**BASE LABOR RATE****HOURLY**

The Contractor shall provide competent artisans, possessing all pertinent licenses and/or certifications, as required by the Engineer, to maintain and repair various components of the bridges. As described more fully below, included in this Item will be a tool kit for each trade with incidental tools, special apparel and any required personal safety equipment, and a vehicle for each trade with no additional charge to the Department. The Contractor shall submit to the Engineer all pertinent licenses and/or certifications for each artisan prior to the commencement of any work. Failure to provide the pertinent licenses and/or certifications could result in the artisan being compensated at the laborer rate regardless of how the Contractor so compensated him/her.

The payment under this Item will be for the time spent by artisan and the artisan's toolkit only.

All tools and equipment contained in the artisan tool kit shall be in excellent working condition.

Equipment and tools that are part of the artisan's toolbox are as follows:

LABORER

Small hand tools, handheld power tools, chipping hammer, eye shields, gloves, protective clothing, generators as necessary to run the equipment and equipment that is normally used in the trade.

CARPENTER

Hammer, framing square, tape measure, pouch, levels, hand saws, power saws, all electric power tools, air tools and generators and compressors as necessary to run the equipment. Saw blades and drill bits are also included.

CEMENT MASON

All trowels, floats, Chipping Hammers, Wire Brushes, Trowels, Floats, Reinforcing Tie Wires, Mortar Boards, Jointing Tools and Buckets, mortar board and mixing tub/buckets, and other hand tools as necessary to complete masonry patching work.

IRON WORKER/WELDER

Spud wrench, dowels, alignment pins, tape measure, pouch, levels, eye shields, gloves, protective clothing, rivet buster, air hammer, jackhammer, reamers, chipping hammer, wire brushes AC/DC-300 amp- 100% duty cycle (minimum size) welding machine, torches for cutting, burning, or preheating steel, including fuel tanks & fuel / oxygen, grinders, heating oven for all welding consumables and other equipment that is normally used in the trade.

ITEM 100.1 (Continues)**BACKHOE OPERATOR**

Operator shall have all licenses and certifications required by the Commonwealth of Massachusetts for the equipment they will be operating. Operators shall be in possession of their licenses at all times and show it to the Engineer when requested. Typical equipment includes a backhoe, skid-steer loader, and front-end loader.

Equipment which does not require a special license or certification for its operation shall be considered incidental to the artisan using it.

METHOD OF MEASUREMENT

Item 100.1 will be measured for payment by the Hour.

The Engineer will calculate total Base Labor Rate hours spent on the project by artisans.

Overtime hours will be paid for work exceeding eight (8) consecutive hours per day or forty (40) hours per week on a specific work order, and shall be compensated as specified in this Item. Work on another contract or work order on the same contract does not contribute to the measured overtime hours.

All artisans, including any working foreman, shall be classified by the actual work being performed by that artisan during that shift.

To calculate the total Base Labor Rate hours, the Engineer will modify hours spent by various artisans on the project using adjustment factor(s) described below:

COMPENSATION FACTORS		
<u>ARTISAN</u>	<u>REGULAR</u>	<u>OVERTIME</u>
LABORER	1.00	1.30
CARPENTER	1.16	1.51
CEMENT MASON	1.31	1.70
IRON WORKER/WELDER	1.33	1.73
BACKHOE OPERATOR	1.30	1.69

If an artisan has an apprentice, then that apprentice's compensation factor shall be determined from the State Wages Apprentice level.

The Compensation Factors above will be used to adjust the number of hours a specific artisan will be paid for, per one (1) hour of work.

ITEM 100.1 (Continued)**Example:**

If the time spent on this project by various artisans is:

- Laborer 8 hrs
- Carpenter 4 hrs
- Cement Mason 6 hrs

Then the total hours for "Base Labor Rate" will be calculated as follows:

- "Artisan A(hrs)" x "Compensation Factor A"+
- "Artisan B(hrs)" x "Compensation Factor B" +
- "Artisan C(hrs)" x "Compensation Factor C"

$$8(\text{hr}) \times 1.00 + 4(\text{hr}) \times 1.16 + 6(\text{hr}) \times 1.31 = \\ 8.00(\text{hr}) + 4.64(\text{hr}) + 7.86(\text{hr}) = 20.50 (\text{hr})$$

The total hours for "Base Labor Rate" = 20.50 (hr) (billable hours).

BASIS OF PAYMENT

Item 100.1, Base Labor Rate, will be paid for at the Contract unit price per Hour, which price shall include all equipment (usual artisan tool kit), tools required to perform the normal artisans work, all clothing, and safety equipment normally associated with the artisans work.

Any transportation required for an artisan and their toolbox to travel to and from a job site will be incidental to this Item. Ownership and operating costs, fuel and maintenance are not reimbursable for the vehicles and tools utilized under the artisan items.

Payment will be based upon time spent on the project doing actual work assigned by the Engineer and shall NOT include travel time to and from the Contractor's place of business and it shall also not include time for investigative field trips.

Payment for equipment (other than the usual artisan toolbox) will be made under payment for equipment rental as stated elsewhere in these special provisions.

ITEM 100.9**SURVEY****LUMP SUM**

This work includes conducting an instrument survey before demolishing the existing coping and parapet. The purpose of the survey is to record the location, alignment, and elevation of the existing bridge and approach railings, as well as to establish control points for reconstructing new bridge barriers, parapets, and transitions. The reconstruction of the deck overhangs and the construction of new barriers are intended to preserve and match the locations of the existing curb lines. Therefore, a reference working line must be established before demolition begins to serve as a curb tie and construction control line. The survey must also locate existing barrier mounted bridge lighting, scuppers, and other features necessary for accurate barrier reconstruction.

Vertical control and elevation benchmarks shall be established as part of the survey. Elevations along the top of the bridge barrier shall be recorded at the beginning, midpoint, and end of each span, as well as along the approach parapets. Additionally, existing pavement elevations shall be collected along the curb line and at intervals not exceeding 50 feet along the edge of curb on both the bridge and roadway approaches, extending to the defined limits of work.

For work relating to joints reconstruction, the survey shall establish the roadway cross slope, identify the location of the roadway crown, and confirm the skewed lengths of the joints to facilitate accurate joint fabrication.

The Surveyor shall conduct the bridge survey in accordance with the “General Survey Guidelines” which can be found at:

<https://www.mass.gov/info-details/general-survey-guidelines>

All elevations shall be referred to the North American Vertical Datum (NAVD) of 1988.

REQUIREMENTS, DELIVERABLES AND SUBMITTALS

For each phase of the deck overhang reconstruction, an offset construction line and vertical control benchmarks shall be established within the protected work zone to serve as the contractor’s reference line (and working points) for construction. The surveyor shall also prepare and submit, for approval, a plan documenting the layout of existing coping at joint conditions. This plan shall provide the contractor with all necessary details to reconstruct the deck overhangs, barriers, parapets, and bridge transitions in accordance with the existing profile and alignment.

This work shall be performed under the responsible charge of a Professional Land Surveyor (PLS) registered in the Commonwealth of Massachusetts. The PLS must be available, if necessary, to meet and discuss the survey data and submittals.

Based on the survey information, the Contractor shall submit to the Engineer a set of plans that includes the proposed layout of the bridge barrier, the location and spacing of paraffin joints, the location of lighting, details and/or catalog cuts of the proposed light poles and their anchorage, scupper locations, and the layout of the approach parapets, end posts and transitions. All plans must meet the requirements of the Contract and shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts.

ITEM 100.9 (Continued)

In addition, this item includes the necessary field support during the demolition and construction of bridge barriers, parapets, and transitions, as well as support for setting bridge joint extrusions.

BASIS OF PAYMENT

Item 100.9 will be paid for at the Contract unit price per Lump Sum, which price shall include all labor, materials, engineering, tools, equipment, submittals, and all incidental costs required to complete the work.

<u>ITEM 114.11</u>	<u>DEMOLITION OF CONCRETE COPING - BRIDGE NO. S-14-021=W-44-115 (1RA)</u>	<u>LUMP SUM</u>
<u>ITEM 114.12</u>	<u>DEMOLITION OF CONCRETE COPING - BRIDGE NO. S-14-021=W-44-115 (1RB)</u>	<u>LUMP SUM</u>

The work under these Items shall conform to the relevant provisions of Subsection 120 and 482 of the Standard Specifications and the specific requirements stipulated below for the component parts of these Items. For those component parts where no specific requirement is stipulated, the Standard Specifications shall apply except for payment.

The work under these Items shall include all materials, equipment, and labor necessary to complete the demolition of the existing bridge coping and shall include the following elements:

- Demolish existing coping and the selective demolition of the median walls and end posts.
- Excavation of the reinforced concrete of existing parapet over the wingwalls.
- Remove and discard existing granite curbing on the bridge and approaches.
- Remove and discard highway guardrail to the limits required for new bridge transition installation.
- Remove and either discard or stack existing AL-1 handrail.

This work includes the complete removal and proper disposal of the existing reinforced concrete coping on the bridge. It also involves the partial excavation and removal of reinforced concrete coping/parapets on the wingwalls including end posts to the limits specified in the drawings. Additionally, the scope includes the removal and disposal of approach guardrails, and handrails located on the coping and wingwalls. All bridge copings, parapets, end posts, guardrails, and metal bridge railings shall be removed in accordance with the limits and construction phasing shown on the drawings and as directed by the Engineer.

The Contractor's operations shall not cause damage to any components on the existing bridge that have been designated to be retained. During the prosecution of the work, the Engineer may reject the use of any method or equipment which causes undue vibration or possible damage to the remaining structure or any part thereof.

Any existing reinforcing steel damaged or otherwise made unsatisfactory for continued use because of the Contractor's operations shall be replaced at the Contractor's expense.

The Contractor shall submit to the Engineer, for approval, a detailed demolition procedure that includes a complete description of the equipment and construction methods proposed for the demolition work. This procedure shall be accompanied by calculations and drawings that clearly illustrate the process by which the coping and parapets will be safely removed and disposed of, working to extent feasible within the proposed protected construction work zone as established in the construction phasing.

The procedure shall also include precautions for working over water, measures to prevent debris from entering the lake, and compliance with all applicable safety requirements set by state and federal agencies.

ITEMS 114.11 and 114.12 (Continued)

If the Contractor elects to use a saw-cut and lift method to dismantle bridge coping, the submittal shall include detailed information on the lifting equipment, including load ratings, counterweights to be used, and boom capacity. The crane or lifting equipment must have a rated capacity of at least 150% of the total pick weight.

The demolition procedure shall be prepared and stamped by a Professional Engineer registered in the Commonwealth of Massachusetts.

All bridge copings, parapets, end posts, guardrails, and metal bridge railings shall be removed in accordance with the limits and construction phasing shown on the drawings, and as directed by the Engineer.

The limits of the coping demolition are separated from the deck overhang excavation by a full depth saw cut, as shown in the drawings, to ensure that any reinforcement to be retained is not damaged. Care shall be taken in laying out the saw cut line, which shall be established by survey.

HANDRAIL – REMOVE AND STACK

The Contractor shall carefully remove a total 300 feet of existing handrail (including both rail and posts) and, upon inspection by the Engineer, deliver it to the MassDOT Depot in Lancaster for reuse in repairing other bridges within the district. The Contractor must take extra care to avoid damaging any part of the handrail during removal and transport.

All materials removed under Items 114.11 and 114.12 shall become the property of the Contractor and must be removed from the job site. Stockpiling of debris or related materials on the bridge, its immediate approaches, or on I-290 will not be permitted.

The Contractor shall take all steps necessary to ensure that vehicular traffic is protected from harm at all times.

The Contractor shall conduct their own investigation of the bridge, its location, and the coping to be removed, including an assessment of the materials involved. No increase to the bid price will be allowed due to the nature or condition of the materials encountered during demolition.

BASIS OF PAYMENT

Items 114.11 and 114.12 will be paid for at the Contract unit price per Lump Sum which price shall include all labor, engineering, submittals, tools, equipment, materials, saw cutting, all costs for permits, dump fees, special handling of hazardous materials and all incidental costs required to complete the work.

ITEMS 114.11 and 114.12 (Continued)

Protective shielding at the fascia will be compensated under Items 994.01 and 994.01. The lump sum payment for this item shall be considered full compensation for furnishing and installing the shielding for Phase 1 work, as well as for removing and resetting it as required for Phase 3 operations.

SCHEDULE OF BASIS FOR PARTIAL PAYMENT

Within 10 days after the notice to proceed, the Contractor shall submit on his/her proposal form a schedule of unit prices for the major component Sub-Items that make up Item 114.11 DEMOLITION OF CONCRETE COPING - BRIDGE NO. S-14-021=W-44-115 (1RA) and 114.12 DEMOLITION OF CONCRETE COPING - BRIDGE NO. S-14-021=W-44-115 (1RB) as well as his/her total Lump Sum bid price.

The demolition of the bridge coping Lump Sum breakdown quantities provided in the proposal form 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 shall be considered incidental to Items 114.11 and 114.12. And no further compensation will be allowed.

BRIDGE STRUCTURE S-14-021=W-44-115 (1RA)

<u>Sub-Item</u>	<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Total</u>
114.111	DEMOLITION OF COPING	270	CY		
114.112	SELECTIVE DEMOLITION – MEDIAN WALLS AND END POSTS	10	CY		
127.51	REINFORCED CONCRETE EXCAVATION - WINGWALL PARAPETS	7	CY		
594.	CURB REMOVED AND DISCARDED	1760	FT		
630.2	HIGHWAY GUARD REMOVED AND DISCARDED	500	FT		
655.01	HANDRAIL (AL-1) REMOVED AND DISCARDED	1600	FT		
655.6	HANDRAIL (AL-1) REMOVED AND STACKED	150	FT		
TOTAL LUMP SUM FOR ITEM 114.11 =					

ITEMS 114.11 and 114.12 (Continued)**BRIDGE STRUCTURE S-14-021=W-44-115 (1RB)**

<u>Sub-Item</u>	<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Total</u>
114.111	DEMOLITION OF COPING	270	CY		
114.112	SELECTIVE DEMOLITION – MEDIAN WALLS AND END POSTS	10	CY		
127.51	REINFORCED CONCRETE EXCAVATION - WINGWALL PARAPETS	37	CY		
594.	CURB REMOVED AND DISCARDED	1760	FT		
630.2	HIGHWAY GUARD REMOVED AND DISCARDED	500	FT		
655.01	HANDRAIL (AL-1) REMOVED AND DISCARDED	1600	FT		
655.6	HANDRAIL (AL-1) REMOVED AND STACKED	150	FT		
TOTAL LUMP SUM FOR ITEM 114.12 =					

ITEM 120.1**UNCLASSIFIED EXCAVATION****CUBIC YARD**

The work under this Item shall conform to the relevant provisions of Subsection 120 of the Standard Specification and shall consist of removal and satisfactory disposal of excavated material at the approaches where needed and directed by the Engineer. This work includes excavation required during reconstruction of joints and the removal of the existing abutment joint protective course which could be made up of HMA or concrete.

Prior to excavation, the Contractor shall cover all drainage structures that may be impacted by the work. These structures shall remain covered until the new concrete has set, and the surrounding area has been thoroughly cleaned.

The edges of the limit of the excavation shall be cut to neat lines by saw cutting or by methods approved by the Engineer, to a minimum depth of 2 inches, and all costs in connection with such work shall be considered as incidental under this Item.

METHOD OF MEASUREMENT

Item 120.1 will be measured for payment by the Cubic Yard of concrete excavated, removed and disposed.

BASIS OF PAYMENT

Item 120.1 will be paid for at the Contract unit price per Cubic Yard, which price shall include all labor, materials, equipment, sawcutting, and all incidental costs required to complete the work.

Pavement removed within the excavated area shall be incidental to this Item.

Payment for the excavation related to the installation of Precast Bridge Concrete Transitions (End Posts) is included for payment in the contract unit price for Item 992.1 and Item 992.2

<u>ITEM 127.31</u>	<u>REINFORCED CONCRETE DECK EXCAVATION (PARTIAL & FULL DEPTH) AT OVERHANG</u>	<u>SQUARE YARD</u>
<u>ITEM 127.4</u>	<u>REINFORCED CONCRETE DECK EXCAVATION (FULL DEPTH)</u>	<u>SQUARE YARD</u>
<u>ITEM 127.41</u>	<u>REINFORCED CONCRETE DECK EXCAVATION (PARTIAL DEPTH)</u>	<u>CUBIC YARD</u>

The work under these Items shall conform to the relevant Provisions of Subsection 120 and 482 of the Standard Specifications and shall consists of full and/or partial depth removal and satisfactory disposal of all disintegrated or otherwise unsatisfactory reinforced concrete from the bridge deck, as shown on the drawings and where and as directed by the Engineer.

Prior to excavation, the Contractor shall cover all drainage structures that may be affected by the work. The structures remain covered until the new concrete has set, and the area has been cleaned.

The Contractor shall take all precautions necessary not to damage that portion of the deck, including reinforcing steel, which is to remain. This includes determining the concrete cover to the steel bars at the edge of each patch prior to excavating concrete.

The edges of all areas where concrete is removed under Items 127.31, 127.4 and 127.41 shall be cut to neat lines by saw cutting or by other methods approved by the Engineer, to a minimum depth of 1 inch. All costs associated with this work shall be considered incidental to these items.

For Items 127.4 and 127.41, patch areas shall, where possible, be made rectangular in shape, with horizontal and vertical edges and square corners. For Item 127.31, the limits of excavation shall be as shown on the drawings and established for the reconstruction of the overhang and the installation of the concrete barrier.

Unless otherwise indicated on the drawings, the minimum depth of all cement concrete areas to be excavated shall be one (1) inch below the bottom of the top layer of longitudinal reinforcing steel throughout the entire excavated area.

No concrete shall be placed until the approval of the Engineer is given.

Surface preparation and concrete removal equipment shall be of the following types:

- (1) Pneumatic and Power-Driven Chipping Hammers: In no event shall any pneumatic or power hammer weighing in excess of twenty-five (25) pounds be used for the removal of concrete.
- (2) Abrasive Blasting Equipment: Abrasive Blasting equipment shall be capable of removing rust and old concrete from exposed reinforcing steel when deemed necessary by the Engineer.

During the prosecution of this work, the Engineer may reject the use of any method or equipment which causes undue vibration or possible damage to the structure or any part thereof.

ITEMS 127.31, 127.4 and 127.41 (Continued)

Bobcats/Skid Steers will be allowed only to collect debris from the deck surface and will not be allowed to remove concrete from the patch area. All concrete debris shall be removed by hand or by using hand tools. The smaller pieces may be blown out using an air compressor after first being wetted with water to control airborne particulates.

The Contractor shall take all precautions necessary so as not to damage that portion of the deck including reinforcing steel which is to remain. This includes determining the concrete cover to the steel bars at the edge of each patch prior to excavating concrete. Also included under these Items are all costs in connection with the cleaning, cutting, and bending of the existing reinforcing steel designated to be retained in the proposed construction. Any existing reinforcing steel damaged or otherwise made unsatisfactory for continued use as a result of the Contractor's operations shall be replaced at the Contractor's expense.

All reinforcing steel with active rusting encountered in the excavation shall be thoroughly cleaned by abrasive blasting and coated with a zinc-rich primer conforming to MassDOT Spec. No. M7.04.11 or as required by the Engineer. Any reinforcing steel that is unsuitable for further use through no fault of the Contractor shall be replaced under Item 910.1, Steel Reinforcement for Structures – Epoxy Coated. All reinforcing steel that is loose shall be tied tightly together using wire ties. Ties are required at every other intersection of transverse and longitudinal reinforcing.

Immediately before preparation for placement of new concrete, the exposed area to be patched shall be free of foreign materials. These materials shall be removed by abrasive blasting and by use of compressed air. No grease, dust, rust, or laitance will be allowed to remain on reinforcing steel and exposed concrete surfaces.

The Contractor shall take all measures necessary to protect pedestrian and vehicular traffic from his construction operations. No debris, tools or incidental equipment of any kind will be permitted to fall into areas where vehicular or pedestrian traffic exists. Any material that accidentally falls into such areas shall be removed immediately. This work will be incidental to the work under these Items 127.31, 127.4 and 127.41 without additional compensation.

All excavated materials shall become the property of the Contractor and shall be removed from the job site.

METHOD OF MEASUREMENT

Item 127.31 will be measured for payment by the Square Yard of concrete excavated, removed and disposed include partial and full depth repairs at overhang.

Item 127.4 will be measured for payment by the Square Yard of concrete excavated, removed and disposed.

Item 127.41 will be measured for payment by the Cubic Yard of concrete excavated, removed and disposed.

ITEMS 127.31, 127.4 and 127.41 (Continued)**BASIS OF PAYMENT**

Items 127.31 and 127.4 will be paid at the respective Contract unit price per Square Yard, which prices shall include all labor, materials, equipment, sawcutting, removal of any bituminous concrete, waterproofing membrane, cleaning, cutting, and bending of the existing reinforcing steel designated to be retained, saw cutting and removing stay in place forms, forming and all incidental costs required to complete the work.

Item 127.41 will be paid for at the Contract unit price per Cubic Yard, which price shall include all labor, materials, equipment, sawcutting, removal of any bituminous concrete, waterproofing membrane, cleaning, cutting, and bending of the existing reinforcing steel designated to be retained, and all incidental costs required to complete the work.

Items 127.4 and 127.41 will compensate the Contractor for excavation performed on the bridge deck (full depth or partial depth) outside areas of the overhang. The furnishing and installation of new reinforcing steel for this work will be compensated under Item 910.1

Items 127.31 will compensate the Contractor for excavation performed on the bridge deck for the reconstruction of the overhang and installation of bridge barriers to limits shown on the drawings, to include full and partial depth excavation. The furnishing and installation of new reinforcing steel as shown on the drawings is included in the Lump Sum payment associated with Items 992.1 and 992.2

The cost for the removal of hot mix asphalt and any membrane waterproofing above the area of reinforced concrete excavation shall be considered incidental to these Items. Further, in no case, the Contractor shall be paid under more than one Item for the same excavated material.

The cost of the protection of pedestrian and vehicular traffic from the construction operations will be incidental to these Items 127.31, 127.4 and 127.41 without additional compensation.

ITEM 127.42 **REINFORCED CONCRETE DECK EXCAVATION** **CUBIC YARD**
AT JOINTS

The work under this Item shall conform to the relevant provisions of Subsections 120 and 482 of the Standard Specifications. It shall include the excavation, removal, and proper disposal of reinforced concrete for the reconstruction of the bridge joints at West Piers (Pier 1) and West Abutments, within the limits indicated on the drawings and as directed by the Engineer.

This shall include the removal of reinforced concrete from the backwalls, diaphragms, and deck, as well as from approach slabs if needed, along with any original structural steel joint armoring that remains embedded in the concrete.

During the prosecution of the work, the Engineer may reject the use of any method or equipment, which causes undue vibration or possible damage to the structure or any part thereof. In no event shall any pneumatic hammers heavier than the nominal 25 Lbs.) be used, unless approved by the Engineer. Also, no use of pneumatic or power-driven chipping hammers over the nominal 15 Lbs. will be permitted to remove any concrete from below any reinforcing bar.

The edges of the area to be excavated shall be cut to neat lines by saw cutting or by methods approved by the Engineer.

Any steel damaged or otherwise made unsatisfactory for continued use, by the Contractor's operation, shall be replaced AT THE CONTRACTOR'S OWN EXPENSE. Any steel that is unsuitable for further use through no fault of the Contractor shall be replaced under Item 910.1 Steel Reinforcement for Structures-Epoxy Coated. All reinforcing steel that is loose shall be tied tightly together using wire ties.

Also included under this item are all costs in connection with the cleaning, cutting, and bending of the existing reinforcing steel designated to be retained in the proposed repair.

All exposed reinforcing steel and concrete area to be reconstructed/patched shall be free of all oil, grease, rust or other foreign material. These materials shall be removed by grit blasting or wire brushing and by the use of compressed air.

The Contractor shall take all steps necessary to ensure that pedestrian and vehicular traffic is protected from harm at all times.

All excavated materials shall become the property of the Contractor and shall be removed from the job site.

Item 910.1 provides payment for any new or replacement reinforcing steel required for joints reconstruction.

ITEM 127.42 (Continued)**METHOD OF MEASUREMENT**

Item 127.42 will be measured for payment by the Cubic Yard of concrete excavated, removed and disposed.

BASIS OF PAYMENT

Item 127.42 will be paid for at the Contract unit price per Cubic Yard, which price shall include all labor, materials, equipment, sawcutting, disposal of debris and excavated materials, site cleaning, and all incidental costs required to complete the work.

Steel Reinforcement for Structures (Epoxy Coated) will be paid separately under Item 910.1

The removal and disposal of the original steel armoring encountered during the work shall be considered incidental to this item.

The cost of the protection of pedestrian and vehicular traffic from the construction operations will be incidental to this Item 127.42 without additional compensation.

ITEM 129.6**BRIDGE PAVEMENT EXCAVATION****SQUARE YARD**

The work under this Item shall conform to the relevant provisions of Subsection 120 of the Standard Specifications and shall consist of the removal and satisfactory disposal of disintegrated or otherwise unsatisfactory hot mix asphalt and existing pavement on the approaches, and the removal and satisfactory disposal of the existing wearing surface and membrane from the bridge deck, as required for installation of the steel plate for joint reconstruction. The work shall be performed at locations and to the limits shown on the drawings or as directed by the Engineer.

The edges of all areas where existing asphalt is removed under this Item shall be saw cut to a minimum depth of 3/4 inch.

METHOD OF MEASUREMENT

Item 129.6 will be measured for payment by the Square Yard of actual area of the existing HMA pavement excavated, removed, and properly disposed.

BASIS OF PAYMENT

Item 129.6 will be paid for at the Contract unit price per Square Yard, which price shall include all labor, materials, equipment, excavation and disposal HMA pavement including gravel layers found between HMA and bridge concrete deck, sawcutting, and all incidental costs required to complete the work.

Where bridge pavement is removed from deck areas to be patched or reconstructed, the excavation of HMA shall be paid under the appropriate reinforced concrete excavation items 127.31, 127.4, and 127.41.

ITEM 151.**GRAVEL BORROW****CUBIC YARD**

The work under this Item shall conform to the relevant Provisions of Subsection 150 of the Standard Specifications and shall consist of placement of gravel borrow at the approaches for the reconstruction of backwalls and joints.

If approved by the Engineer, the existing materials excavated for the backwall, and joint reconstruction can be reused as backfill materials.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 151. will be measured and paid for per Subsections 150.80 and 150.81 respectively.

ITEM 156.2**CRUSHED STONE FOR SLOPE TREATMENT****TON**

The work under this Item shall conform to the relevant provisions of Subsection 150 of the Standard Specifications and the following:

The work shall consist of furnishing and installing crushed stone for treatment of slopes adjacent to west bridge wingwalls, clearing and grubbing, grading, and placing crushed stone over geotextile fabric to limits approved by the Engineer.

Payment for geotextile fabric will be compensated under Item 698.1.

Grading will be compensated under Item 170.

Any required clearing and grubbing shall be considered incidental for payment to this Item.

Crushed stone for slope treatment shall be carefully spread over the geotextile fabric so that all large stones shall be well distributed covering 80% of the surface, and interstices of each layer are filled with smaller graded crushed stones to form a layer of protection that is 12 inches in thickness. Stone for slope treatment shall consist of hard, durable angular shaped stones which are the product of the primary crushing of a stone crusher. Rounded stone, boulders, sandstone and similar soft stone or relatively thin slabs will not be acceptable. Stone shall be free from overburden, spoil, shale, organic material and shall meet gradation requirement as stated under M2.02.4-1.

METHOD OF MEASUREMENT

Item 156.2 will be measured for payment by the Ton, according to subsection 150.80.

BASIS OF PAYMENT

Item 156.2 will be paid for at the Contract unit price per Ton, which price shall include all labor, materials, tools, required clearing and grubbing, equipment and incidental costs required to complete the work as required by the Engineer.

ITEM 698.1 **GEOTEXTILE FABRIC FOR STABILIZATION** **SQUARE YARD**

The work under this Item shall conform to the relevant provisions of Subsection 983 of the Standard Specifications and the following:

The geotextile fabric shall be a woven or nonwoven fabric meeting MassDOT Material Specification No. M9.50.0.

The geotextile fabric is to be placed where slope paving under the bridge is to be replaced and where measures of stabilizing the slopes are directed by the Engineer.

The geotextile shall be placed in intimate contact with the soil 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.

Adjacent geotextile sheets shall be jointed by either sewing or overlapping. Overlapped seams at roll ends shall be a minimum of 1 foot 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 1 foot in all instances.

METHOD OF MEASUREMENT

Item 698.1 will be measured for payment by the Square Yard of geotextile fabric installed, complete in place.

BASIS OF PAYMENT

Item 698.1 will be paid for at the Contract unit price per Square Yard, which price shall include all labor, materials, equipment, overlapping, and incidental costs required to complete the work

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
	Latest Adobe Acrobat Professional with all security updates
	Latest Autodesk AutoCAD LT
	Antivirus software with all current security updates maintained through the life of the contract.
Monitors:	Two 27" LED with Full HD resolution. Max. resolution 1920 x 1080
Flash drives:	2 (two) - 128GB USB 3.0
Internet access:	High Speed (min. 24 mbps) internet access with wireless router.

ITEM 740. (Continued)

The Multifunction Printer System shall meet the following minimum criteria or better:

Color laser printer, fax, scanner, email and copier all in one with the following minimum capabilities:

- Estimated volume 8,000 pages per month
- LCD touch panel display
- 50 page reversing automatic document feeder
- 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 (RADF) (not including the bypass tray)
- Automatic duplexing
- Finisher with staple functions
- Standard Ethernet. Print Controller
- Scan documents to PDF, PC and USB
- ability to print with authenticated access protection

The Contractor shall supply a maintenance contract for next day service, and all supplies (toner, staples, paper) necessary to meet estimated monthly usage.

The Engineer's Field Office and the equipment included herein including the computer system, and printer shall remain the property of the Contractor at the completion of the project. Disks, flash drives, and card readers with cards shall become the property of the Department.

Compensation for this work will be made at the contract unit price per month which price includes full compensation for all services and equipment, and incidentals necessary to provide equipment, maintenance, insurance as specified and as directed by the Engineer.

ITEM 821.09**HIGHWAY BRIDGE LIGHTING SYSTEM****LUMP SUM**

The work under this Item shall conform to the relevant provisions of Subsections 801, 813, and 820 of the Standard Specifications and the following:

The work shall consist of furnishing and installing new bridge highway lighting to provide adequate illumination for safe vehicular travel across the structures. This includes the installation of anchorages, poles, and luminaires mounted on the bridge barrier, replacing the original lighting on both the east and west structures of the bridge carrying I-290 over Lake Quinsigamond, as shown on the drawings and as approved by the Engineer.

All components of Highway Bridge Lighting System shall be designed to meet requirements latest edition of the AASHTO "Standard Specifications of Structural Supports for Highway Signs, Luminaires, and Traffic Signals". Illumination levels shall conform to AASHTO "Roadway Lighting Design Guide".

Unless otherwise specified herein, all materials including posts, brackets, base plates, and anchorages shall conform to Standard Specifications, Section M8.

POLES, BRACKETS, BASE PLATES

Poles, brackets, base plates, and anchorages shall be designed to resist wind and vibration in accordance with AASHTO's *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*. The post and its components, which support the luminaire, shall be structurally designed to withstand a sustained wind load of at least 130 miles per hour (mph).

Each pole shall be furnished with a base plate, handhole, anchor bolts, and a pole top cap, all conforming to the applicable standards. The shaft shall include a handhole with a watertight cover located approximately 16 inches above the base plate. The handhole shall be of sufficient size to allow easy access to wiring connections and a grounding lug. The mounting height, spacing, and orientation of the poles shall ensure uniform light distribution while minimizing shadows.

The steel for post shall conform to the latest provisions of ASTM A6M/A36, pipe shall conform to the latest provisions of ASTM A500, and anchor bolts shall conform to the latest provisions of ASTM A307.

Light poles, anchor bolts, anchor bolt washers, and anchor bolt nuts shall be hot-dip galvanized in accordance with ASTM A123 or AASHTO M111 to ensure corrosion resistance.

EQUIPMENT

Materials and equipment shall be in accordance with NEC, UL, ANSI. All work shall comply with the relevant portions of the Massachusetts State Electrical Code.

- The system shall include a minimum of five (5) individual luminaires per structure, (total 10) mounted on the exterior side fascia of the bridge barrier.
- Luminaires shall be LED unless otherwise specified.

ITEM 821.09 (Continued)

- Poles shall be thirty (30) feet in length.
- Conflicts with expansion joints, structural components, and maintenance access points shall be avoided.
- All wiring shall be weatherproof and comply with the National Electrical Code (NEC).
- Circuitry shall include overcurrent protection, grounding, and surge protection as per standard practices.
- Lighting shall be controlled via photocell, timer, or central control system as specified.
- Dimming or adaptive lighting features shall be included.

CONDUITS AND JUNCTION BOXES

Conduit shall be routed through the bridge barrier in a manner that accommodates bridge expansion joints. A junction box embedded in the barrier shall be provided at each light location and shall be positioned a minimum of 2.5 feet from the centerline of the pole anchorage.

Fasteners securing lighting junction box covers shall be stainless steel, Type 304 or preferably Type 316, to ensure ease of removal for maintenance access. All other surface lighting conduit hangers, along with their concrete anchors, nuts, bolts, and washers, shall likewise be fabricated from Type 304 or Type 316 stainless steel to provide corrosion resistance and to prevent the conduit from detaching and falling onto traffic below.

POWER SOURCE

The bridge lighting system is anticipated to be powered from the nearest pole (i.e., Pole No. W135), which is located approximately 150 feet west of the west end post on the right side of the I-290 WB mainline.

According to the 1998 I-290 Lighting Plans, power for this pole is supplied from the Colby Street load center. The Electrical Subcontractor shall verify whether the Colby Street load center is an appropriate and sufficient source for the bridge lighting system and determine whether the service can be connected to it directly or via the nearest pole to the bridge.

Item 823.601 is included in this contract as a contingency to compensate the contractor for the installation of new load centers if the investigation indicates it is necessary to place load centers closer to the bridge, or if replacement of existing load centers and conductors supplying power to the nearest poles (such as the Colby Street load center) is required.

SUBMITTALS

The Contractor shall submit to the Engineer a detailed plan identifying the materials and equipment to be used to meet the requirements of the lighting system. The submittal shall include detailed calculations demonstrating illumination levels and structural adequacy, as well as catalog cuts for all proposed equipment. All submittals shall be prepared, stamped, and signed by a Professional Engineer registered in the Commonwealth of Massachusetts.

ITEM 821.09 (Continued)**BASIS OF PAYMENT**

Item 821.09 will be paid for at the Contract unit price Lump Sum. This price shall include all labor, materials, equipment, and all incidental costs required to complete the work. This item shall also include all work required to connect the bridge lighting system to an existing highway lighting load center or one installed under Item 823.601.

The installed lighting systems shall be tested to verify functionality, illumination levels, and compliance with these specifications.

Final acceptance of the work is subject to inspection and approval by the Engineer.

ITEM 823.601**HIGHWAY LIGHTING LOAD CENTER****EACH**

The work under this Item f shall conform to the relevant provisions of Subsections 820 of the Standard Specifications and the following:

The work under this Item shall consist of furnishing and installing new highway lighting load center cabinets with all appurtenances. The work shall also include wiring within the cabinet and all incidentals necessary to provide a fully functional bridge lighting system including a panel board, time clock, photoelectric controller, lighting contactor, meter socket, electric heater (500 watts minimum), exhaust fan (100 cfm minimum), override switch, internal conduit and raceways, wiring, hardware, and incidentals necessary to provide a complete and operable system.

The lighting load center shall be a free-standing cabinet type component set on a concrete foundation, as depicted in the Construction Details and as approved by the Engineer. The cabinet shall be NEMA 3R manufactured from grade 316 Stainless Steel, connected to the foundation with a minimum of (4) stainless steel anchor bolts, 3/8" minimum diameter, placed as recommended by the cabinet manufacturer.

The new load centers shall be installed behind the guardrail on the low-speed side, within ± 50 feet east of the bridge's east abutments. The location is subject to review and final approval by the Engineer.

All load center equipment grounding shall be included and conform to the relevant provisions of Subsection 813 of the Standard Specifications.

Each load center shall include a heater, exhaust fan, and air filter. Heater and exhaust fan shall be thermostatically controlled. The heater shall be a 500W strip heater at 240 VAC. The exhaust fan shall be a minimum 100 cfm at 120 vac and shall be supplied with zinc plated fan guard or equivalent for corrosion resistance. Heater shall operate under 50 degrees F and exhaust fan shall operate over 85 degrees F. Louvers shall be provided in the lower section of the door with a filter frame on the inside of the enclosure. Air filter shall be long-life aluminum or stainless steel.

The Contractor shall calculate the appropriate AIC rating for load center components based on the utility company's transformer specifications for each location or 18,000 AIC whichever is greater.

Placement of the meter socket shall be outside of the cabinet as required by the Utility Provider.

In accordance to the NEC article 250.53 a single ground rod shall be installed.

All bussing in the Load Center shall be copper, and all circuit breakers shall be bolt-on type. All factory wiring shall be copper.

Circuit breaker sizes and quantities shall be as indicated on the Contract drawings.

Contactors for control of bridge lighting fixtures shall be provided.

ITEM 823.601 (Continued)

Photocells and time clocks with overrides shall be included and the factory wired to open and close all contactors at the same time.

Manufacturer shall provide base bolt pattern to Contractor to ensure proper anchoring within foundation.

METHOD OF MEASUREMENT

Item 823.601 will be measured for payment by the Each highway lighting load center installed, complete in place.

BASIS OF PAYMENT

Item 823.601 will be paid for at the Contract unit price per Each, which prices shall include all labor, materials, equipment, and all incidental costs required to complete the work.

ITEM 853.8**TEMPORARY ILLUMINATION FOR WORK ZONE****DAY**

The work under this Item shall conform to the relevant provisions of Subsection 850 of the Standard Specification and the following:

The work under this Item shall include the deployment and maintaining in proper operating condition an LED balloon diffuser lighting system. These portable light towers shall be used throughout the project area for temporary work zone lighting. The use of unshielded high wattage flood lights shall not be permitted.

The Contractor shall illuminate the following work zone areas:

- Change in direction (i.e., work zone entrances and exits, crossovers, etc.)
- Tapered areas
- Actual area where the construction is being performed

Light measurement shall be based on the illuminance method, and the lighting levels shall be based on the classification of construction activity that is taking place. At no time shall the light level be below 5 fc and the uniformity shall not exceed 6:1. Task Classifications and recommended illumination levels is shown in Table 1.

Task Classifications	Illumination Level	Average Minimum Maintained Illuminance
All work operations areas, setup of lane or road closures, lane closure tapers, and flagging stations, such as: Excavation (all types), Embankment Fill and Compaction, Reworking Shoulders, Asphalt Pavement Rolling, Subgrade, Stabilization and Construction, Base Course Rolling, Sweeping, Cleaning and Landscaping.	Level I	5 foot-candles
Areas on or around construction equipment; asphalt paving, milling, concrete placement and/or removal, such as, Milling, Removal of Pavement, Asphalt Paving and Resurfacing, Concrete Pavement, Waterproofing and Sealing, Sidewalk Construction, Base Course Grading and Shaping, Surface Treatment, Bridge Decks, Drainage Structures and Drainage Piping, Other Concrete Structures, Barrier Wall and Traffic Separators, Guardrails and Fencing, Striping and Pavement Markings, Repair of Concrete Pavement, Highway Signs, Hole Filling and Repair of Guardrails and Fencing.	Level II	10 foot-candles
Pavement or structural crack/ pothole filling; joint repair, pavement patching and/or repairs, installation of signal/electrical/mechanical equipment, such as, Traffic Signals, Highway Lighting Systems and Crack Filling.	Level III	20 foot-candles

TABLE 1
TASK CLASSIFICATIONS AND ILLUMINATION LEVELS

ITEM 853.8 (Continued)

Prior to commencement of work the Contractor shall submit to MassDOT for approval a description of illumination equipment that is proposed to be used on this project and shall include photometrics that detail the light levels that are to be provided for the particular operation for the type of equipment, level of luminance and height to be installed.

Any potential glare from the lighting system should be considered from each direction and on all approaching roadways and opposing lanes of traffic. Glare from the illumination system should be minimized as much as possible for both workers and motorists in adjacent active travel lanes. If necessary, the Contractor shall provide supplemental hardware, such as, visors, louvers, shields, glare screen and barrier to reduce glare in adjacent active travel lanes.

Equipment mounted lighting may be used to supplement light towers to achieve the required lighting levels for the activity involved per Table 1.

The Contractor shall allow MassDOT up to 30 calendar days for review and comment.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT

Item 853.8 will be measured and paid per Subsections 850.80 and 850.81, respectively.

ITEM 859.1**REFLECTORIZED DRUMS WITH SEQUENTIAL
FLASHING WARNING LIGHTS****DAY**

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 LWCS.
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 863.506**6-IN. RECESSED YELLOW LINE (MC, FD, WR)****FOOT**

The work under this Item shall conform to the relevant provisions of Subsection 860 of the Standard Specifications and the following:

The work under this Item shall consist of furnishing and installing Recessed Multi-Component (MC), Fast Dry (FD), Wet Reflective (WR) Pavement Markings at the locations shown on the drawings or as directed by the Engineer.

If the Multi-Component Pavement Marking material is applied over a different pavement marking material, the Contractor shall provide documentation that the Multi-Component Pavement Material being used will adhere to the existing marking material.

MATERIALS

MC pavement markings shall consist of a two-component, 100% solids liquid binder, first drop beads or elements to provide wet and dry retroreflectivity, and second drop glass beads to improve the durability of the pavement marking, reduce track-free times, and provide supplementary retro-reflectivity. MC Pavement Marking binders are typically composed of, but not limited to, Epoxies, Polyureas, or Urethanes.

Classification of dry time is based upon the results of the test procedures found in ASTM D711 (73.5 ± 3.5°F at 50 ± 5% relative humidity) when applied with glass beads. MC Ultra-Fast Dry (MC, UFD) pavement markings shall have a no track time of 3 minutes or less. MC Fast Dry (MC, FD) pavement markings shall have a no track time of 10 minutes or less. MC Standard Dry (MC, SD) pavement markings shall have a no track time of 45 minutes or less. The Contractor shall provide a Certificate of Compliance verifying the product supplied meets the specified dry time requirements per ASTM D711 prior to installation.

The Contractor shall select a liquid binder and bead/element combination that meets these performance specifications.

Second drop beads shall be manufactured from glass of a composition that is highly resistant to traffic wear and to the effects of weathering. If coating is required to meet the performance requirements, the second drop beads shall be coated to ensure satisfactory embedment and adhesion. Second drop beads retained on a No. 40 U.S. Standard Mesh Sieve shall have a minimum crush strength of 30 lbs. when tested in accordance with ASTM D1213.

Second drop beads passing the No. 30 sieve shall have a minimum of 75 percent true spheres when tested in accordance with ASTM D1155. All second drop beads retained on the No. 20 and No. 30 sieves shall have a minimum of 80 percent true spheres as determined by ASTM D1155.

ITEM 863.506 (Continued)

Second drop beads shall meet the following gradation requirements when tested in accordance with ASTM D1214:

U.S. Standard Sieve No.	Percent Retained
20	3-10
30	15-35
50	45-75
70	0-10
Pan	0-5

CONSTRUCTION METHODS

The Contractor shall follow all installation instructions from the manufacturer, including allowable ranges of temperature and humidity for installation, unless otherwise approved by the Engineer.

The pavement surface shall be clean, dry and free of laitance, oil, dirt, grease, paint or other foreign contaminants prior to the installation of any new pavement markings. If an air lance is used to clean the surface, air compressors shall initially be blown out away from the application area to prevent compressor condensation build-up. A minimum of 24 hours of dry time following any rainfall is required prior to the placement of pavement markings.

Recessing of markings shall be per 860.65: Recessed Markings.

Application rate for binder and all glass beads shall consider final pavement surface composition and smoothness in advance of application to ensure proper wet film thickness and embedment of all beads. The Contractor shall provide the Engineer with documentation from the manufacturer with all recommended application rates in advance of any pavement marking installation.

The minimum uniform wet thickness for the MC binder shall be 20 mils but should be increased if recommended by the manufacturer. The line thickness shall be met across at least the middle $\frac{2}{3}$ of the pavement marking width. Wet mil thickness gauges shall be provided by the Contractor to the Engineer to assure that desired thickness is achieved.

The finished white color shall be free from tint, with good opacity and visibility under both daylight and artificial light. The finished yellow color shall be defined by Federal Test Standard 595 - Color Chip Number 13538, using Federal Test Standard 141 (Method 4252). The finished lines shall be uniform in color and have clean, well-defined edges.

Glass beads shall be applied in a manner that does not induce rolling or bouncing, to ensure that exposed portions of beads are free of binder material. Beads should be embedded in the binder to a depth of approximately 50% of their diameter.

Glass beads shall be applied as a reflective medium, using the double drop method, at a rate in accordance with the manufacturer's specification in order to meet the minimum retro-reflectivity levels.

ITEM 863.506 (Continued)

Newly installed pavement markings shall be protected from tracking during the curing period per Subsection 860.63.

Once the installed pavement markings have been open for traffic for a minimum of 7 days, the Contractor shall perform retro-reflectance readings per the measurement and sampling procedures contained in ASTM D7585 (Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments) using the Referee Evaluation Protocol found in section 6.4, and the testing procedures shall follow ASTM E1710 (Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retro-reflectometer) and ASTM E2177 (Standard Test Method for Measuring the Coefficient of Retroreflected Luminance (RL) of Pavement Markings in a Standard Condition of Wetness).

The average initial retro-reflectance readings shall exceed the following minimum values:

Test Method	*White Markings	*Yellow Markings
ASTM E1710 (Dry)	475 mcd/lux/m ²	375 mcd/lux/m ²
ASTM E2177 (Wet Recovery)	375 mcd/lux/m ²	300 mcd/lux/m ²

*Observation Angle = 1.05°, Entrance Angle = 88.8°

Pavement markings with measured average initial retro-reflectance readings that do not meet the specified minimum values using the procedures outlined in subsection 6.4.5 of ASTM D7585 shall be removed by a method approved by the Engineer and reapplied at no additional cost, unless otherwise approved by the Engineer.

METHOD OF MEASUREMENT

Item 863.506 will be measured for payment by the Foot of recessed pavement markings installed, complete in place.

BASIS OF PAYMENT

Item 863.506 will be paid for at the Contract unit price per Foot, which price shall include all material, labor, equipment, and all incidental costs required to complete the work.

ITEM 866.606**6-IN. RECESSED WHITE LINE (PF, WR)****FOOT**

The work under this Item shall conform to the relevant provisions of Subsection 860 of the Standard Specifications and the following:

The work under this Item consists of furnishing and installing pavement marking lines at the locations shown on the drawings or as directed by the Engineer.

MATERIALS

The preformed marking material to be used shall be Stamark 380AW or Stamark 380AW-5 (Contrast) by 3M or approved equal.

Preformed Marking Lines are composed of preformed thermoplastics, tape, or other materials premixed with pigments, glass spheres or other reflective materials, and other additives to control color, retroreflectivity, and skid resistance.

All pavement marking colors shall conform to the MUTCD standards, including the Daytime Color Specification Limits for Retroreflective Pavement Marking Material found in 23 CFR 655, Subpart F.

Post-installation, the surfaces of all preformed markings shall provide a minimum skid resistance value of 35 British Pendulum Number (BPN) when tested in accordance with ASTM E303, with exception to crosswalks, stop lines, and markings that delineate bicycle facilities, which shall provide a minimum of 55 BPN.

Retroreflective properties shall be verified by an independent laboratory prior to installation. The average initial retroreflectance readings shall exceed the following minimum values:

Test Method	*White Markings	*Yellow Markings
ASTM E1710 (Dry)	500 mcd/lux/m2	300 mcd/lux/m2
ASTM E2177 (Wet Recovery)	300 mcd/lux/m2	250 mcd/lux/m2
ASTM E2832 (Continuous Wetting)	250 mcd/lux/m2	200 mcd/lux/m2

*Observation Angle = 1.05°, Entrance Angle = 88.8°

The black contrast shall be non-reflective and 1 to 2 in. wide, adding a total of 2 to 4 in. of nominal width to the line.

The leading edge(s) of all preformed markings shall be tapered to minimize risk of plow damage.

The Contractor shall provide a Certificate of Compliance verifying the product supplied will meet the color, friction, and retroreflectivity requirements prior to installation.

ITEM 866.606 (Continued)**CONSTRUCTION METHOD**

The Contractor shall supply Shop Drawings to the Engineer for approval a minimum of 30 days in advance of installation. Shop Drawings shall include the product manufacturer's instructions, material safety data sheets (MSDS) for all components including any primers and sealers, and all tools, equipment, and procedures to be used for the installation. No work shall commence until the Shop Drawings have been approved.

Recessing of markings shall be per 860.65: Recessed Markings.

Lines shall not be placed adjacent to each other to increase line width unless lines greater than 12 in. wide are required and the manufacturer's specifications allow it.

All existing pavement markings that are to remain, castings, curbs, and rumble strips within the vicinity of the Preformed Markings shall be protected by the Contractor. Existing pavement markings damaged during the installation shall be removed and replaced by the Contractor at no additional cost.

The Contractor shall follow all installation instructions from the manufacturer, including allowable ranges of temperature and humidity for installation, unless otherwise approved by the Engineer.

Upon completion of installation, a sealer shall be applied if recommended by the manufacturer. The sealer shall be installed per the manufacturer's specification. The application of a sealer shall be considered incidental to the cost of the item.

The Contractor shall maintain protection of the Preformed Markings installation from vehicle and foot traffic throughout the minimum cure time recommended by the manufacturer.

METHOD OF MEASUREMENT

Item 866.606 will be measured for payment by the Foot of 6-inch recessed white line (PF, WR) installed, complete in place, as specified under Subsection 860.80.

BASIS OF PAYMENT

Item 866.606 will be paid for at the Contract unit price per Foot, which price shall include all material, labor, equipment, and all incidental costs required to complete the work.

ITEM 905.21**5000 PSI, HIGH EARLY STRENGTH
CEMENT CONCRETE****CUBIC YARD**

The work under this Item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications and shall consist of installing Hi-Early Strength Cement Concrete for work associated with reconstruction of the bridge joints or as otherwise required by the Engineer. High-Early Strength Cement Concrete shall be formulated to reach a 7-Day compressive strength of 5,000 PSI and a minimum compressive strength of 3,000 PSI in the 36 Hours after placement.

MATERIALS

High - Early Strength Cement Concrete may be achieved with Type III cement or through the use of high early strength accelerating admixture conforming to AASHTO M 194 Type C and listed on the MassDOT Qualified Construction Materials List. Accelerators containing chlorides shall not be allowed. The mix shall be formulated for early strength, long term durability and in consideration to the proposed duration for curing. The mix shall also be formulated with calcium nitrite corrosion inhibitors conforming to AASHTO M 194. The calcium nitrite shall be added at a rate of 3 gallons per cubic yard of concrete in order to increase the active corrosion threshold to 9.9 pounds of chloride per cubic yard of concrete at the reinforcing bar level.

High - Early Strength Concrete for partial and full depth deck patching, beam end repair, and concrete end diaphragm reconstruction, shall have a maximum aggregate size of 3/8" and shall meet a shrinkage limit of 0.04 percent at 28 days when tested per AASHTO T 160.

The Contractor shall formulate a design mix, based upon performing trial mixes and testing witnessed by District Materials personnel, and submit it to the MassDOT Research and Materials Section for approval. The contractor shall notify District personnel when he intends on scheduling trial batches. The contractor shall provide an ACI certified Field Concrete Technician to perform slump, air and temperature test, as well as cast Field cured and Standard cured cylinders to be tested at MassDOT's Research and Materials lab. A minimum of nine (9) Field cured cylinders and nine (9) Standard cured cylinders shall be cast. The Field cured cylinders shall determine if the 36 hour over-design strength requirements are met. The Standard cured cylinders shall determine if 7 day over-design strength requirements are met. Additional quality assurance test may be required if deemed necessary by the Engineer. The contractor shall perform trial batch testing no later than 9:00 AM to allow for 36-hour cylinders to be tested at the MassDOT Research and Materials lab. District personnel shall deliver trial batch cylinders to Research and Materials after cylinders have cured for a minimum of 24 hours.

Compressive strength results of Standard and Field cured trial batch cylinders shall meet all of the following minimum overdesign strength requirements in order to be considered acceptable. Compressive strength results shall be the average of three (3) cylinders:

36 Hour cylinders = 3500 PSI 7 Day cylinders = 5500 PSI 21 Day cylinders = 6000 PSI

This testing period shall be no longer than 6 weeks and the testing period shall be included in the Contractor's schedule for operations. As part of the approval process, a minimum 3 cubic yard of a mock-up placement shall be performed within two (2) weeks of trial batch (or as approved by the Engineer) in order to assess workability of the concrete mix. The location of this placement will be subject to the approval of the Engineer.

ITEM 905.21 (Continued)**CONSTRUCTION METHODS**

No work shall commence until a mix design has been approved. In no instance will this item be used for repairs of any horizontal, vertical, or overhead patch less than or equal to 2 inches in depth.

Unless approved by the Engineer, curing shall be in accordance with Subsection 901.66 and be required for a minimum of 36 hours.

The surface of the old concrete shall be thoroughly cleaned and prepared in accordance with relevant special provisions for Item 127.42. Surface preparation for bonding new concrete to existing concrete shall include thorough cleaning, roughening and pre-wet the surface with clean water to saturated surface dry (SSD).

All patches shall be formed such that new concrete shall be flush with the surrounding existing surface when the concrete has cured.

All reinforcing steel, encountered, shall be thoroughly cleaned and painted with a compatible material before it is covered with new concrete. Any steel damaged or otherwise made unsatisfactory by the Contractor's operations shall be replaced at the Contractor's expense.

Once the mix has been approved and production has started, the contractor shall be required to provide an ACI Certified field technician to obtain cylinders for verifying the concrete early strength. For each placement, the Contractor's field technician shall prepare six (6) cylinders under the direction of the Engineer. The samples shall be field cured in accordance with the requirements of AASHTO R 100 and transported to an AASHTO accredited testing laboratory approved by the department. Three cylinders shall be tested after they have been field cured for at least 30 hours. The average strength of the three cylinders breaks will determine if the concrete has achieved the required strength for determining if the bridge can be reopened.

The results of the Quality Control test shall be reported by the field technician promptly and directly to the Engineer in writing.

The bridge should not be reopened until Quality Control cylinder breaks provide verification that the minimum 3,000 psi compressive strength has been achieved. The minimum compressive strength shall be taken as an average of the three-cylinder breaks. The three (3) additional cylinders shall be held for testing at the direction of the Engineer.

The Contractor is advised that department personnel will perform acceptance testing for slump, air, 7 and 21 day compressive strength breaks and all other appropriate testing in accordance with established procedures. Acceptance of the concrete will be based on the average of three (3) concrete cylinders achieving 5000 psi at 7 days.

ITEM 905.21 (Continued)

Concrete Cores for acceptance will not be allowed for this project. Concrete with cylinder compressive strengths (f_c) which fail to meet acceptance level requirements shall be evaluated for structural adequacy at the Contractors' expense. The Department shall review all production records, the concrete test records, field notes, and the placement records for the concrete in question.

If the material is found to be adequate to remain in place, payment shall be adjusted in accordance with the following formula:

Pay adjustment for substandard concrete, $P = 2(f_c - f'_c)(UP)(Q)/(f'_c)$

Where f'_c = Specified minimum compressive strength at 7 days.

f_c = Substandard concrete cylinder compressing strength at 21 days

P = Pay adjustment for substandard concrete.

Q = Quantity of concrete represented by the acceptance cylinders tested.

UP = Unit contract price for this class of High Early Strength Cement Concrete involved complete in place.

METHOD OF MEASUREMENT

Items 905.21 will be measured for payment by the Cubic Yard of the actual volume of concrete placed, complete in place.

BASIS OF PAYMENT

Item 905.21 will be paid at Contract unit price per Cubic Yard, which price shall be the full payment for all (1) materials, equipment, tools, labor, clean-up and incidentals thereto, (2) cost of high pressure washing/mechanical brushing of exposed concrete and steel surfaces, removal of rust and scale and laitance on existing steel reinforcing surfaces, (3) replacement of deteriorated reinforcement, placement of proposed reinforcement and (4) forming, placing, curing, stripping and finishing new concrete, and all other incidentals required to perform the work as specified and as required.

The material cost of proposed or any existing reinforcement that is unsuitable for further use through no fault of the contractor will be paid to the Contractor separately under Item 910.1 "Steel Reinforcement for structures – epoxy coated".

The cost of Quality Control concrete cylinders and an AASHTO accredited testing laboratory providing test results for the determination of opening the bridge shall be considered incidental to Item 905.21.

ITEM 908.21**JOINT PROTECTION****FOOT****ITEM 908.22****JOINT PROTECTION REMOVED AND RESET****FOOT**

The work under these Items consists of providing vehicular protection for the joints that are open, or under construction, when the roadways are open to normal traffic operations. An unprotected joint will not be allowed under any circumstances during hours of normal traffic operations. This joint protection system shall be used at joint reconstruction locations indicated on the drawings, and as directed by the Engineer.

A suggested joint protection design is shown on the drawings. The Contractor may submit alternate methods of providing protection to the Engineer for review and approval.

The work under Item 908.21 "Joint Protection" will include fabrication and installation of joint protection plates that match the bridge joint skew angle.

The work under Item 908.22 "Joint Protection Plate Removed and Reset" will include removing protection plates from completed work areas where the plates were initially installed under Item 908.21 and re-installing the plates at the subsequent joint reconstruction locations. Removed and reset plates shall be used whenever possible. The work under this item shall also include the final removal of steel plates upon completion of joint reconstruction.

Joint Protection Plates will be used as detailed on the suggested Construction Sequence and Staging drawings. The intent is to furnish and install protection plates for reconstruction of joints at one structure (eastbound or westbound). The joint protection for work on the other structure shall be accomplished through the use of Item 908.22 "Joint Protection Plate Removed and Reset".

The top face of all protection plates shall be coated with a shop applied skid resistance coating.

The coating shall be a product that is specifically designed for providing skid resistance to steel road plates. The coated surface shall have a minimum coefficient of friction of 0.37. The contractor shall submit the selected skid resistance coating system to the Engineer for approval.

The Contractor shall maintain or replace any damaged or deformed plates caused by traffic as directed by the Engineer. The Contractor is also responsible for ensuring all protection plates are properly secured and maintaining the skid resistance coating for the duration of the joint reconstruction. The Contractor shall inspect the joint protection system regularly, retighten the bolts and reapply the skid resistance coating as necessary, or as directed by the Engineer.

All joint protection plate assemblies shall become the property of the Contractor upon the completion of the joint reconstruction and shall be removed from the project site. All core holes in the deck and approach slab shall be filled with non-shrink grout.

ITEMS 908.21 and 908.22 (Continued)

Joint Protection is provided to facilitate timely reconstruction of bridge joints by allowing the Contractor to extend his operations to the weekday night shifts. The Joints will be constructed in stages and in adherence with the contract's work restrictions. Joint construction will consist of the following steps:

1. Concrete Excavation - This operation is to be performed during permitted day/nightly lane closures. The Contractor will be allowed to continue this operation, Monday through Thursday. Prior to restoring traffic lanes each morning, the open joints shall be protected with the approved joint protection system.
2. Concrete Placement Preparation – During a Friday night shift, excavated joints for each Stage of work will be prepared for concrete placement. This will include removing of any debris, forming, adding/replacing rebar, etc.
3. Concrete Placement - In order to ensure that the concrete will have sufficient time to meet the stipulated curing time requirements, high early cement concrete placement must occur on Saturday morning not later than 3:00 AM.
4. Joint Protection Plate Resetting – After the concrete is placed, reset the joint protection plate(s) adjacent to the traffic to provide extra flexibility for maintaining three unobstructed travel lanes during the weekend daytime hours.
5. Concrete Cylinder Test - concrete cylinders shall be tested after they have been field cured for 30 hours to provide verification of the minimum 2,300 psi compressive strength.
6. Paving – As soon as the Engineer verifies the concrete meets the 30-hour compressive strength requirement, the contractor will be allowed to install temporary or final pavement (paid under Item 451.) over the reconstructed joint. The contractor shall continue to maintain traffic away from the reconstructed areas and reopen all lanes to traffic at 5:00 AM Monday morning.
7. Steps 1- 6 are to be repeated to complete each phase of the joint reconstruction.

The Contractor will be required to submit for approval of the Engineer a Joint Repair Staging Plan describing his proposed sequence and schedule for the joint reconstruction. The Contractor shall coordinate the Joint Repair Staging Plan with the Temporary Traffic Control Plans, construction phasing, and joint steel reinforcement layout at each bridge location. The Contractor is advised that no work will be allowed to begin until this schedule and sequence have been approved. The contractor's submission shall also include:

ITEMS 908.21 and 908.22 (Continued)

1. Shop drawings for all fabricated protection steel plates and hardware. The protection plates shall be detailed to account for the location of the bridge deck crown and safety curb.
2. Proposed method of anchoring.
3. Temporary Traffic Control Plans that show the traffic setup and lane arrangement during the weekend daytime and nighttime work. Two unobstructed travel lanes (at least 11 feet wide) must be maintained during the weekend daytime hours when the concrete is curing.
4. A Staging Plan that shows placement of the protection plates for each phase of construction at the bridge. This Plan shall provide the number of plates that will be provided for the initial installation, their placement locations along the joint profiles, and locations of the subsequent joint protection plate removed and reset.

The approved Joint Repair Staging Plan will be used as the basis in determining the payment quantities of Items 908.21 and 908.22.

METHOD OF MEASUREMENT

Item 908.21 will be measured for payment by the Foot, along the centerline of the joint, for the length of protection plate furnished and installed for reconstruction of joints in the first reconstruction stage. The Joint Protection for the remaining joint reconstruction shall be provided under Item 908.22 and will be measured for payment by the Foot of Joint Protection Removed and Reset, complete in place.

The daily/nightly removal and resetting of individual sections of joint protection, required to access the work areas, will not be measured separately for payment. The cost associated with these activities shall be considered incidental to these items.

BASIS FOR PAYMENT

Item 908.21 will be paid at the Contract unit price per Foot, which price shall be full compensation for all equipment, tools, labor, materials, submittals required for furnishing and initial installation of the joint protection.

Item 908.22 will be paid for at the Contract unit price per Foot, which price shall be full compensation for all equipment, tools, and labor, required for the initial removal of the joint protection from the current location, the reinstallation at the next location, and the final removal.

ITEMS 908.21 and 908.22 (Continued)

The maintenance of the joint protection system, its anchoring system, and its skid resistance coating during construction shall be considered incidental to these items. The daily/nightly removal and resetting of individual sections of joint protection, including all incidental items, to access the work areas, as well as the final removal of steel plates upon completion of the joint reconstruction, will be considered incidental to these Items.

The cost of gravel borrow and other incidentals, including concrete coring required for the initial installation, and removal and resetting of the protection plates, during deck joint demolition will be also considered incidental to these items.

The cost of placing temporary transition pavement shall be paid separately under Item 472. "Temporary Asphalt Patching".

ITEM 909.2 **CEMENTITIOUS MORTAR FOR PATCHING** **SQUARE FOOT**

The work under this Item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications and the following:

The work under this item consists of furnishing and placing a cementitious, fast setting, trowel grade patching mortar for shallow depth (2" or less inches in depth) repairs of delaminated or deteriorated and/or unsound concrete surfaces at the substructures or as directed by the Engineer.

Only abutments, wingwalls, and other substructure locations that are accessible to the Contractor (i.e., above the access and containment platform) will be designated for repairs under this Item.

This item does not include the repair of any vertical patch that exceeds 2" in depth.

MATERIALS

Only those products previously approved for the purpose intended herein and listed on the Qualified Construction Materials List maintained by the MassDOT Research and Materials Section may be used.

High Strength Mortar Products shall be in accordance with M4.04.1.

No Materials will be ordered or used before the approval of the Engineer.

CONSTRUCTION METHODS

The Contractor shall have the approval of the Engineer certifying that all spalled and deteriorated concrete has been removed prior to patching deteriorated areas.

All concrete surfaces shall be prepared in accordance with PREPARATION OF CONCRETE SURFACES.

Mortar must be worked into the substrate filling all pores and voids. Force the material against the edge of the repair, working towards the center. After filling, consolidate, then screed.

The maximum thickness of application in one pass shall be one (1) inch. If the depth of patch exceeds one (1) inch, the mortar shall be placed in two passes of approximate equal thickness, with a total thickness not to exceed two (2) inches. Before the first pass has achieved an initial set, the surface shall be prepared for the second pass by scratching with a trowel to form a grid of deformation on the surface. The preceding lift shall be allowed to reach final set before applying fresh material. The fresh mortar must be scrubbed into the preceding lift.

Prime and work the mix into the substrate, filling all pores and voids. Avoid puddling of the primer on horizontal substrates.

ITEM 909.2 (Continued)

Use a fine mist spray of water, wet burlap, or a non-solvent approved curing compound if ambient conditions might cause premature surface drying (high temperature, low humidity, strong winds, etc.). If necessary, protect the newly applied mortar from rain. To prevent freezing, cover with insulating material.

Protective sealing compounds shall be applied to repair areas where required by the Engineer. Protective sealing compounds shall be in accordance with Subsection 901.41.

METHOD OF MEASUREMENT

Item 909.2 will be measured for payment by the Square Foot of patch area, complete in place.

BASIS OF PAYMENT

Item 909.2 will be paid for at the Contract unit price per Square Foot, which price shall include all labor, materials, equipment, certification, samples, curing, protective sealing, and all incidental costs required to complete the work.

The Excavation work will be paid under their respective contract bid Items.

ITEM 909.3 RAPID SETTING LOW PERMEABILITY CONCRETE CUBIC YARD

The Work under this Item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications and the following:

The work under this item shall consist of supplying, mixing, placing, and curing rapid-setting, low-permeability repair concrete for full and partial deck repairs, as directed by the Engineer, in areas outside the protection barrier where the use of rapid-set concrete is necessary to avoid disruption to open travel lanes during normal operating hours.

Item 905.21 shall be used for partial and full-depth deck repairs within areas designated to be protected by a barrier (i.e., work zones located behind the barrier), as well as for the reconstruction of bridge joints.

MATERIALS

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

- | | |
|---------|--|
| M4.03.0 | Concrete Produced by Volumetric Mixers |
| M4.06.4 | Rapid Hardening Concrete |

The nominal maximum aggregate size shall be 3/8 inch.

Materials shall be delivered to jobsite in original, unopened, undamaged containers that clearly show the manufacturer's name, product name, and batch number. Material shall be stored in a dry area off the ground, protected from rain, snow, and other sources of moisture. Material shall be

protected from temperature extremes. Bulk sand and coarse aggregate shall be stored in a well-drained area on a clean, solid surface and materials shall be covered to prevent contamination with foreign matter.

CONSTRUCTION METHODS

All cement concrete materials, concrete handling, placement, protection, curing, and finishing requirements of Subsection 901 shall apply.

All concrete surfaces shall be prepared in accordance with PREPARATION OF CONCRETE SURFACES.

Placement and Finishing

Surfaces that are adjacent to the placement shall be protected with drop cloths, waterproof paper, or other means to maintain them free of material splashes, water, and debris.

All concrete surfaces shall be prepared in accordance with PREPARATION OF CONCRETE SURFACES.

ITEM 909.3 (Continued)

The deck repair concrete shall be placed immediately after mixing and shall be worked firmly into sides and bottom of repair area to achieve good bond. The concrete placement shall start at one edge of the excavation and shall continue full depth with temporary vertical bulkheads, if needed, to ensure that horizontal cold joints do not occur between successive concrete placements.

Final finishing shall be performed as soon as possible after placement as there will be little or no bleed water.

The Engineer may require the Contractor to vibrate and/or power screed the patched area. Payment for such equipment shall be considered incidental to this Item.

Approval by the Engineer for all formwork shall be required prior to placement of any concrete. Formwork shall be maintained and remain in place a minimum of seventy-two (72) hours after placement.

Protective sealing compounds shall be applied to repair areas as directed by the Engineer.

The protective sealing compounds shall conform to the requirements of Subsection 901.41.

Bridge Deck Vibration

At the direction of the Engineer, in order to minimize the effects of vibrations from vehicular traffic passing in adjacent lanes next to each placement, traffic should be slowed along the adjacent

travel lanes and the placement of concrete overlay should be executed between the hours of lower traffic volumes, generally between 1:00 AM and 3:00 AM.

Curing

Water curing of the deck repair concrete shall start once the deck repair concrete begins to lose its moist sheen. Wet burlap shall be placed on the deck repair concrete, and the burlap shall be kept continuously wet for a 3 hours period after final set. Application of an approved curing compound in lieu of the 3 hours wet burlap cure must be reviewed and approved by the Engineer.

OPENING TO TRAFFIC

Compressive strength of 2000 psi shall be attained prior to opening the area to traffic.

Unless otherwise directed, Rapid Hardening Concrete placements shall be completed for nighttime operations so that the required compressive strength is attained before the area is opened to traffic.

ITEM 909.3 (Continued)**ACCEPTANCE**

Quality Control and Department Acceptance shall meet the requirements specified in the following Subsections of Division III:

M4.03.2	Producer Quality Control
M4.03.3	Department Acceptance

METHOD OF MEASUREMENT

Item 909.3 will be measured for payment by the Cubic Yard of rapid setting low permeability concrete installed, complete in place.

BASIS OF PAYMENT

Item 909.3 will be paid for at the Contract unit price per Cubic Yard, which price shall include all labor, materials, equipment, tools, forms, and all incidental costs required to complete the work.

ITEM 912.**DRILLING AND GROUTING DOWELS****EACH**

The work under this Item shall conform to the relevant provisions of Subsection 901 of the Standard Specifications and the following:

The work shall consist of drilling holes, furnishing, installing, and grouting of steel dowel reinforcement at the locations shown on the drawings or as required by the Engineer.

The dowel embedment must be adequate to fully develop 125% of the yield strength of the bar. The embedment length, the method and equipment used to drill the dowel holes, and the diameter of the drilled hole shall at a minimum conform to the recommendations of the manufacturer and be submitted to the Engineer for approval.

MATERIALS

The grout to be used for these dowels shall be selected from the MassDOT Qualified Construction Materials List for its specific application. Reinforcing steel dowels shall meet the requirements of

AASHTO M31 Grade 60. All reinforcing steel dowels shall be epoxy coated in accordance with ASTM A775. Reinforcing steel dowels shall be incidental to the work under this Item.

Reinforcing Steel Manufacturer shall be listed on the QCML

CONSTRUCTION METHODS

All dowel holes shall be air drilled provided that the minimum edge distance of 6 inches is observed. Should, in the Engineer's opinion, air drilling be inappropriate due to questionable strength of the existing /concrete or insufficient edge distance, the dowel holes shall be diamond core drilled. The inner surfaces of the diamond core drilled dowel hole's inner surfaces shall be subject to the approval of the Engineer. The diameter of the drilled dowel holes shall be in accordance with the recommendations of the grout manufacturer. The holes shall be blown clear of any debris and shall have the approval of the Engineer prior to the placement of any grout material. The drilling operation shall be performed without damage to any portion of the existing structure that is to remain in place. Any damage to any portion of the existing structure that is to remain in place shall be repaired to a condition equal to or better than that existing prior to the beginning of the Contractor's operations and shall be repaired at the Contractor's expense.

The Contractor shall strictly follow the recommendations of the manufacturer for mixing and placing the grout material prior to the placement of the dowel. The Contractor shall adhere to the recommendations of the manufacturer regarding minimum and maximum temperatures while placing the grout. Any excessive grout around the hole after placement of the dowel shall be struck off smooth while the grout is still fresh.

The Contractor shall perform on site a minimum of two (2) tests of the dowels (one test for each side of stage construction) for capacity in tension in each location or component. The test shall be performed in the presence of and to the satisfaction of the Engineer. The testing, including the necessary material and equipment to perform the test, is incidental to the work under this Item.

ITEM 912. (Continued)

The pullout force shall correspond to 90% of the yield strength of the bar. If the test bar pulls out or if the concrete utilized in the test shows signs of fracture, the Contractor shall adjust the hole diameter, embedment length, and/or grout material to meet this requirement. The method of applying the tension load to the dowels shall conform to ASTM E488. Details of the test procedure, materials, and equipment shall be submitted to the Engineer for review and approval prior to commencement of the test. Dowels shall not be ordered until the embedment lengths have been approved by the Engineer.

The Contractor shall arrange with the material's manufacturer or distributor to have the services of a competent field representative at the work site prior to any drilling of the proposed dowel holes to instruct the work crews in proper dowel installation procedures. The field representative shall remain at the job site after work commences and continue to instruct until the representative, the Contractor, and Engineer are satisfied that the crew has mastered the technique of installing the dowels successfully. The representative shall make periodic visits to the project as the work progresses and shall confer on each visit with the Contractor, Inspector and/or Engineer. The manufacturer's field representative must be fully qualified to perform the work and shall be subject to the approval of the Engineer.

METHOD OF MEASUREMENT

Item 912. will be measured for payment by the Each dowel installed, complete in place.

BASIS OF PAYMENT

Item 912. will be paid for at the Contract unit price per Each, which price shall include all labor, materials, equipment, furnishing dowels, drilling holes, grouting the dowels regardless of the diameter or depth of the hole, and all incidental costs required to complete the work.

The Contractor shall be completely responsible for the expense of the service of the required field representative and the contract unit price shall be considered full compensation for all costs in connection therewith.

Drilling and grouting of rebars for work associated with reconstruction of bridge barrier, bridge transitions and parapets shall be included in the contract unit prices for Item 992.1, and Item 992.2,

<u>ITEM 961.201</u>	<u>CLEAN (FULL REMOVAL) AND PAINT STEEL</u> <u>BRIDGE NO. S-14-021=W-44-115 (1RA)</u>	<u>LUMP SUM</u>
<u>ITEM 961.202</u>	<u>CLEAN (FULL REMOVAL) AND PAINT STEEL</u> <u>BRIDGE NO. S-14-021=W-44-115 (1RB)</u>	<u>LUMP SUM</u>

The work under these Items shall conform to the relevant provisions of Subsections 960. and 961 of the Standard Specifications, and the following:

This work shall consist of cleaning and painting exposed structural steel, which shall include but is not limited to girders, diaphragms, access platform and ladders connection plates and bearings.

This work shall also include any concrete encased end diaphragms which are not to be re-encased, as directed by the Engineer.

Work under Items 961.201 and 961.202 shall include the cleaning (full removal) and painting of all exposed steel at these bridges. All steel will be cleaned to SSPC SP-10 standards.

All steel surfaces to be painted will receive a three (3) coat system approved by MassDOT's Research & Materials Section.

Unless otherwise directed by the Engineer, the finish coat shall be LIGHT BLUE conforming to the Federal Standard # 15450. A color sample shall be provided for the Engineer's approval. The finish coat shall be formulated to be UV stable and specifically designed to provide long-term UV protection for high visibility structures. The Contractor shall submit the formulation of the finish coat paint including UV additive to the Engineer for approval.

The colors of the primer, intermediate and finish coats shall have a definite color contrast between them and be subject to the approval of the Engineer.

The Contractor shall provide access for inspection after the steel has been cleaned and primed. If the inspection reveals that steel repairs are necessary, the Contractor shall prepare detailed drawings for each required repair and submit them for the Engineer's review and approval. Upon acceptance, these drawings shall serve as the basis for preparing shop drawings.

CONSTRUCTION METHODS

The Contractor shall clean all exposed surfaces of the abutment seats and pier caps by high-pressure water washing, to the satisfaction of the Engineer. All costs associated with cleaning, including debris collection, removal, disposal, and high-pressure washing of abutment and pier seats and pier caps, shall be considered incidental to Pay Item 961.201 and 961.202.

ITEM 961.201 and 961.202 (Continued)**BASIS OF PAYMENT**

Items 961.201 and 961.202 will be paid for at the respective Contract unit price Lump Sum, which prices shall include all labor, materials, equipment, and all incidental costs required to complete the work.

All costs associated with the design and installation of the required containment system and/or work platform shall be considered incidental to these items. The containment system shall be designed with consideration for the access requirements of the project.

All costs associated with the safe removal and disposal of accumulated pigeon waste and other toxic contaminants are incidental to these items and no additional compensation will be made.

Payment for any steel repairs directed by the Engineer will be made under the Non-Bid provisions of the Contract, and Item 100.1 base labor rate as required by the engineer.

SPECIAL NOTES REGARDING PREVAILING WAGE REQUIREMENTS

Note that the erection and dismantling of scaffolding, rigging and containment for bridge painting work is subject to the “Painter(Bridges/Tanks)” prevailing wage rate. This includes surface preparation, including removal of all types of paint on bridges, the application of paint and the clean-up of debris resulting from paint removal operation on bridges, pursuant to the determination by the Massachusetts Department of Labor Standards’ 12/23/2009 “Notice Concerning the Removal and Application of Paint on Bridges and Tanks.”

ITEM 964.3**ELASTOMERIC PROTECTIVE COATING****SQUARE FOOT**

The work under this item shall consist of applying a minimum of two coats of elastomeric acrylic protective coating to the bridge abutments, wingwalls, pier caps, and pier walls, within the limits shown on the drawings and as directed by the Engineer.

A total dry film thickness (DFT) of 16 mils shall be required.

Pier caps shall also receive an additional coat to limits shown on the drawings.

The acrylic protective coating shall be breathable, durable, flexible, and color retentive. It shall provide protection and be resistant to weathering, carbon dioxide, chlorides, UV light, wind driven rain, dirt pick up and mildew. It shall also bridge hairline cracks up to 1/32". The acrylic protective coating system shall be one of the following or an approved equal:

- SikaGard 550W Elastocolor by Sika Corp.
- Flexxide Elastomer by Carboline
- Colorlastic by ChemMasters

The proposed coating product shall be submitted to the Engineer for approval. The Contractor shall submit the proposed application procedures and Manufacturer's Product Data Sheet(s) that completely describe the product. The color of the coating shall be "DOVER SKY" for barriers and "Gray" for the substructure. This color is from the SikaGard Color Chart and has been approved by the District Bridge Engineer. This color must be exactly reproduced as certified by the manufacturer in order to be allowed to use the Flexxide or Colorlastic coatings (at this time Flexxide has matching color samples that have been pre-approved).

PREPARATION & PROTECTION OF SURFACES

All vegetation growing adjacent to or within the limits of the concrete surfaces to be coated shall be removed and properly discarded. All debris adjacent to or within the limits of the concrete surfaces to be coated shall be removed and properly discarded.

All surfaces to be coated must be dry, clean, sound and free of all contaminants that could interfere with adhesion of the coating. All loose material shall be removed. If directed by the Engineer, the contractor shall repair any holes and any spalled and damaged concrete prior to applying the coating. All concrete repair areas shall be cured for a minimum 28 days before coating.

The Contractor shall pressure wash all concrete surfaces to be coated. The pressure washer shall operate at a minimum of 3,000 psi. The protective coating shall not be applied until the surface is dry and the surface preparation has been approved by the Engineer. All concrete to be coated must be tested for the presence of moisture after the surface preparation has been completed and prior to application of coating. The testing shall be in accordance with ASTM D 4263.

ITEM 964.3 (Continued)**APPLICATION**

Application shall be done by airless sprayer or roller or a combination of both and in accordance with the manufacturer's recommendations. The use of a primer shall not be required unless stipulated for that particular coating by the manufacturer. A minimum of two coats shall be applied to achieve a total dry film thickness (DFT) of 16 mils. The recommended minimum wet film thickness (WFT) must be maintained during each application. The manufacturer's specified temperature and weather limitations for the application shall be strictly adhered to.

METHOD OF MEASUREMENT

Item 964.3 will be measured for payment by the Square Foot for all concrete surfaces to which the coating is applied, complete in place.

BASIS OF PAYMENT

Item 964.3 will be paid for at the Contract unit price per Square Foot, which price shall include all labor, materials, tools, equipment, preparation and protection of surfaces, wet/dry film thickness gauge for the use by the Engineer, and all incidental costs required to complete the work.

ITEM 968.1**SCUPPER AND DOWNSPOUT****EACH**

The work under this Item shall conform to the relevant provisions of Subsection 227 of the Standard Specifications and the following:

This work shall consist of furnishing and installing new bridge scuppers and drainage pipes to replace existing corroded, clogged, or missing components. The work also includes the removal and proper disposal of existing scuppers, steel drainpipes, fittings, and hardware.

The work encompasses all the tasks necessary to install and connect the new drainage system to the existing scupper, downspouts and pipes, in accordance with the details shown on the attached drawings.

MATERIALS

All support straps and hardware shall be hot dip galvanized. The connection clamps, all bolts and nuts shall be stainless steel.

CONSTRUCTION METHODS

The Contractor will be required to submit shop drawings to include details of the scupper, downspout and catalogue cuts of assortment of fittings that will be used to install the system for review and approval of the Engineer.

All accumulated dirt and other debris removed from the bridge scuppers and scupper drainpipes for the scupper replacement shall be properly handled and disposed of by the Contractor, in accordance with all DEP regulations and policies. The responsibility for the proper handling and disposal of this material shall be solely the Contractor's.

Material removed from the bridge scuppers and scupper drainpipes shall be transported immediately to the place of disposal in machines or trucks that will not spill either liquid and/or the other material along the roadway. Any material falling on the roadway shall be removed at the Contractor's own expense.

METHOD OF MEASUREMENT

Item 968.1 will be measured for payment by the Each bridge scupper and downspout installed, complete in place.

BASIS OF PAYMENT

Item 968.1 will be paid for at the Contract unit price per Each, which price shall include. shall include all labor, materials, tools, equipment, and all incidental costs required to complete the work.

ITEM 968.2 FINGER JOINT TROUGH, HOPPERS AND PIPES SYSTEM EACH

The work under this Item shall conform to the relevant provisions of Section 227 of the Standard Specifications and the following:

This work shall consist of furnishing and alteration to the bridge finger joint troughs, replacement of the hoppers, and drainage pipes to collect and direct water, debris, and runoff from the bridge deck expansion joints to the appropriate drainage system, as shown on the drawings and as directed by the Engineer.

MATERIALS

All seams shall be continuously welded and watertight. Troughs shall be corrosion-resistant, durable, and capable of accommodating thermal expansion and structural movement without damage or deformation.

The proposed deflection plates for the troughs shall be fabricated entirely from hot-dip galvanized steel in accordance with AASHTO M111 (ASTM A123).

Hoppers shall be constructed of stainless steel (Type 304 or approved equivalent) or galvanized steel, as specified. Each hopper shall be designed to collect debris and facilitate drainage through an attached pipe.

Drainage pipes shall be galvanized steel, as detailed on the drawings. All pipe fittings and connections shall be watertight and mechanically secured to prevent separation due to thermal movement, vibration, or structural activity.

All bolts, anchors, hangers, and brackets shall be stainless steel (Type 316 preferred) or hot-dip galvanized.

CONSTRUCTION METHODS

Troughs shall be installed directly beneath the finger joint assemblies and aligned to effectively capture runoff and debris. Hoppers shall be securely mounted beneath the troughs to funnel collected material into the connected drainage piping. Pipes shall be routed to direct flow to the designated drainage outlet without interfering with structural movement or obstructing maintenance access.

All components shall be installed to accommodate the anticipated thermal movement of the bridge and shall provide adequate access for inspection, cleaning, and maintenance.

The Contractor shall coordinate the installation of the troughs with the bridge expansion joint installation to ensure proper fit and functionality.

All welding shall be performed by certified welders in accordance with AWS D1.6 for stainless steel or AWS D1.1 for carbon steel, as applicable. Fabricated assemblies shall be shop-assembled to the greatest extent practicable and delivered to the site ready for installation.

ITEM 968.2 (Continued)

Galvanized materials shall conform to ASTM A123.

All field-drilled holes or field-welded components on galvanized materials shall be repaired with zinc-rich paint per ASTM A780.

METHOD OF MEASUREMENT

Item 968.2 will be measured for payment by the Each Finger Joint Trough, Hopper, and Pipe System installed. Each system shall consist of one trough and a set of two hoppers with corresponding drainage pipes.

BASIS OF PAYMENT

Item 968.2 will be paid at the Contract unit Price per Each , which price shall include all labor, materials, equipment, and all incidental costs required to complete the work.

ITEM 968.3**BRIDGE DECK DRAIN****EACH**

The work under this Item shall conform to the relevant provisions of Section 227 of the Standard Specifications and the following:

This work shall consist of furnishing and installing new set of three deck drain pipes, replacing deteriorated/clogged existing drain pipes, and/or extending existing deck drain pipes, as shown on the drawings, and as required by the Engineer.

The Polyvinyl Chloride (PVC) pipes for the deck drains and their fittings shall conform to ASTM D1785, Schedule 80. Rubber gaskets shall be provided at all PVC flange-to-concrete connections. Solvent Cement Fittings shall conform to ASTM D2468, Schedule 80. All support straps and hardware shall be hot dip galvanized and be of the same type as used with steel pipe. Support spacing shall be based on the pipe manufacturer's recommendations for the service conditions. Jointing the pipe shall be done by solvent welding process and be in accordance with Manufacturer's recommendations. All joints to be set with P.V.C. primer and P.V.C. cement.

All pipes shall be adequately fastened and secured to the girder bottom flange with conduit clamps. The drain pipes shall be bonded to the surrounding concrete with an approved epoxy resin grout. All coring shall be done with an approved coring machine.

The drain pipes shall be installed through the waterproof membrane, extended 12 inches below the bottom of the adjacent girder, and attached to the bottom flange with a metal clamp to the satisfaction of the Engineer. After completing the membrane waterproofing and before laying the asphalt protective course, the top end of the pipes shall be covered with galvanized wire screen.

The deteriorated/clogged existing drain pipes shall be removed by coring. The holes of the existing deck pipes shall be filled with epoxy resin grout or non-shrink cementitious grout. The removal of existing deck drain pipes and backfill shall be considered incidental to this Item.

METHOD OF MEASUREMENT

Item 968.3 will be measured for payment by the Each set of three deck drain pipes installed, replaced, or extended, complete in place.

BASIS OF PAYMENT

Item 968.3 will be paid for at the Contract unit price per Each, which price shall include all labor, materials, equipment, and all incidental costs required to complete the work. Payment shall be the same for installing the deck drain pipes in cored holes and for placing them in a new concrete pour, as well as extending them. The cost of connection and conduit clamps for securing of deck drain pipes is included in Item 968.3. The contract unit bid price shall include sawcutting, pavement excavation, and membrane waterproofing.

HMA pavement will be paid for under Item 450.221. Asphalt Emulsion for Tack Coat will be paid for under Item 452.

ITEM 972.1**STRIP SEAL BRIDGE JOINT SYSTEM****FOOT**

The work under this Item shall conform to the relevant provisions of Subsection 901 and 972 of the Standard Specifications supplemented with the following:

The work shall consist of furnishing and installing strip seal bridge joint systems to replace existing armored compression joints at Bridge No. S-14-021 = W-44-115 (1RA & 1RB). This system shall consist of structural steel components, bolts, nuts, washers, lock washers, expansion anchors, preformed neoprene seal and lubricant-adhesive, and Ultra High-Performance Concrete (UHPC), all combined in the manner required by Contract Document and as detailed in the attached drawings so that a fully operational, waterproof system will seal the joint over which it is installed.

MATERIALS SURFACE PREPARATION AND INSTALLATION REQUIREMENTS:

All materials used for system components shall conform to the requirements of Subsection 972, unless otherwise modified herein or superseded by an approved procedure. The Contractor shall adhere to the construction methods specified in Subsection 972.

Ultra-High-Performance Concrete (UHPC) shall be Rapid Set UHPC Mortar, as manufactured and supplied by CTS Cement Manufacturing Corporation, Garden Grove, CA 92841, or an approved equal.

The concrete surface intended to receive the UHPC shall be clean and free of oil, asphalt, curing compounds, acids, and other bond-breaking materials. Surface preparation shall be carried out

using mechanical methods, such as shot blasting, to achieve an ICRI Concrete Surface Profile (CSP) between 3 and 5.

UHPC installation shall be performed strictly in accordance with the manufacturer's requirements, utilizing a coarse aggregate-extended mix design as specified by the manufacturer and approved by the Engineer. Only clean, dry coarse aggregate, sized 1/4" to 3/8" and conforming to ASTM C33, shall be used. High-performance aggregate such as trap rock, emery, or carborundum shall be used to ensure abrasion resistance, with an abrasion value of 15% or less in accordance with ASTM C131. All materials, as well as mixing and placing equipment, shall be supplied or approved by the UHPC manufacturer.

Steel fiber reinforcement shall conform to ASTM A820/A820M-04 and shall be specifically formulated for concrete reinforcement, such as SikaFiber 6513 or an approved equal.

The Contractor shall submit a detailed UHPC mix design and placement procedure to the Engineer for approval at least sixty (60) days prior to the commencement of joint installation. This submittal shall include, at a minimum, the following:

- Handling and storage of materials
- Surface preparation requirements
- Concrete production process
- Casting procedures

ITEM 972.1 (Continued)

- Finishing and curing requirements
- Considerations of hot and cold weather conditions
- Equipment and materials used
- Testing procedures and storage of test cylinders

Field casting of the Rapid set UHPC shall be performed under the direct supervision of a technical representative from the UHPC manufacturer.

TRIAL BATCHING:

The Contractor shall formulate a design mix, based upon performing trial mixes and testing witnessed by District Materials personnel, and submit it to the MassDOT Research and Materials Section for approval. The contractor shall notify District personnel when he intends on scheduling trial batches.

TESTING AND QUALITY CONTROL

The Contractor shall supply all necessary testing equipment, including a mini-slump cone, thermometers, sampling cubes or 3" × 6" cylinder molds, and a curing box.

Unless otherwise specified, all testing shall be performed by the Contractor using ACI-certified technicians. The Contractor shall record and report the mixing time, mixture temperature, and slump flow for each batch of UHPC as part of the daily field report.

PRODUCTION TESTING AND REPORTING

Compressive strength tests shall be performed on 3" X 6" cylinders at 4 hours, 24 hours, 14 and 28 days. Four cylinders shall be tested at each interval, for a total of 16 specimens. All cylinders shall be field-cured under the same environmental conditions as the joint header material during placement, except for the 14 and 28 day cylinders, which shall be standard-cured in accordance with the MassDOT Standard Specifications.

Cylinders shall be cast using material taken directly from the UHPC mix placed in the joint headers. Cylinder ends shall be prepared for testing (cut and/or ground) in accordance with AASHTO T-22.

The results of the Quality Control test shall be reported by the field technician promptly and directly to the Engineer in writing.

Traffic lanes should not be reopened until cylinder breaks provide verification that a minimum 3,000 psi compressive strength has been achieved. The minimum compressive strength shall be taken as an average of the breaks

The results of the Quality Control test shall be reported by the field technician promptly and directly to the Engineer in writing.

ITEM 972.1 (Continued)

Acceptance of the work will be based on the 14 or the 28 day average compressive strength of the concrete, which must be equal to or greater than 14,000 psi.

METHOD OF MEASUREMENT

Item 972.1 will be measured for payment by the Foot of strip seal bridge joint system, as measured along the joint centerline between curb lines complete in place. The additional plates, angles, and all related hardware required at the barriers shall be considered incidental to the work to be done under this item.

BASIS OF PAYMENT

Item 972.1 will be paid for at the Contract unit price per Foot, which price shall include all labor, materials, equipment, manufacturer's representatives, testing, and all incidental costs required to complete the work. The payment also covers all costs related to the casting of Ultra-High-Performance Concrete (UHPC), including expenses for a trial batching, technical representative, an ACI-certified technician, and all required testing.

Removal of existing joints and materials including steel armoring will be paid for under Item 127.42.

<u>ITEM 987.</u>	<u>SLOPE PAVING UNDER BRIDGE</u>	<u>SQUARE YARD</u>
<u>ITEM 987.02</u>	<u>SPECIAL SLOPE PAVING UNDER BRIDGE</u>	<u>SQUARE YARD</u>
	<u>REMOVED AND RESET</u>	

The Work under these Items shall conform to the relevant provisions of Subsections 150, 170 and 983 of the Standard Specifications and the following:

The work under Item 987. consists of furnishing and placing special slope paving under bridge as required by the Engineer. The work may include areas of missing or damaged existing special slope paving, or new areas where no paving was originally installed.

The work under Item 987.02 consists of resetting existing slope paving under bridge where Required by the Engineer.

MATERIALS

Materials shall meet the requirements specified in the following Subsection of Division III, in addition to those listed in Subsection 983.40:

M1.03.0 Gravel Borrow

The Engineer shall determine what type of special slope paving to be used in each area under repair. The various types to be considered are quarry stone, precast concrete blocks, or cement concrete, all of which will be firmly embedded on a six (6) inch gravel foundation. Generally, if more than 50% of the original special sloped paving is still in place it shall be replenished in kind. If less than 50% of the original special sloped paving is still in place, full replacement with concrete slope paving should be considered.

The thickness of the special slope paving shall be equal to the existing quarry stones, cement concrete blocks or cement concrete slabs, where present. The thickness of the special slope paving shall be six (6) inches where grouted hot mix asphalt paving or no paving is present throughout the embankment.

CONSTRUCTION METHODS

The new slope paving shall maintain the original undisturbed section of paved or unpaved slope.

Removal of Existing Slope Paving

For existing slope paving that has settled, has been displaced from its original position or otherwise directed to be removed by the Engineer, that is not designated to be reset under Item 987.02:

- Special slope paving quarry stones shall be removed from the site, transported to and stacked at the nearest MassDOT Maintenance Depot.
- Special slope paving concrete blocks and cement concrete slabs shall become the property of the Contractor and shall be removed and disposed of away from the site.
- Special slope paving consisting of cement grout over hot mix asphalt shall become the property of the Contractor and shall be removed and disposed of away from the site.

ITEMS 987. and 987.02 (Continued)**METHOD OF MEASUREMENT**

Item 987.01 will be measured for payment by the Square Yard of slope paving under bridge installed, complete in place.

Item 987.02 will be measured for payment by the Square Yard on the surface of the removed and reset paved slope, complete in place.

BASIS OF PAYMENT

Item 987. will be paid for at the Contract unit price per Square Yard, which price shall include all labor, materials, equipment, grading and compacting, removal and disposal/transportation of existing paving, and all incidental costs required to complete the work.

Item 987.02 will be paid for at the Contract unit price per Square Yard, which price shall include all labor, materials, equipment, grading and compacting, and all incidental costs required to complete the work.

The price for Item 987. shall be based on cement concrete special slope paving. If quarry stone or precast concrete blocks are required, the difference of the cost of material between cement concrete and the material used shall be compensated under Payment for Materials (Non-Bid Items).

<u>ITEM 992.1</u>	<u>ALTERATION TO BRIDGE STRUCTURE</u> <u>NO. S-14-021=W-44-115 (1RA)</u>	<u>LUMP SUM</u>
<u>ITEM 992.2</u>	<u>ALTERATION TO BRIDGE STRUCTURE</u> <u>NO. S-14-021=W-44-115 (1RB)</u>	<u>LUMP SUM</u>

The work under these Items shall conform to the relevant provisions of Subsection 995 of the Standard Specifications and the specific requirements stipulated below for the component parts of these Items. For those component parts where no specific requirement is stipulated, the Standard Specifications shall apply except for payment.

The work under these Items shall include all materials, equipment, and labor necessary to satisfactorily complete the alteration of the bridge through the construction of the following elements:

- Survey (vertical and horizontal controls) (Paid under Item 100.9)
- Cast-in-place concrete deck overhangs
- CF - MTL 5 bridge barrier
- Modification of parapet on wingwalls to the CF - MTL 5 barrier shape
- Steel reinforcement
- Drilling and grouting dowels
- Precast Highway Guardrail Transitions
- Waterproofing membrane
- Installing Superpave Bridge Protective course

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 its construction and are not specifically included for payment under another Item shall be considered incidental to the work performed under the alteration items and shall be included in the unit price of the component for which they are a part.

5000 PSI, 3/4 INCH, 685 HP CEMENT CONCRETE
5000 PSI, 3/8 INCH, 710 HP CEMENT CONCRETE

The work to be done under this Heading shall conform to the relevant provisions of Subsection 901 of the Standard Specifications, supplemented and amended as follows:

All concrete used for the reconstruction of deck overhangs (both full and partial depth placements), shall be 5000 PSI, 3/8 INCH, 710 HP CEMENT CONCRETE.

All concrete used for the construction of the cast-in-place concrete (CF - MTL5) barrier on the bridge, and the cast-in-place concrete (CF Barrier) parapet on the wingwalls shall be 5000 PSI, 3/4 INCH, 685 HP CEMENT CONCRETE.

Included in the work are the furnishing and installation of performed fillers and other items incidental to the furnishing and placing of concrete. All other work covered in the Schedule of Basis for Partial Payments or for which payment is not provided elsewhere in the Contract shall be considered as

ITEMS 992.1 and 992.2 (Continued)

included in the unit price per cubic yard of concrete, as stated by the Contractor and approved by the Engineer, in the respective "Basis for Partial Payment".

STEEL REINFORCEMENT FOR STRUCTURES – EPOXY COATED

The work to be done under this Heading shall conform to the relevant provisions of Subsection 901 of the Standard Specifications, supplemented and amended as follows:

Included in the work furnishing and installation of all new reinforcing steel required for the reconstruction of the bridge overhangs, as well as for the construction of cast-in-place (CF) barriers and parapets. It also includes the replacement of any damaged existing reinforcing steel within the limits of the deck overhang reconstruction.

All new reinforcing steel shall be ASTM 615 Grade 60 unless otherwise noted on the drawings.

All requirements of Subsection 901.62 Reinforcement shall be adhered to including but not limited to lapping at splices and ties at every other intersection.

DRILLING AND GROUTING DOWELS

The work to be done under this Heading shall conform to the relevant provisions of Subsection 901 of the Standard Specifications, supplemented and amended as follows:

The work shall consist of drilling holes, furnishing, installing, and grouting of steel dowel reinforcement at the locations shown on the drawings or as required by the Engineer.

The dowel embedment must be adequate to fully develop 125% of the yield strength of the bar. The embedment length, the method and equipment used to drill the dowel holes, and the diameter of the drilled hole shall at a minimum conform to the recommendations of the manufacturer and be submitted to the Engineer for approval.

MATERIALS

The grout to be used for these dowels shall be selected from the MassDOT Qualified Construction Materials List for its specific application. Reinforcing steel dowels shall meet the requirements of AASHTO M31 Grade 60. All reinforcing steel dowels shall be epoxy coated in accordance with AASHTO M284. Reinforcing steel dowels shall be incidental to the work under this Item.

CONSTRUCTION METHODS

All dowel holes shall be air drilled provided that the minimum edge distance of 6 inches is observed. Should, in the Engineer's opinion, air drilling be inappropriate due to questionable strength of the existing /concrete or insufficient edge distance, the dowel holes shall be diamond core drilled. The inner surfaces of the diamond core drilled dowel hole's inner surfaces shall be

ITEMS 992.1 and 992.2 (Continued)

subject to the approval of the Engineer. The diameter of the drilled dowel holes shall be in accordance with the recommendations of the grout manufacturer. The holes shall be blown clear of any debris and shall have the approval of the Engineer prior to the placement of any grout material. The drilling operation shall be performed without damage to any portion of the existing structure that is to remain in place.

Any damage to any portion of the existing structure that is to remain in place shall be repaired to a condition equal to or better than that existing prior to the beginning of the Contractor's operations and shall be repaired at the Contractor's expense.

The Contractor shall strictly follow the recommendations of the manufacturer for mixing and placing the grout material prior to the placement of the dowel. The Contractor shall adhere to the recommendations of the manufacturer regarding minimum and maximum temperatures while placing the grout. Any excessive grout around the hole after placement of the dowel shall be struck off smooth while the grout is still fresh.

The Contractor shall perform on site a minimum of two (2) tests of the dowels (one test for each side of stage construction) for capacity in tension in each location or component. The test shall be performed in the presence of and to the satisfaction of the Engineer. The testing, including the necessary material and equipment to perform the test, is incidental to the work under this Item. The pullout force shall correspond to 90% of the yield strength of the bar. If the test bar pulls out or if the concrete utilized in the test shows signs of fracture, the Contractor shall adjust the hole diameter, embedment length, and/or grout material to meet this requirement. The method of applying the tension load to the dowels shall conform to ASTM E488. Details of the test procedure, materials, and equipment shall be submitted to the Engineer for review and approval prior to commencement of the test. Dowels shall not be ordered until the embedment lengths have been approved by the Engineer.

The Contractor shall arrange with the material's manufacturer or distributor to have the services of a competent field representative at the work site prior to any drilling of the proposed dowel holes to instruct the work crews in proper dowel installation procedures. The field representative shall remain at the job site after work commences and continue to instruct until the representative, the Contractor, and Engineer are satisfied that the crew has mastered the technique of installing the dowels successfully. The representative shall make periodic visits to the project as the work progresses and shall confer on each visit with the Contractor, Inspector and/or Engineer. The manufacturer's field representative must be fully qualified to perform the work and shall be subject to the approval of the Engineer.

The Contractor shall be completely responsible for the expense of the service of the required field representative and the contract unit price shall be considered full compensation for all costs in connection therewith.

ITEMS 992.1 and 992.2 (Continued)**PRECAST CONCRETE HIGHWAY GUARDRAIL TRANSITION**

The work under this Heading consists of fabricating, transporting and installing a MassDOT Standards Precast Concrete Highway Guardrail Transitions and includes all necessary labor, materials, and equipment to complete the work as shown on the drawings. The Precast Concrete Highway Guardrail Transitions shall meet the requirements of Section M4: Cement Concrete and Related Materials, except as noted or supplemented herein.

MATERIALS

Materials shall conform to M4.09.1 and the following:

Controlled Low-Strength Material – Structural Non-Excavatable	M4.08.0
Lifting Devices	PCI MNL-116

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.

CONSTRUCTION METHODS – PLANT FABRICATION**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.

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.

ITEMS 992.1 and 992.2 (Continued)**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.

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**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 subplot.
- (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.

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

ITEMS 992.1 and 992.2 (Continued)

Massachusetts with working knowledge of the Contractor's equipment, approved shop drawings, and materials to build the bridge.

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.

Once the precast concrete Highway guardrail transition has been set to the correct horizontal and vertical alignment, the supporting soil shall be filled with Controlled Low-Strength Material – Structural Non-Excavatable to the limits as shown on the plans.

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.

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 an additional independent survey. If discrepancies are found, the Contractor may be required to verify previous survey data.

Preparation of Closure Pours and Grouted Keyways

Immediately prior to erecting the precast concrete Highway guardrail transition, 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.

ITEMS 992.1 and 992.2 (Continued)**Erection**

The Contractor may use shims to maintain proper setting tolerances.

The precast concrete highway guardrail transition 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.

MEMBRANE WATERPROOFING FOR BRIDGE DECKS

The work under this Heading shall conform to the relevant provisions of Subsection 966 of the Standard Specifications, supplemented and amended as follows:

Included in the work furnishing and installation of a waterproofing membrane to protect the new concrete surfaces of the reconstructed bridge deck overhangs.

BASIS OF PAYMENT

Items 992.1 and 992.2 will be paid for at the respective Contract unit price per Lump Sum, which prices shall include all labor, materials, equipment, and all incidental costs required to complete the work.

SCHEDULE OF BASIS FOR PARTIAL PAYMENT

Within ten (10) days after the Notice to Proceed, the Contractor shall submit on his/her proposal form a schedule of unit prices for the major component Sub-Items that make up Item 992.1 ALTERATION OF BRIDGE STRUCTURE NO. S-14-021=W-44-115 (1RA) and 992.2 ALTERATION OF BRIDGE STRUCTURE NO. S-14-021=W-44-115 (1RB) as well as his/her total bridge structure Lump Sum bid price.

The bridge structure alteration Lump Sum breakdown quantities provided in the proposal form 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 shall be considered incidental to Items 992.1 and 992.2 And no further compensation will be allowed.

ITEMS 992.1 and 992.2 (Continued)**BRIDGE STRUCTURE S-14-021=W-44-115 (1RA)**

<u>Sub- Item</u>	<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Total</u>
450.701	SUPERPAVE BRIDGE PROTECTIVE COURSE - 9.5 POLYMER (SPC-B - 9.5 - P)	175	TON		
904.3	5000 PSI, 3/4 IN., 685 HP CEMENT CONCRETE	300	CY		
904.31	PRECAST CONCRETE BRIDGE TRANSITION (END POST)	4	EA		
905.2	5000 PSI, 3/8 IN., 710 HP CEMENT CONCRETE	330	CY		
910.1	STEEL REINFORCEMENT FOR STRUCTURES – EPOXY COATED	141500	LB		
912.	DRILLING AND GROUTING DOWELS	190	EA		
965.	MEMBRANE WATERPROOFING FOR BRIDGE DECKS	1600	FT		
TOTAL LUMP SUM FOR ITEM 992.1 =					

BRIDGE STRUCTURE S-14-021=W-44-115 (1RB)

<u>Sub- Item</u>	<u>Description</u>	<u>Qty.</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Total</u>
450.701	SUPERPAVE BRIDGE PROTECTIVE COURSE - 9.5 POLYMER (SPC-B - 9.5 - P)	175	TON		
904.3	5000 PSI, 3/4 IN., 685 HP CEMENT CONCRETE	320	CY		
904.31	PRECAST CONCRETE BRIDGE TRANSITION (END POST)	4	EA		
905.2	5000 PSI, 3/8 IN., 710 HP CEMENT CONCRETE	330	CY		
910.1	STEEL REINFORCEMENT FOR STRUCTURES – EPOXY COATED	150000	LB		
912.	DRILLING AND GROUTING DOWELS	460	EA		
965.	MEMBRANE WATERPROOFING FOR BRIDGE DECKS	1600	FT		
TOTAL LUMP SUM FOR ITEM 992.1 =					

<u>ITEM 994.01</u>	<u>TEMPORARY PROTECTIVE SHIELDING</u>	<u>LUMP SUM</u>
	<u>BRIDGE NO. S-14-021=W-44-115 (1RA) - OUTSIDE FASCIA</u>	
<u>ITEM 994.02</u>	<u>TEMPORARY PROTECTIVE SHIELDING</u>	<u>LUMP SUM</u>
	<u>BRIDGE NO. S-14-021=W-44-115 (1RB) - OUTSIDE FASCIA</u>	

The work under these Items include the design, supply, and installation of a protective shielding system on the exterior of the bridge to facilitate the reconstruction of deck overhangs, barriers, and joints. The shielding system shall protect vehicular and pedestrian traffic, as well as waterways below, from falling debris, while also providing safe and secure access for construction personnel.

A shielding system shall be provided to allow concurrent work on both structures during construction.

The Contractor shall submit detailed drawings and supporting calculations of the proposed temporary shielding to the Engineer for approval prior to installation. All submissions shall be stamped by a Professional Engineer of the appropriate discipline registered in Massachusetts. The drawings shall clearly indicate all connections, brackets, and fasteners. The shielding shall be designed to safely withstand all anticipated loads and shall comply with all applicable safety standards. Allowable design stresses shall conform to nationally recognized specifications appropriate to the materials used.

The shielding shall also conform to the following:

Shielding shall be designed and installed in a manner that minimizes disruption to traffic during construction activities.

The shielding shall extend the full length of the bridge, or to a length deemed sufficient by the Engineer, based on site conditions and safety requirements.

All gaps along the perimeter and at seams shall be fully sealed to prevent dust, debris, or other materials from escaping and falling onto traffic or areas below the bridge.

The Contractor may utilize existing steel beams as support for the shielding system; however, welding, drilling, or cutting into any structural members is strictly prohibited unless prior written approval is obtained from the Engineer. Any damage done to the existing girders or diaphragms shall be repaired by the Contractor at his own expense.

BASIS OF PAYMENT

Items 994.01 and 994.02 will be paid for at the respective Contract Lump Sum unit price, which prices shall include all labor, materials, equipment, repairs, maintenance, removal, resetting of shielding, engineering services, submittals, and all incidental costs required to complete the work.

*****END OF DOCUMENT*****

DOCUMENT A00803

DRAWINGS AND SKETCHES

THIS PAGE IS INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

TABLE OF CONTENTS	1 – 3
LOCUS MAP	4
GENERAL NOTES	5
PROJECT MILL AND PAVE LIMITS	6
KEY PLAN	7 – 8
DECK REPAIR NOTES	9
DECK REPAIR DETAILS	10
TYPICAL MINOR SPALL AND DETERIORATED REINFORCEMENT STEEL REPAIR	11
JOINT RECONSTRUCTION NOTES	12 – 13
EXISTING JOINT AT WEST ABUTMENT	14
PROPOSED STRIP SEAL JOINT AT WEST ABUTMENT	15
EXISTING COMPRESSION SEAL JOINT AT PIER #1	16
PROPOSED STRIP SEAL JOINT AT PIER #1	17
PROPOSED STRIP SEAL JOINT AT BARRIER – PLAN VIEW	18
STRIP SEAL JOINT DETAIL	19 – 22
STRIP SEAL JOINT NOTES	23
PROPOSED STRIP SEAL JOINT CONSTRUCTION SEQUENCE AND NOTES	24
PROPOSED TROUGH ALTERATION AT EAST ABUTMENT	25
TROUGH ALTERATION DETAIL	26 – 28
PROPOSED BARRIER AND DECK EXCAVATION/DEMOLITION LIMITS	29 – 30
PROPOSED BARRIER AND DECK RECONSTRUCTION LIMITS	31
PROPOSED BARRIER AND DECK RECONSTRUCTION LIMITS (AT SCUPPER)	32
PROPOSED SCUPPER REPLACEMENT DETAILS	33
DOWNSPOUT DETAIL	34
ROADWAY LIGHTING ASSEMBLY DETAIL	35 – 36
CF-MLT5 BARRIER TRANSITION AND PRECAST HIGHWAY GUARDRAIL NOTES	37



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: TABLE OF CONTENTS – 1

SHEET: 1 OF 87

DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026

TABLE OF CONTENTS (CONT.,)

PROPOSED EXCAVATION LIMITS AT ENDPST	38
BARRIER EXCAVATION AND CF-MTL5 BRIDGE BARRIER RETROFIT AT WINGWALL	39
HIGHWAY GUARDRAIL TRANSITION – TYPE I	40
END POST AT MEDIAN – WEST ABUTMENT	41
PROPOSED PRECAST HIGHWAY GUARDRAIL TRANSITION AT MEDIAN – SECTION VIEW WEST ABUTMENT	42
END POST AT MEDIAN – EAST ABUTMENT	43
PROPOSED PRECAST HIGHWAY GUARDRAIL TRANSITION AT MEDIAN – SECTION VIEW EAST ABUTMENT	44
HIGHWAY GUARDRAIL TRANSITION – TYPE II	45
PRECAST HIGHWAY GUARDRAIL	46 – 47
PRECAST GUARDRAIL SECTION 9	48
BARRIER RETROFIT SECTION 10 AND 11	49
BARRIER RETROFIT SECTION 12 AND 13	50
PRECAST GUARDRAIL TRANSITION ELEVATION	51
GUARDRAIL TRANSITION SECTION 14 AND 15	52
GUARDRAIL TRANSITION GRADING REQUIREMENTS	53 – 55
PARAFFIN JOINT DETAIL	56
DECK DRAIN NOTES	57
PROPOSED DECK DRAIN	58
ELASTOMERIC PROTECTIVE COATING NOTES	59
LIMITS OF ELASTOMERIC COATING	60 – 61
JOINT PROTECTION PLATE FOR BRIDGE JOINT REPAIR – SECTION VIEW AT ABUTMENT	62
JOINT PROTECTION PLATE FOR BRIDGE JOINT REPAIR – SECTION VIEW AT PIER	63
JOINT PROTECTION PLATES NOTES	64
JOINT PROTECTION PLATE	65
CATWALK GRATING REMOVAL	66
MISCELLANEOUS DETAILS	67 – 68



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: TABLE OF CONTENTS – 2

SHEET: 2 OF 87

DRAWN BY: ME

DATE: 9/1/2026

CHECKED BY: JON

DATE: 9/1/2026

TABLE OF CONTENTS (CONT.,)

GENERAL CONSTRUCTION SEQUENCE	69 – 71
SUGGESTED STAGING SEQUENCE	72 – 77
TEMPORARY TRAFFIC CONTROL PLAN	78 – 81
SUGGESTED DETOUR PLAN	82 – 83
CONSTRUCTION SIGN SUMMARY	84 – 87



DISTRICT 3
BRIDGE SECTION

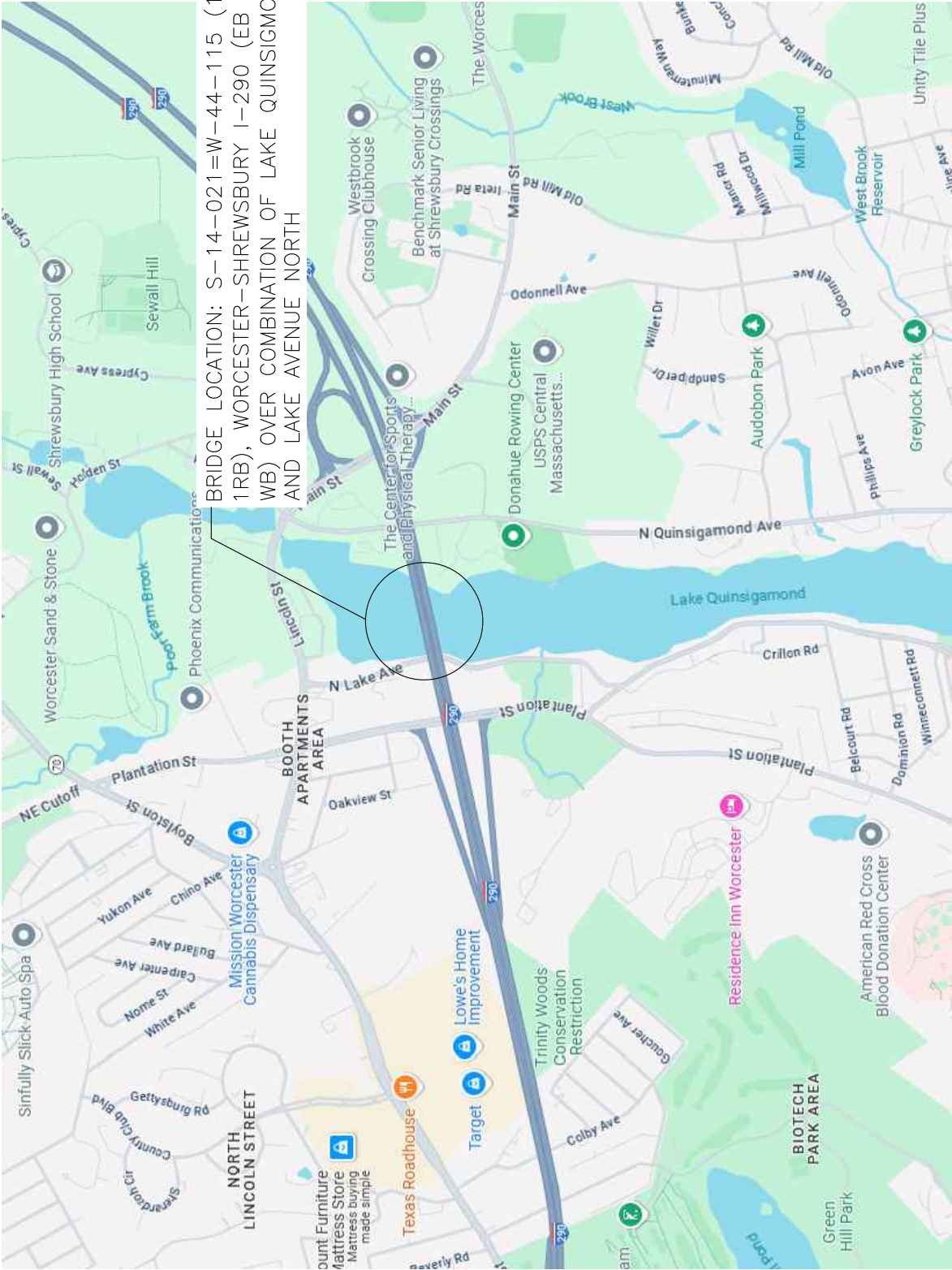
PROJECT: 612874, SHREWSBURY–WORCESTER–BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: TABLE OF CONTENTS – 3

SHEET: 3 OF 87

DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026



LOCUS MAP

SCALE: N.T.S.

 DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH	SHEET: 4 OF 87
	SUBJECT: LOCUS MAP	DRAWN BY: ME
		DATE: 9/1/2026
		CHECKED BY: JON
	DATE: 9/1/2026	
2026.DWG		

GENERAL NOTES:

1. THE WORK SHALL BE DONE IN ACCORDANCE WITH THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION "2026 STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES".
2. THE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON FIELD INSPECTION AND OTHER DOCUMENTATION AVAILABLE AT THE TIME OF DESIGN, INCLUDING ORIGINAL BRIDGE DESIGN PLANS. THE CONTRACTOR SHALL FIELD VERIFY ACTUAL FIELD CONDITIONS THAT MAY REQUIRE MODIFICATIONS TO CONSTRUCTION DETAILS AND WORK QUANTITIES. THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH THESE DRAWINGS. ALL MODIFICATIONS TO ADDRESS FIELD CONDITIONS SHALL BE APPROVED BY THE ENGINEER.
3. THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE ACCURACY AND FIT OF THE WORK AND THUS SHALL DETERMINE WHAT MEASUREMENTS ARE REQUIRED. WHERE REQUIRED, THE CONTRACTOR SHALL DEVELOP SHOP DRAWINGS UTILIZING THE FIELD MEASUREMENTS OF THE REPLACEMENT AND REPAIR AREAS TO CONFORM THE BRIDGE COMPONENTS AND ALL OTHER REPAIR DIMENSIONS. THE CONTRACTOR SHALL NOT ORDER ANY MATERIALS OR BEGIN FABRICATIONS UNTIL THE SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED BY THE ENGINEER.
4. AREAS OUTSIDE THE LIMITS OF THE PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
5. TEMPORARY TRAFFIC CONTROLS PLANS (TTCP) FOR THIS WORK SHALL CONFORM TO APPLICABLE MASSDOT CONSTRUCTION STANDARD DETAILS, WORK ZONE STANDARD DETAILS, AND SUBSECTION 7.10 – TRAFFIC MANAGEMENT PLAN, OF THE STANDARD SPECIFICATION. THE CONTRACTOR WILL BE REQUIRED TO COMPLY WITH THE DEPARTMENT'S SOP CSD-23-17-1-000 FOR COORDINATION, REVIEW, AND APPROVAL OF PROJECT'S TTCPs.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER DISPOSAL OF ALL EXISTING MATERIALS TO BE REMOVED FROM THE STRUCTURE AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE SPECIFICATIONS.
7. THE EXISTING BRIDGE PLANS ARE AVAILABLE FOR REVIEW AT THE DISTRICT OFFICE OF THE BRIDGE DESIGN SECTION. PLANS SHOULD BE MADE AVAILABLE VIA BIDX OR THROUGH ELECTRONIC TRANSMISSION.
8. THE CONSTRUCTION PHASING MUST ACCOUNT FOR PEDESTRIAN AND BICYCLE ACCESS ALONG NORTH LAKE AVENUE THROUGHOUT CONSTRUCTION, IN ACCORDANCE WITH M.G.L. PART I, TITLE XIV, CHAPTER 90E, SECTION 2A. ALL TEMPORARY PEDESTRIAN CONTROLS SHALL COMPLY WITH PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG) REQUIREMENTS.



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: GENERAL NOTES

SHEET: 5 OF 87

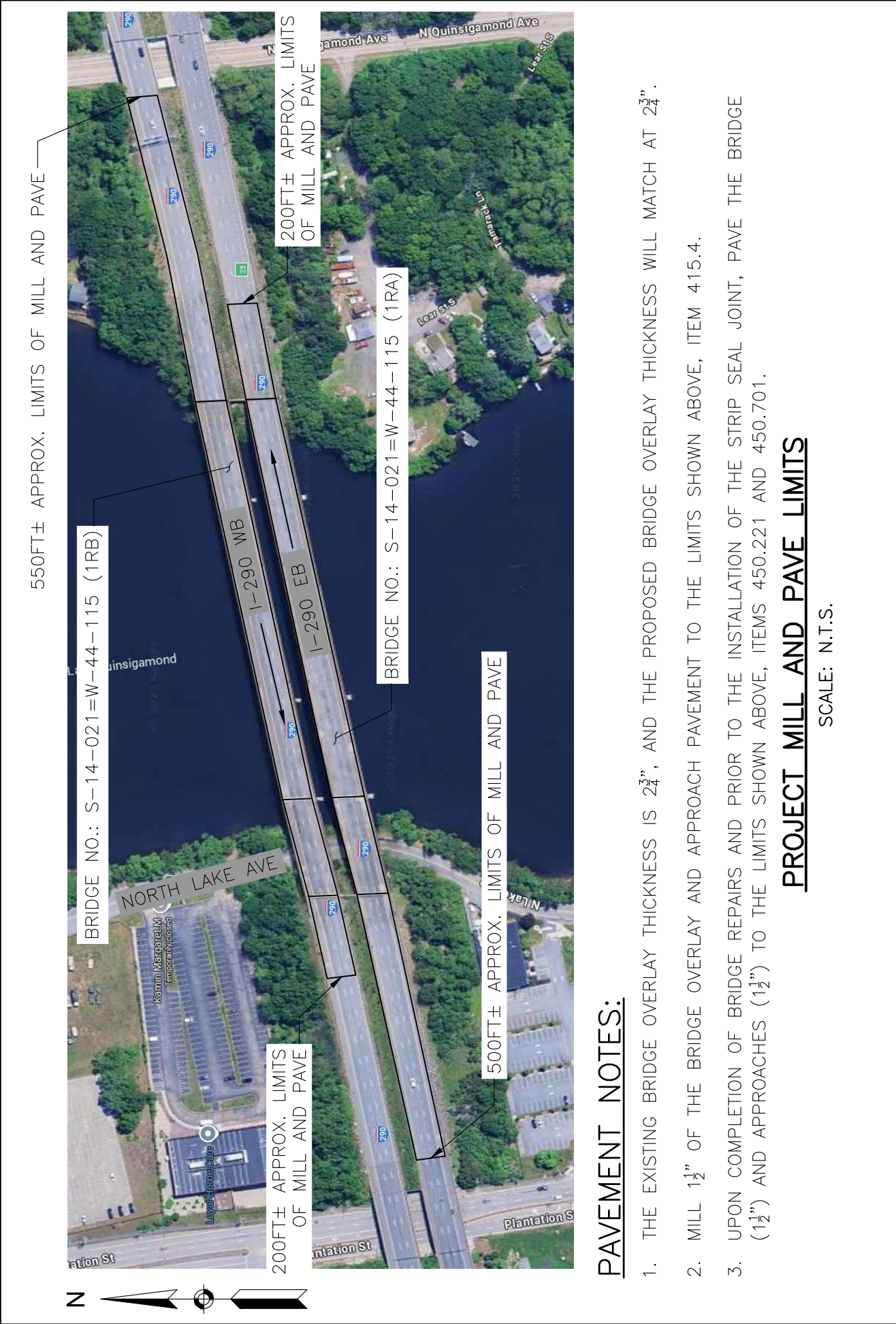
DRAWN BY: ME

DATE: 9/1/2026

CHECKED BY: JON

DATE: 9/1/2026

S:\03\BRIDGE\DESIGN-REVIEW\PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG



PAVEMENT NOTES:

- 1. THE EXISTING BRIDGE OVERLAY THICKNESS IS 2 3/4", AND THE PROPOSED BRIDGE OVERLAY THICKNESS WILL MATCH AT 2 3/4" .
- 2. MILL 1 1/2" OF THE BRIDGE OVERLAY AND APPROACH PAVEMENT TO THE LIMITS SHOWN ABOVE, ITEM 415.4.
- 3. UPON COMPLETION OF BRIDGE REPAIRS AND PRIOR TO THE INSTALLATION OF THE STRIP SEAL JOINT, PAVE THE BRIDGE (1 1/2") AND APPROACHES (1 1/2") TO THE LIMITS SHOWN ABOVE, ITEMS 450.221 AND 450.701.

PROJECT MILL AND PAVE LIMITS

SCALE: N.T.S.

 DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH		SHEET: 6 OF 87
	SUBJECT: PROJECT MILL AND PAVE LIMITS		DRAWN BY: ME DATE: 9/1/2026 CHECKED BY: JON DATE: 9/1/2026



1. ESTABLISH BOTH HORIZONTAL AND VERTICAL CONTROL POINTS FOR THE RECONSTRUCTION OF BRIDGE BARRIERS, PARAPETS, AND TRANSITIONS.
2. THE RECONSTRUCTION OF THE DECK OVERHANGS AND THE CONSTRUCTION OF NEW BARRIERS SHALL PRESERVE AND MATCH THE LOCATIONS OF THE EXISTING CURB LINES.

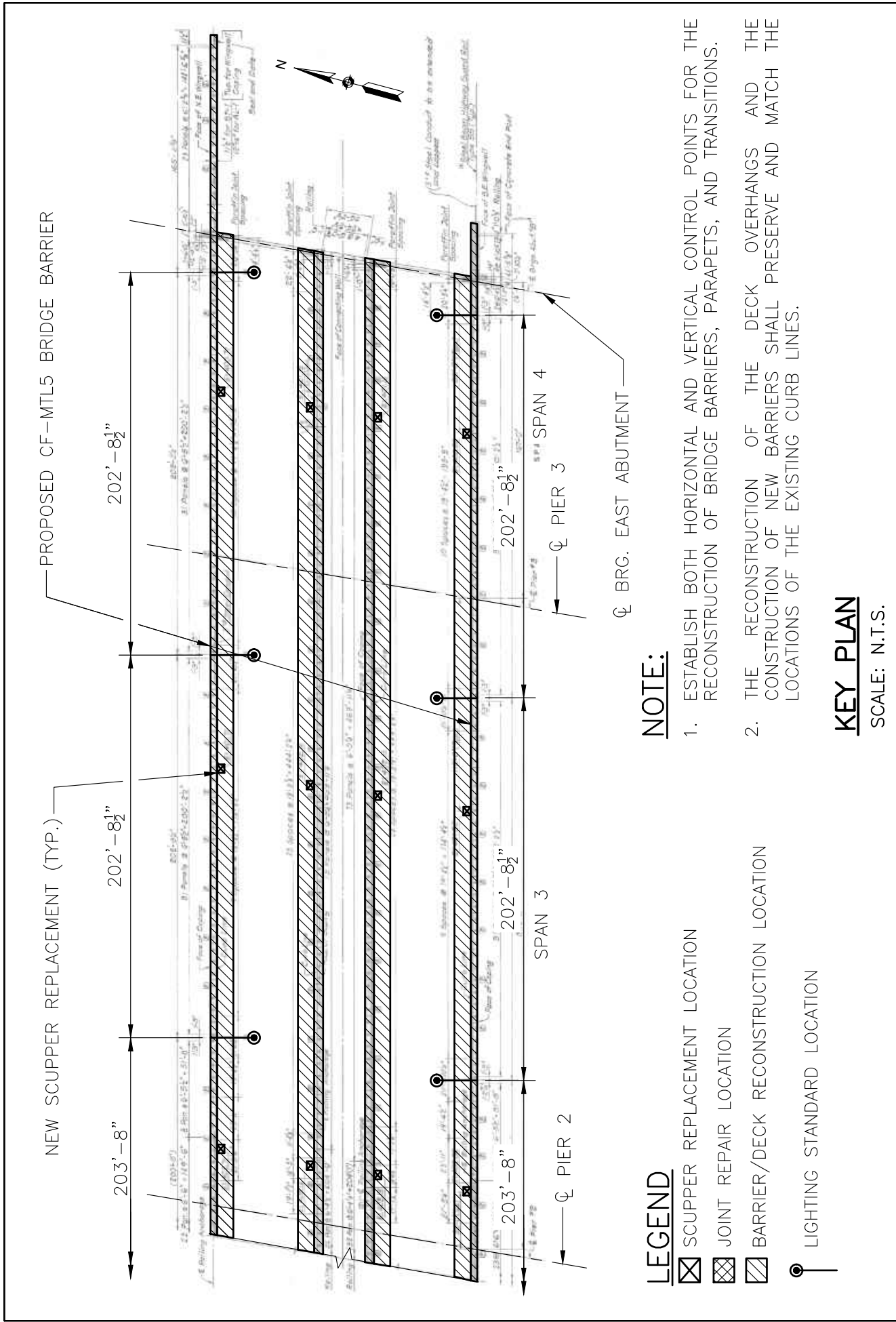
KEY PLAN

SCALE: N.T.S.

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: KEY PLAN - 1

SHEET: 7 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026



LEGEND

- SCUPPER REPLACEMENT LOCATION
- JOINT REPAIR LOCATION
- BARRIER/DECK RECONSTRUCTION LOCATION
- LIGHTING STANDARD LOCATION

NOTE:

1. ESTABLISH BOTH HORIZONTAL AND VERTICAL CONTROL POINTS FOR THE RECONSTRUCTION OF BRIDGE BARRIERS, PARAPETS, AND TRANSITIONS.
2. THE RECONSTRUCTION OF THE DECK OVERHANGS AND THE CONSTRUCTION OF NEW BARRIERS SHALL PRESERVE AND MATCH THE LOCATIONS OF THE EXISTING CURB LINES.

KEY PLAN

SCALE: N.T.S.



PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: KEY PLAN - 2

SHEET: 8 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026

DECK REPAIR NOTES:

1. FULL-DEPTH AND PARTIAL-DEPTH DECK REPAIRS SHALL BE AS DIRECTED BY THE ENGINEER. THIS INCLUDE REPLACING DETERIORATED DECK CONCRETE AND EXISTING TEMPORARY CONCRETE PATCHES, SUCH AS DURACAL PATCHES, WITH NEW CONCRETE.
2. EXISTING DECK CONCRETE PATCHES IN SOUND CONDITION SHALL NOT BE REMOVED UNLESS OTHERWISE DIRECTED OR DETERMINED BY THE ENGINEER.
3. CONCRETE EXCAVATION ASSOCIATED WITH THE BRIDGE DECK REPAIRS SHALL BE PAID FOR UNDER ITEM 127.4, REINFORCED CONCRETE DECK EXCAVATION (FULL DEPTH), AND/OR ITEM 127.41, REINFORCED CONCRETE DECK EXCAVATION (PARTIAL DEPTH).
4. ALL CONCRETE USED IN THE DECK REPAIRS (OUTSIDE THE PROTECTED WORKZONE) SHALL BE RAPID SETTING LOW PERMEABILITY CONCRETE (ITEM 909.3). THE CONCRETE FOR DECK REPAIRS SHALL BE BROUGHT FLUSH WITH EXISTING DECK SURFACE. ANY TEMPORARY PATCHING OF THE WEARING SURFACE SHALL BE PAID UNDER HMA FOR PATCHING (ITEM 451.).
5. ALL EXISTING STEEL REINFORCEMENT SHALL REMAIN IN PLACE. NEW EPOXY COATED STEEL REINFORCEMENT SHALL BE PLACED TO SUPPLEMENT EXISTING REINFORCEMENT THAT HAS A SECTION LOSS OF 25% OR MORE OF THE ORIGINAL CROSS SECTION AREA OR HAS BROKEN, AS DETERMINED BY THE ENGINEER. NEW REINFORCEMENT SHALL EXTEND 30 BAR DIAMETERS IN EACH DIRECTION FROM WHERE THE SECTION LOSS OR BREAK ENDS. THE LIMITS OF THE REPAIR SHALL BE MODIFIED TO MEET THE REINFORCEMENT STEEL LAP SPlice REQUIREMENTS. NEW REINFORCING STEEL SHALL BE PLACED AT THE SAME LEVEL ALONGSIDE THE EXISTING DETERIORATED OR BROKEN REINFORCING STEEL.
6. ALL NEW REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M31 GRADE 60, UNLESS OTHERWISE NOTED ON THE PLANS. ALL NEW REINFORCING STEEL SHALL BE EPOXY COATED.
7. EXCEPT AS NOTED OR OTHERWISE DIRECTED BY THE ENGINEER, ALL BRIDGE DECK REPAIRS SHALL BE COMPLETED PRIOR TO PAVING THE BRIDGES.
8. ALL EXISTING REINFORCEMENT STEEL AND CONCRETE SURFACES THAT ARE TO BE IN CONTACT WITH REPAIR CONCRETE SHALL BE ABRASIVELY BLAST CLEANED IN ORDER TO REMOVE ALL RUST, OIL, AND DEBRIS THAT IS NOT TIGHTLY ADHERED, FOLLOWED BY APPLICATION OF COMPRESSED AIR TO REMOVE ALL DUST. EXISTING CONCRETE REPAIR SURFACES THAT WILL BE IN CONTACT WITH REPAIR CONCRETE SHALL BE PRE-WETTED FOR A MINIMUM OF 15 MINUTES USING POTABLE WATER IN PLACEMENT OF REPAIR CONCRETE.



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: DECK REPAIR NOTES

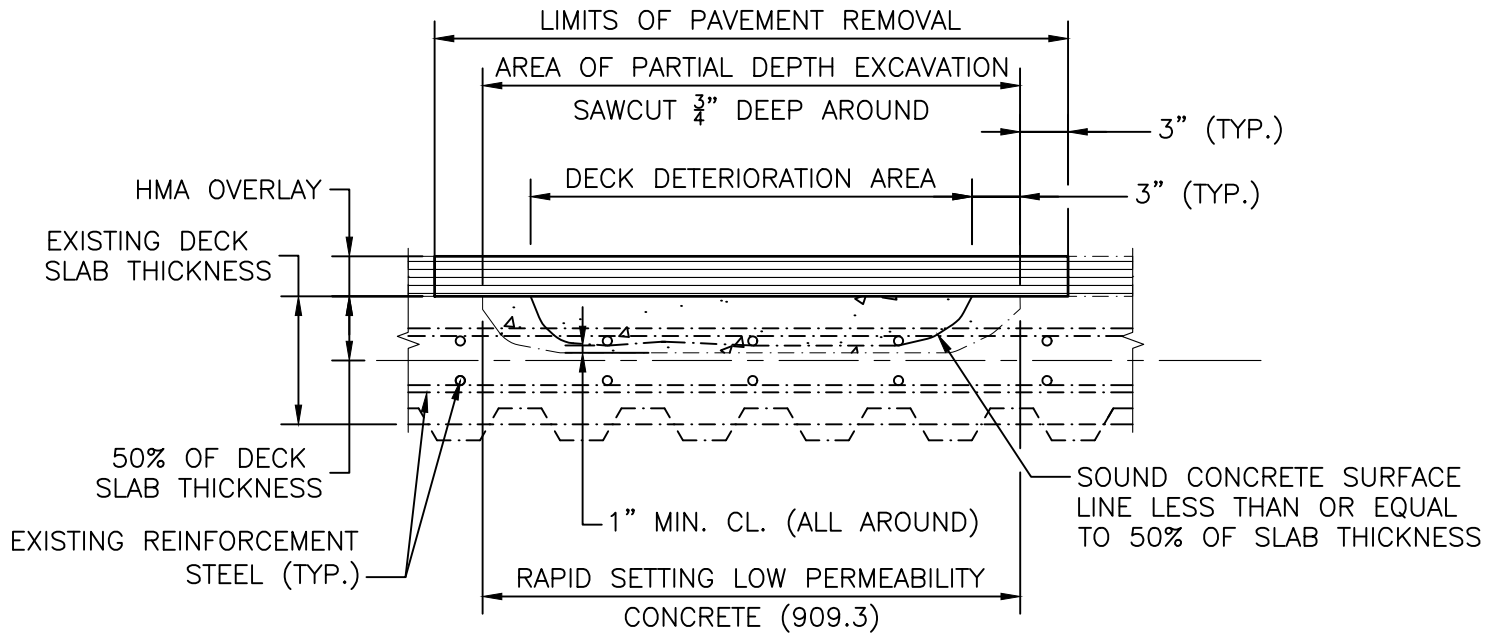
SHEET: 9 OF 87

DRAWN BY: ME

DATE: 9/1/2026

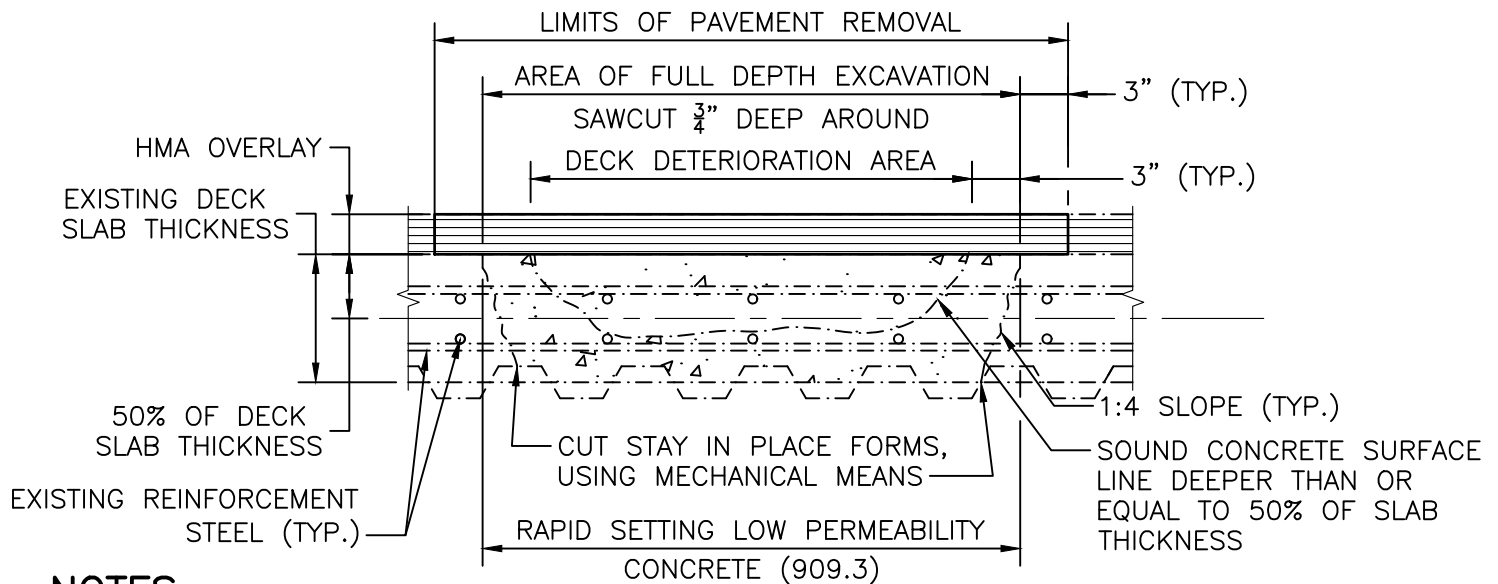
CHECKED BY: JON
DATE: 9/1/2026

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26.DWG - 2 MAIN 2026.DWG



TYPICAL PARTIAL DEPTH DECK REPAIR DETAIL

SCALE: 1" = 1'-0"



NOTES:

1. UNLESS OTHERWISE APPROVED BY THE ENGINEER, REMOVE THE EXISTING STAY-IN-PLACE (SIP) FORMS TRANSVERSELY BETWEEN STRINGER SUPPORTS AND EXTEND REMOVAL 12" LONGITUDINALLY BEYOND THE LIMITS OF DISTRESS TO ENSURE NO SIP FORM REMAINS UNSUPPORTED.
2. FOR FULL-DEPTH DECK REPAIRS, THE CONTRACTOR SHALL MAINTAIN THE SLAB'S EFFECTIVE DEPTH BY PROVIDING A FORM DESIGN THAT MATCHES THE STAY-IN-PLACE PROFILE (CORRUGATIONS). THE FORM DESIGN SHALL BE SUBMITTED FOR THE ENGINEER'S APPROVAL.

TYPICAL FULL DEPTH DECK REPAIR DETAIL

SCALE: 1" = 1'-0"

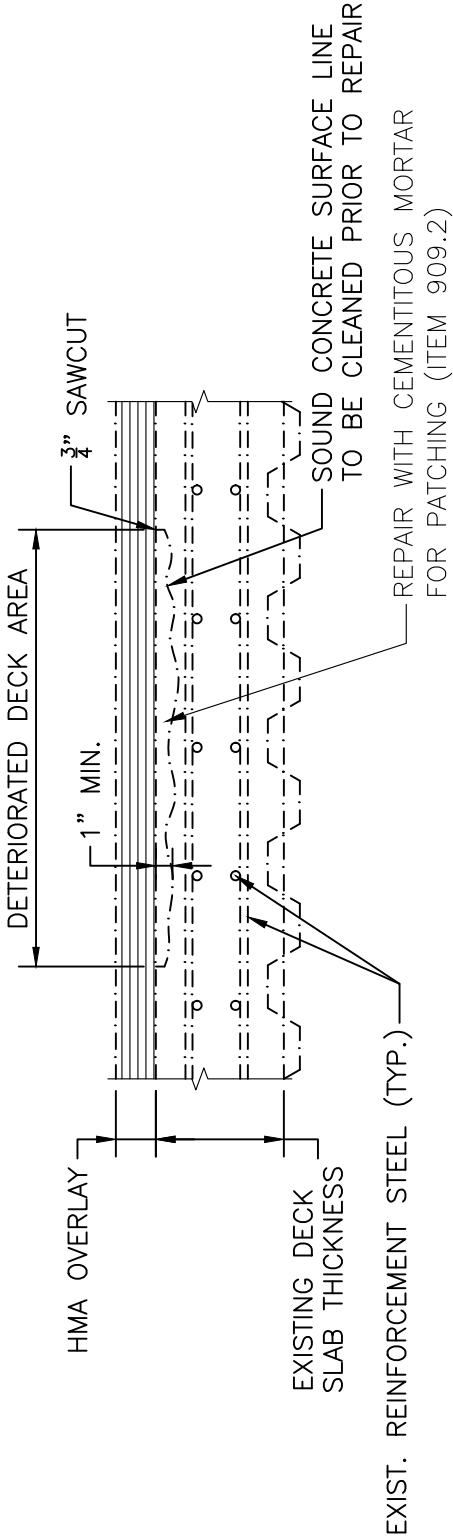


DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: DECK REPAIR DETAILS

SHEET: 10 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026

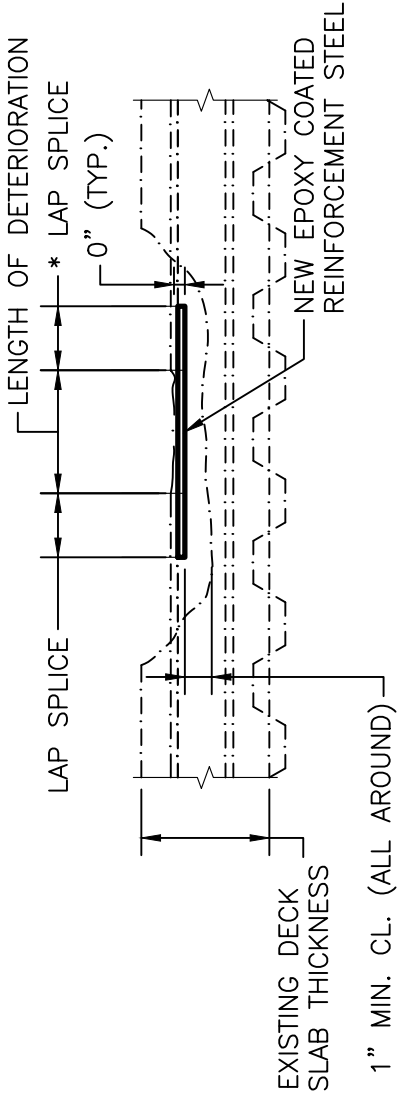


NOTE:

IF REINFORCING BARS ARE EXPOSED, THEN COMPLETE REPAIR AS A PARTIAL DEPTH REPAIR WITH 1" EXCAVATED BENEATH THE EXPOSED BARS.

TYPICAL MINOR SPALL REPAIR

SCALE: 1" = 1'-0"



TYPICAL DETERIORATED REINFORCEMENT STEEL REPAIR

SCALE: 1" = 1'-0"



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: TYPICAL MINOR SPALL AND DETERIORATED REINFORCEMENT STEEL REPAIR

SHEET: 11 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026

JOINT RECONSTRUCTION NOTES:

1. UNLESS NOTED OTHERWISE THE FINAL TRANSVERSE, LONGITUDINAL, AND DEPTH LIMITS OF JOINT REPAIRS TO BE DETERMINED BY THE ENGINEER IN THE FIELD ACCORDING TO THE DECK, BACKWALL, AND APPROACH SLAB CONDITIONS AFTER PAVEMENT AND WATERPROOFING MEMBRANE REMOVAL.
2. CONCRETE EXCAVATION ASSOCIATED WITH THE JOINT RECONSTRUCTION OUTSIDE THE OVERHANG RECONSTRUCTION LIMITS (WHERE INDICATED ON THE DRAWINGS OR DIRECTED BY THE ENGINEER) SHALL BE PAID FOR UNDER ITEM 127.42 (MAX LIMITS 3'-9" AT ABUTMENTS, 3'-5" AT PIERS), REINFORCED CONCRETE DECK EXCAVATION AT JOINTS.
3. CONCRETE EXCAVATION FOR TOP OF BACKWALL AND/OR APPROACH SLAB SHALL BE PAID UNDER ITEM 127.42. THE CONCRETE EXCAVATION FOR FULL OR PARTIAL DEPTH DECK REPAIRS SHALL BE PAID UNDER ITEM 127.4, OR 127.41, RESPECTIVELY.
4. REMOVAL OF CONCRETE PATCHES IN THE ROADWAY APPROACH, WHETHER MILDLY REINFORCED OR NOT, SHALL NOT BE CONSIDERED REINFORCED CONCRETE EXCAVATION AND SHALL BE PAID UNDER ITEM 120.1.
5. ALL CONCRETE USED FOR JOINT RECONSTRUCTION SHALL BE 5,000 PSI, HIGH-EARLY STRENGTH CEMENT CONCRETE (ITEM 905.21). WHERE SHALLOW REPAIRS (LESS THAN 2") TO BACKWALL AND/OR APPROACH SLAB IS REQUIRED PER THE ENGINEER, SMOOTH THE TOP SURFACE WITH CEMENTITIOUS MORTAR FOR PATCHING (ITEM 909.2). THE CONCRETE WORK AT EACH JOINT REPAIR IN EACH CONSTRUCTION STAGE SHALL BE COMPLETED IN ONE CONTINUOUS PLACEMENT.
6. ALL NEW REINFORCING STEEL SHALL BE EPOXY COATED AND CONFORM TO THE REQUIREMENTS OF AASHTO M31 GRADE 60, UNLESS OTHERWISE NOTED ON THE PLANS. ALL BARS SHALL BE LAPPED AS FOLLOWS:

<u>MODIFICATION CONDITION</u>	<u>#4 BARS</u>	<u>#5 BARS</u>	<u>#6 BARS</u>
1. NONE	16"	17"	21"
2. 12" OF CONCRETE BELOW BAR	18"	22"	27"
3. COATED BARS, COVER < 3db, OR CLEAR SPACING < 6db	21"	26"	31"
4. COATED BARS, ALL OTHER CASES	17"	21"	25"
5. CONDITION 2. AND 3.	23"	29"	35"
6. CONDITION 2. AND 4.	21"	27"	32"

IF THE ABOVE BARS ARE SPACED 6" OR MORE ON CENTER, THE LAP LENGTH SHALL BE 80% OF THE LAP LENGTH GIVEN ABOVE. ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ALL REINFORCING BARS AND SUPPORTING DEVICES SHALL BE COATED, UNLESS OTHERWISE NOTED.

7. THE CONCRETE CLEAR COVER FOR NEW REBAR SHALL BE 1.5", UNLESS OTHERWISE NOTED ON THE DRAWINGS.
8. MECHANICAL BAR SPLICERS SHALL BE USED TO CONNECT NEW TRANSVERSE REINFORCEMENT BETWEEN DIFFERENT CONSTRUCTION STAGES MAINTAINING PROPOSED REINFORCEMENT COVER. THE BAR SPLICERS WILL BE COMPENSATED PER POUND UNDER ITEM 910.1.



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: JOINT RECONSTRUCTION NOTES - 1

SHEET: 12 OF 87

DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026

JOINT RECONSTRUCTION NOTES (CONT.):

9. RETAIN EXISTING REINFORCEMENT UNLESS OTHERWISE NOTED. ALL EXISTING REINFORCEMENT STEEL AND CONCRETE SURFACES THAT ARE TO BE IN CONTACT WITH REPAIR CONCRETE SHALL BE ABRASIVELY BLAST CLEANED IN ORDER TO REMOVE ALL RUST, OIL, AND DEBRIS THAT IS NOT TIGHTLY ADHERED, FOLLOWED BY APPLICATION OF COMPRESSED AIR TO REMOVE ALL DUST. EXISTING CONCRETE REPAIR SURFACES THAT WILL BE IN CONTACT WITH REPAIR CONCRETE SHALL BE PRE-WETTED FOR A MINIMUM OF 15 MINUTES USING POTABLE WATER IN PLACEMENT OF REPAIR CONCRETE.
10. ALL EXISTING STEEL REINFORCEMENT SHALL REMAIN IN PLACE. NEW EPOXY COATED STEEL REINFORCEMENT SHALL BE PLACED TO SUPPLEMENT EXISTING REINFORCEMENT THAT HAS A SECTION LOSS OF 25% OR MORE OF THE ORIGINAL CROSS SECTION AREA OR HAS BROKEN, AS DETERMINED BY THE ENGINEER. NEW REINFORCEMENT SHALL EXTEND 30 BAR DIAMETERS IN EACH DIRECTION FROM WHERE THE SECTION LOSS OR BREAK ENDS. THE LIMITS OF THE REPAIR SHALL BE MODIFIED TO MEET THE REINFORCEMENT STEEL LAP SPLICE REQUIREMENTS. NEW REINFORCING STEEL SHALL BE PLACED AT THE SAME LEVEL ALONGSIDE THE EXISTING DETERIORATED OR BROKEN REINFORCING STEEL.
11. THE LAP LENGTH FOR ANY NEW #5 TRANSVERSE DECK REINFORCEMENT SHALL BE 30". ALL OTHER REPLACEMENT BARS SHALL BE LAPPED TO EXISTING REINFORCEMENT AS INDICATED IN THE TABLE ABOVE, SEE NOTE 6.
12. IF EXISTING REINFORCEMENT CANNOT BE REUSED OR LAPPED, DRILL AND GROUT NEW REINFORCEMENT INTO EXISTING CONCRETE (ITEM 912.). EMBEDMENT LENGTH SHALL BE IN ACCORDANCE WITH THE GROUT MANUFACTURER'S SPECIFICATION IN ORDER TO ATTAIN EQUIVALENT MINIMUM LAP LENGTHS.
13. ALL MEMBRANE WATERPROOFING (ITEM 966.) SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR BRIDGE DECK REPAIRS, UNLESS NOTED OTHERWISE OR DIRECTED BY THE ENGINEER.
14. PROTECTIVE COURSE TO BE HOT MIX BINDER COURSE FOR BRIDGES (ITEM 451.), PLACED IN 2" LAYERS AND COMPACTED WITH A MECHANICAL HAND-GUIDED TAMPER AFTER PLACING MEMBRANE WATERPROOFING.
15. FOR ADDITIONAL PAVEMENT NOTES SEE SHEET 6.



DISTRICT 3
BRIDGE SECTION

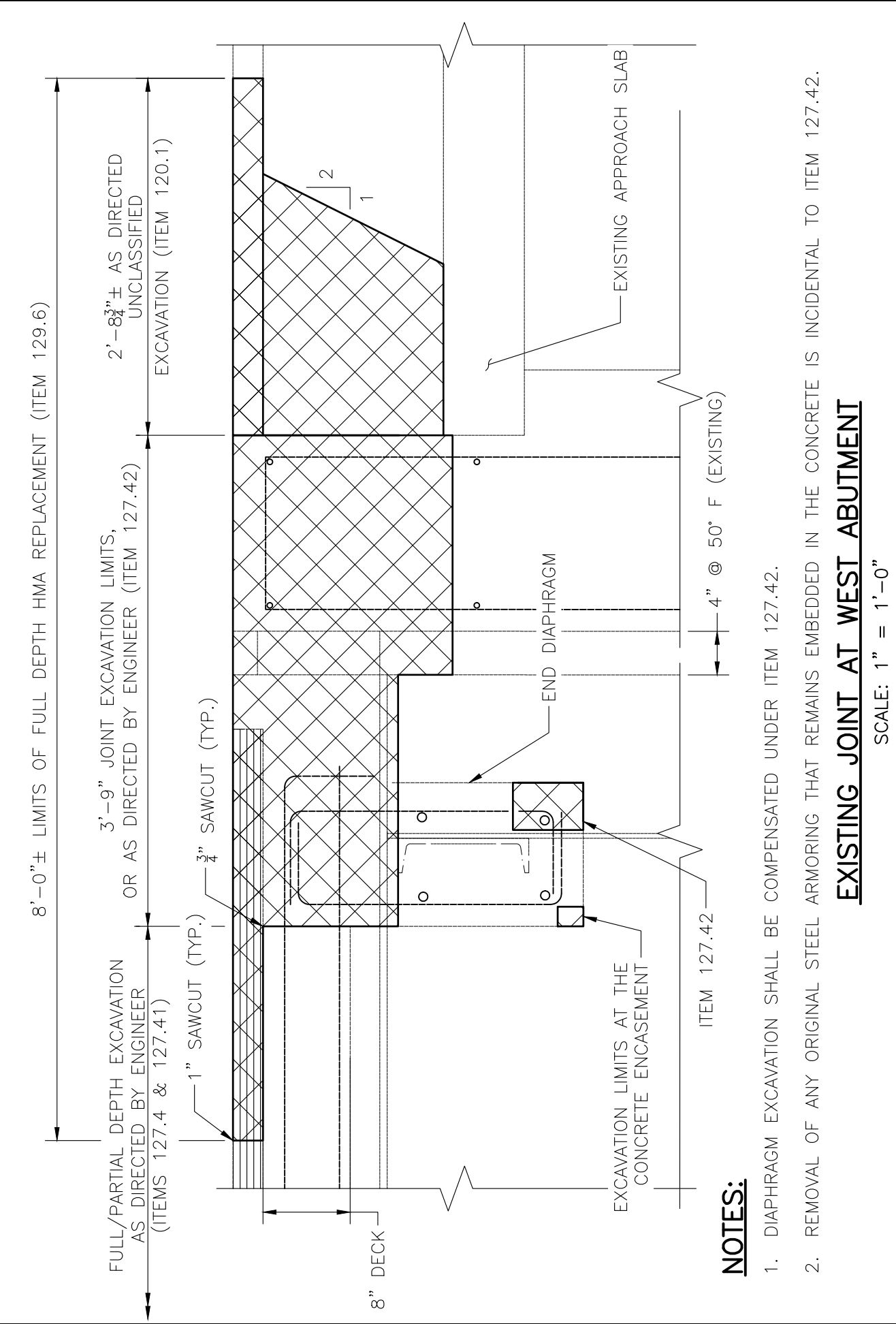
PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: JOINT RECONSTRUCTION NOTES - 2

SHEET: 13 OF 87

DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026

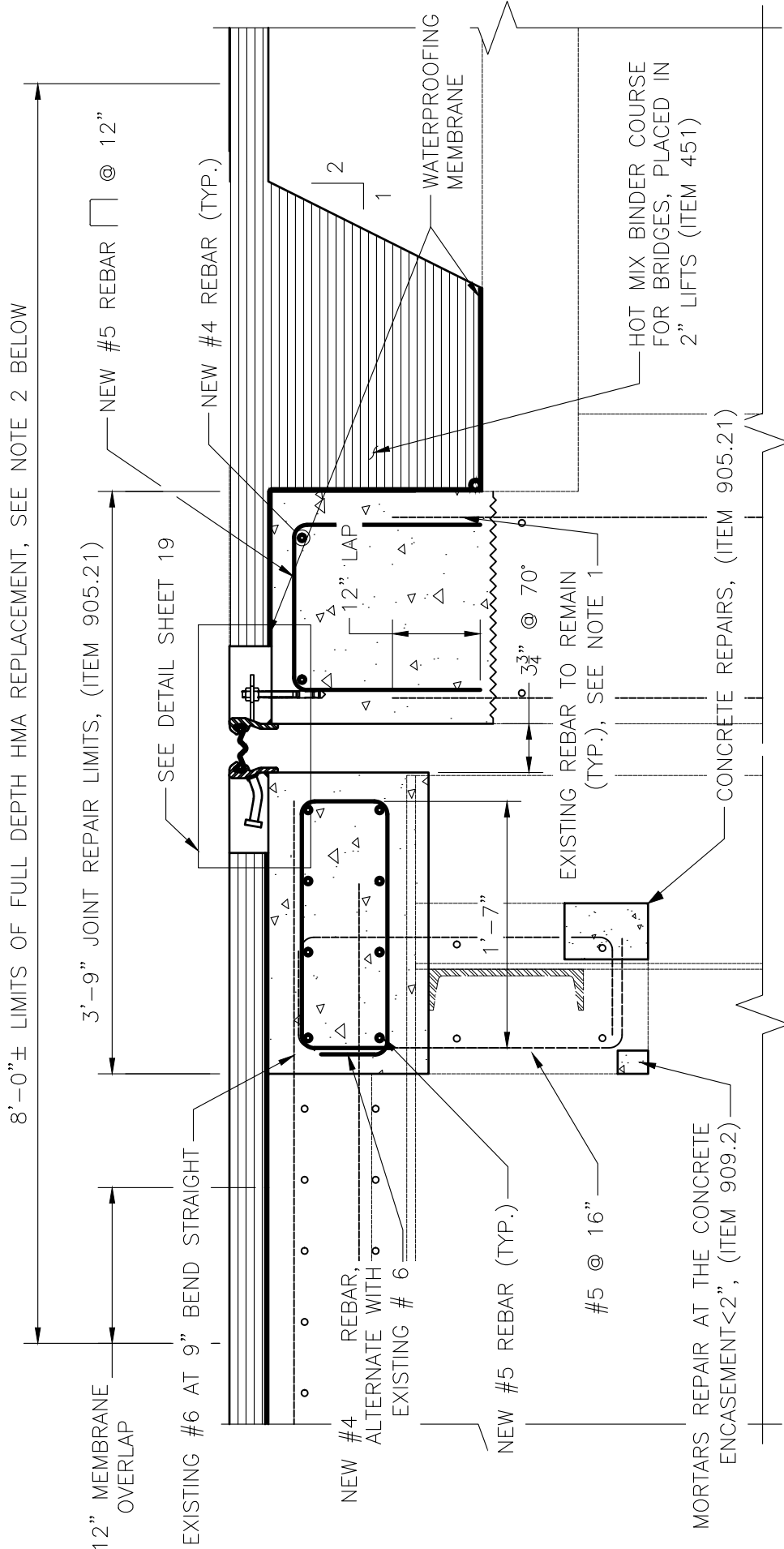


EXISTING JOINT AT WEST ABUTMENT

SCALE: 1" = 1'-0"

 DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH	SHEET: 14 OF 87
	SUBJECT: EXISTING JOINT AT WEST ABUTMENT	DRAWN BY: ME DATE: 9/1/2026 CHECKED BY: JON DATE: 9/1/2026

S:\03\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25_BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG



NOTES:

1. DRILL AND GROUT AS NEEDED TO REPLACE ANY DAMAGED VERTICAL BACKWALL #5 REBAR. SEE NOTE 12 ON SHEET 13.
2. UPON COMPLETION OF THE CONCRETE REPAIRS FOR THE JOINT RECONSTRUCTION, PLACE THE BRIDGE PROTECTIVE COURSE (ITEM 450.701) OVER THE WATERPROOFING MEMBRANE (ITEM 966) TO MATCH GRADE. MILL 1 1/2" AND APPLY THE BRIDGE SURFACE COURSE (ITEM 450.221) FOR FINAL PAVING.

PROPOSED STRIP SEAL JOINT AT WEST ABUTMENT

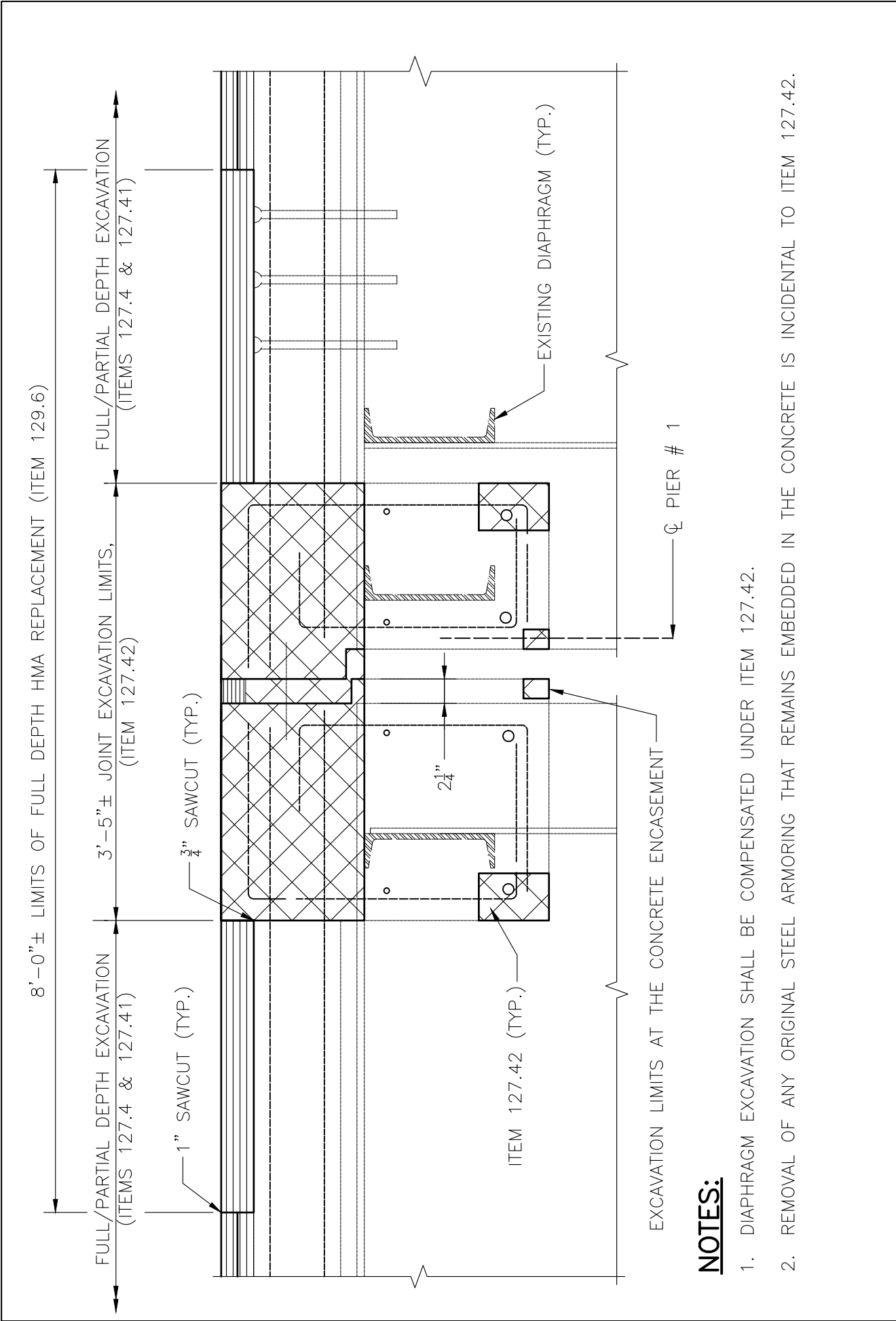
SCALE: 1" = 1'-0"

massDOT
Highway Division
DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: PROPOSED STRIP SEAL JOINT AT WEST ABUTMENT

SHEET: 15 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026

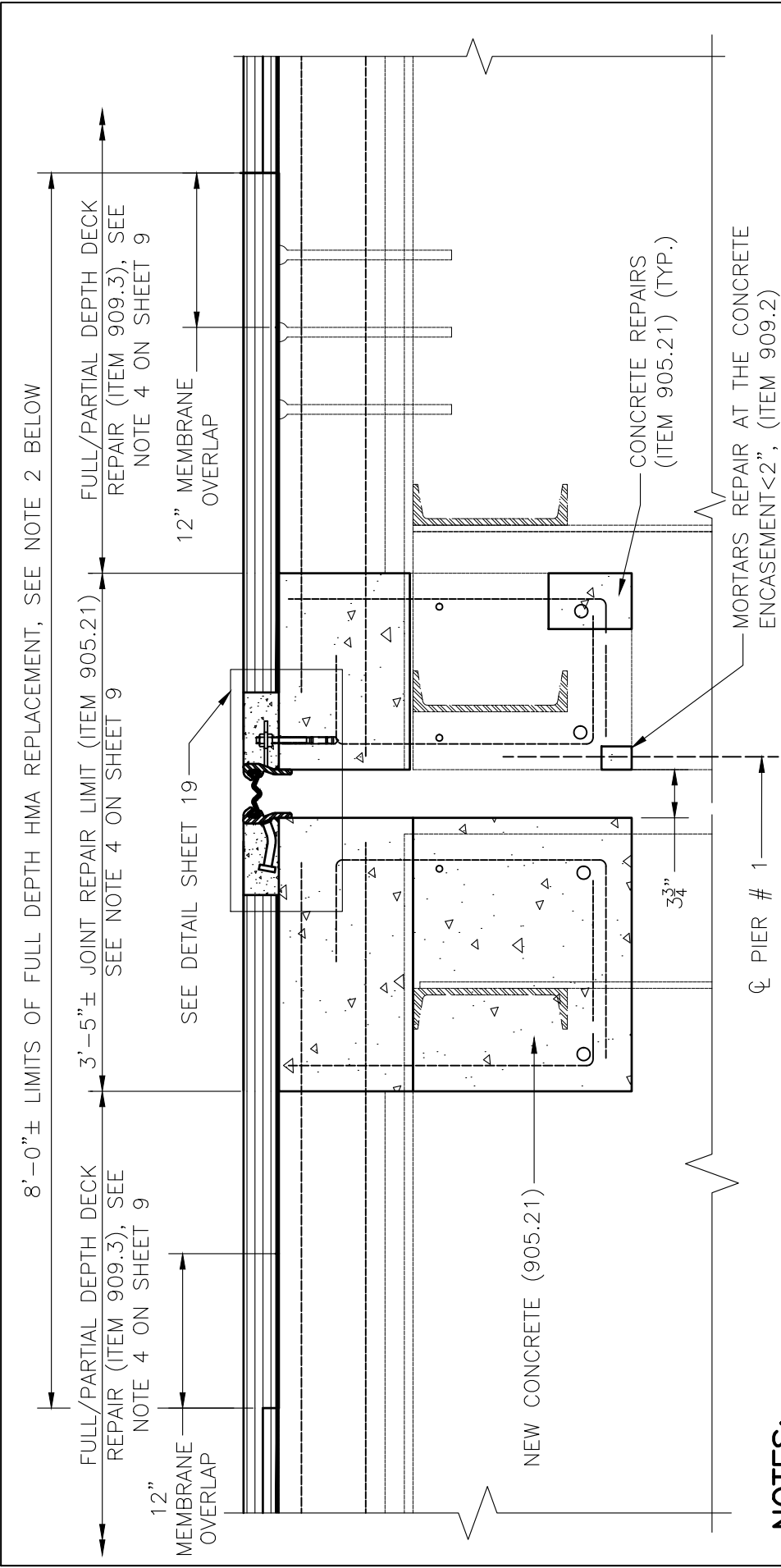


NOTES:

- 1. DIAPHRAGM EXCAVATION SHALL BE COMPENSATED UNDER ITEM 127.42.
- 2. REMOVAL OF ANY ORIGINAL STEEL ARMORING THAT REMAINS EMBEDDED IN THE CONCRETE IS INCIDENTAL TO ITEM 127.42.

 DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH	SHEET: 16 OF 87
	SUBJECT: EXISTING COMPRESSION SEAL JOINT AT PIER #1	DRAWN BY: ME DATE: 9/1/2026 CHECKED BY: JON DATE: 9/1/2026

S:\D3\BRIDGE-DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG



NOTES:

1. DRILL AND GROUT AS NEEDED TO REPLACE ANY DAMAGED VERTICAL BACKWALL #5 REBAR. SEE NOTE 12 ON SHEET 13.
2. UPON COMPLETION OF THE CONCRETE REPAIRS FOR THE JOINT RECONSTRUCTION, PLACE THE BRIDGE PROTECTIVE COURSE (ITEM 450.701) OVER THE WATERPROOFING MEMBRANE (ITEM 966) TO MATCH GRADE. MILL 1 1/2" AND APPLY THE BRIDGE SURFACE COURSE (ITEM 450.221) FOR FINAL PAVING.

PROPOSED STRIP SEAL AT PIER # 1

SCALE: 1" = 1'-0"

 DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH	SHEET: 17 OF 87 DRAWN BY: ME DATE: 9/1/2026
	SUBJECT: PROPOSED STRIP SEAL JOINT AT PIER #1	CHECKED BY: JON DATE: 9/1/2026



1. ALL DIMENSIONS TO BE FIELD VERIFIED BY THE CONTRACTOR .
2. UHPC IS INCLUDED FOR PAYMENT UNDER ITEM 972.1.

PROPOSED STRIP SEAL JOINT AT BARRIER - PLAN VIEW
(WEST ABUTMENT JOINT, PIER JOINT SIMILAR)

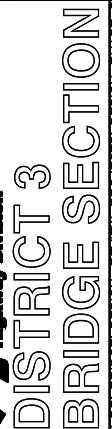
SCALE: 1" = 1'-0"

 massDOT Massachusetts Department of Transportation Highway Division	DISTRICT 3 BRIDGE SECTION	
	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH	
	SUBJECT: PROPOSED STRIP SEAL JOINT AT BARRIER - PLAN VIEW	
	SHEET: 18 OF 87	DRAWN BY: ME DATE: 9/1/2026
CHECKED BY: JON DATE: 9/1/2026		ROAD NO. 3333 BRIDGE DESIGN-REVIEW PROJECT'S DESIGN PHASE STRUCTURE MAINTENANCE TO GO SITE SPECIFIC PROJECT NO. 612874 WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26 DWG - 2 MAIN 2026.DWG



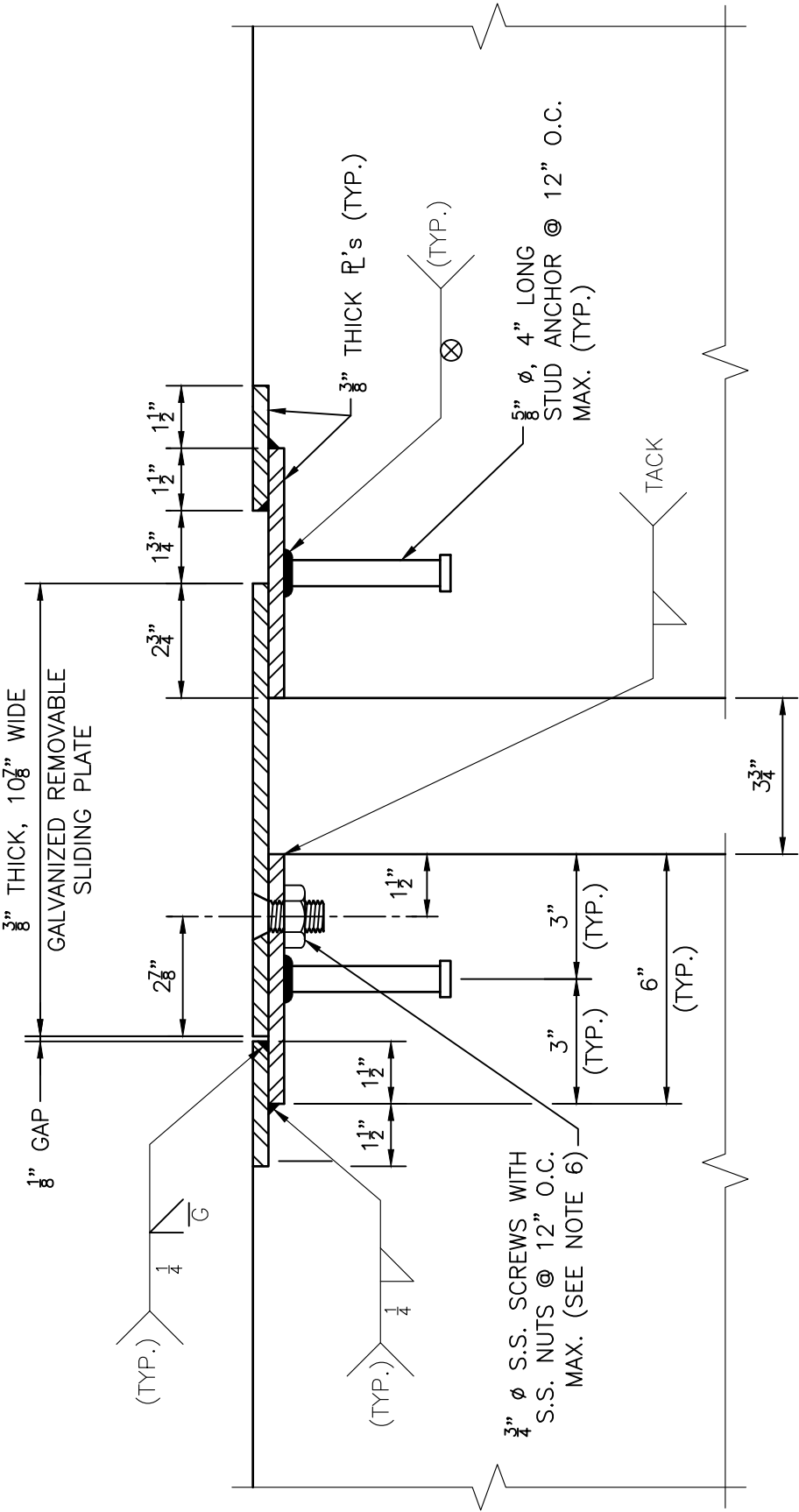
SCALE: 3" = 1'-0"

1. RAPID SET ULTRA HIGH PERFORMANCE CONCRETE (UHPC) MORTAR CAPABLE OF ACHIEVING 3000 PSI AFTER 4 HOURS.
2. SEE TABLE ON SHEET 23 FOR ACCEPTABLE STRIP SEAL JOINTS.
3. THE ENGINEER MAY LIMIT THE INSTALLATION SCHEDULE OF THE STRIP SEAL TO A SATURDAY NIGHT-SUNDAY MORNING EXTENDED SHIFT TO ENSURE A 5-HOUR UHPC CURE TIME IS ATTAINED.
4. UHPC IS INCLUDED FOR PAYMENT UNDER ITEM 972.1.



SUBJECT: STRIP SEAL JOINT DETAIL - 1

SHEET: 19 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026



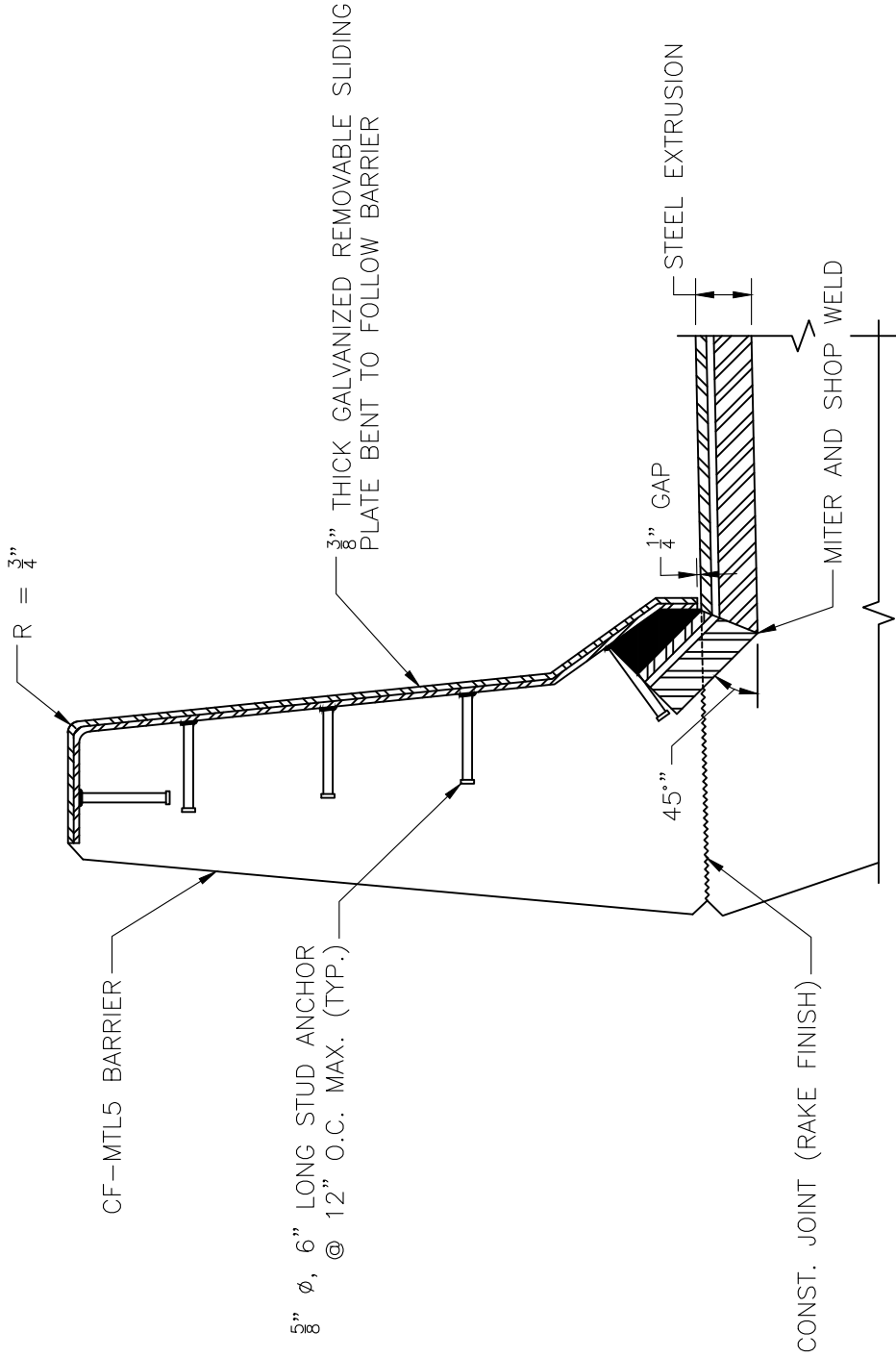
SECTION 2

SCALE: 3" = 1'-0"



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH		SHEET: 20 OF 87
SUBJECT: STRIP SEAL JOINT DETAIL - 2		DRAWN BY: ME
		DATE: 9/1/2026
		CHECKED BY: JON
		DATE: 9/1/2026

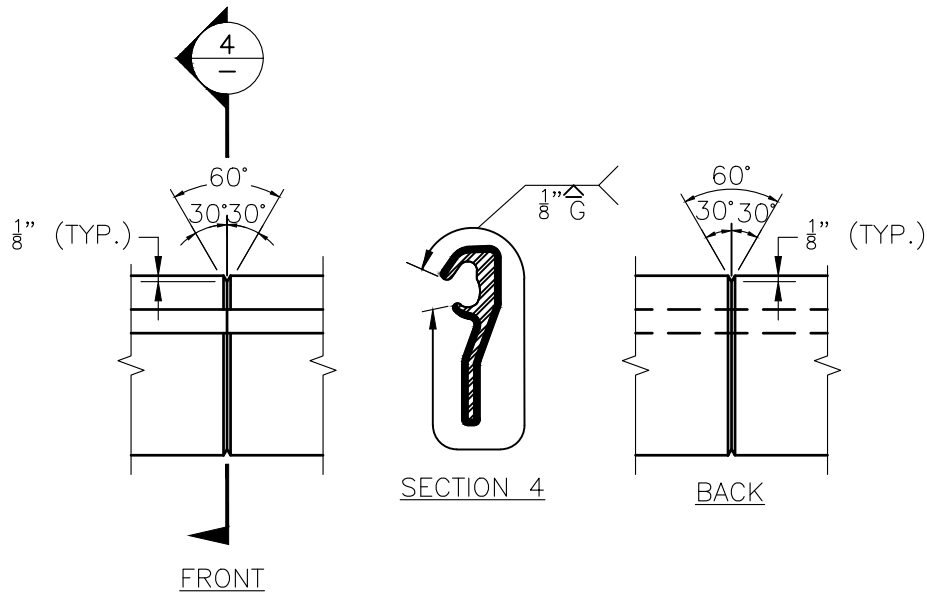


SECTION 3

SCALE: 1" = 1'-0"

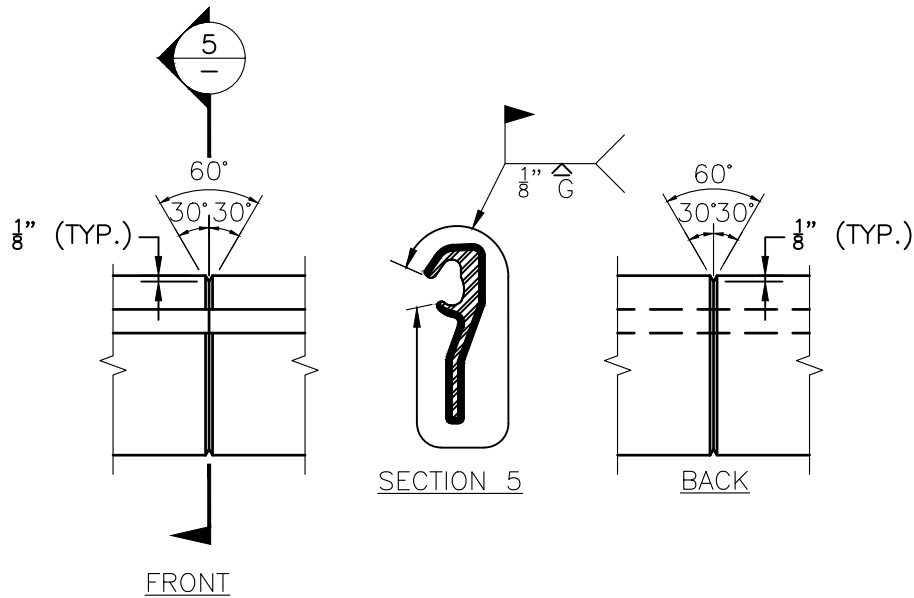
MassDOT
Highway Division
DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH	SHEET: 21 OF 87
	DRAWN BY: ME
SUBJECT: STRIP SEAL JOINT DETAIL - 3	DATE: 9/1/2026
	CHECKED BY: JON
	DATE: 9/1/2026



STEEL EXTRUSION SHOP SPLICE DETAIL

SCALE: N.T.S



STEEL EXTRUSION FIELD SPLICE DETAIL

SCALE: N.T.S

NOTES:

1. FIELD SPLICES SHALL BE PERMITTED ONLY AT THE ROADWAY CROWN.
2. THE CONTRACTOR SHALL PROVIDE SURVEYED JOINT DIMENSIONS AND PROFILE DATA FOR THE FABRICATION OF BRIDGE JOINTS.



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: STRIP SEAL JOINT DETAIL - 4

SHEET: 22 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026

STRIP SEAL JOINT NOTES:

1. THE DETAILS SHOWN HERE ARE INTENDED AS A GENERAL GUIDE FOR A TYPICAL GLANDULAR TYPE STRIP SEAL JOINT SYSTEM. SHOP DRAWINGS WHICH INCLUDE DETAILS OF THE GLAND SHAPE, STEEL EXTRUSION SHAPE, WELDING PROCEDURE SPECIFICATIONS, ANCHOR ARRANGEMENT, TEMPERATURE CORRECTION REQUIREMENTS, AND TEMPORARY SUPPORT DETAILS SHALL BE SUBMITTED FOR APPROVAL OF THE ENGINEER ACCORDING TO THE STANDARD SPECIFICATIONS.
2. ALL STRUCTURAL STEEL COMPONENTS SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER THE COMPLETION OF ALL WELDING OPERATIONS STEEL PLATE ASSEMBLIES SHALL BE HOT-DIP GALVANIZED.
3. ULTRA HIGH PERFORMANCE CONCRETE (UHPC) BLOCKOUT SHALL BE ABRASIVE BLASTING AND CLEANED WITH COMPRESSED OIL-LESS AIR PRIOR TO CASTING UHPC. UHPC HEADERS SHALL BE FORMED AND CAST TO ALLOW THE HEADERS TO MOVE INDEPENDENTLY WITH THEIR RESPECTIVE BRIDGE SPAN UNTIL THE UHPC IS FULLY CURED.
4. NEOPRENE STRIP SEAL SHALL BE BONDED TO STEEL EXTRUSION WITH APPROVED ADHESIVE.
5. INSTALL CONTINUOUS NEOPRENE STRIP SEAL IN THE FIELD. SPlicing OF SEAL IS NOT PERMITTED. TEMPORARY SEAL SHALL BE REQUIRED ON STAGE CONSTRUCTION PROJECTS.
6. PRIOR TO PLACEMENT OF BARRIER CONCRETE, LUBRICATE STAINLESS STEEL SCREWS WITH GRAPHITE AND SET SECURELY IN PLACE. MACHINE SCREWS TO BE TEMPORARILY REMOVED AFTER CONCRETE HAS ATTAINED FINAL SET.
7. NO WELDING OF PORTIONS OF STEEL EXTRUSIONS IN DIRECT CONTACT WITH NEOPRENE SEAL SHALL BE PERMITTED.

ACCEPTABLE STRIP SEAL JOINTS			
MANUFACTURER	STEEL EXTRUSION MODEL	NEOPRENE STRIP SEAL MODEL	JOINT OPENING
WATSON BOWMAN ACME	TYPE R	ES-400	1.5"-4"
D.S. BROWN	TYPE SSCM2	A2R-400	0.5"-4.5"



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: STRIP SEAL JOINT NOTES

SHEET: 23 OF 87

DRAWN BY: ME

DATE: 9/1/2026

CHECKED BY: JON

DATE: 9/1/2026

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG

PROPOSED STRIP SEAL JOINT CONSTRUCTION SEQUENCE AND NOTES:

1. RECONSTRUCT THE EXISTING JOINT AT THE BARRIER, LEAVING A BLOCKOUT FOR THE INSTALLATION OF THE STRIP SEAL STEEL EXTRUSION.
2. INSTALL JOINT SLIDING PLATES TO PROTECT BLOCKOUT AT THE BARRIER.
3. RECONSTRUCT ROADWAY JOINT THEN CENTER 15" WIDE STRIP OF ROOFING FELT OVER THE JOINT LOCATION.
4. PLACE DECK WATERPROOFING MEMBRANE, AND/OR PROTECTIVE COURSE, AND SURFACE COURSE UNIFORMLY ACROSS THE DECK AND JOINT LOCATIONS.
5. AFTER THE WEARING SURFACE FOR THE ENTIRE BRIDGE IS IN PLACE, SET UP TRAFFIC CONTROLS TO INSTALL STRIP SEAL JOINT.
6. SAWCUT AND REMOVE THE WEARING SURFACE (AND MEMBRANE WATERPROOFING) TO THE LIMITS OF BLOCKOUT AS REQUIRED. REMOVE SLIDING PLATES AT THE BARRIER.
7. ABRASIVE BLASTING BLOCKOUT AND CLEAN WITH COMPRESSED AIR.
8. INSTALL TEMPORARY SUPPORT AND STEEL EXTRUSIONS. THE GAP BETWEEN THE STEEL EXTRUSIONS SHALL BE BASED ON THE VALUE SHOWN ON THE SHOP DRAWINGS FOR THE GIVEN TEMPERATURE.
9. PREPARE THE BLOCKOUT FOR PLACEMENT OF ULTRA HIGH PERFORMANCE CONCRETE (UHPC). PLACE UHPC TO FILL ALL VOIDS AND OBTAIN A FINAL AND EVEN SURFACE WITH THE ADJACENT WEARING SURFACE.
10. INSTALL CONTINUOUS NEOPRENE STRIP SEAL AND SLIDING PLATES.



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: PROPOSED STRIP SEAL JOINT CONSTRUCTION SEQUENCE AND NOTES

SHEET: 24 OF 87

DRAWN BY: ME

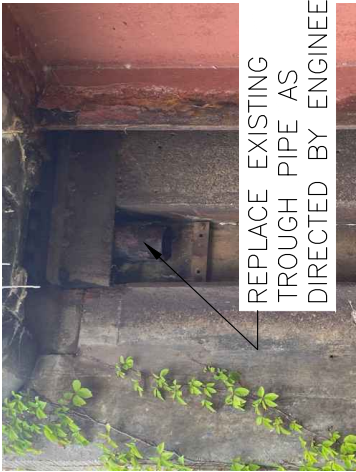
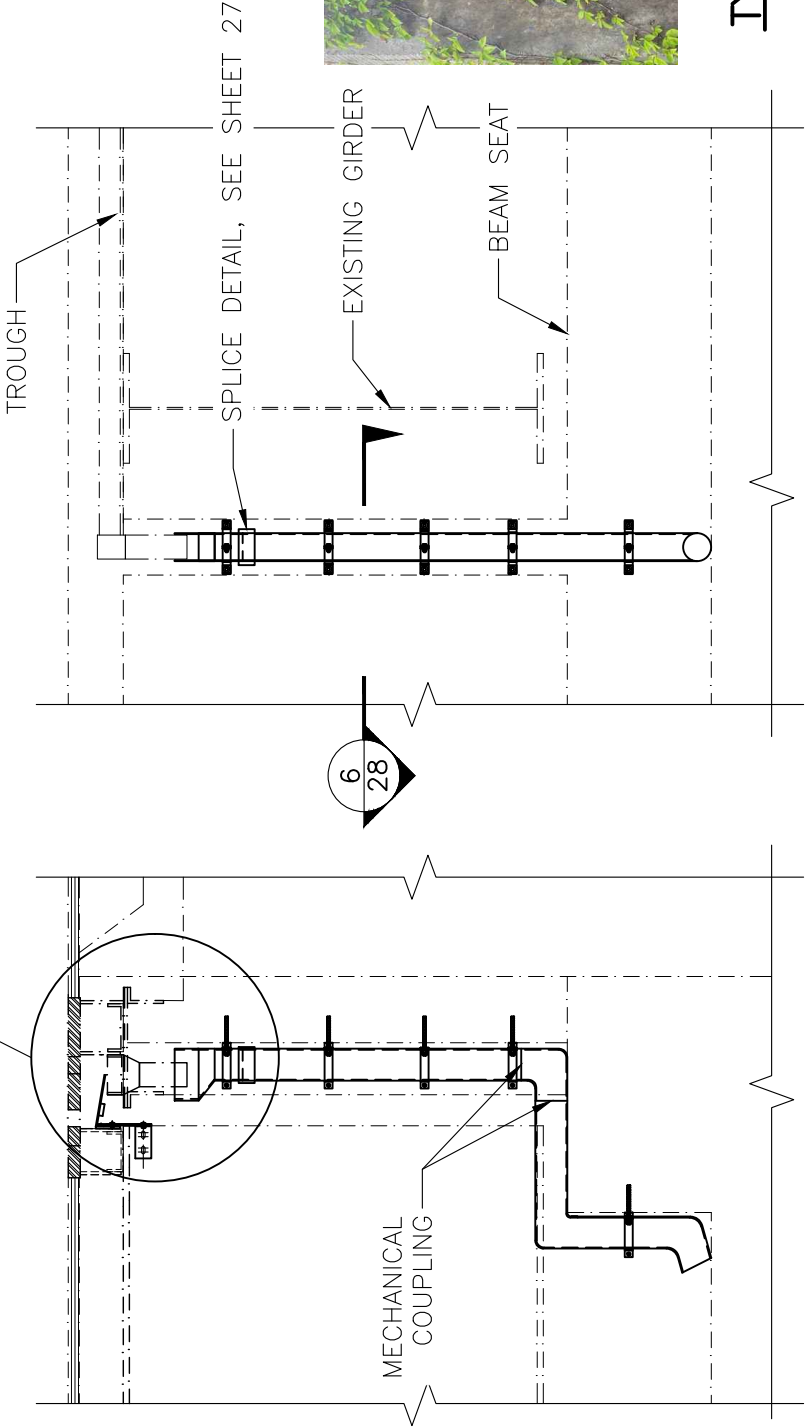
DATE: 9/1/2026

CHECKED BY: JON

DATE: 9/1/2026

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25_BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG

SEE DETAILS ON SHEET 26



TYPICAL TROUGH PIPE
SCALE: N.T.S.

NOTE:
ALL DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR TO CONFIRM PROPER FIT PRIOR TO FABRICATION AND INSTALLATION

SECTION VIEW OF HOPPER
SCALE: $\frac{1}{4}" = 1'-0"$

ELEVATION VIEW OF HOPPER
SCALE: $\frac{1}{4}" = 1'-0"$

massDOT
Highway Division

DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH		SHEET: 25 OF 87
SUBJECT: PROPOSED TROUGH ALTERATION AT EAST ABUTMENT		DRAWN BY: ME
		DATE: 9/1/2026
		CHECKED BY: JON
		DATE: 9/1/2026

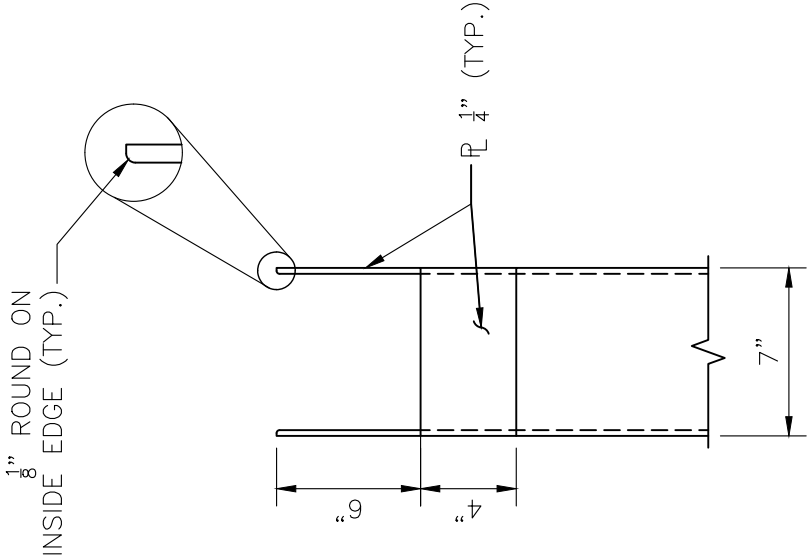


SCALE: $1\frac{1}{2}" = 1'-0"$

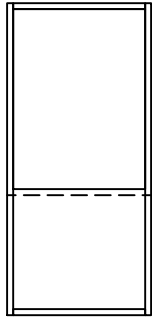
PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: TROUGH ALTERATION DETAIL - 1

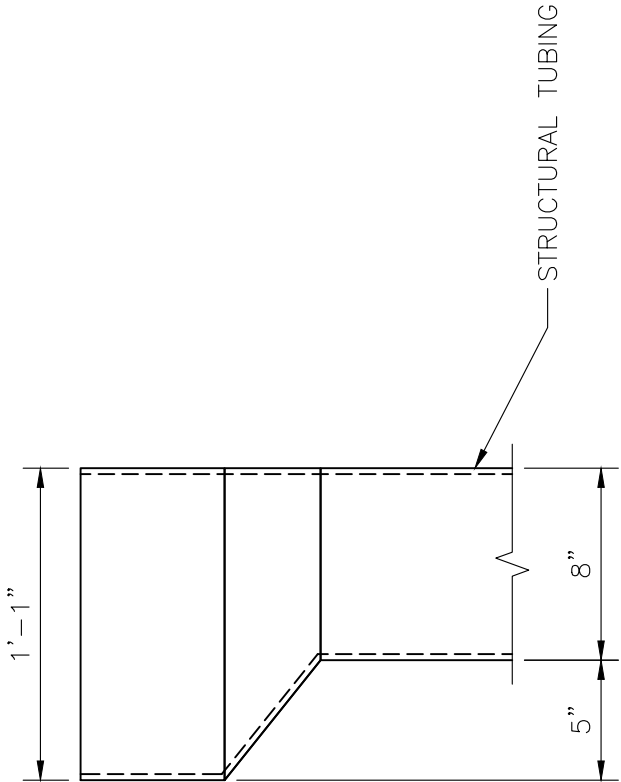
SHEET: 26 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026
2026.DWG



SIDE VIEW
SCALE: 1 1/2" = 1'-0"



TOP VIEW
SCALE: 1 1/2" = 1'-0"



FRONT VIEW
SCALE: 1 1/2" = 1'-0"

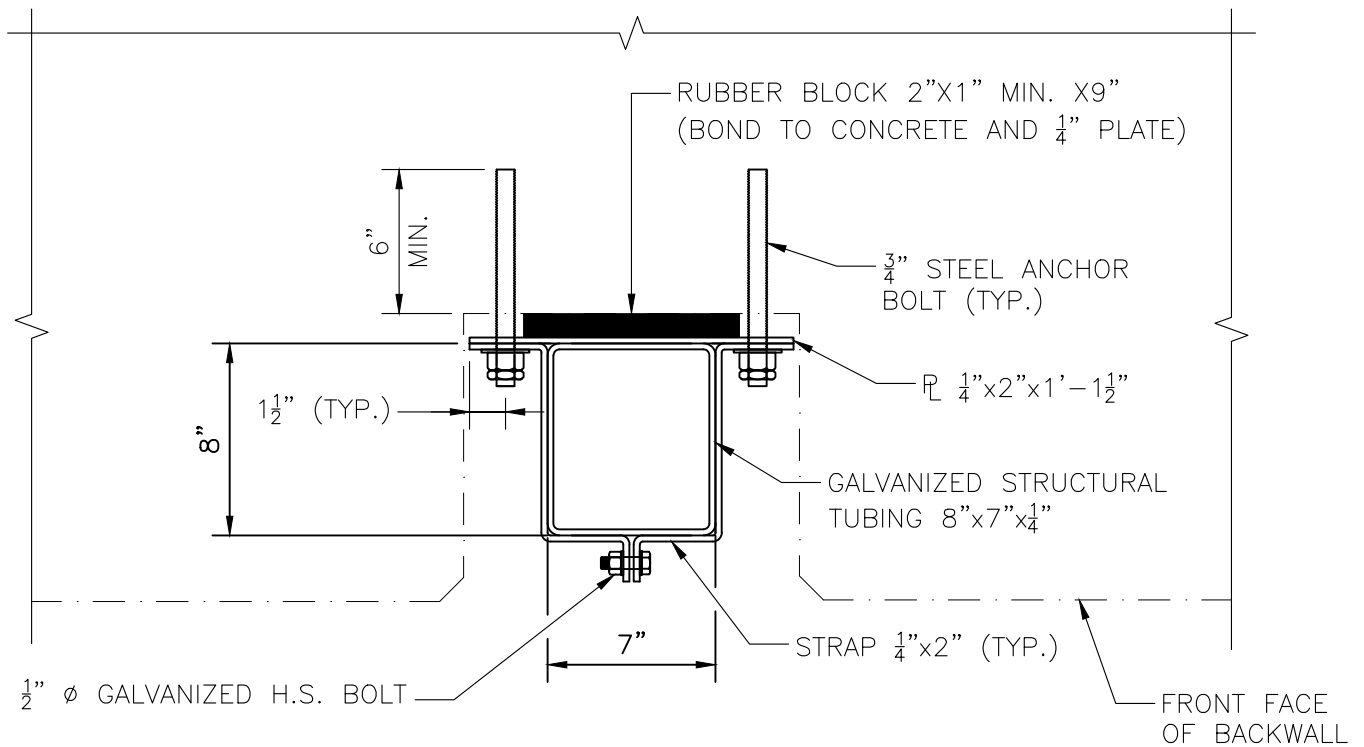
HOPPER DETAILS
SCALE: 1 1/2" = 1'-0"

massDOT
Highway Division
DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

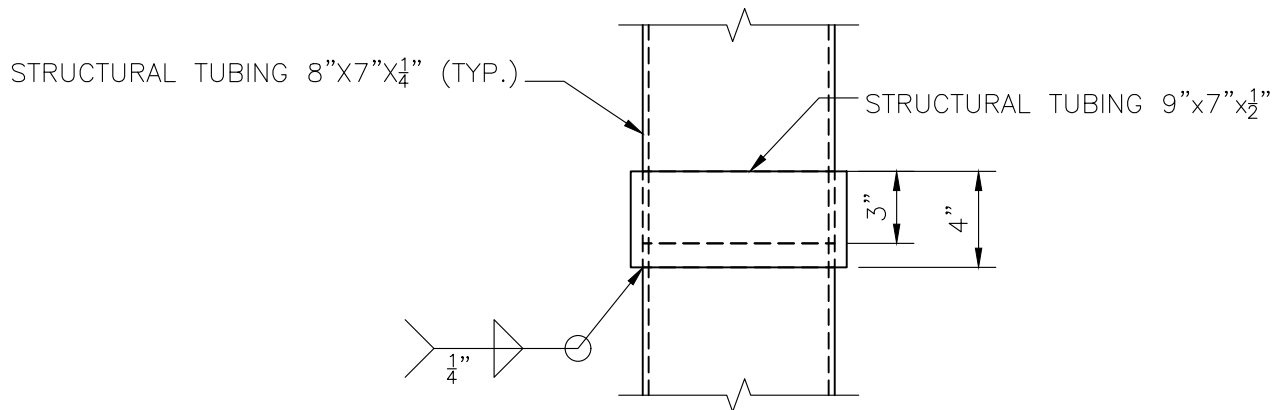
SUBJECT: TROUGH ALTERATION DETAIL - 2

SHEET: 27 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026



SECTION 6

SCALE: 1 1/2" = 1'-0"



DOWNSPOUT SPLICE DETAIL

SCALE: 1 1/2" = 1'-0"



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: TROUGH ALTERATION DETAIL - 3

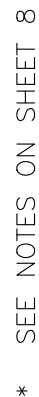
SHEET: 28 OF 87

DRAWN BY: ME

DATE: 9/1/2026

CHECKED BY: JON

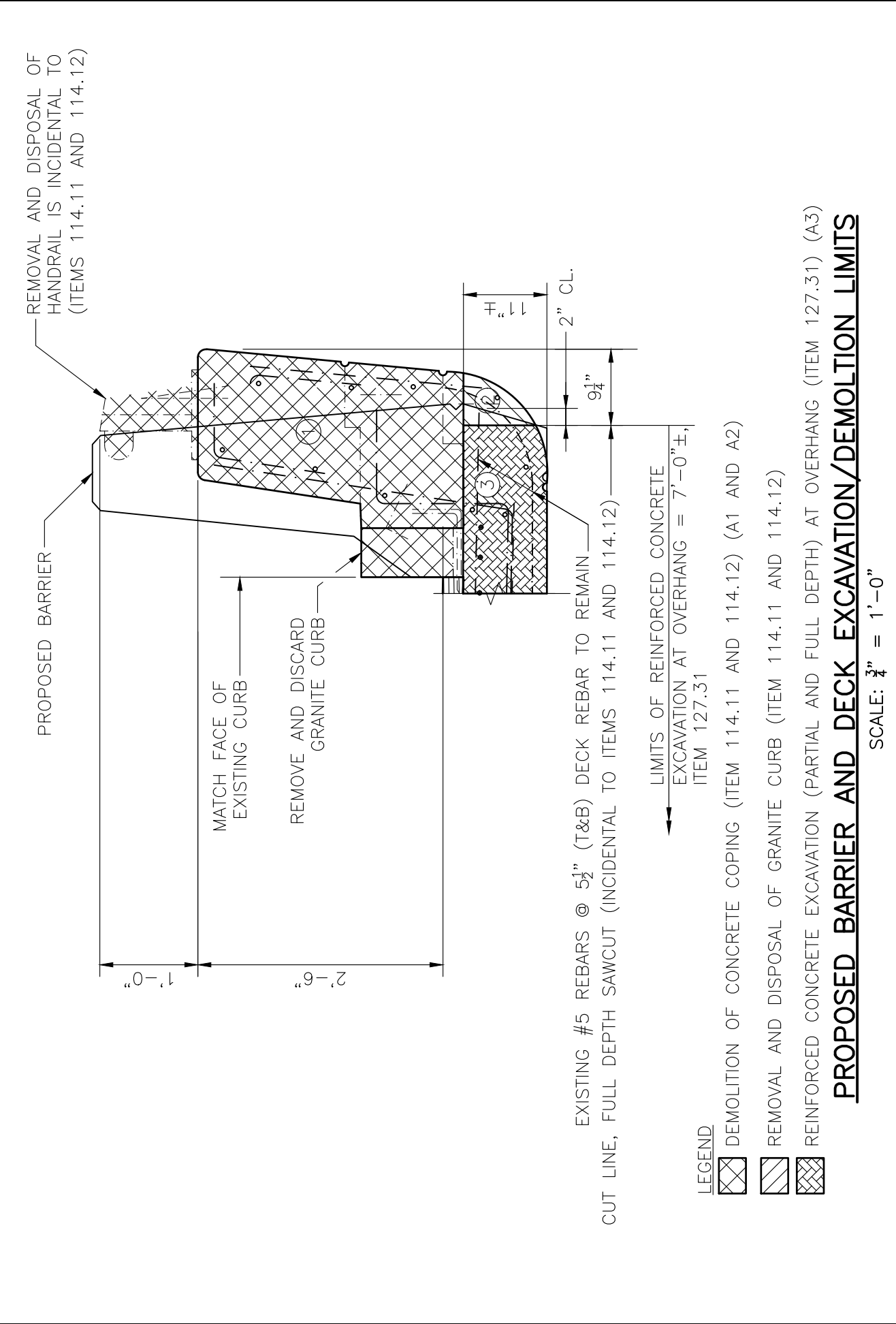
DATE: 9/1/2026



PROPOSED BARRIER AND DECK EXCAVATION/DEMOLITION LIMITS

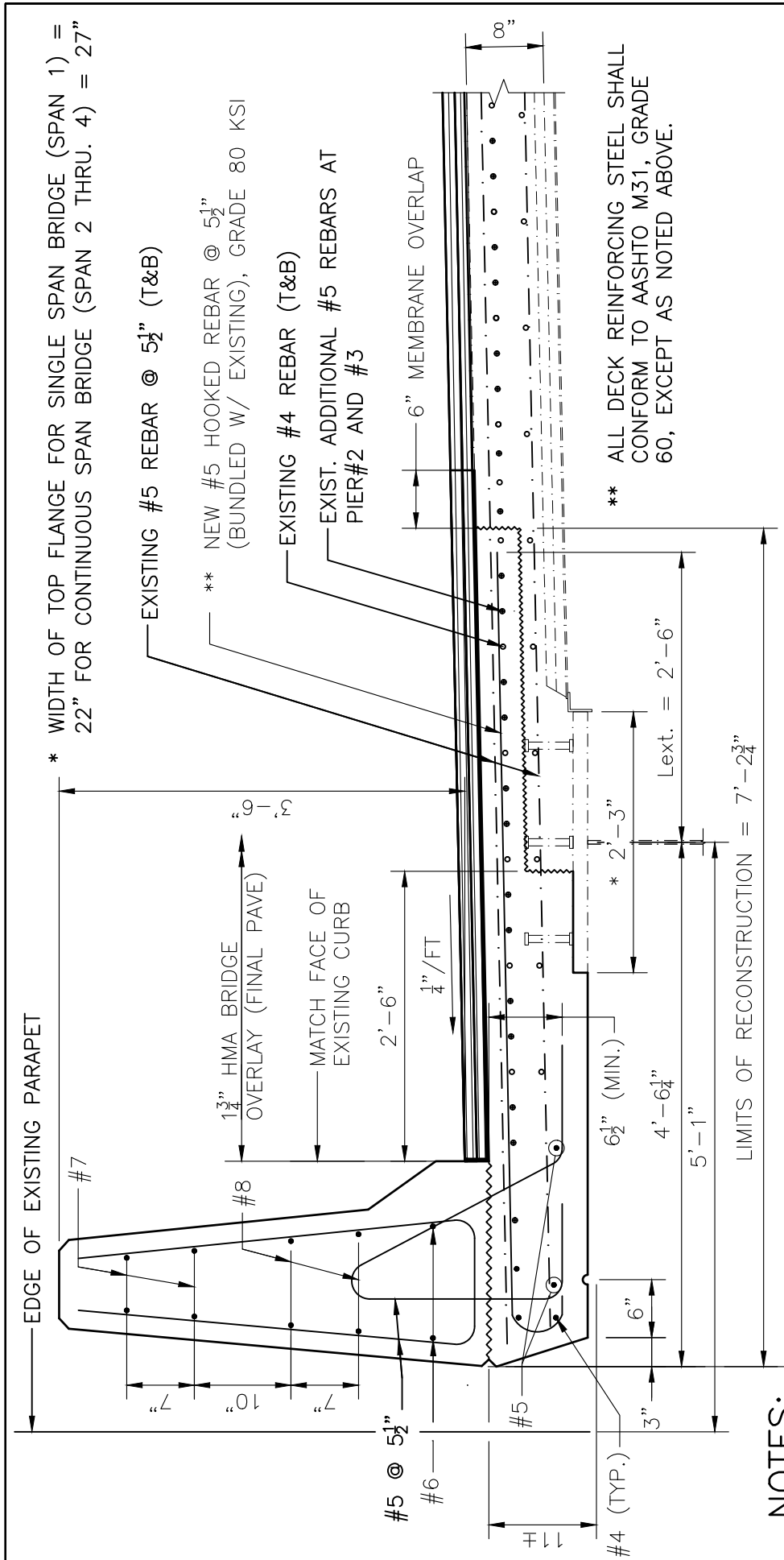
SCALE: $\frac{3}{4}$ " = 1'-0"

 massDOT MASSACHUSETTS DEPARTMENT OF TRANSPORTATION Highway Division DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH	SHEET: 29 OF 87
		DRAWN BY: ME
		DATE: 9/1/2026
	SUBJECT: PROPOSED BARRIER AND DECK EXCAVATION/DEMOLITION LIMITS - 1	CHECKED BY: JON
		DATE: 9/1/2026
S-14-021 BRIDGE DESIGN-REVIEW PROJECTS/DESIGN PHASE STRUCTURE MAINTENANCE TO GO SITE SPECIFIC PROJECT/FY 25 BILL BRIDGE PRESERVATION/612874 WORCESTER LAKE BRIDGE 9-13-25, 8-29-26 DWG - 2 MAIN 2026.DWG		



 DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH	SHEET: 30 OF 87
	SUBJECT: PROPOSED BARRIER AND DECK EXCAVATION/DEMOLITION LIMITS - 2	DRAWN BY: ME DATE: 9/1/2026 CHECKED BY: JON DATE: 9/1/2026

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\TO.O_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG



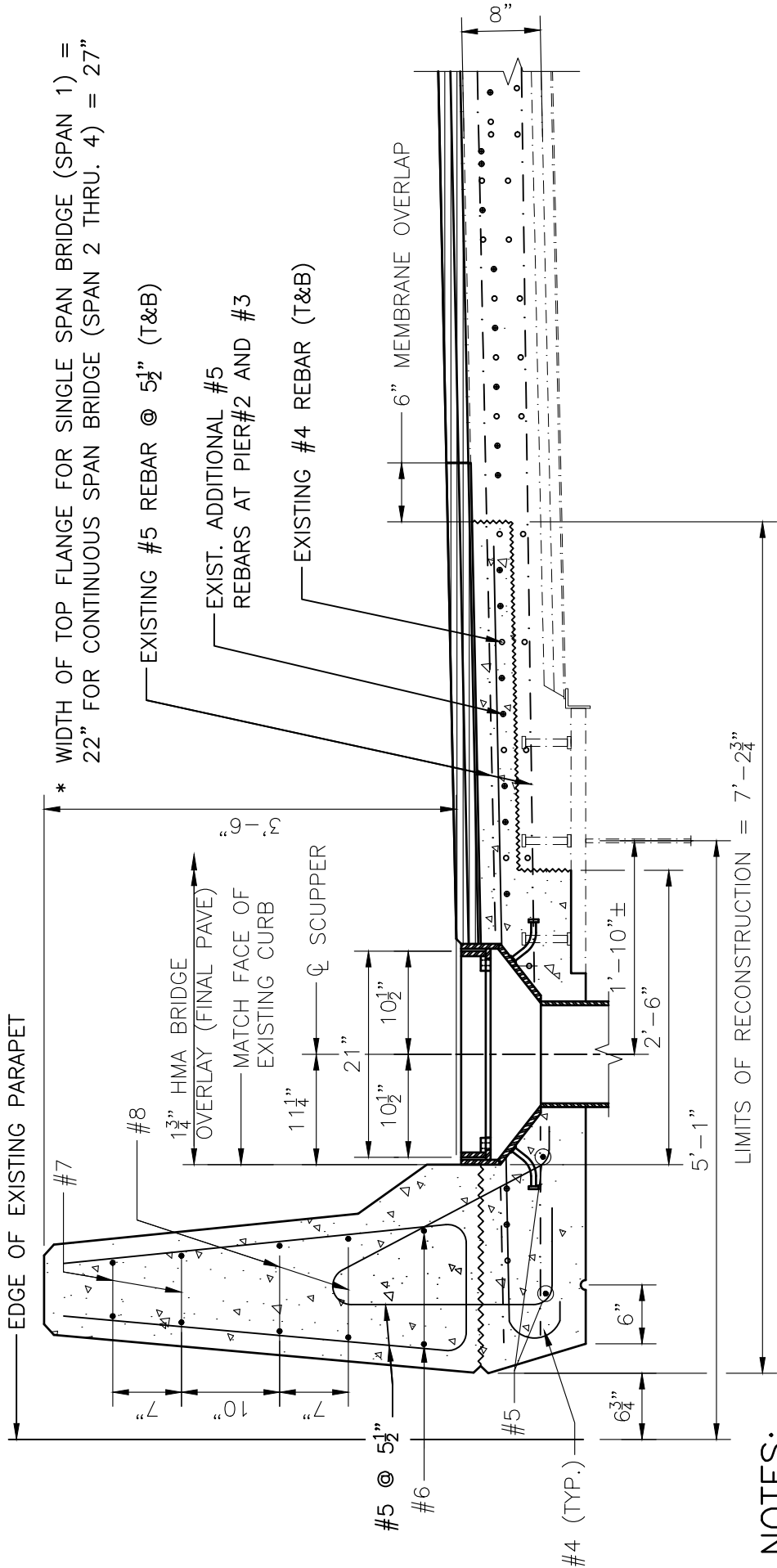
NOTES:

- UPON COMPLETION OF THE BARRIER/OVERHANG RECONSTRUCTION, PLACE THE BRIDGE PROTECTIVE COURSE OVER THE WATERPROOFING MEMBRANE (INCLUDED IN ITEMS 992.1 AND 992.2) TO MATCH THE GRADE. AFTER ALL BRIDGE REPAIRS ARE COMPLETED AND PRIOR TO INSTALLING THE STRIP SEAL, MILL 1 $\frac{1}{2}$ " AND APPLY A 1 $\frac{3}{4}$ " BRIDGE SURFACE COURSE (ITEM 450.221) OVERLAY FOR THE FINAL PAVING.
- CONCRETE FOR CF-MTL5 BARRIER SHALL BE 5000 PSI, 3 $\frac{3}{4}$ " 685 HP CONCRETE AND PAID UNDER ITEM 992.1 AND 992.2. CONCRETE FOR THE DECK SHALL BE 5000 PSI, 3 $\frac{3}{8}$ " 710 HP CONCRETE AND PAID UNDER ITEM 992.1 AND 992.2.

PROPOSED BARRIER AND DECK RECONSTRUCTION LIMITS

SCALE: 3 $\frac{3}{4}$ " = 1'-0"

 DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH		SHEET: 31 OF 87
	SUBJECT: PROPOSED BARRIER AND DECK RECONSTRUCTION LIMITS		DRAWN BY: ME DATE: 9/1/2026 CHECKED BY: JON DATE: 9/1/2026



NOTES:

1. UPON COMPLETION OF THE BARRIER/OVERHANG RECONSTRUCTION, PLACE THE BRIDGE PROTECTIVE COURSE OVER THE WATERPROOFING MEMBRANE (INCLUDED IN ITEMS 992.1 AND 992.2) TO MATCH THE GRADE. AFTER ALL BRIDGE REPAIRS ARE COMPLETED AND PRIOR TO INSTALLING THE STRIP SEAL, MILL 1 1/2" AND APPLY A 1 3/4" BRIDGE SURFACE COURSE (ITEM 450.221) OVERLAY FOR THE FINAL PAVING.

2. CONCRETE FOR CF-MTL5 BARRIER SHALL BE 5000 PSI, 3/4" 685 HP CONCRETE AND PAID UNDER ITEM 992.1 AND 992.2. CONCRETE FOR THE DECK SHALL BE 5000 PSI, 3/8" 710 HP CONCRETE AND PAID UNDER ITEM 992.1 AND 992.2.

PROPOSED BARRIER AND DECK RECONSTRUCTION LIMITS (AT SCUPPER)

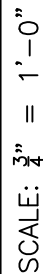
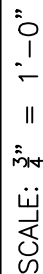
SCALE: 3/4" = 1'-0"

massDOT
Highway Division
DISTRICT 3
BRIDGE SECTION

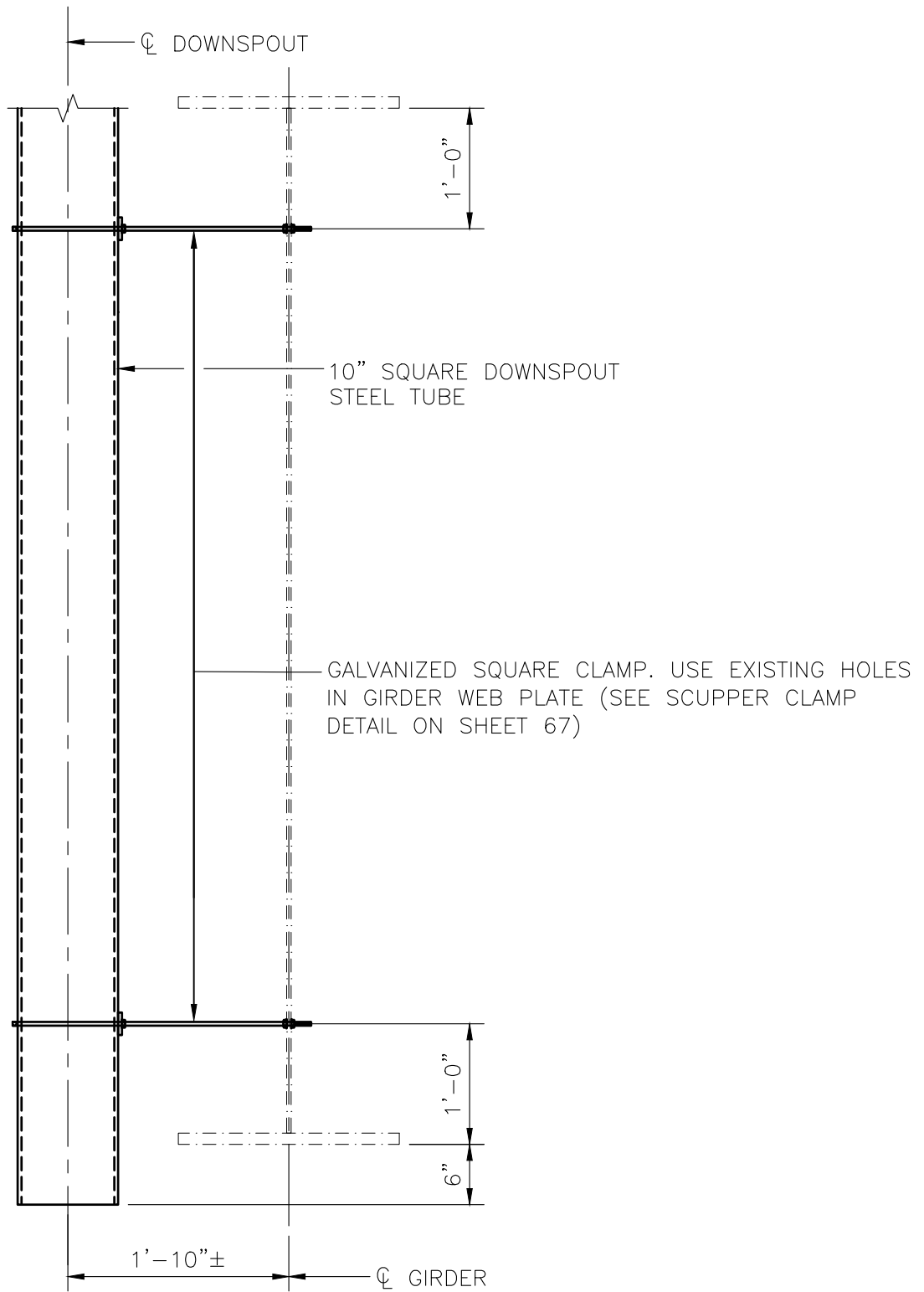
PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: PROPOSED BARRIER AND DECK RECONSTRUCTION LIMITS (AT SCUPPER)

SHEET: 32 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026



03\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25\8-29-26\DWG - 2\MAIN DRAFT.DWG



DOWNSPOUT DETAIL

SCALE: $\frac{3}{4}" = 1'-0"$



DISTRICT 3
BRIDGE SECTION

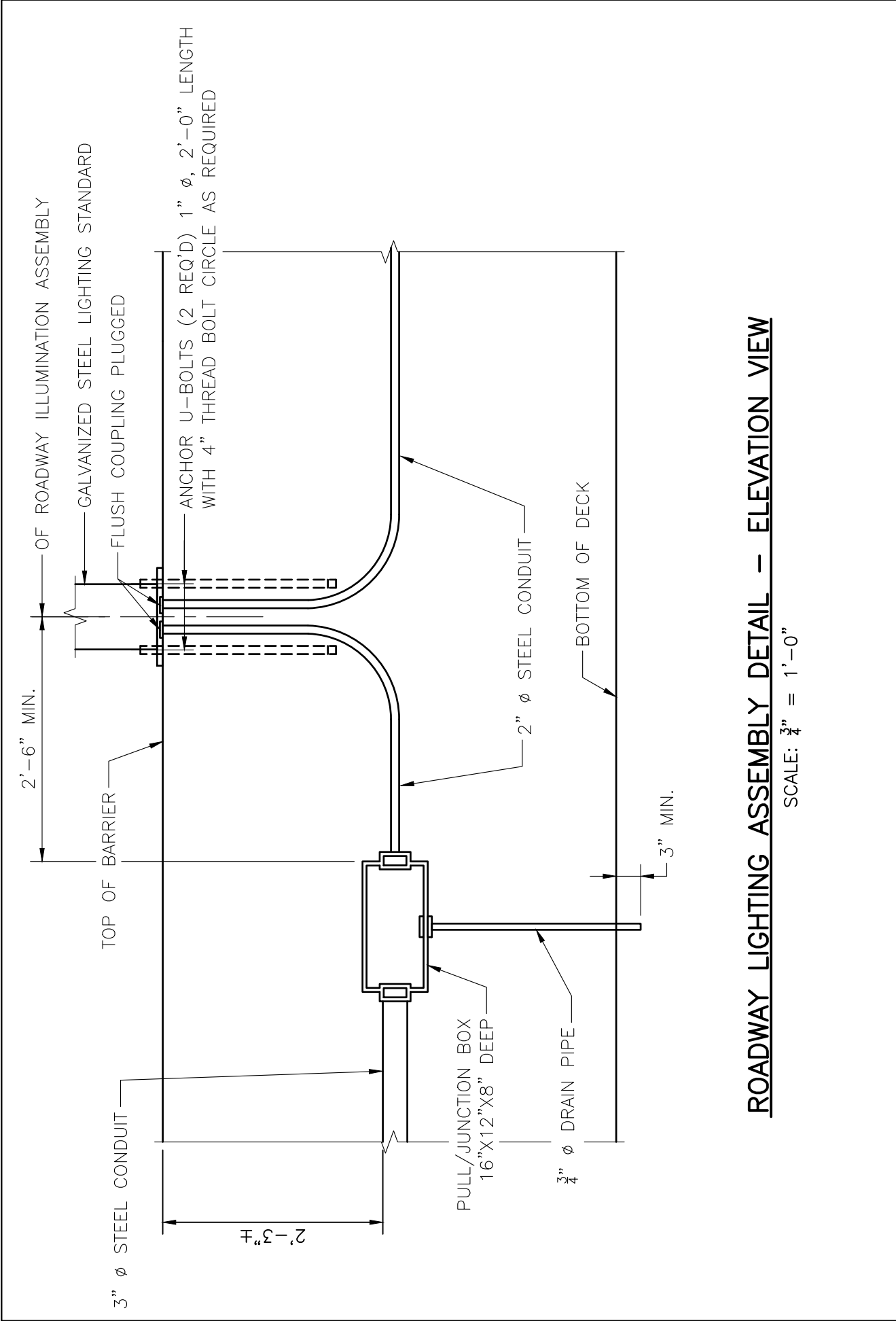
PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: DOWNSPOUT DETAIL

SHEET: 34 OF 87

DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026



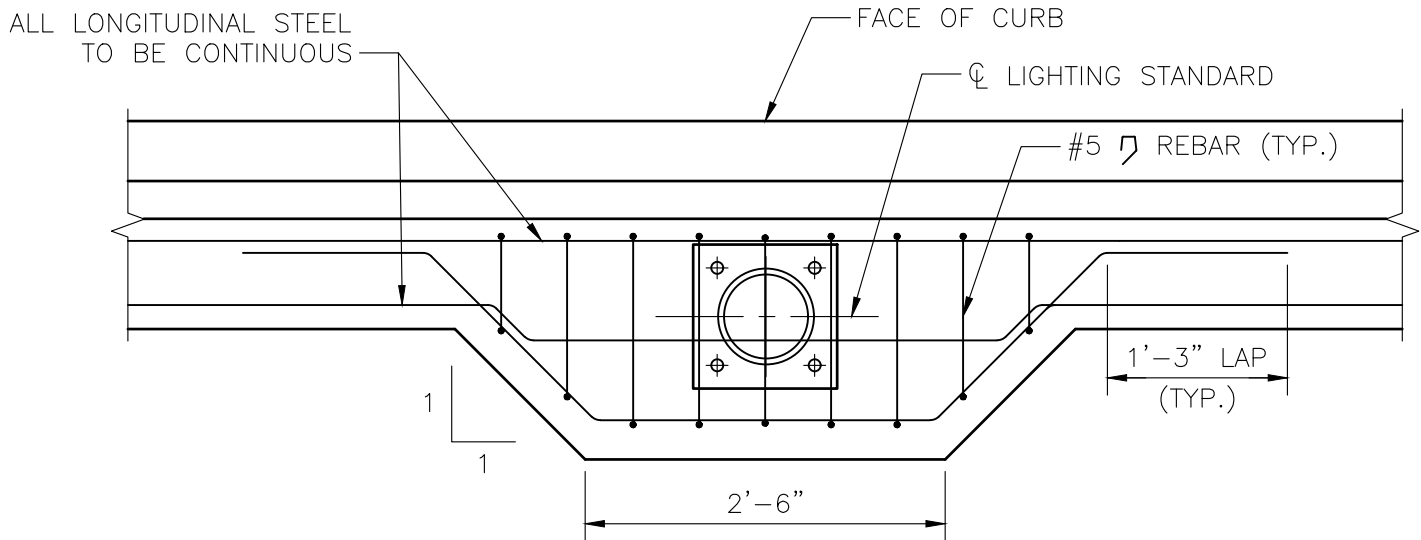
ROADWAY LIGHTING ASSEMBLY DETAIL – ELEVATION VIEW

SCALE: 3/4" = 1'-0"

 DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH		SHEET: 35 OF 87
	SUBJECT: ROADWAY LIGHTING ASSEMBLY DETAIL - 1		DRAWN BY: ME
			DATE: 9/1/2026
			CHECKED BY: JON
			DATE: 9/1/2026

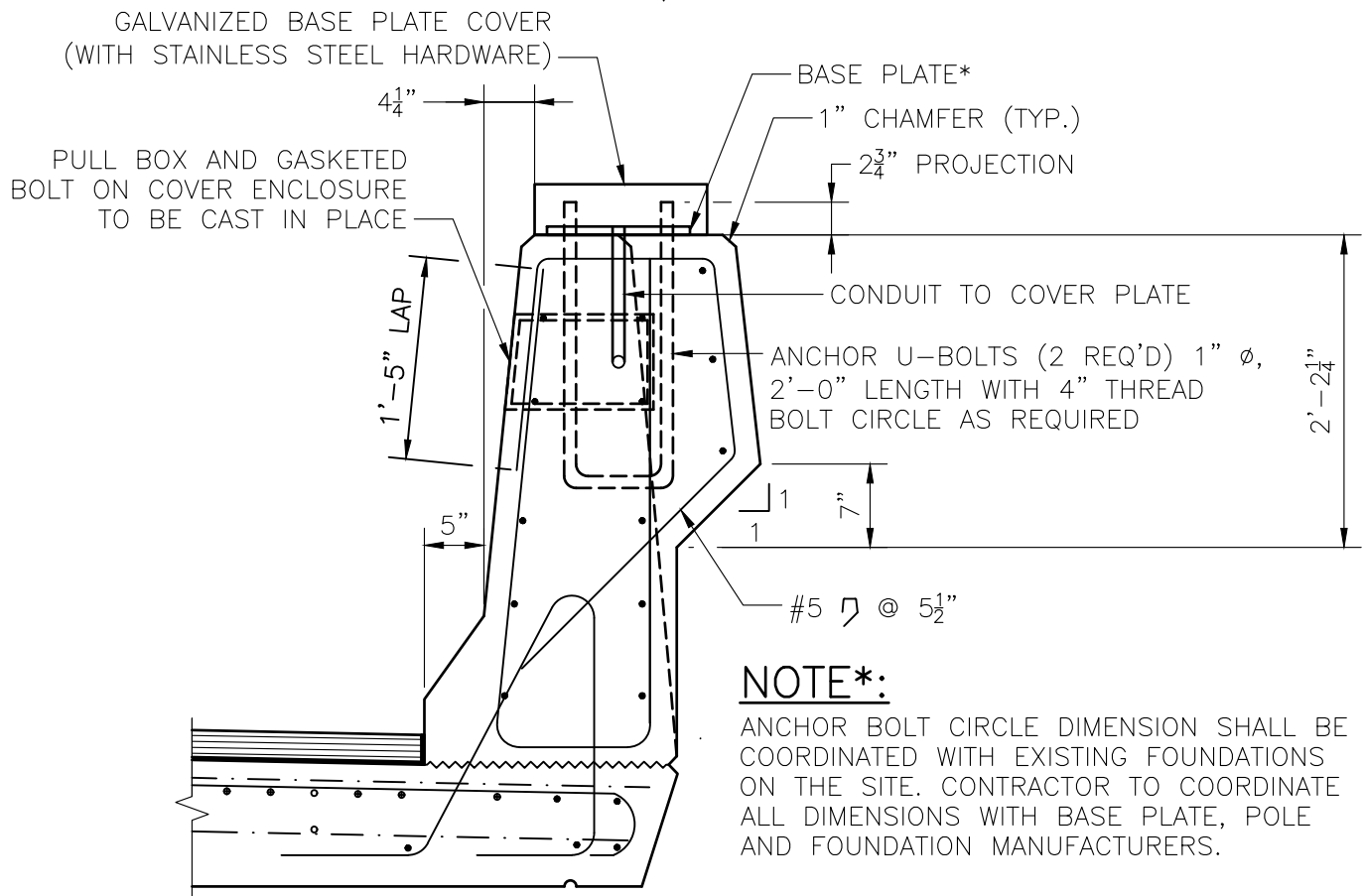
S:\03\BRIDGE\DESIGN-REVIEW\PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG



ROADWAY LIGHTING ASSEMBLY DETAIL – PLAN VIEW

SCALE: $\frac{3}{4}" = 1'-0"$



ROADWAY LIGHTING ASSEMBLY DETAIL – SECTION VIEW

SCALE: $\frac{3}{4}" = 1'-0"$



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: ROADWAY LIGHTING ASSEMBLY DETAIL – 2

SHEET: 36 OF 87

DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026

CF-MLT5 BARRIER TRANSITION AND PRECAST HIGHWAY GUARDRAIL NOTES:

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER $\frac{7}{8}$ " ϕ S.S. BOLT. S.S. BOLT SHALL BE $\frac{7}{8}$ " ϕ X $1\frac{1}{2}$ " LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR $\frac{7}{8}$ " S.S. BOLTS SHALL BE GALVANIZED AND CAST INTO THE TRANSITION.
2. $\frac{7}{8}$ " ϕ HIGH STRENGTH BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F3125 GRADE 325 TYPE 1 GALVANIZED. USE ADDITIONAL WASHERS AS REQUIRED TO PROPERLY ENGAGE THE BOLTS.
3. FOR AN APPROACH GRADE UP TO 3%, THE TRANSITION MAY BE CAST SQUARE AND SET PLUMB WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SQUARE TO THE POST.
4. FOR AN APPROACH GRADE IN EXCESS OF 3%, THE TRANSITION TOP AND THE TOP OF THE BRIDGE BARRIERS SHALL FOLLOW THE APPROACH GRADE.
5. ALL CONCRETE FOR THE PRECAST HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 PSI, $\frac{3}{4}$ ", 685 HP CEMENT CONCRETE, PAID UNDER ITEMS 992.1 AND 992.2.
6. LIFTING DEVICES (NOT SHOWN), INCLUDING THEIR NUMBER AND LOCATION, SHALL BE DESIGNED AND DETAILED BY THE PRECASTER. THEY SHALL BE GALVANIZED AND SHALL BE PLACED AND RECESSED IN POCKETS TO PROVIDE $1\frac{1}{2}$ " CLEAR COVER TO THE FACE OF THE TRANSITION CONCRETE. THESE DEVICES SHALL BE CLEARLY SHOWN ON THE SHOP DRAWINGS ALONG WITH ALL SUPPORTING CALCULATIONS AND/OR CATALOG CUTS. ONCE THE PRECAST TRANSITION IS SET IN PLACE, THE LIFTING DEVICE POCKETS SHALL BE FILLED WITH A NON-SHRINK GROUT THAT MATCHES THE COLOR OF THE TRANSITION CONCRETE WHEN CURED AND THE FILLED POCKETS SHALL BE RUBBED WITH A CORUNDUM STONE TO BLEND OUT THE JOINTS.
7. THE SOIL SHALL BE EXCAVATED TO THE GRADE OF 3" (MIN.) BELOW THE INTENDED BOTTOM OF THE GUARDRAIL TRANSITION BASE AND TO A HEIGHT OF 2'-0" (MIN.) ON ALL SIDES OF THE TRANSITION BASE TO FORM A TRENCH IN WHICH TO SET THE TRANSITION.
8. GRAVEL BORROW SHALL BE PLACED AND THOROUGHLY COMPACTED TO THE GRADE OF 3" (MIN.) BELOW THE INTENDED BOTTOM OF THE GUARDRAIL TRANSITION BASE AND TO A HEIGHT OF 2'-0" (MIN.) ON ALL SIDES OF THE TRANSITION BASE TO FORM A TRENCH IN WHICH TO SET THE TRANSITION. WHERE NO GRAVEL BORROW IS REQUIRED BELOW THE BASE, IT SHALL BE PLACED ON UNDISTURBED SOIL.
9. CONTRACTOR SHALL SET THE PRECAST GUARDRAIL TRANSITION TO THE REQUIRED ELEVATION AND ALIGNMENT, AND BACKFILL GUARDRAIL TRANSITION WITH CONTROLLED LOW-STRENGTH MATERIAL-NON-EXCAVATABLE TO THE ELEVATION SHOWN.
10. BACKFILL THE REMAINDER OF EXCAVATION WITH GRAVEL BORROW, WHICH SHALL BE THOROUGHLY COMPACTED IN 12" LIFTS.



PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: CF-MLT5 BARRIER TRANSITION AND PRECAST HIGHWAY GUARDRAIL NOTES

SHEET: 37 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG



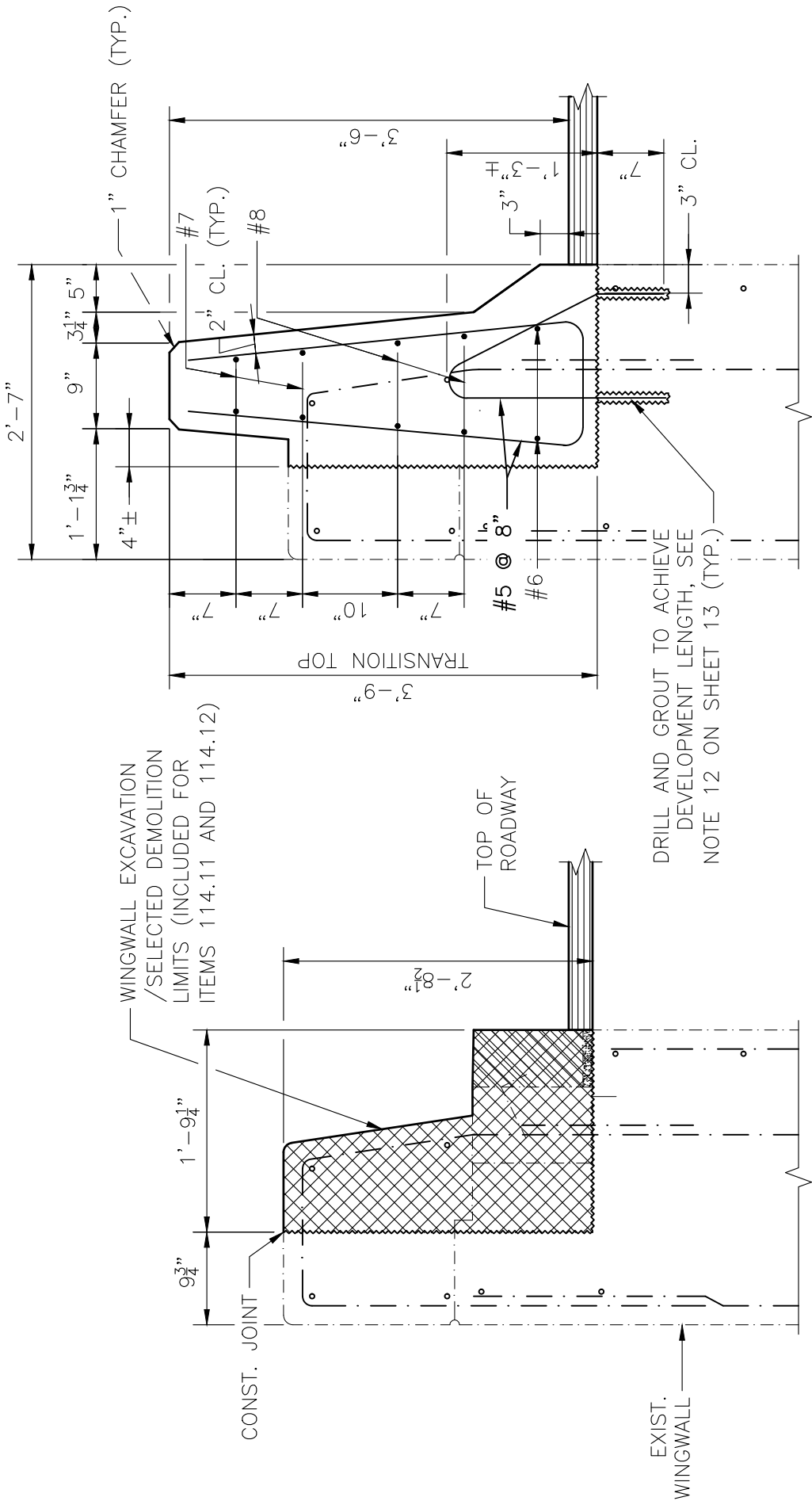
SCALE: $\frac{1}{2}$ " = 1'-0"

SCALE: N.T.S.

BRIDGE SECTION

SUBJECT: PROPOSED EXCAVATION LIMITS AT ENDPOST

CHECKED BY: JON



**BARRIER EXCAVATION
LIMITS AT WINGWALL**

SCALE: $\frac{3}{4}$ " = 1'-0"

**CF-MTL5 BRIDGE BARRIER RETROFIT
AT WINGWALL**

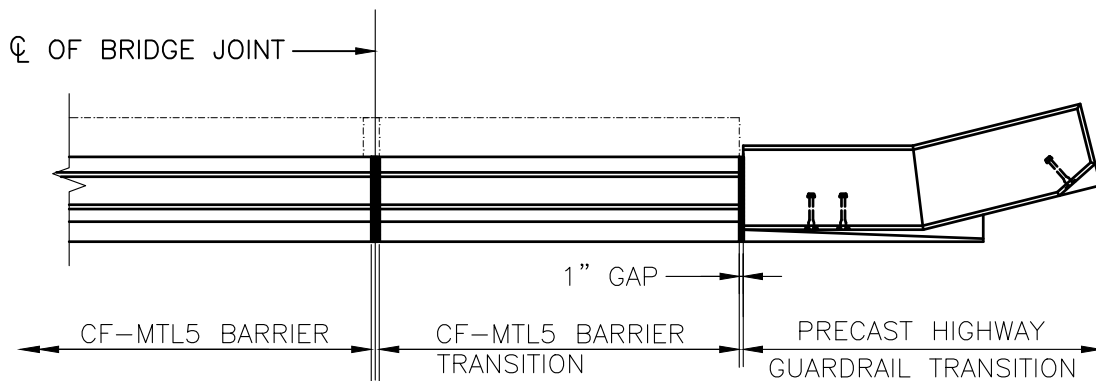
SCALE: $\frac{3}{4}$ " = 1'-0"

massDOT
Highway Division
**DISTRICT 3
BRIDGE SECTION**

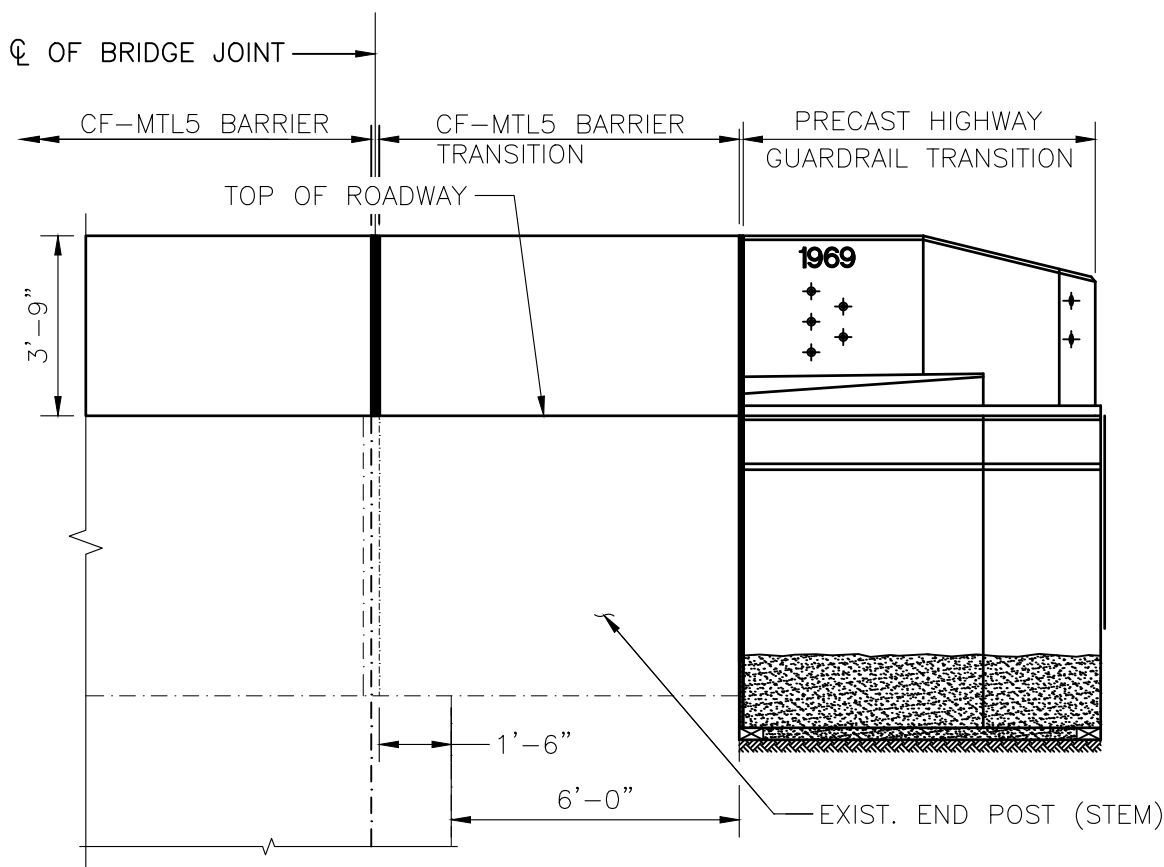
PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: BARRIER EXCAVATION AND CF-MTL5 BRIDGE BARRIER RETROFIT AT WINGWALL

SHEET: 39 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026



PLAN VIEW
SCALE: $\frac{1}{4}" = 1'-0"$



ELEVATION VIEW
SCALE: $\frac{1}{4}" = 1'-0"$

HIGHWAY GUARDRAIL TRANSITION – TYPE I
(AT I-290 WB NORTH BARRIER AND I-290 EB SOUTH BARRIER)
SCALE: $\frac{1}{4}" = 1'-0"$



DISTRICT 3
BRIDGE SECTION

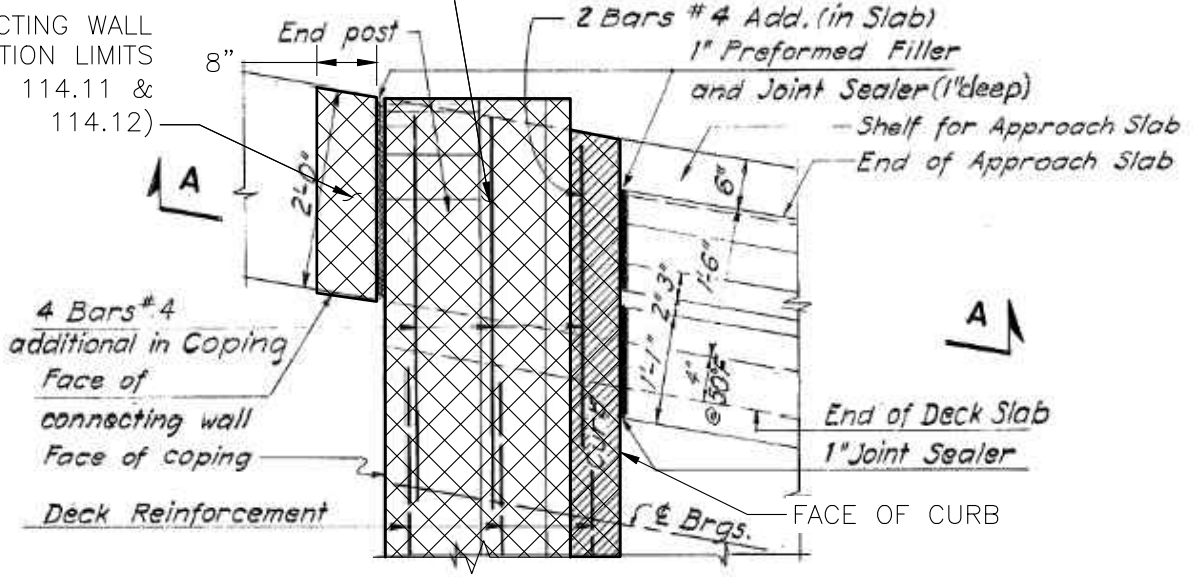
PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: HIGHWAY GUARDRAIL TRANSITION – TYPE I

SHEET: 40 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026

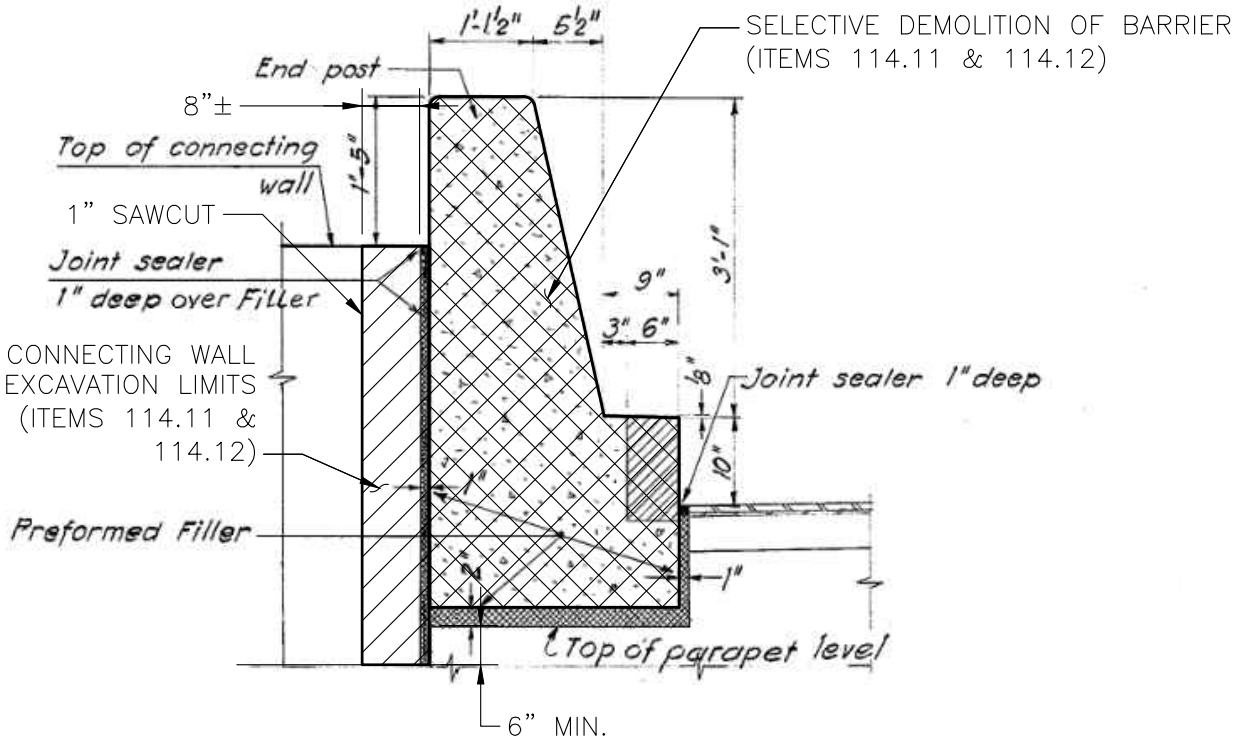
SELECTIVE DEMOLITION OF BARRIER
(ITEMS 114.11 & 114.12)

CONNECTING WALL
EXCAVATION LIMITS
(ITEMS 114.11 &
114.12)



END POST DEMOLITION LIMITS AT MEDIAN – PLAN VIEW WEST ABUTMENT

SCALE: N.T.S.



END POST DEMOLITION LIMITS AT MEDIAN – SECTION VIEW WEST ABUTMENT

SCALE: N.T.S.



DISTRICT 3
BRIDGE SECTION

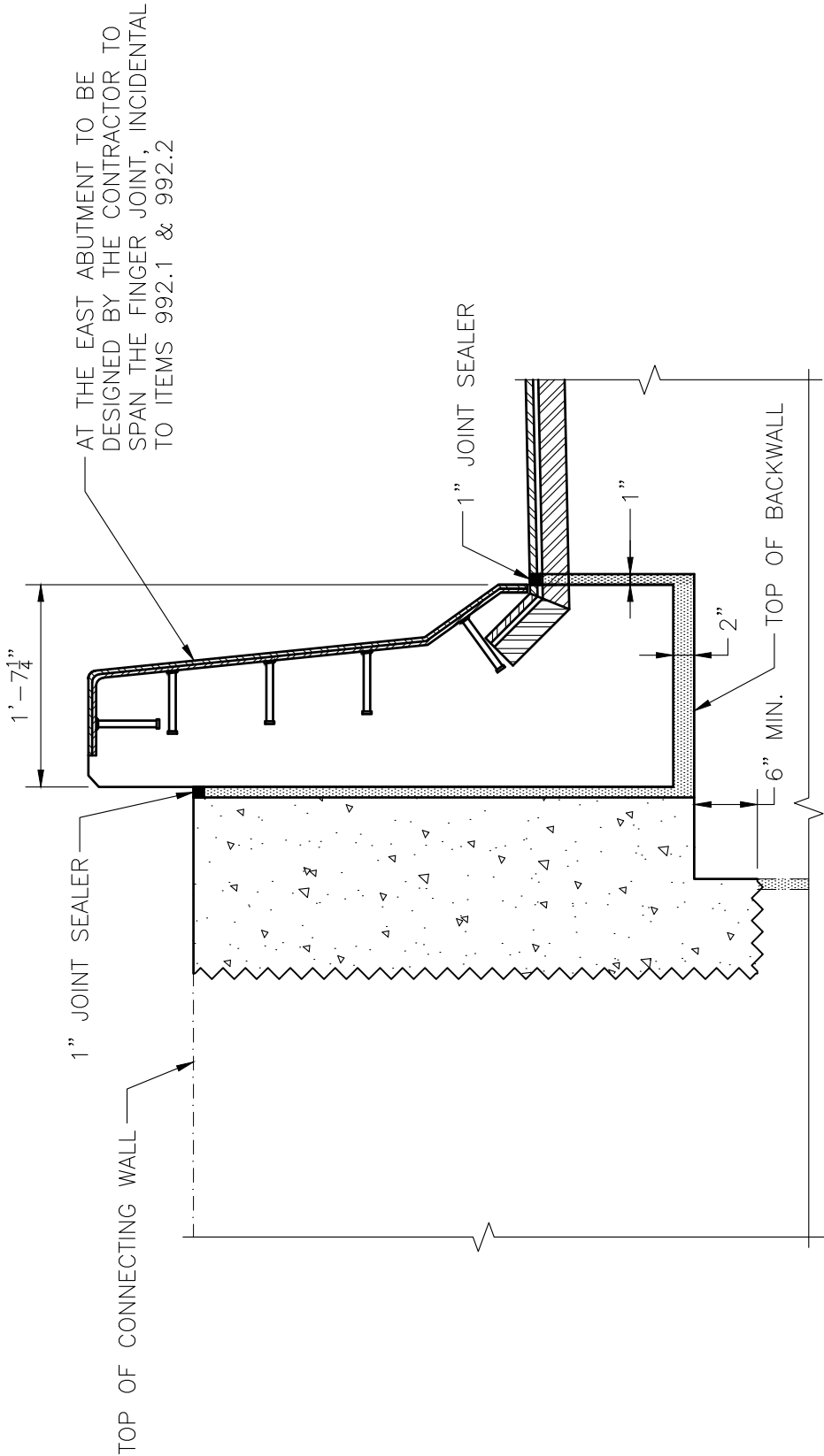
PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: END POST AT MEDIAN – WEST ABUTMENT

SHEET: 41 OF 87

DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026



PROPOSED PRECAST HIGHWAY GUARDRAIL TRANSITION AT MEDIAN – SECTION VIEW
WEST ABUTMENT

SCALE: 3/4" = 1'-0"



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: PROPOSED PRECAST HIGHWAY GUARDRAIL TRANSITION AT MEDIAN –
SECTION VIEW WEST ABUTMENT

SHEET: 42 OF 87

DRAWN BY: ME

DATE: 9/1/2026

CHECKED BY: JON

DATE: 9/1/2026

S:\03\BRIDGE\DESIGN-REVIEW\PROJECTS\DESIGN PHASE\STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG



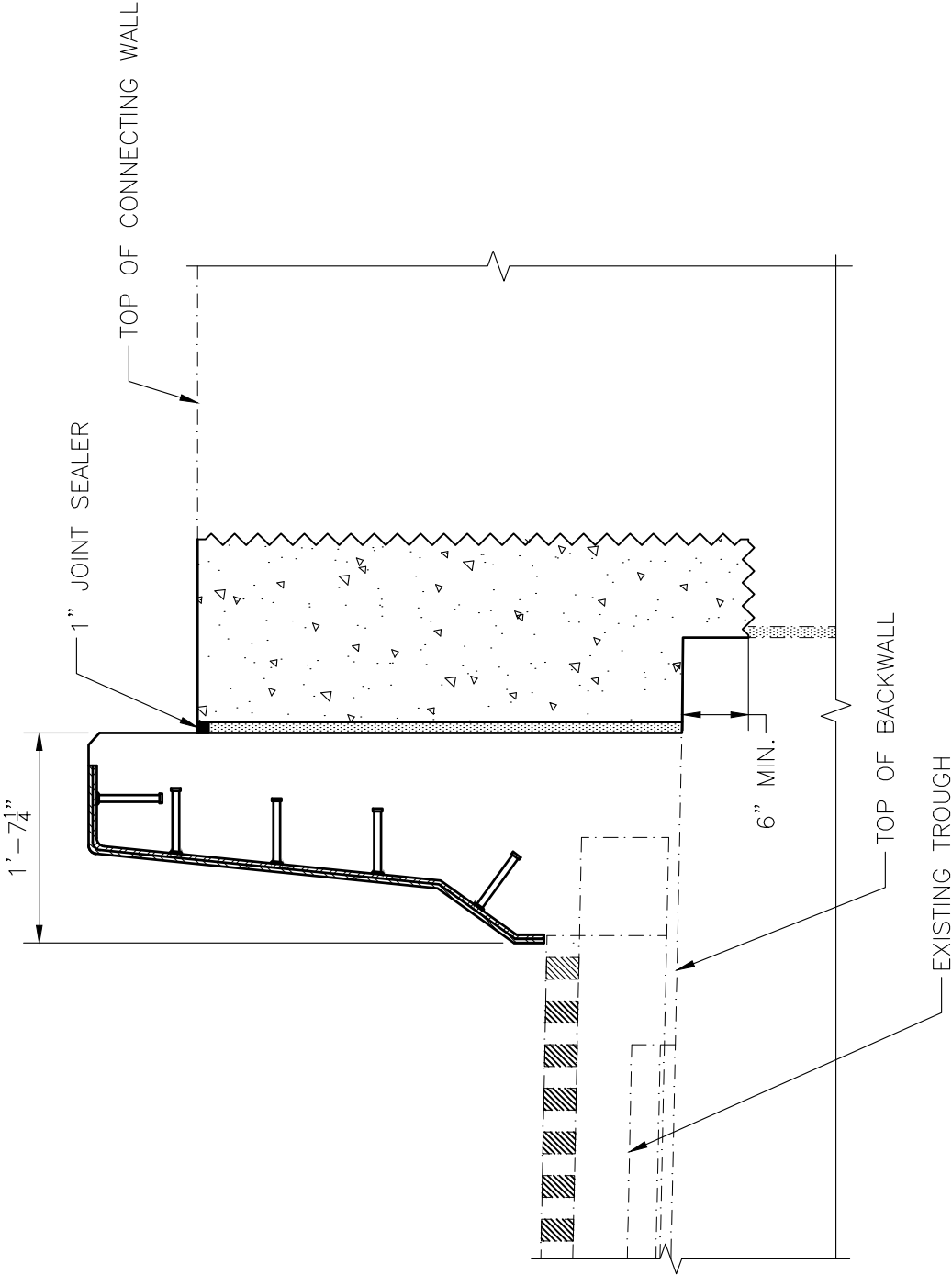
- SELECTIVE DEMOLITION OF BARRIER
(ITEMS 114.11 & 114.12)



massDOT
Massachusetts Department of Transportation
Highway Division

DISTRICT 3 BRIDGE SECTION

CHECKED BY: JON
DATE: 9/1/2026



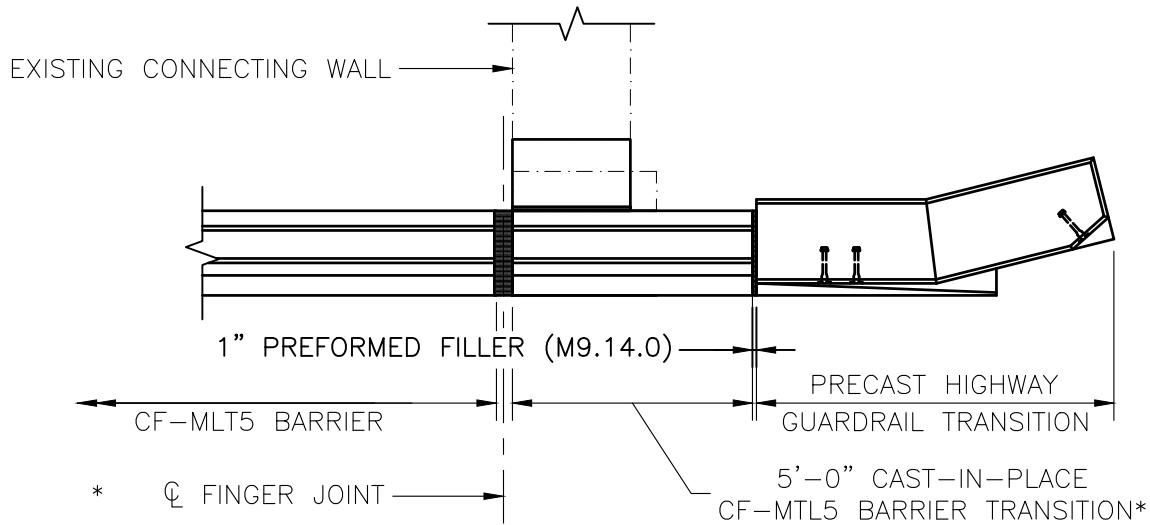
PROPOSED PRECAST HIGHWAY GUARDRAIL TRANSITION AT MEDIAN – SECTION VIEW
EAST ABUTMENT

SCALE: 3/4" = 1'-0"

 DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH	SHEET: 44 OF 87
	SUBJECT: PROPOSED PRECAST HIGHWAY GUARDRAIL TRANSITION AT MEDIAN - SECTION VIEW EAST ABUTMENT	DRAWN BY: ME
		DATE: 9/1/2026
		CHECKED BY: JON
		DATE: 9/1/2026
PROJECT: MAINTENANCE 10.0 SITE SPECIFIC PROJECT Y 25 BILL BRIDGE PRESERVATION 612874 WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26 DWG 2 MAIN 2026.DWG		

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\TO.O_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG

S:\03 BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0 SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26.DWG - 2 MAIN 2026.DWG

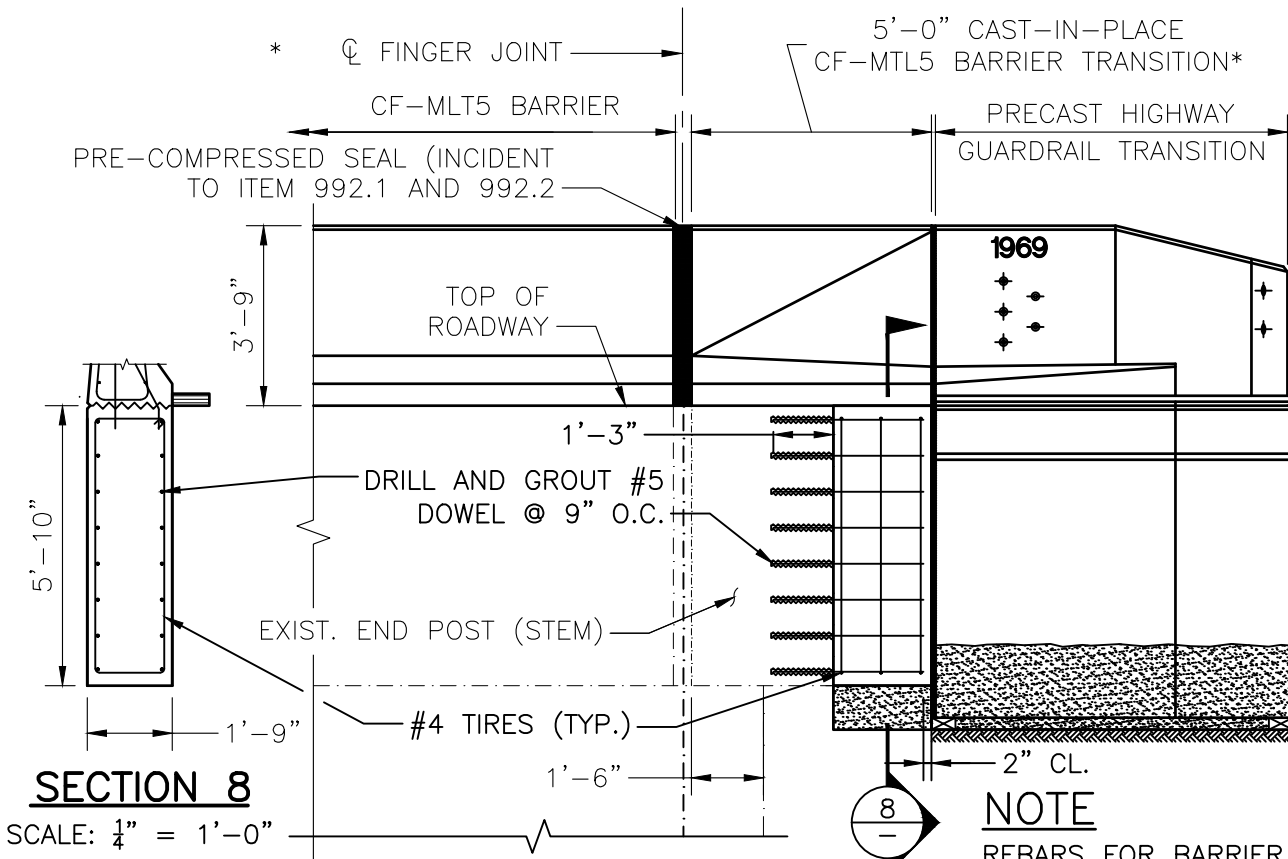


* SLIDING PLATE AT JOINT OPENING NOT SHOWN FOR CLARITY

PLAN VIEW

SCALE: $\frac{1}{4}" = 1'-0"$

* CAST-IN-PLACE CF-MTL5 BARRIER TRANSITION SHALL BE ON TOP EXISTING END POST



SECTION 8

SCALE: $\frac{1}{4}" = 1'-0"$

ELEVATION VIEW

SCALE: $\frac{1}{4}" = 1'-0"$

NOTE

REBARS FOR BARRIER, END POST AND TRANSITION ARE NOT SHOWN FOR CLARITY.

HIGHWAY GUARDRAIL TRANSITION - TYPE II (AT I-290 EB/WB MEDIAN)

SCALE: $\frac{1}{4}" = 1'-0"$



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: HIGHWAY GUARDRAIL TRANSITION - TYPE II

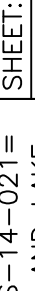
SHEET: 45 OF 87

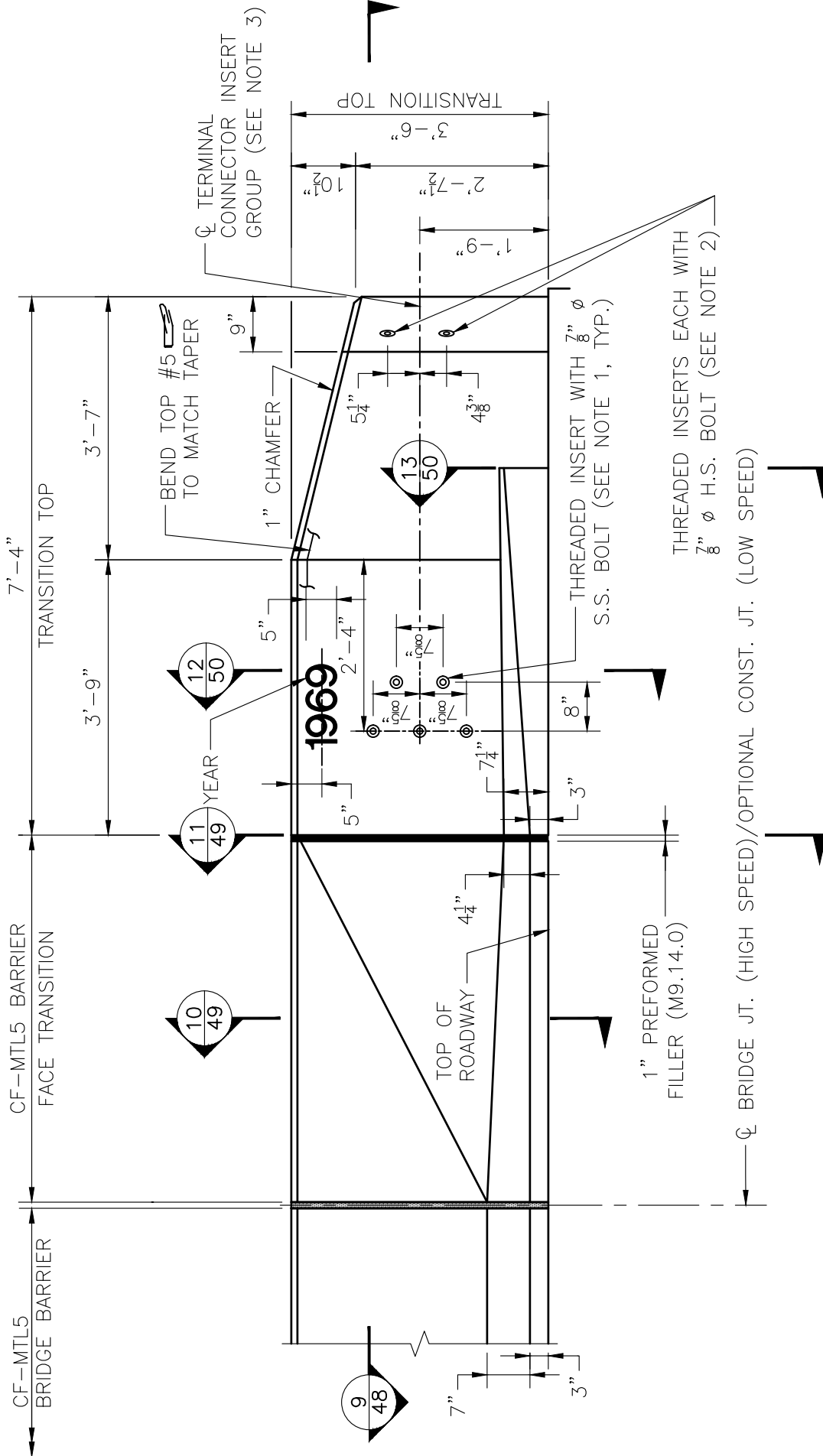
DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026



SCALE: $\frac{1"}{2} = 1'-0"$

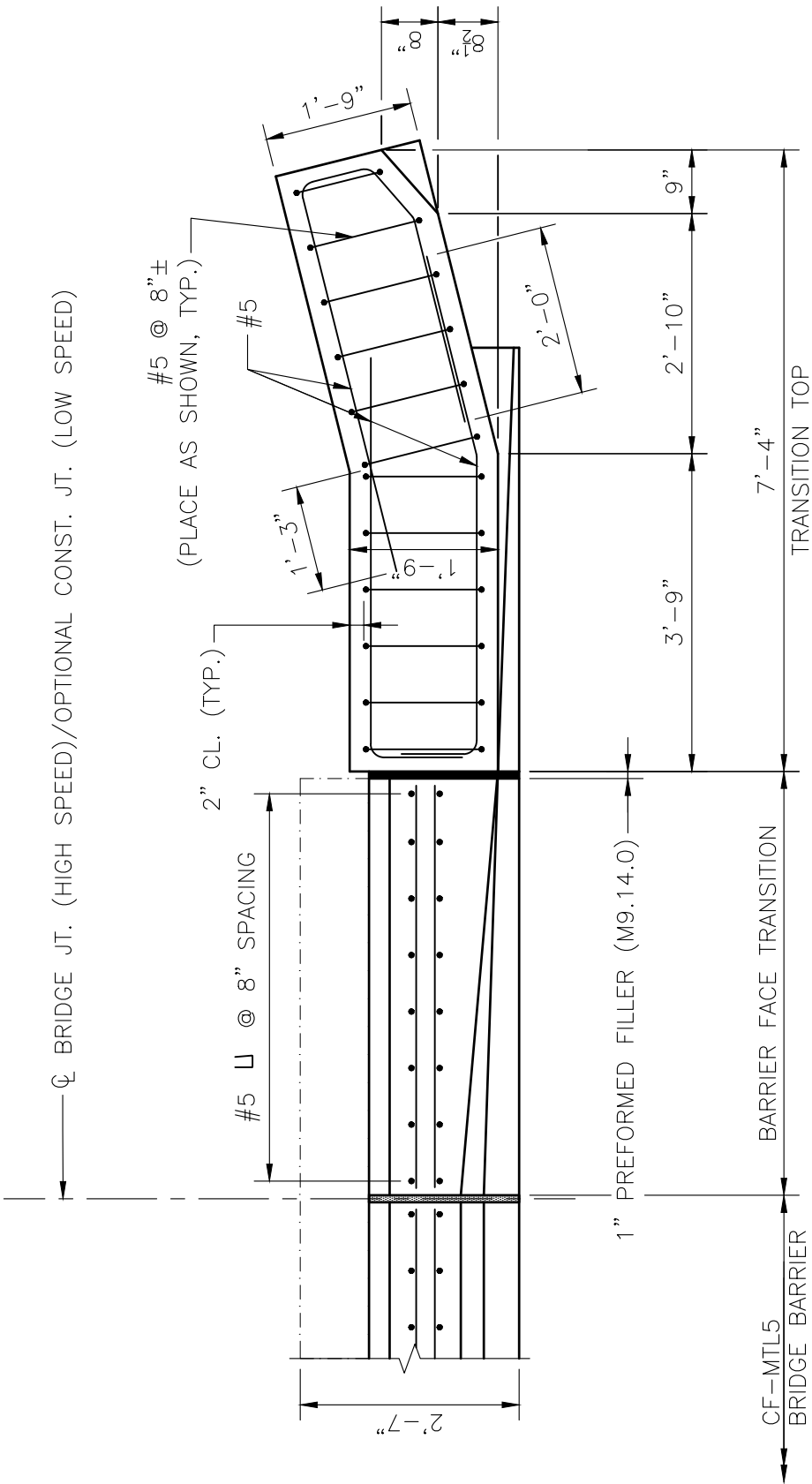
 massDOT MASSACHUSETTS Highway Division	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH	SHEET: 46 OF 87
		DRAWN BY: ME
	SUBJECT: PRECAST HIGHWAY GUARDRAIL - 1	DATE: 9/1/2026
		CHECKED BY: JON DATE: 9/1/2026



PRECAST HIGHWAY GUARDRAIL - ELEVATION

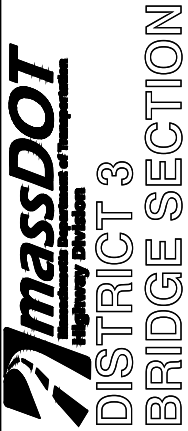
SCALE: 1/2" = 1'-0"

 DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH SUBJECT: PRECAST HIGHWAY GUARDRAIL - 2		SHEET: 47 OF 87 DRAWN BY: ME DATE: 9/1/2026 CHECKED BY: JON DATE: 9/1/2026
--	---	--	---



SECTION 9

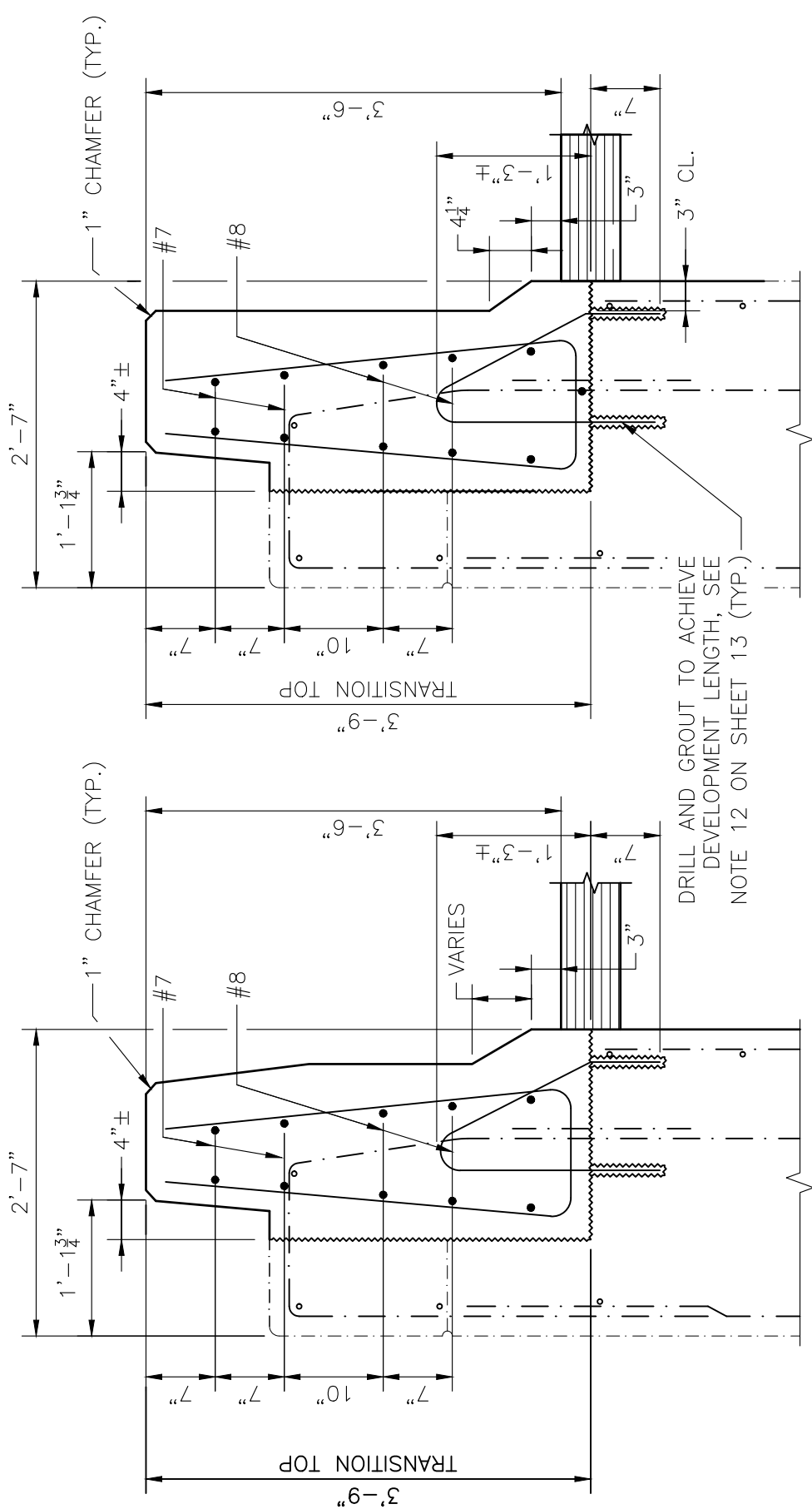
SCALE: $\frac{1}{2}$ " = 1'-0"



PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: PRECAST GUARDRAIL SECTION 9

SHEET: 48 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026



SECTION 10

SCALE: $\frac{3}{4}" = 1'-0"$

SECTION 11

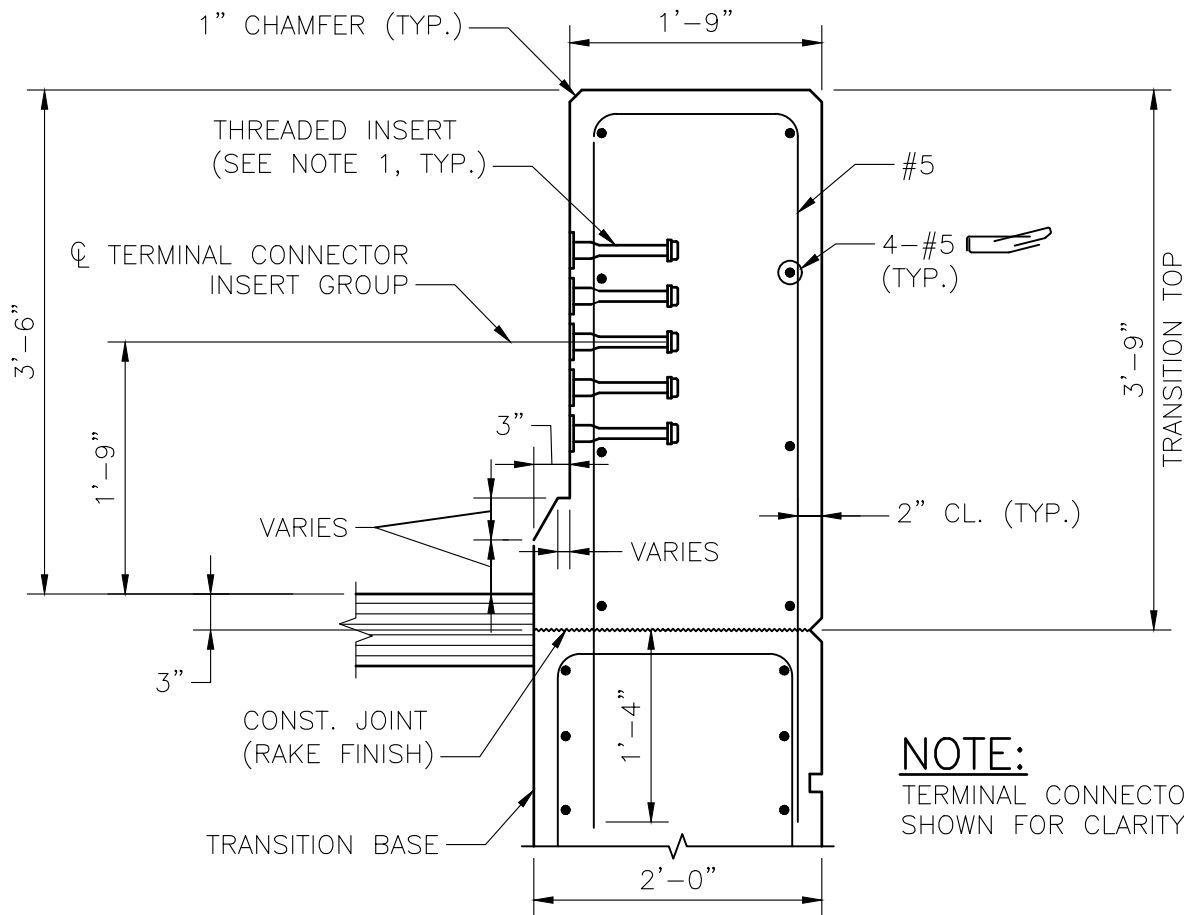
SCALE: $\frac{3}{4}" = 1'-0"$

massDOT
Highway Division
DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

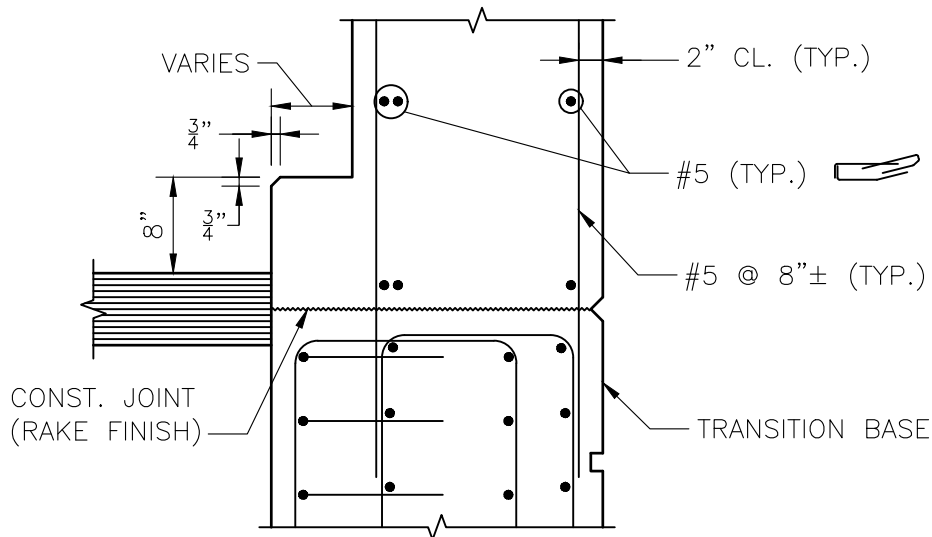
SUBJECT: BARRIER RETROFIT SECTION 10 AND 11

SHEET: 49 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026



SECTION 12

SCALE: $\frac{3}{4}$ " = 1'-0"



SECTION 13

SCALE: $\frac{3}{4}$ " = 1'-0"



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: BARRIER RETROFIT SECTION 12 AND 13

SHEET: 50 OF 87

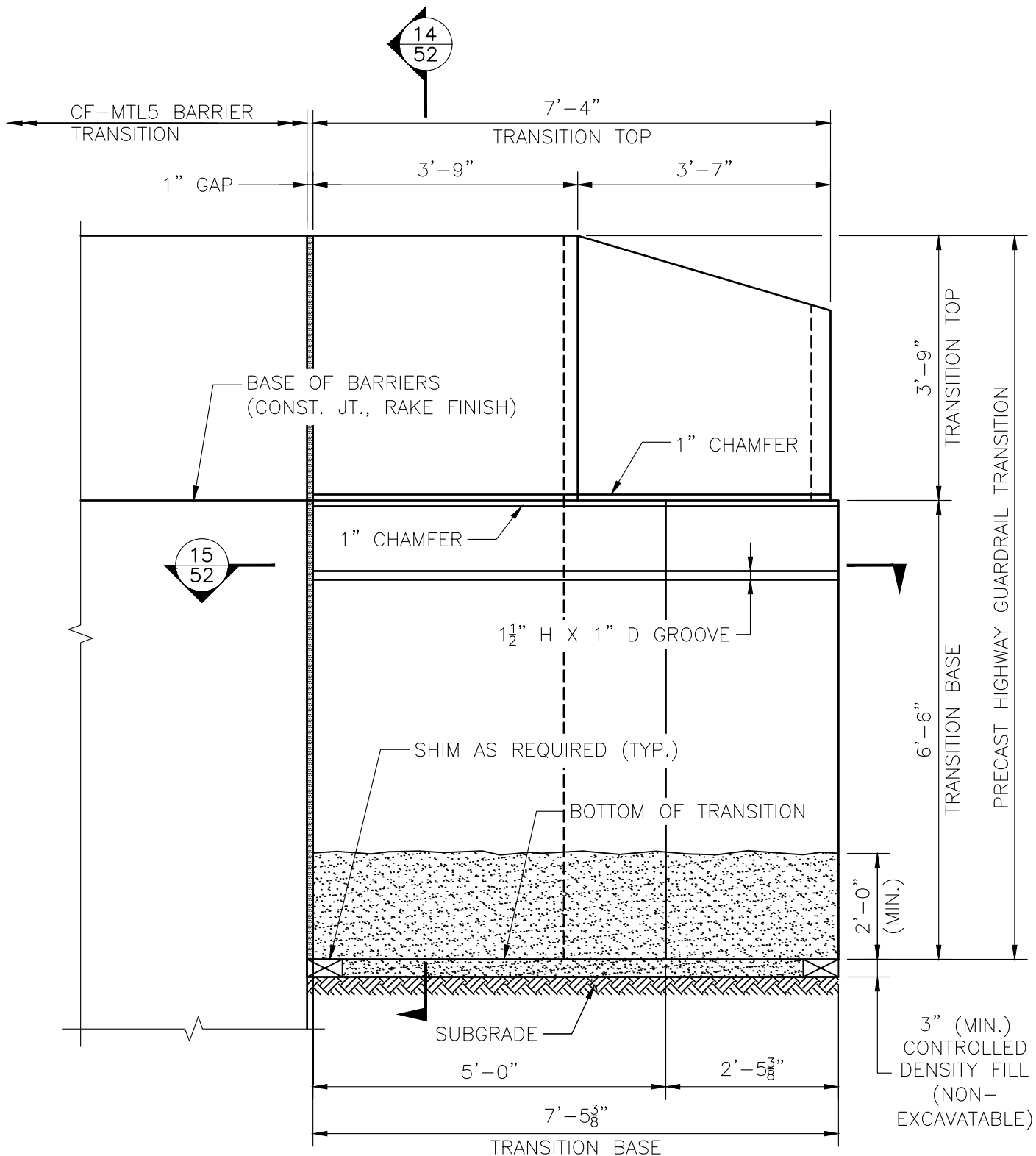
DRAWN BY: ME

DATE: 9/1/2026

CHECKED BY: JON

DATE: 9/1/2026

S:\03\BRIDGE\DESIGN-REVIEW\PROJECTS\DESIGN\PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2 MAIN 2026.DWG



PRECAST GUARDRAIL TRANSITION ELEVATION

SCALE: $\frac{1}{2}" = 1'-0"$



DISTRICT 3
BRIDGE SECTION

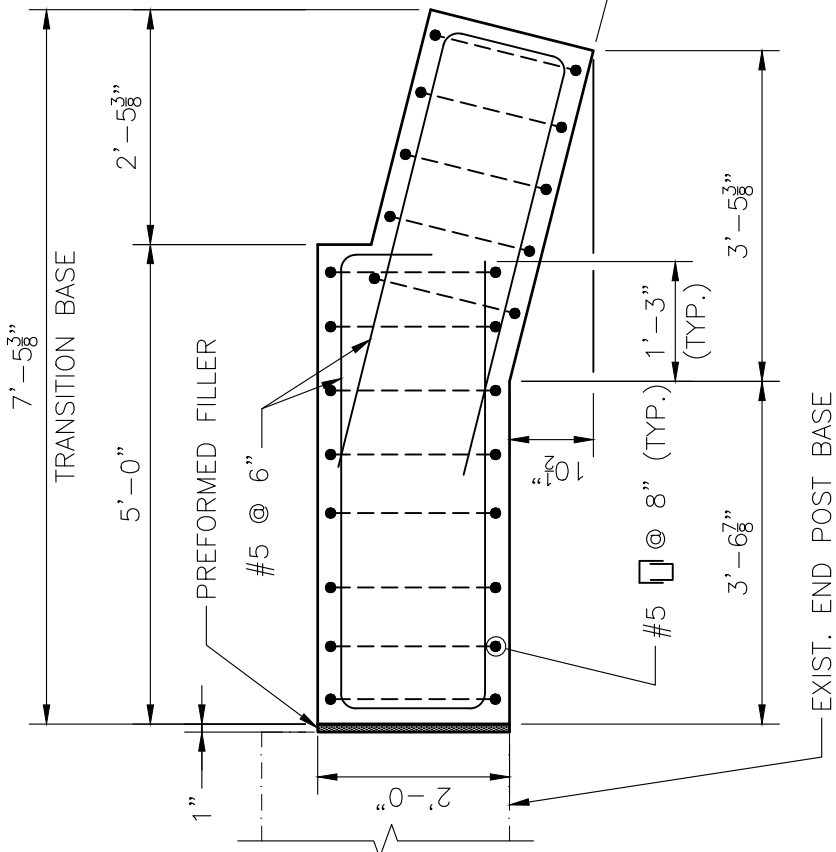
PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: PRECAST GUARDRAIL TRANSITION ELEVATION

SHEET: 51 OF 87

DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026



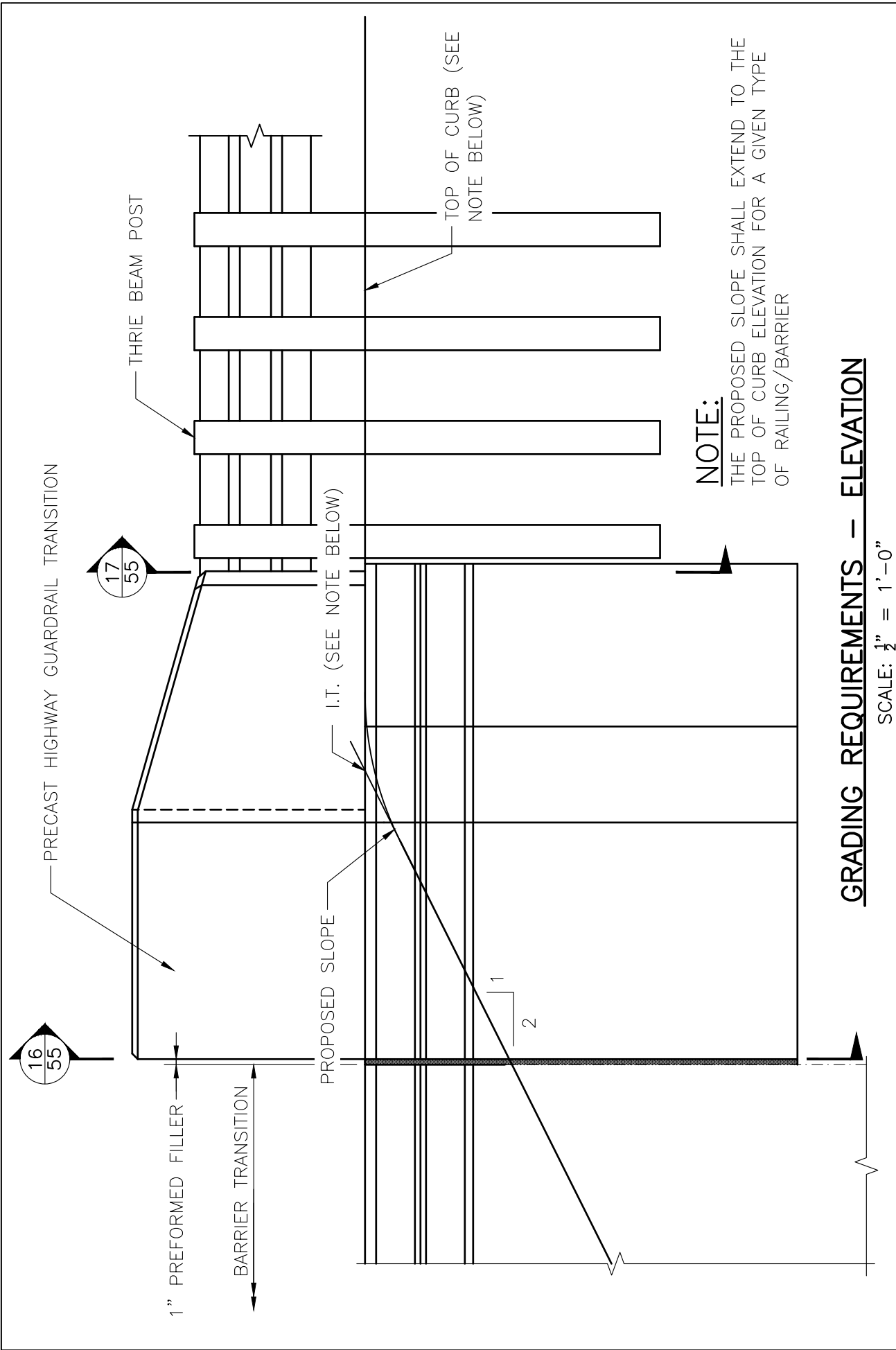
NOTES:

1. $1\frac{1}{2}$ " H x 1" D GROOVE. ALIGN WITH GROOVE AT TOP OF STRIATIONS.
2. REINFORCEMENT OF THE TRANSITION TOP IS NOT SHOWN FOR CLARITY

SECTION 15

SCALE: $\frac{1}{2}'' = 1'-0''$

 DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH	SHEET: 52 OF 87 DRAWN BY: ME DATE: 9/1/2026
	SUBJECT: GUARDRAIL TRANSITION SECTION 14 AND 15	CHECKED BY: JON DATE: 9/1/2026



GRADING REQUIREMENTS – ELEVATION

SCALE: $\frac{1}{2}$ " = 1'-0"

massDOT
Highway Division
DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: GUARDRAIL TRANSITION GRADING REQUIREMENTS – 1

SHEET: 53 OF 87

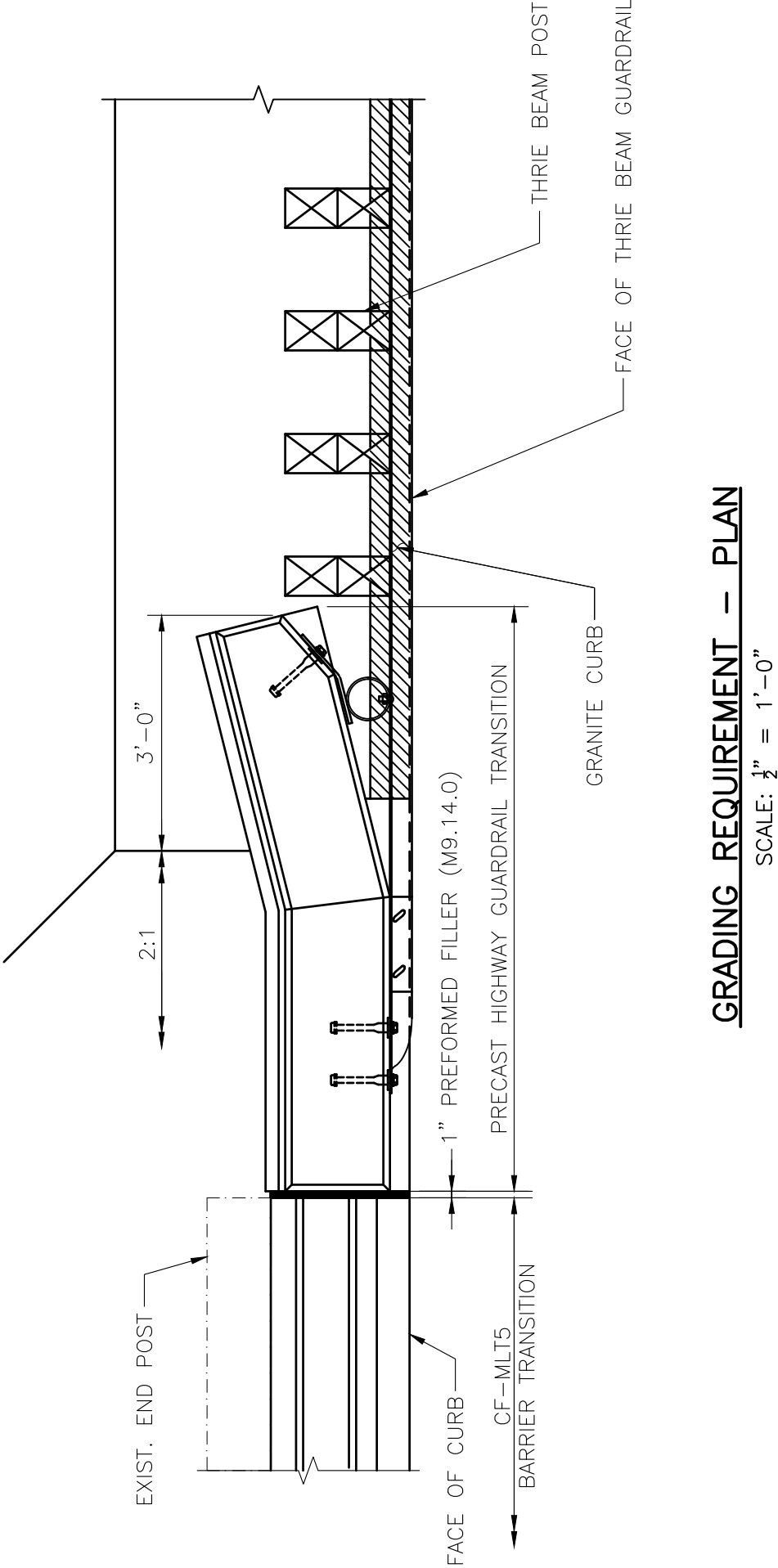
DRAWN BY: ME

DATE: 9/1/2026

CHECKED BY: JON

DATE: 9/1/2026

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2 MAIN 2026.DWG



GRADING REQUIREMENT – PLAN

SCALE: 1/2" = 1'-0"

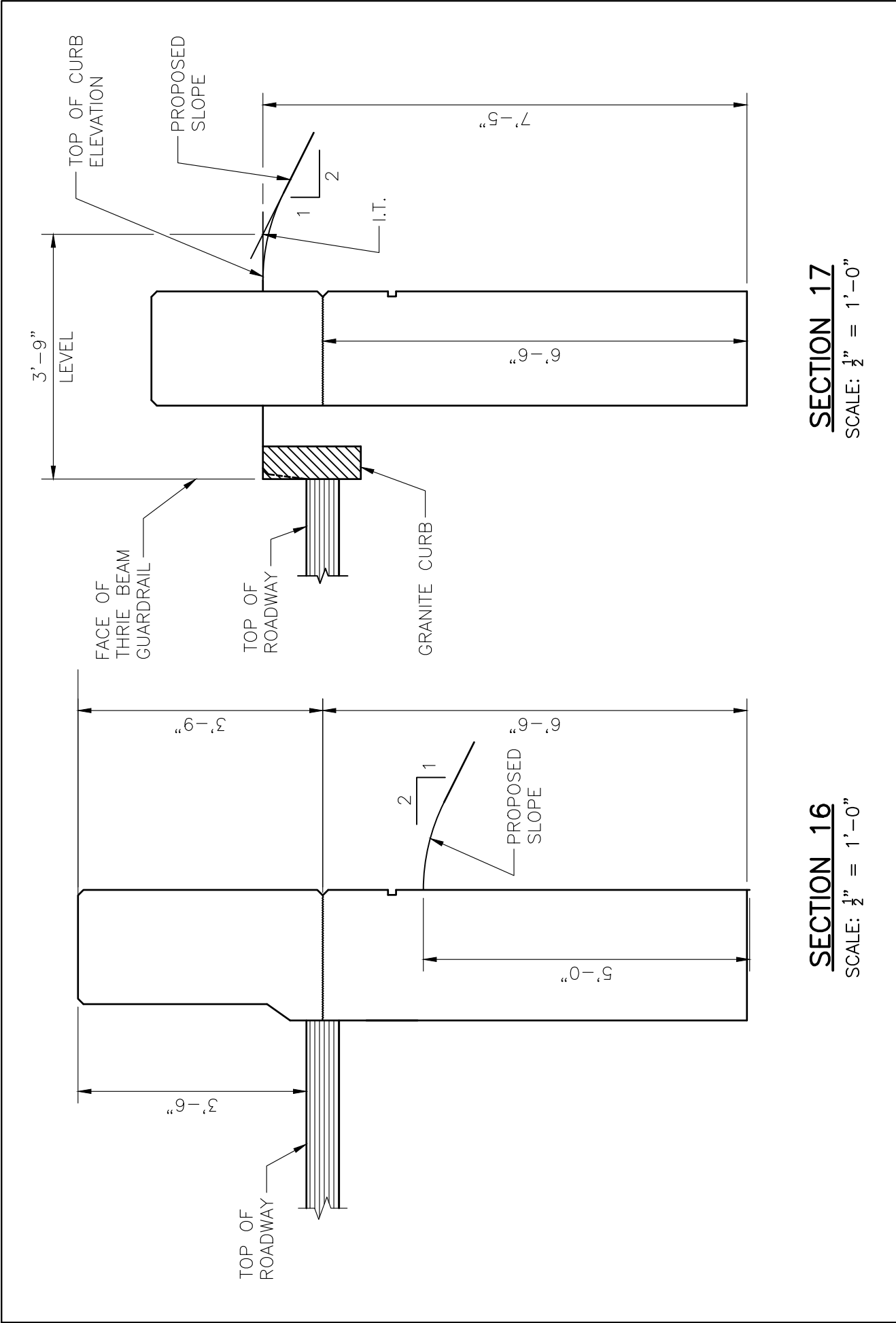


DISTRICT 3
BRIDGE SECTION

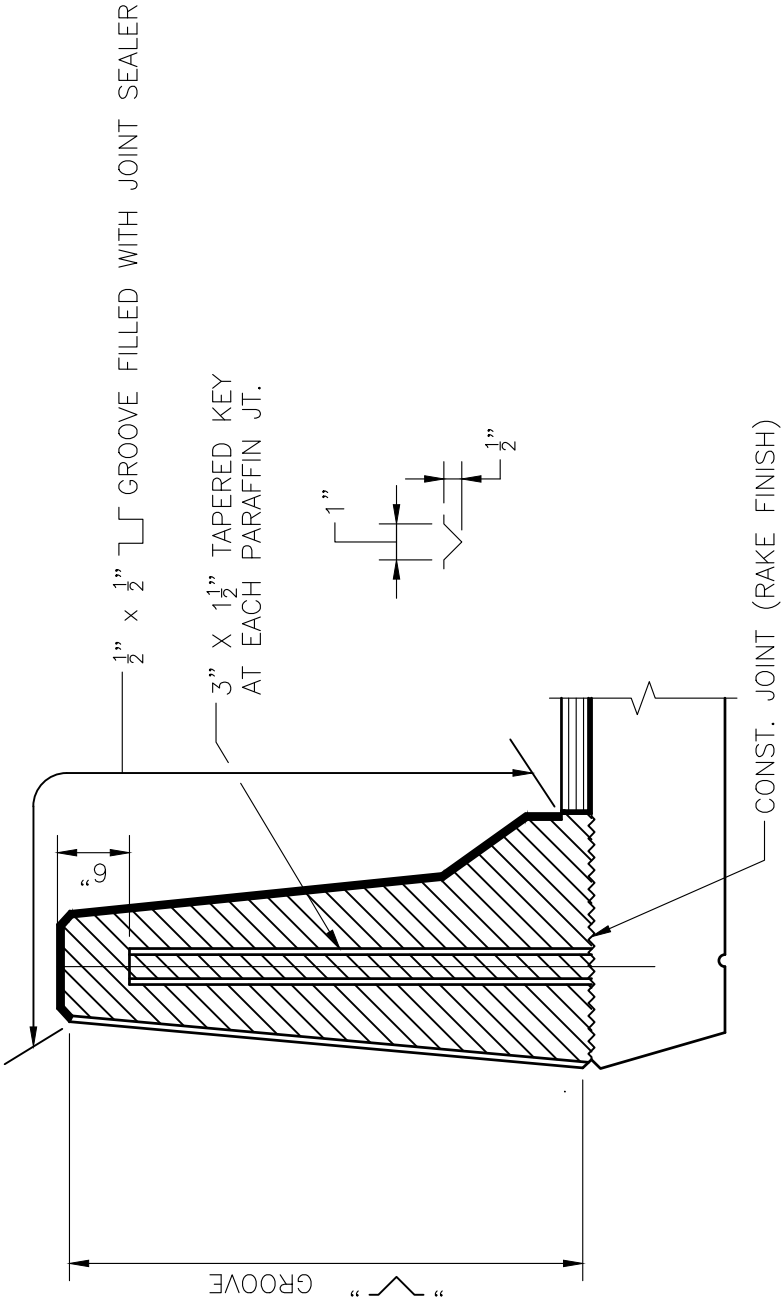
PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: GUARDRAIL TRANSITION GRADING REQUIREMENTS – 2

SHEET: 54 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026



 DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021 = W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH		SHEET: 55 OF 87
	SUBJECT: GUARDRAIL TRANSITION GRADING REQUIREMENTS - 3		DRAWN BY: ME DATE: 9/1/2026 CHECKED BY: JON DATE: 9/1/2026



NOTES:

- 1. ALL CONCRETE ABOVE SLAB SHALL BE POURED IN ALTERNATING SECTIONS WITH NOT LESS THAN 3 DAYS BETWEEN POURS.
- 2. DO NOT CARRY LONGITUDINAL BARS THROUGH THE PARAFFIN JOINT. END THE REINFORCEMENT 2" CLEAR OF JOINT.
- 3. JOINT SHALL BE SQUARE TO FACE OF COPING.
- 4. BARRIER SHOP DRAWINGS SHALL INDICATE THE SPACING OF PARAFFIN JOINTS FOR THE ENGINEER'S APPROVAL. PARAFFIN JOINTS SHALL PREFERABLY BE SPACED BETWEEN 20 AND 25 FEET. A MINIMUM SPACING OF 15 FEET MAY BE USED IF NECESSARY.

PARAFFIN JOINT DETAIL

SCALE: 3/4" = 1'-0"

massDOT
Highway Division

DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: PARAFFIN JOINT DETAIL

SHEET: 56 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026

DECK DRAIN NOTES:

1. THE DECK DRAIN REPAIR LOCATIONS AND TYPE OF REPAIRS SHALL BE AS NOTED ON THE DRAWINGS.
2. THE INSTALLATION OF NEW DECK DRAIN PIPES, REPLACEMENT OF EXISTING DECK DRAIN PIPES, AND/OR NEW EXTENSIONS, WILL BE PAID FOR UNDER ITEM 968.3.
3. IF DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL CHANGE THE REPAIR TYPE, AND PERFORM DECK DRAIN WORK IN ACCORDANCE WITH THE DRAWINGS AND SPECIAL PROVISIONS AT ADDITIONAL BRIDGE LOCATIONS.
4. THE PAVEMENT EXCAVATION, INSTALLATION OF WATERPROOFING MEMBRANE AND REPAVING FOR THE DECK DRAIN WORK SHALL BE PAID FOR UNDER APPROPRIATE ITEMS.
5. ALL DECK DRAIN WORK SHALL BE COMPLETED PRIOR TO THE BRIDGE WATERPROOFING MEMBRANE AND PAVEMENT INSTALLATION.
6. ALL NEW DECK DRAIN PIPES SHALL BE SET IN NEW CONCRETE OR AN APPROVED NON-SHRINK GROUT.
7. IF THE NEW DECK DRAINS ARE LOCATED IN AREA BEYOND THE JOINT REPAIR EXCAVATION, THE CONTRACTOR SHALL REMOVE EXISTING DECK CONCRETE AND S.I.P FORMS AS REQUIRED FOR THE INSTALLATION. PRECAUTIONS SHALL BE TAKEN TO AVOID DAMAGING THE EXISTING DECK REINFORCEMENT. THE RESULTING VOIDS IN THE DECK SHALL BE FILLED WITH EITHER NEW CONCRETE OR AN APPROVED NON-SHRINK GROUT.
8. IF THE DECK CONCRETE CONDITIONS ALLOW, THE CONTRACTOR SHALL HAVE THE OPTION TO INSTALL THE PIPES IN CORE DRILLED HOLES (1½ INCH DIAMETER MINIMUM) IN THE BRIDGE DECK WITH THE APPROVAL OF THE ENGINEER. ALL CORING SHALL BE DONE WITH AN APPROVED CORING MACHINE. PRECAUTIONS SHALL BE TAKEN TO AVOID DAMAGING THE EXISTING DECK REINFORCEMENT. ANY GAPS AROUND THE PIPES SHALL BE SEALED WITH AN APPROVED NON-SHRINK GROUT OR EPOXY RESIN GROUT.



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: DECK DRAIN NOTES

SHEET: 57 OF 87

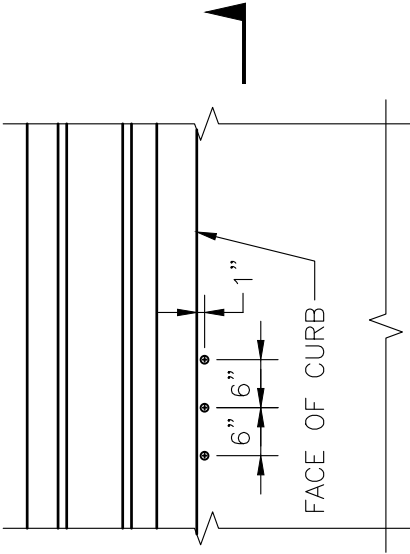
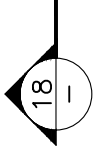
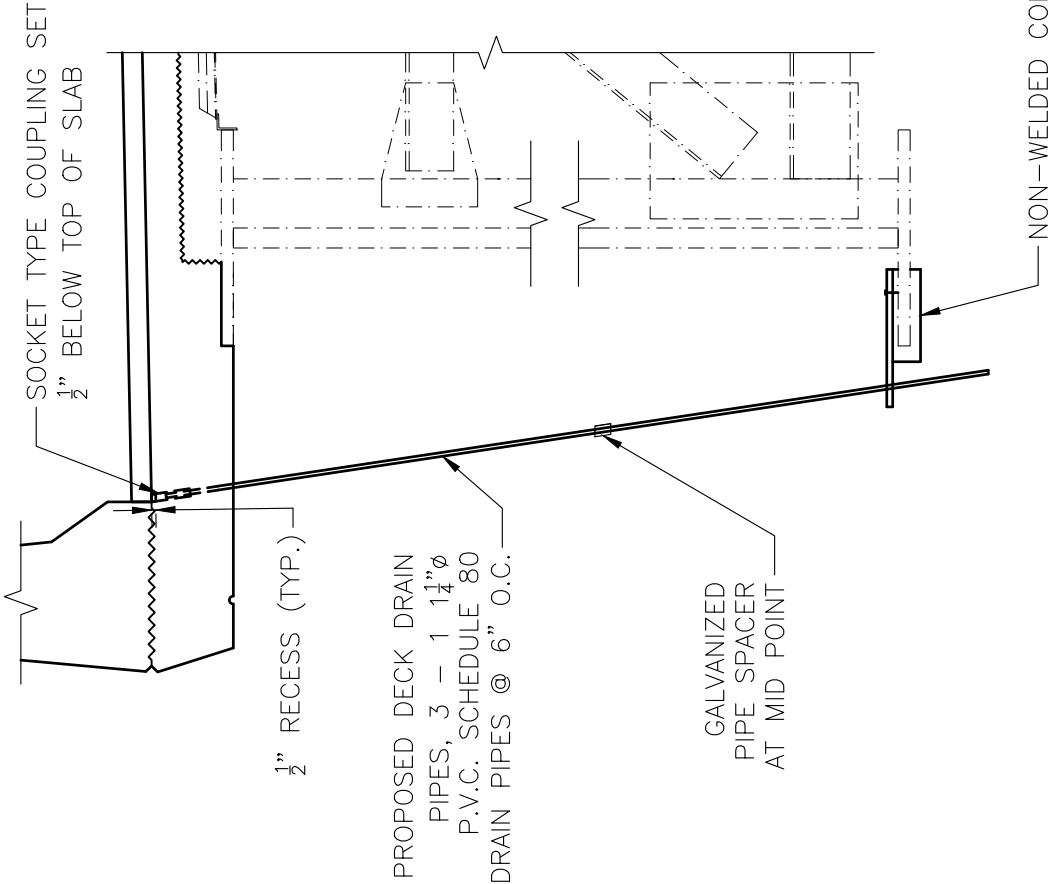
DRAWN BY: ME

DATE: 9/1/2026

CHECKED BY: JON

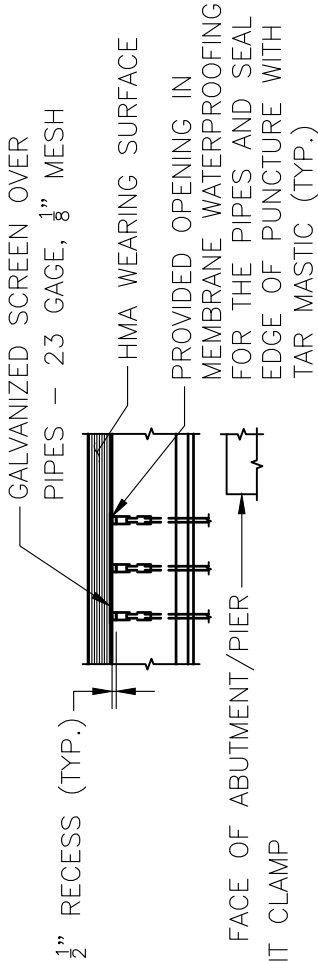
DATE: 9/1/2026

S:\03\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG



PROPOSED DECK DRAIN – PLAN VIEW

SCALE: 1/2" = 1'-0"



SECTION 18

SCALE: 1/2" = 1'-0"

PROPOSED DECK DRAIN

SCALE: 1/2" = 1'-0"

NOTE:

ALL INCIDENTAL ATTACHMENTS SHALL BE APPROVED BY ENGINEER.



**DISTRICT 3
BRIDGE SECTION**

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: PROPOSED DECK DRAIN

SHEET: 58 OF 87

DRAWN BY: ME

DATE: 9/1/2026

CHECKED BY: JON

DATE: 9/1/2026

ELASTOMERIC PROTECTIVE COATING NOTES:

1. THE ELASTOMERIC PROTECTIVE COATING SHALL BE APPLIED TO ABUTMENTS, AND BACKWALLS. ALSO, PIER COLUMNS AND CAPS, WINGWALLS, INFILL WALLS, AND OTHER SUBSTRUCTURE ELEMENTS AS DIRECTED BY THE ENGINEER (ITEM 964.3).
2. APPLY COATING AFTER ALL LOOSE MATERIAL ARE REMOVED. IF DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL FILL ANY HOLES AND HONEYCOMB THAT ARE LESS THAN 1/2" IN DIAMETER WITH APPROVED GROUT (REGARDLESS OF DEPTH) TO CREATE A SMOOTH SURFACE PRIOR TO APPLYING THE COATING. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 964.3.
3. ALL NEW CONCRETE SHALL BE CURED FOR A MINIMUM 28 DAYS BEFORE COATING.
4. FOLLOWING THE CURING PERIOD AND PRIOR TO COATING, TEST FOR MOISTURE CONTENT IN THE CONCRETE. ALL CONCRETE TO BE COATED MUST BE TESTED FOR THE PRESENCE OF MOISTURE AFTER THE SURFACE PREPARATION HAS BEEN COMPLETED AND PRIOR TO APPLICATION OF COATING. TESTING SHALL BE IN ACCORDANCE WITH ASTM D 4263.
5. THE CONTRACTOR SHALL PROVIDE COLOR SAMPLES FOR THE ENGINEER'S APPROVAL PRIOR TO ANY APPLICATION (ITEM 964.3).



**DISTRICT 3
BRIDGE SECTION**

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: ELASTOMERIC PROTECTIVE COATING NOTES

SHEET: 59 OF 87

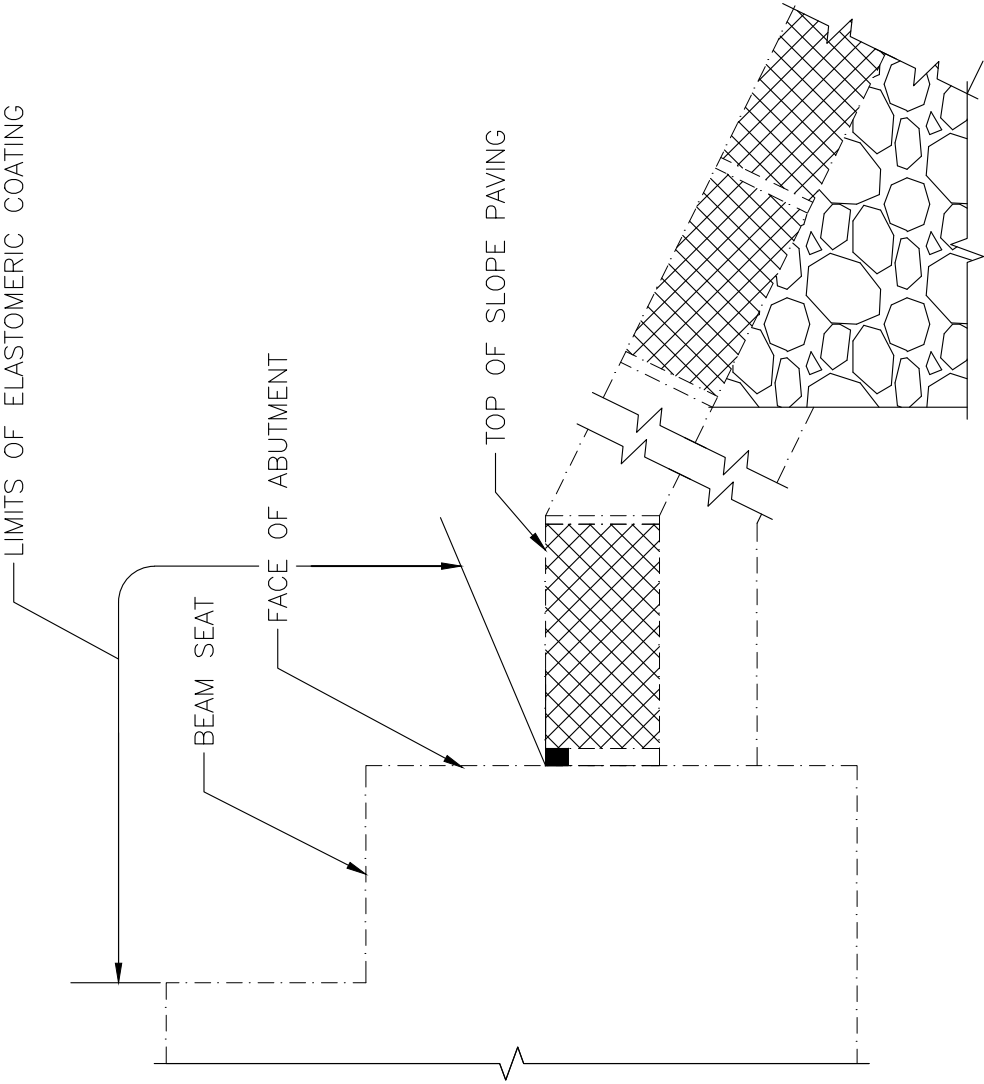
DRAWN BY: ME

DATE: 9/1/2026

CHECKED BY: JON

DATE: 9/1/2026

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG



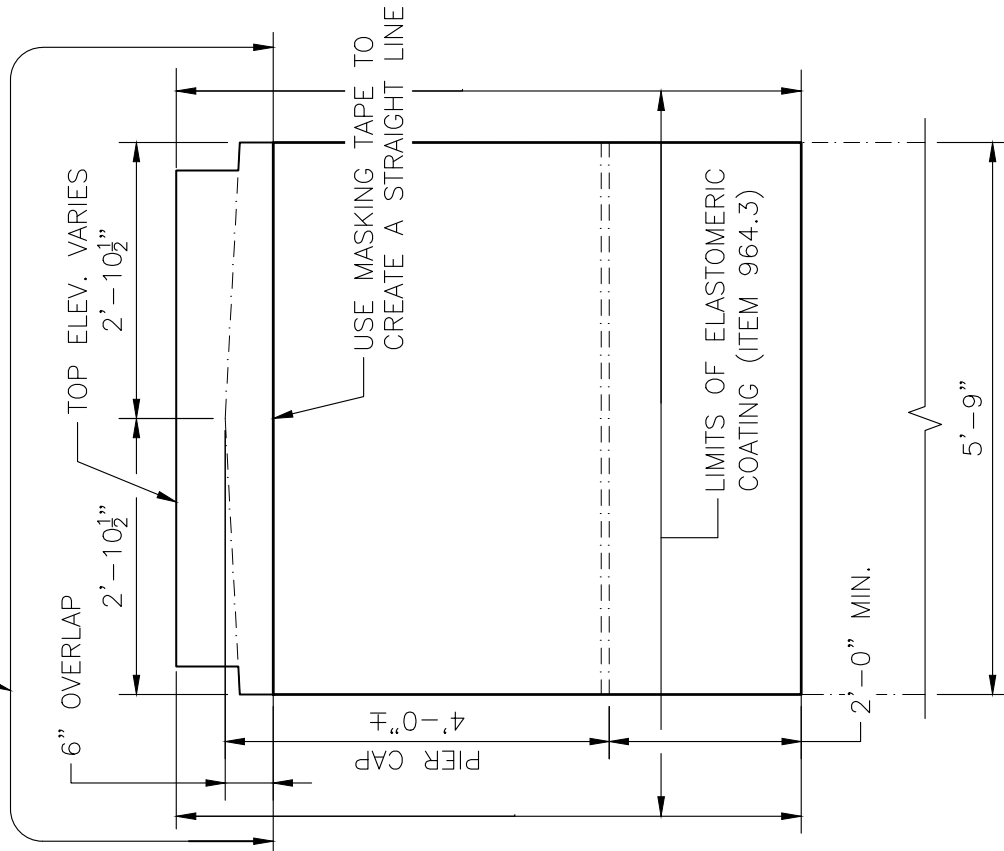
**LIMITS OF ELASTOMERIC COATING
(FACE OF ABUTMENT)**

SCALE: N.T.S.

 DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH	SHEET: 60 OF 87
	SUBJECT: LIMITS OF ELASTOMERIC COATING - 1	DRAWN BY: ME
		DATE: 9/1/2026
		CHECKED BY: JON
		DATE: 9/1/2026

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\TO_O_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG

3 COATS REQUIRED, MINIMUM DRY
FILM THICKNESS (DFT) = 20 MILS



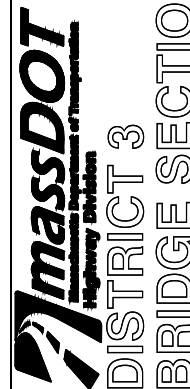
ELASTOMERIC PROTECTIVE COATING NOTES:

1. THE ELASTOMERIC PROTECTIVE COATING SHALL BE APPLIED TO BRIDGE PIERS, ABUTMENTS AND WINGWALLS, AND OTHER SUBSTRUCTURE ELEMENTS AS DIRECTED BY THE ENGINEER (ITEM 964.3).
2. BRIDGE PIER CAP SHALL ALSO RECEIVE AN ADDITIONAL COAT TO LIMITS AS SHOWN. CONCRETE COATING LIMITS FOR BRIDGE PARAPETS SHALL BE AS SHOWN ON SHEET 60.
3. THE CONTRACTOR SHALL REPAIR ANY SPALLED AND DAMAGED CONCRETE SURFACE UNDER APPROPRIATE ITEMS PRIOR TO APPLYING THE COATING. ANY CONCRETE SURFACE WITH PROFILE AMPLITUDE OF $\frac{1}{8}$ " OR MORE, OR AS DIRECTED BY THE ENGINEER, SHALL BE SMOOTHENED. THE CONTRACTOR SHALL SUBMIT THE SMOOTHENING METHOD TO THE ENGINEER FOR APPROVAL. THE CONCRETE SURFACE TO BE SMOOTHENED MAY INCLUDE AREAS FROM THE PREVIOUS REPAIRS. ALL LOOSE MATERIAL SHALL BE REMOVED. IF DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL FILL ANY HOLES AND HONEYCOMB THAT ARE LESS THAN $\frac{1}{2}$ " IN DIAMETER WITH APPROVED GROUT (REGARDLESS OF DEPTH) TO CREATE A SMOOTH SURFACE PRIOR TO APPLYING THE COATING. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 964.3.
4. ALL NEW CONCRETE SHALL BE CURED FOR A MINIMUM 28 DAYS BEFORE COATING.
5. FOLLOWING THE CURING PERIOD AND PRIOR TO COATING, TEST FOR MOISTURE CONTENT IN THE CONCRETE. ALL CONCRETE TO BE COATED MUST BE TESTED FOR THE PRESENCE OF MOISTURE AFTER THE SURFACE PREPARATION HAS BEEN COMPLETED AND PRIOR TO APPLICATION OF COATING. TESTING SHALL BE IN ACCORDANCE WITH ASTM D 4263.
6. PRIOR TO APPLICATION OF WATERPROOF COATING THE CONTRACTOR IS REQUIRED TO SEAL (CAULK) ALONG THE BASE PLATE PERIMETER AND CONCRETE BEAM SEAT.
7. THE CONTRACTOR SHALL PROVIDE COLOR SAMPLE FOR THE ENGINEER'S APPROVAL PRIOR TO ANY APPLICATION.

LIMITS OF ELASTOMERIC PROTECTIVE COATING

(PIER CAP)

SCALE: $\frac{1}{2}$ " = 1'-0"



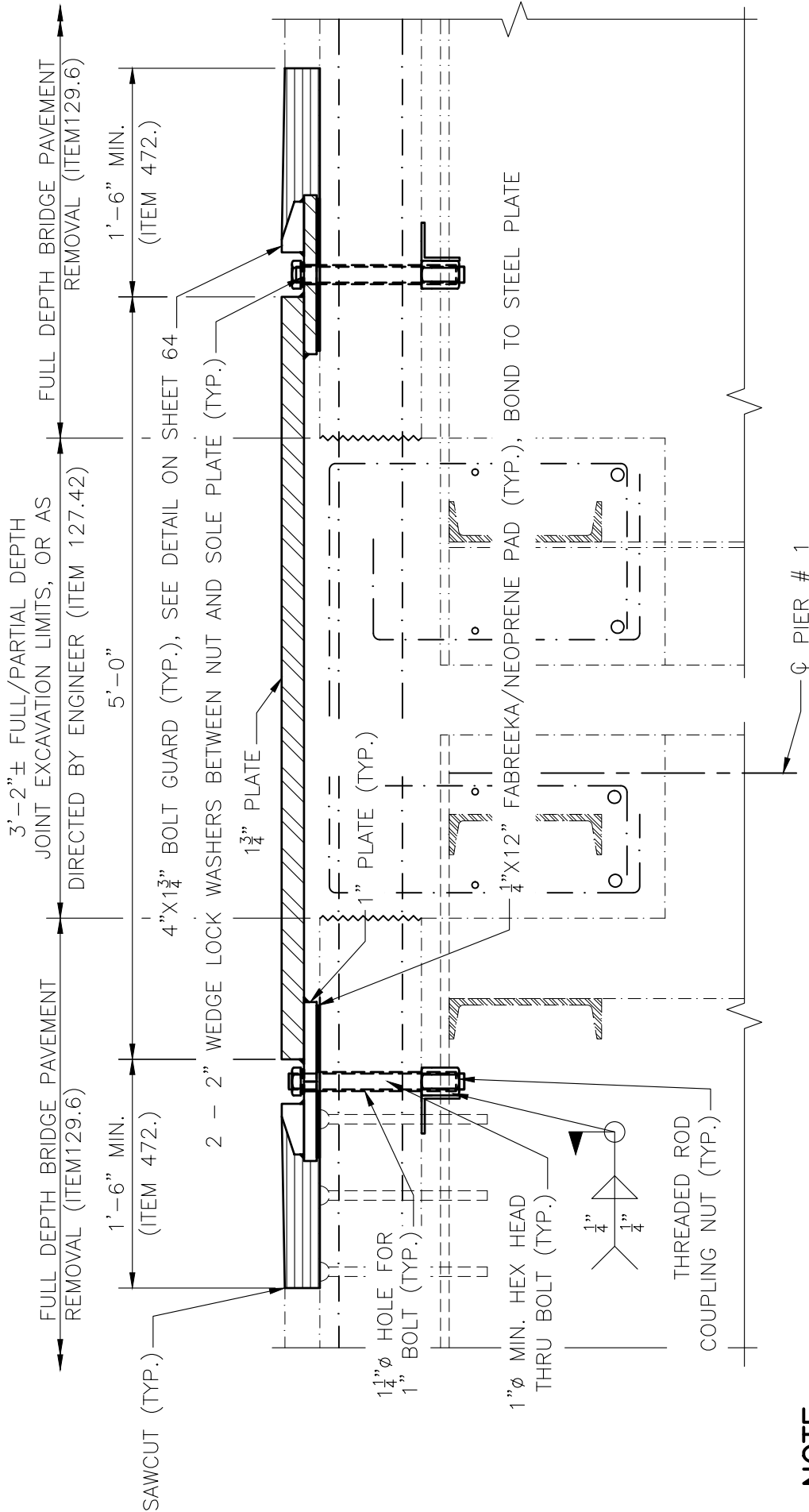
SHEET: 61 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026



CONTRACTOR SUGGESTED METHOD OF JOINT PROTECTION AND ANCHORAGE SHOWN. CONTRACTOR MAY
 SUBMIT ALTERNATE METHODS TO THE ENGINEER FOR APPROVAL:

SCALE: $\frac{3}{4}$ " = 1'-0"

 DISTRICT 3 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021 = W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH	SHEET: 62 OF 87
	SUBJECT: JOINT PROTECTION PLATE FOR BRIDGE JOINT REPAIR - SECTION VIEW AT ABUTMENT	DRAWN BY: ME
		DATE: 9/1/2026
		CHECKED BY: JON
		DATE: 9/1/2026
03 BRIDGE DESIGN- REVIEW PROJECTS DESIGN PHASE STRUCTURE MAINTENANCE 10.0 SITE SPECIFIC PROJECT\25 BILL BRIDGE PRESERVATION\612874 WORCESTER LAKE BRIDGE 9-13-25 8-29-26\DWG - 2 MAIN 2026.DWG		



NOTE:

SUGGESTED METHOD OF JOINT PROTECTION AND ANCHORAGE SHOWN. THE CONTRACTOR MAY SUBMIT ALTERNATE METHODS TO THE ENGINEER FOR APPROVAL. THE CONTRACTOR HAS THE OPTION TO INCORPORATE THE BOLT GUARD INTO THE 1 3/4" PLATE BY PROVIDING A 3 1/2"X3 1/2" NOTCH FOR BOLT INSTALLATION, WHILE MAINTAINING THE REQUIRED TAPERS AT THE NOSE.

JOINT PROTECTION PLATE FOR BRIDGE JOINT REPAIR
(BY CONTRACTOR) – SECTION VIEW AT PIER

SCALE: 1" = 1'-0"



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: JOINT PROTECTION PLATE FOR BRIDGE JOINT REPAIR – SECTION VIEW AT PIER

SHEET: 63 OF 87

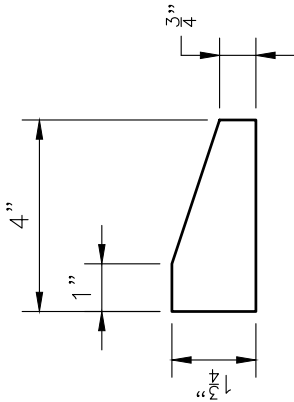
DRAWN BY: ME

DATE: 9/1/2026

CHECKED BY: JON

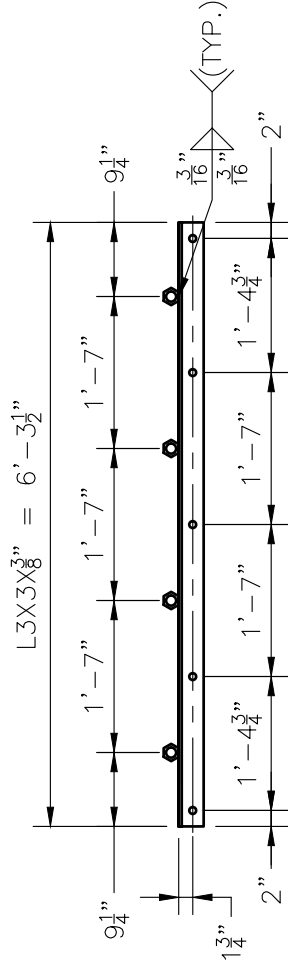
DATE: 9/1/2026

S:\03\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\1000 SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG



TYPICAL BOLT GUARD

SCALE: 3" = 1'-0"



**DETAIL OF ANCHORING ANGLE
PROVIDED BY CONTRACTOR**

SCALE: N.T.S

NOTES:

1. PROTECTION PLATES AND PLATE WASHERS SHALL BE AASHTO M270 GRADE 36.
2. ALL BOLTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M164 (ASTM A325).
3. THE THREADED ROD NUTS SHALL HAVE LESS THAN 1/4" OF EXPOSED THREAD AFTER TIGHTENING.
4. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE PROTECTION PLATE AND ENSURING BOLTS ARE TIGHTENED AS NECESSARY FOR THE DURATION OF CONTRACT. PAYMENT FOR THIS WORK SHALL BE CONSIDERED INCIDENTAL TO ITEM 908.21 AND 908.22.
5. THE CONTRACTOR SHALL TAKE THE BRIDGE CROWN AND CURB LOCATIONS, AND HIS CONSTRUCTION SEQUENCE INTO ACCOUNT WHEN DETAILING THE JOINT PROTECTION PLATES. THE WIDTH OF THE PLATE MAY BE CHANGED. SEE EXISTING BRIDGE PLAN FOR CROWN LOCATION AND CROSS SLOPE DETAIL.
6. SUGGESTED METHOD OF JOINT PROTECTION AND ANCHORAGE SHOWN. CONTRACTOR MAY SUBMIT ALTERNATE METHODS TO THE ENGINEER FOR APPROVAL.



**DISTRICT 3
BRIDGE SECTION**

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: JOINT PROTECTION PLATES NOTES

SHEET: 64 OF 87

DRAWN BY: ME

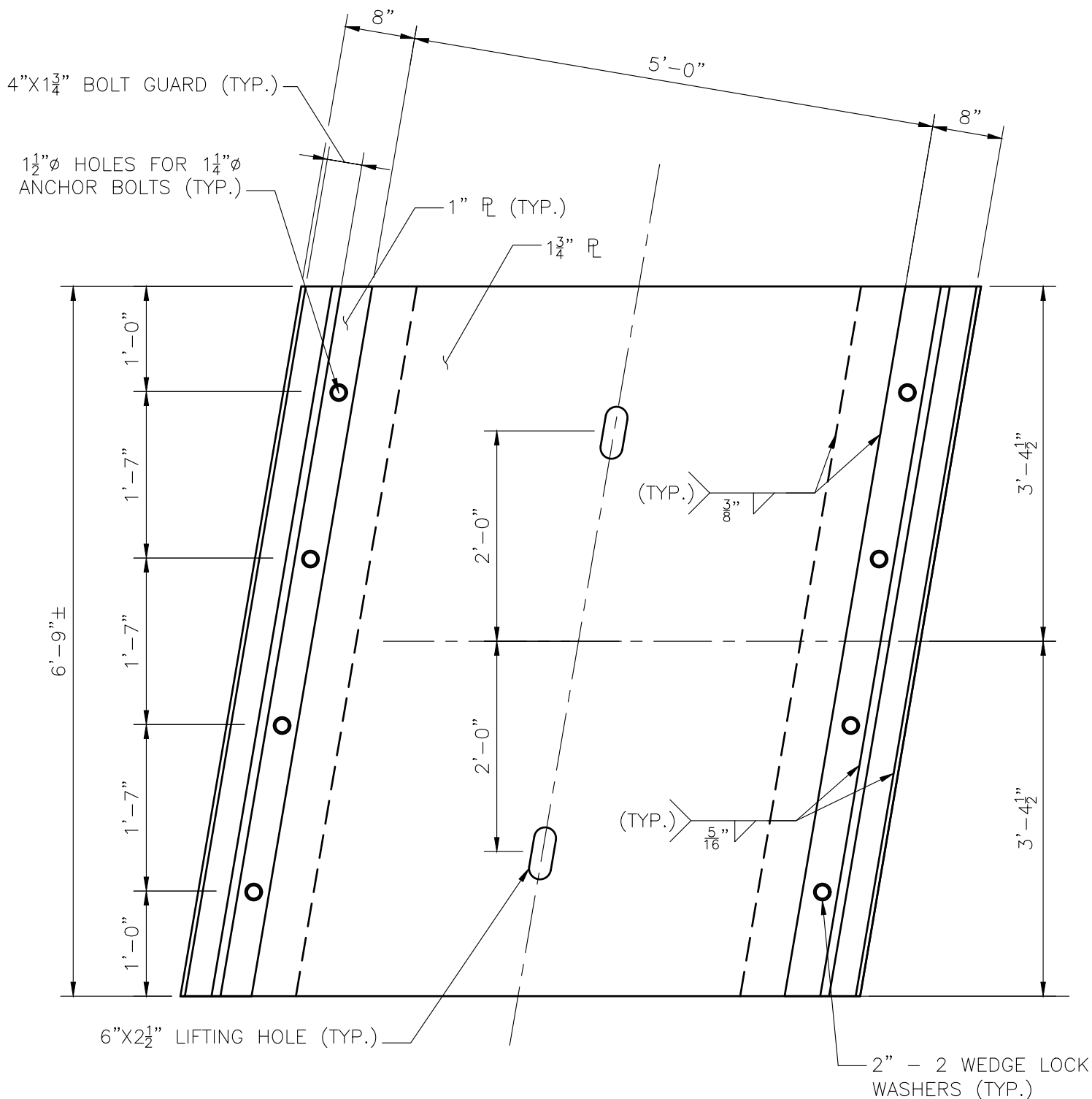
DATE: 9/1/2026

CHECKED BY: JON

DATE: 9/1/2026

S:\03\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25_BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0 SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2 MAIN 2026.DWG



JOINT PROTECTION PLATE
(BY CONTRACTOR) - PLAN VIEW

SCALE: 3/4" = 1'-0"



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
 PRESERVATION, S-14-021=W-44-115,
 I-290 (EB AND WB) OVER LAKE
 QUINSIGAMOND AND LAKE AVENUE NORTH

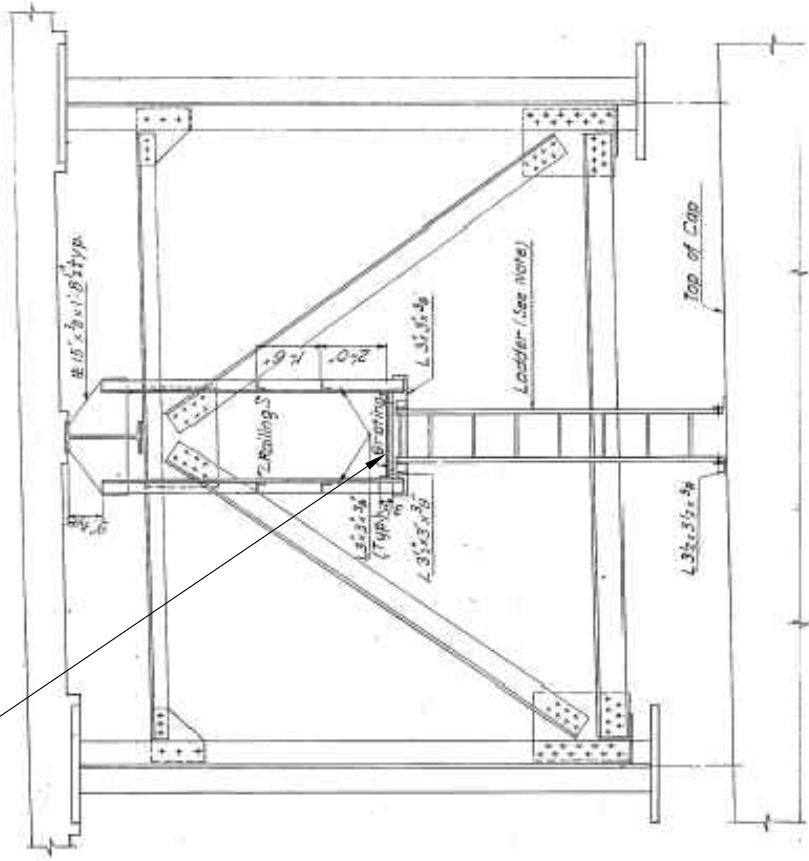
SUBJECT: JOINT PROTECTION PLATE

SHEET: 65 OF 87

DRAWN BY: ME
 DATE: 9/1/2026

CHECKED BY: JON
 DATE: 9/1/2026

— DETERIORATED CATWALK GRATING



NOTES:

- 1. INCLUDED UNDER TIME AND MATERIAL IS DIRECTED REMOVAL OR REPAIR TO THE SAFETY CATWALK AND ACCESS LADDER.
- 2. ALL REPAIRS SHALL BE REPLACED IN KIND AND TO LIMITS DIRECTED BY THE ENGINEER.

CATWALK GRATING REMOVAL

SCALE: N.T.S.



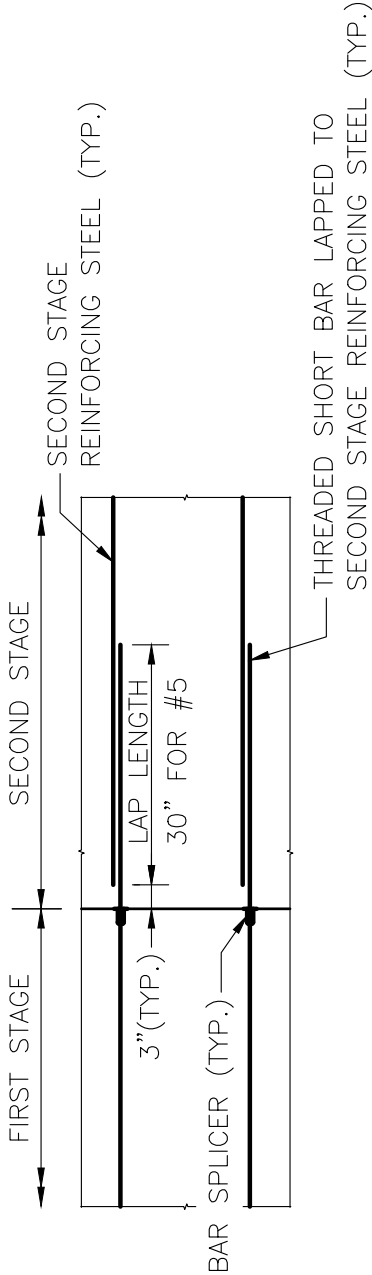
massDOT
Highway Division

DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

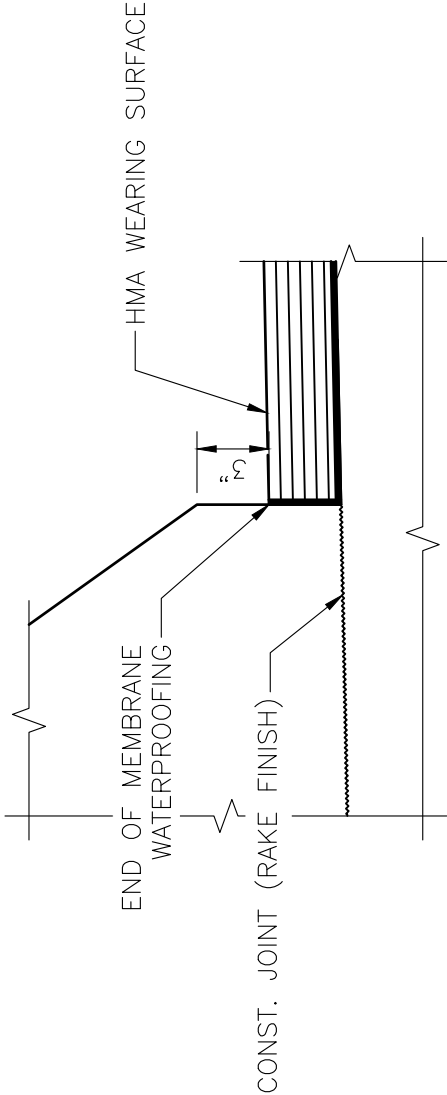
SUBJECT: CATWALK GRATING REMOVAL

SHEET: 66 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026



**TYPICAL MECHANICAL BAR SPLICE DETAIL
FOR NEW REBAR – PLAN VIEW**

SCALE: $\frac{1}{2}'' = 1'-0''$



CF-MTL5 CURB DETAILS

SCALE: $1\frac{1}{2}'' = 1'-0''$

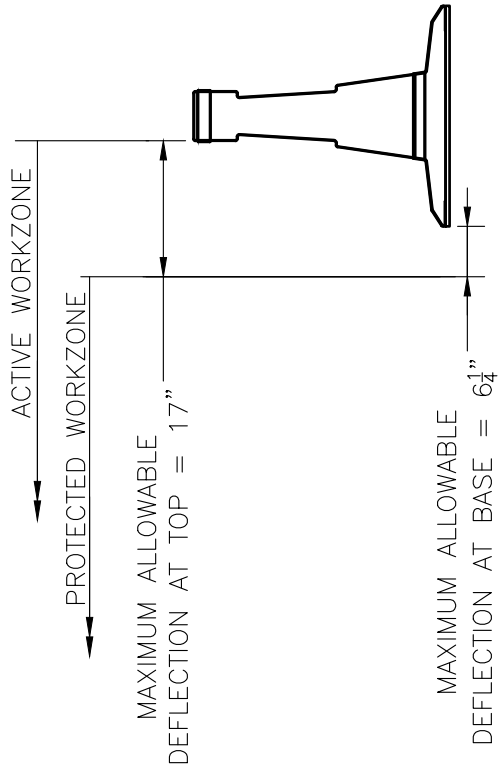


DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

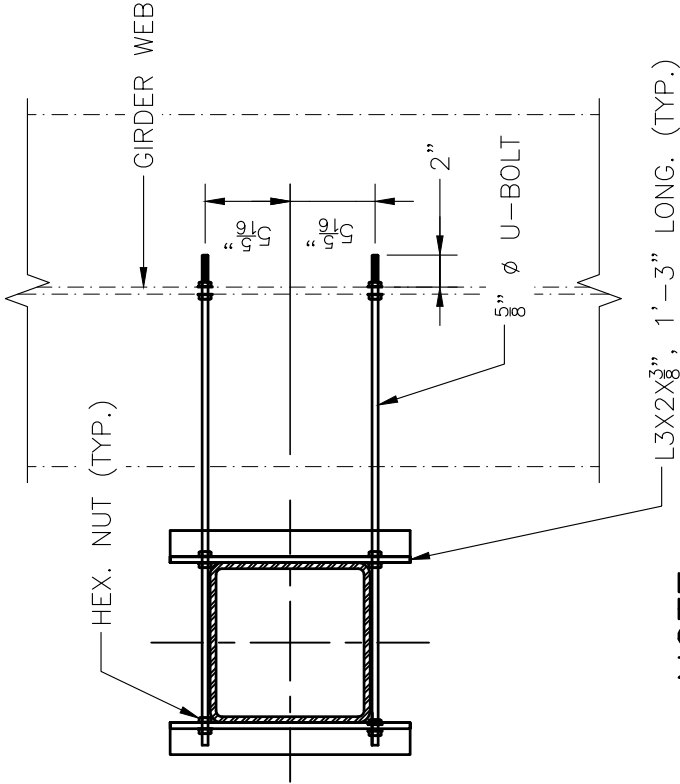
SUBJECT: MISCELLANEOUS DETAILS - 1

SHEET: 67 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026



LIMITED DEFLECTION TL-3 BARRIER
MAXIMUM ALLOWABLE DEFLECTION

SCALE: $\frac{1}{2}$ " = 1'-0"



NOTE:

CLAMP AND FITTINGS TO BE GALVANIZED

SCUPPER PIPE CLAMP DETAIL

SCALE: N.T.S.

NOTES:

1. FOR LIMITED DEFLECTION TL-3 TEMPORARY SYSTEMS THAT REQUIRE ANCHORAGE, THE COST FOR FURNISHING AND INSTALLING THE ANCHORAGE AND HARDWARE AND RESTORATION OF PAVEMENT/CONCRETE SURFACES SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE ITEM.
2. LIMITED DEFLECTION TEMPORARY BARRIER SHALL HAVE A MAXIMUM ALLOWABLE DEFLECTION AT BASE OF $6\frac{1}{4}$ ".



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: MISCELLANEOUS DETAILS - 2

SHEET: 68 OF 87

DRAWN BY: ME

DATE: 9/1/2026

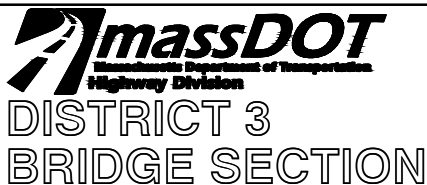
CHECKED BY: JON

DATE: 9/1/2026

GENERAL CONSTRUCTION SEQUENCE: **(BARRIER REPLACEMENT, JOINT REPAIRS, AND DECK REPAIRS)**

PHASE 1 – MEDIAN (HIGH-SPEED) SIDES OF THE BRIDGE (EASTBOUND AND WESTBOUND STRUCTURES)

1. INSTALL TEMPORARY TRAFFIC CONTROL MEASURES, INCLUDING TL-3 TEMPORARY BARRIERS, SIGNAGE, AND PAVEMENT MARKINGS, TO CONFIGURE EACH STRUCTURE FOR OPERATION WITH THREE TEMPORARY TRAVEL LANES.
2. DOCUMENT EXISTING COPING CONDITIONS (ALIGNMENT AND ELEVATIONS) AND ESTABLISH VERTICAL AND HORIZONTAL CONTROL POINTS FOR THE RECONSTRUCTION OF THE BARRIER AND DECK OVERHANG, ITEM 100.9.
3. INSTALL CONTAINMENT AND ACCESS PLATFORM SYSTEMS BENEATH THE BRIDGE (ITEMS 961.201 AND 961.202), ALONG WITH TEMPORARY PROTECTIVE SHIELDING FOR THE OUTSIDE FASCIA, ITEM 994.1.
4. REMOVE THE EXISTING BRIDGE COPING AND SELECTIVELY DEMOLISH THE PARAPETS. REMOVE GRANITE CURBING, ALUMINUM HANDRAIL, CONCRETE END POSTS, AND GUARDRAIL TRANSITIONS, ITEMS 114.11 AND 114.12.
5. PERFORM FULL OR PARTIAL DEPTH REINFORCED CONCRETE DECK EXCAVATION AT THE OVERHANG, TO THE LIMITS INDICATED ON THE CONTRACT DRAWINGS, ITEM 127.31.
6. EXCAVATE WITHIN THE DESIGNATED PROTECTED ZONE TO FACILITATE JOINT RECONSTRUCTION IN ACCORDANCE WITH ITEMS 129.6 AND 127.42. THE PAYMENT LIMITS FOR WORK UNDER ITEM 127.42 (REINFORCED CONCRETE JOINT EXCAVATION) SHALL EXTEND 3'-0" FROM THE CENTERLINE OF THE JOINT.
7. CONSTRUCT THE DECK OVERHANG, CF-TL5 BARRIER, AND PARAPETS OVER THE WINGWALLS, AND INSTALL LIGHTING, CURBING, PRECAST END POSTS, AND GUARDRAIL TRANSITIONS FOLLOWING THE CONTRACTOR'S APPROVED BARRIER RECONSTRUCTION PLANS, ITEMS 992.1 AND 992.2.
8. REPAIR CONCRETE DIAPHRAGMS AS REQUIRED AND AS DIRECTED BY THE ENGINEER.
9. RECONSTRUCT THE BRIDGE DECK AND BACKWALLS AT THE JOINTS LOCATED WITHIN THE PROTECTED WORK ZONE, AS SPECIFIED IN ITEMS 910.1 AND 905.2.
10. AFTER THE CONCRETE HAS ADEQUATELY CURED, APPLY A WATERPROOFING MEMBRANE TO THE RECONSTRUCTED OVERHANG AND JOINT AREAS. ONCE THE MEMBRANE IS IN PLACE, PAVE THE SURFACE USING SUPERPAVE BRIDGE PROTECTIVE COURSE – 9.5 POLYMER (SPC-B-9.5-P) TO MATCH THE EXISTING GRADE.



PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: GENERAL CONSTRUCTION SEQUENCE – 1

SHEET: 69 OF 87

DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026

GENERAL CONSTRUCTION SEQUENCE (CONT.):**(BARRIER REPLACEMENT, JOINT REPAIRS, AND DECK REPAIRS)**

PAVING SHALL BE PERFORMED IN TWO LIFTS:

FIRST LIFT: 1½" INCHES

SECOND LIFT: 1¼" INCHES

NOTE:

PAYMENT FOR THE SUPERPAVE BRIDGE PROTECTIVE COURSE AND WATERPROOFING MEMBRANE APPLIED FOR THE RECONSTRUCTION OF THE OVERHANG (PHASE 1 AND 3) IS INCLUDED IN THE LUMP SUM FOR PAYMENT UNDER ITEMS 992.1 AND 992.2. WHERE THESE ITEMS APPLY SPECIFICALLY TO JOINT RECONSTRUCTION, PAYMENT WILL BE MADE UNDER THE UNIT BID PRICE FOR ITEMS 450.701 AND 966.

PHASE 2 – (STAGE 1 THRU. 3) NIGHTTIME OPERATIONS (JOINTS RECONSTRUCTION IN THE MIDDLE LANES)

11. INSTALL TEMPORARY TRAFFIC CONTROL MEASURES TO EXPAND THE PHASE 1 WORK ZONE TO INCLUDE THE MIDDLE LANES DURING APPROVED NIGHTTIME WORK HOURS.
12. SAW CUT AND REMOVE THE EXISTING HMA PAVEMENT AT THE JOINT LOCATIONS AS REQUIRED. INSTALL JOINT PROTECTION PLATES, AS NEEDED, IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 908.21 OR 908.22.
13. CONTINUE TO CONSTRUCT THE BRIDGE DECK AND BACKWALLS AT JOINTS LOCATED OUTSIDE THE BARRIER PROTECTED WORK ZONE, ITEMS 127.42, 905.21, 910.1 AND 966.
14. REPEAT STEP 13 FOR AS MANY NIGHTS AS NECESSARY TO COMPLETE THE JOINT RECONSTRUCTION FOR THE WEST PIERS AND ABUTMENTS. ALL JOINT WORK IN THE MIDDLE LANES OR CENTER PORTION OF THE BRIDGE MUST BE PERFORMED DURING NIGHTTIME HOURS, IN ACCORDANCE WITH THE APPROVED TEMPORARY TRAFFIC CONTROL PLAN UNDER THE DIRECTION OF THE ENGINEER.
15. JOINT REPAIR AREAS SHALL BE PROTECTED USING JOINT PROTECTION PLATES, ALLOWING THE MIDDLE LANES TO BE SAFELY REOPENED TO TRAFFIC NO LATER THAN 5:00 AM EACH MORNING.
16. AFTER THE CONCRETE HAS ADEQUATELY CURED, APPLY A WATERPROOFING MEMBRANE TO THE RECONSTRUCTED JOINT AREAS, EXTENDING TO THE LIMITS SHOWN IN THE PROJECT DRAWINGS. ONCE THE MEMBRANE HAS BEEN INSTALLED, PAVE THE SURFACE USING SUPERPAVE BRIDGE PROTECTIVE COURSE – 9.5 POLYMER (SPC-B-9.5-P) TO MATCH THE EXISTING GRADE.
17. THE BRIDGE PROTECTIVE COURSE SHALL BE INSTALLED IN TWO LIFTS, AS INDICATED UNDER PHASE 1, STEP 10

PHASE 3 – (STAGE 1 THRU. 2) LOW-SPEED SIDES OF THE BRIDGE (EASTBOUND AND WESTBOUND STRUCTURES)

18. RELOCATE (REMOVE AND RESET) TL-3 TEMPORARY BARRIERS AND SIGNAGE AND INSTALL PAVEMENT MARKINGS TO ESTABLISH THE NEXT PROTECTED WORK ZONE AND RECONFIGURE EACH STRUCTURE FOR CONTINUED OPERATION WITH THREE TEMPORARY TRAVEL LANES.



**DISTRICT 3
BRIDGE SECTION**

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: GENERAL CONSTRUCTION SEQUENCE – 2

SHEET: 70 OF 87

DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026

GENERAL CONSTRUCTION SEQUENCE (CONT.): **(BARRIER REPLACEMENT, JOINT REPAIRS, AND DECK REPAIRS)**

19. REPEAT STEP 2.
20. EXTEND OR REMOVE AND RESET CONTAINMENT AND ACCESS PLATFORM SYSTEMS BENEATH PORTION OF THE BRIDGE TO BE WORKED ON UNDER THIS PHASE, ITEMS 961.201 AND 961.202. IN ADDITION, RELOCATE (REMOVE AND RESET) THE TEMPORARY PROTECTIVE SHIELDING FOR THE LOW SPEED OUTSIDE FASCIA, ITEM 994.1.
21. REPEAT STEPS 4 THROUGH 10 FOR WORK ON THE LOW-SPEED SIDES OF THE BRIDGE.

PHASE 4 – DECK REPAIRS, FINAL PAVEMENT AND STRIP SEAL JOINT INSTALLATION (NIGHTTIME OPERATIONS)

22. UPON COMPLETION OF PHASES 1 THROUGH 3, REMOVE ALL TEMPORARY BARRIERS FROM THE PROJECT SITE. INSTALL TEMPORARY PAVEMENT STRIPING AS NEEDED TO RESTORE THE BRIDGE TO ITS ORIGINAL LANE CONFIGURATION.
23. MILL 1½" FROM THE BRIDGE DECK AND APPROACH ROADWAY TO THE LIMITS SHOWN ON THE PROJECT DRAWINGS. REINSTALL TEMPORARY PAVEMENT STRIPING AS NEEDED TO MAINTAIN TRAFFIC FLOW AND SAFETY, ITEM 415.4
24. PERFORM ANY ADDITIONAL DECK REPAIRS IN THE MIDDLE LANES OR CENTER PORTION OF THE BRIDGE, AS REQUIRED OR AS DIRECTED BY THE ENGINEER. USE RAPID SETTING LOW PERMEABILITY CONCRETE, ITEMS 127.4, 127.41, 909.3, AND 966.
25. PAVE THE APPROACHES, TRANSITIONING FROM 1½" TO 1¾", TO MATCH THE PROPOSED BRIDGE OVERLAY, ITEM 450.221.
26. ENSURE A TOTAL PAVEMENT THICKNESS OF 3" AT THE JOINTS TO ACCOMMODATE THE STRIP SEAL.
27. SAW CUT AND REMOVE THE CONCRETE TO CREATE THE BLOCK-OUT FOR THE JOINT. INSTALL THE STRIP STEEL EXTRUSION USING ULTRA-HIGH-PERFORMANCE CONCRETE (UHPC) RAPID-SET MORTAR. PLACE THE NEOPRENE SEAL CONTINUOUSLY ACROSS THE JOINT, IN ACCORDANCE WITH ITEM 972.1.
28. INSTALL FINAL TRAFFIC LANE STRIPING, MATCHING THE ORIGINAL LANE CONFIGURATION.

THE SEQUENCE OF CLEANING AND PAINTING OPERATIONS, AS WELL AS OTHER WORK REQUIRING ACCESS FROM BELOW THE BRIDGE, IS NOT INCLUDED IN THIS CONSTRUCTION SEQUENCE. THESE ACTIVITIES ARE NOT CONSIDERED CRITICAL TO THE MANAGEMENT OF TRAFFIC ON I-290 AND ARE EXPECTED BE COORDINATED SEPARATELY TO OCCUR OVER THE SPAN OF THE PROJECT WITHOUT IMPACTING MAINLINE TRAFFIC FLOW.



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
 PRESERVATION, S-14-021=W-44-115,
 I-290 (EB AND WB) OVER LAKE
 QUINSIGAMOND AND LAKE AVENUE NORTH

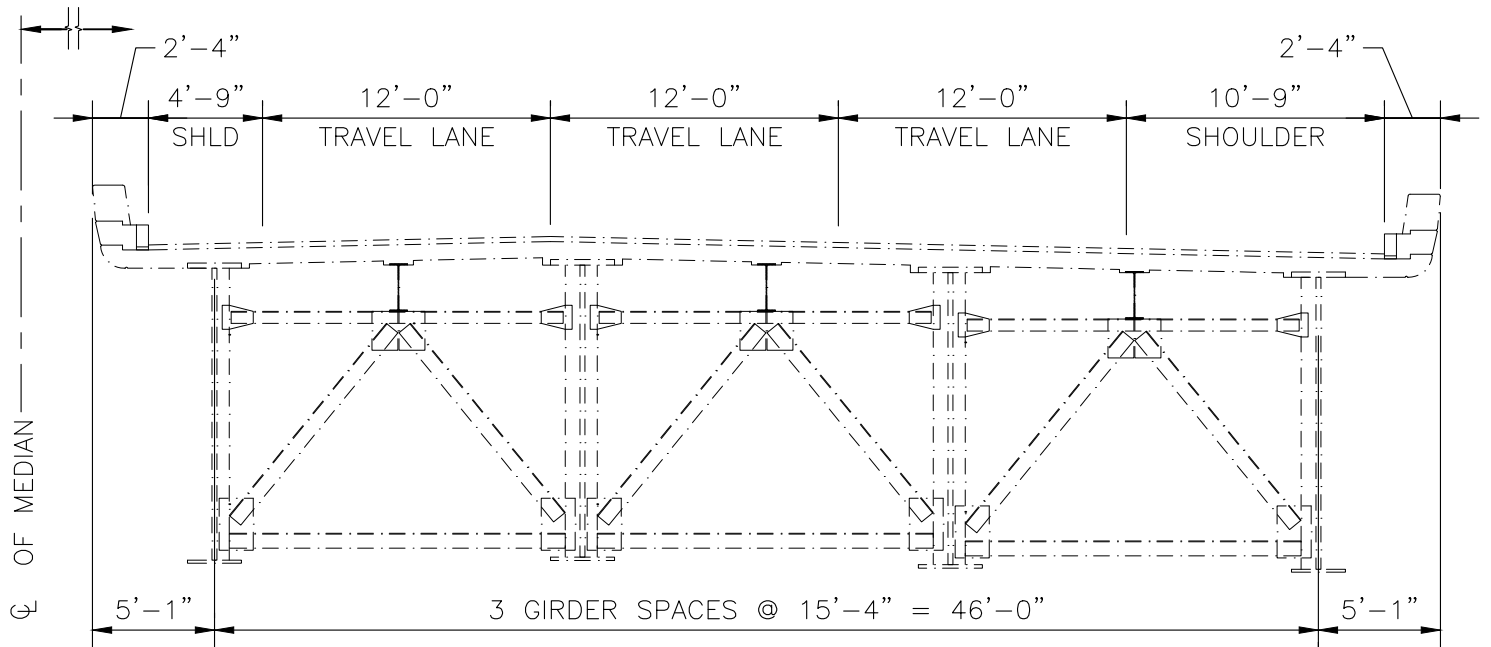
SUBJECT: GENERAL CONSTRUCTION SEQUENCE – 3

SHEET: 71 OF 87

DRAWN BY: ME
 DATE: 9/1/2026

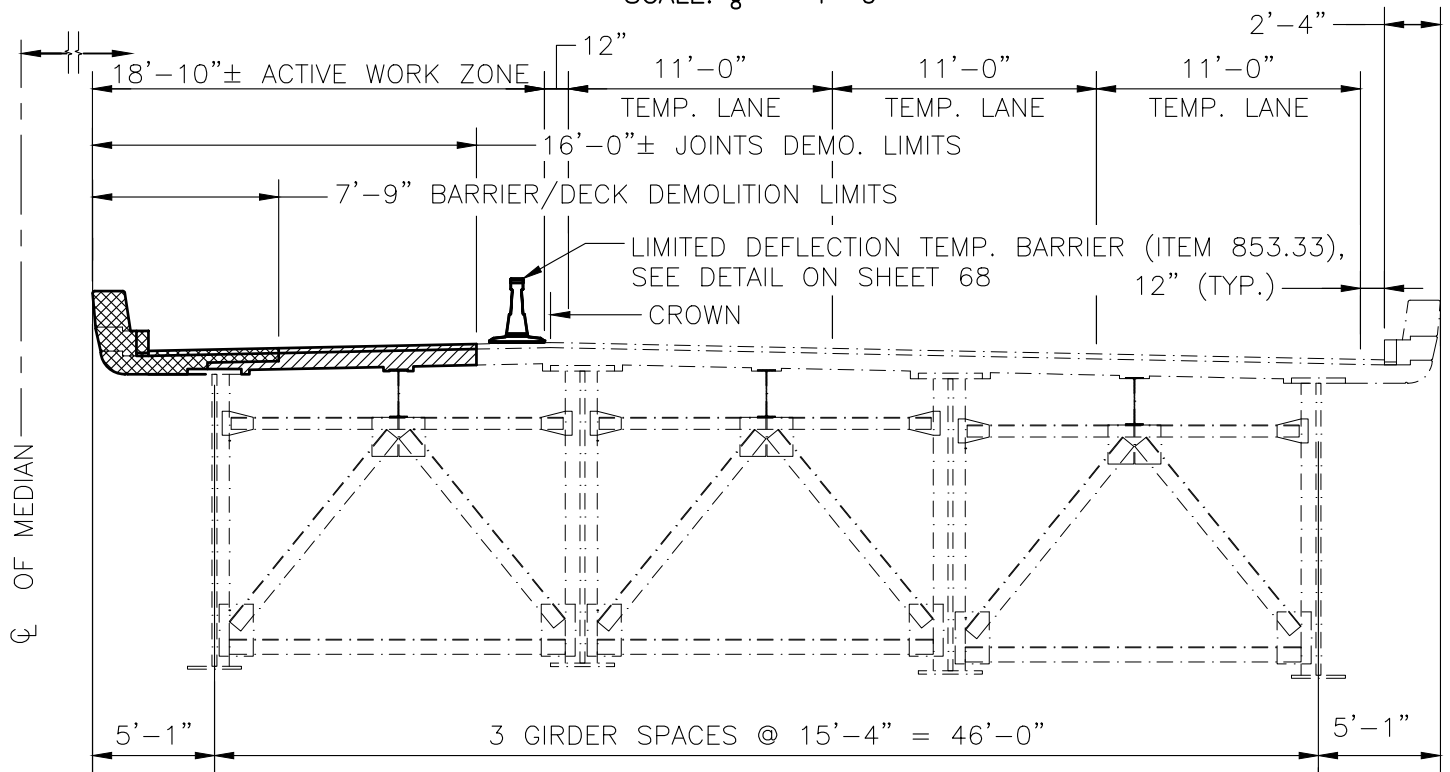
CHECKED BY: JON
 DATE: 9/1/2026

S:\D3\BRIDGE\DESIGN-REVIEW\PROJECTS\MAINTENANCE\10.0_SITE_SPECIFIC_PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26.DWG - 2 MAIN 2026.DWG



EXISTING CROSS SECTION (EASTBOUND SHOWN, WESTBOUND SIMILAR)

SCALE: $\frac{1}{8}$ " = 1'-0"



NOTE:

REINFORCED CONCRETE EXCAVATION (PARTIAL AND FULL DEPTH) AT OVERHANG SHOULD BE PAID UNDER ITEM 127.31.

PHASE 1 - WORK ZONE LIMITS

SCALE: $\frac{1}{8}$ " = 1'-0"



**DISTRICT 3
BRIDGE SECTION**

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: SUGGESTED STAGING SEQUENCE - 1

SHEET: 72 OF 87

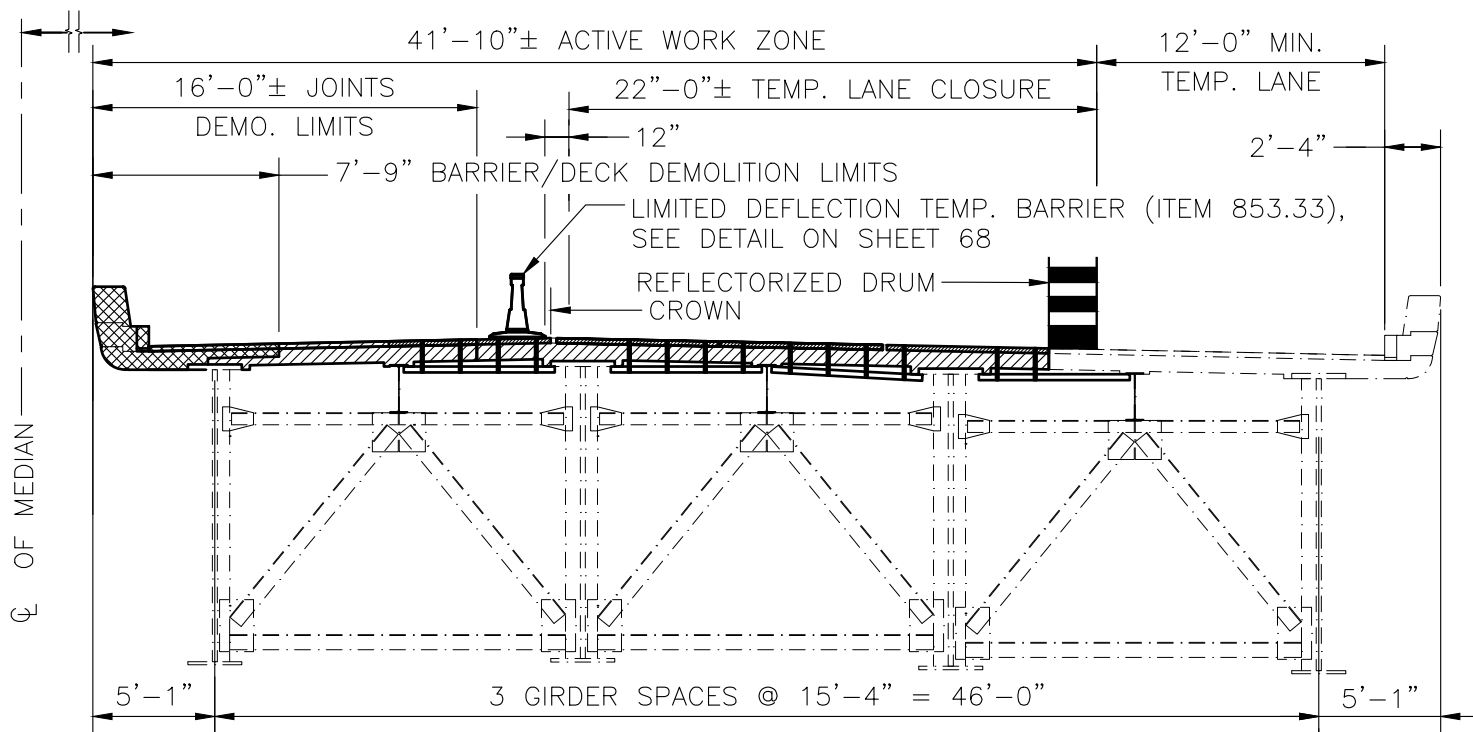
DRAWN BY: ME

DATE: 9/1/2026

CHECKED BY: JON

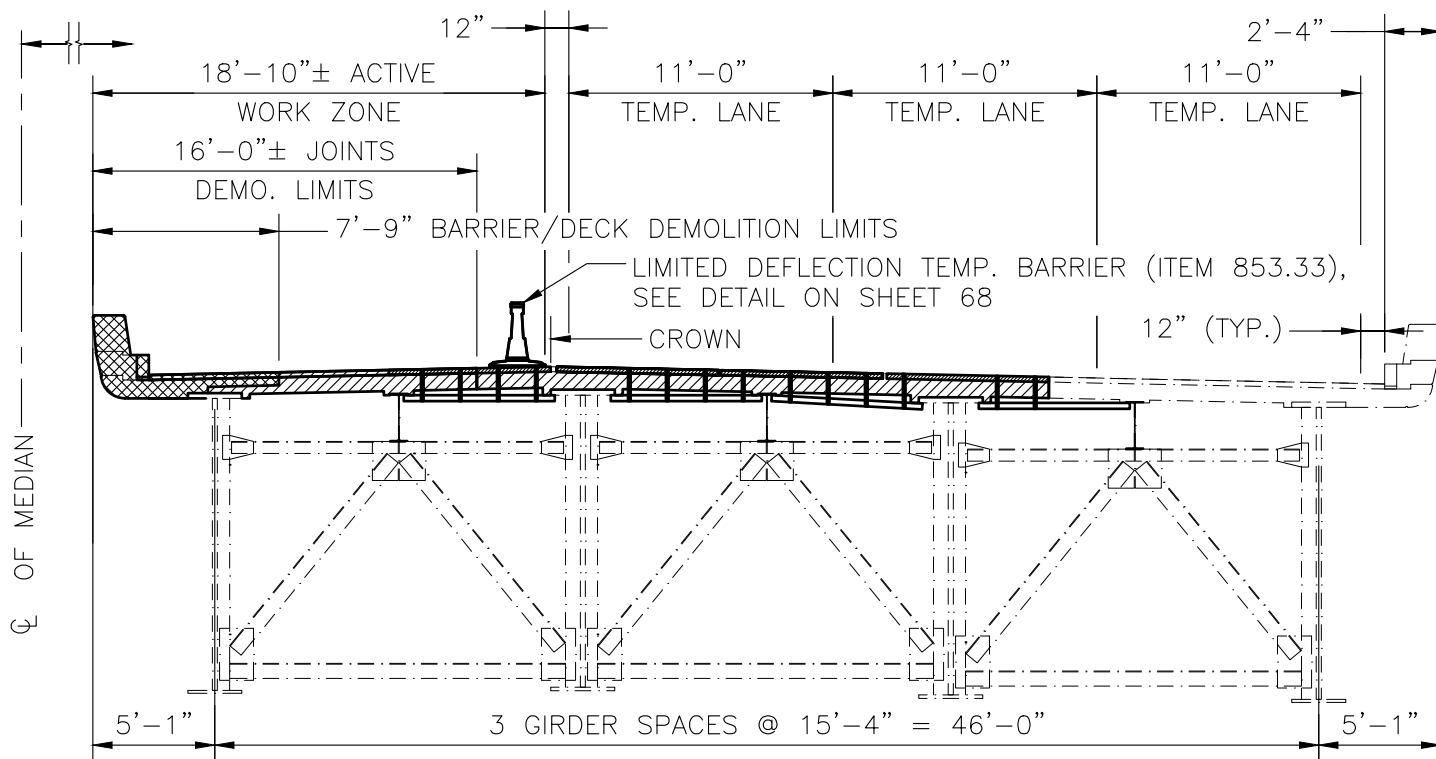
DATE: 9/1/2026

S:\03\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25_BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2 MAIN 2026.DWG



PHASE 2 - STAGE 1 - WORK ZONE LIMITS (NIGHT WORK ONLY)

SCALE: $\frac{1}{8}" = 1'-0"$



PHASE 2 - STAGE 2 - WORK ZONE LIMITS (DAY AND NIGHT)

SCALE: $\frac{1}{8}" = 1'-0"$



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

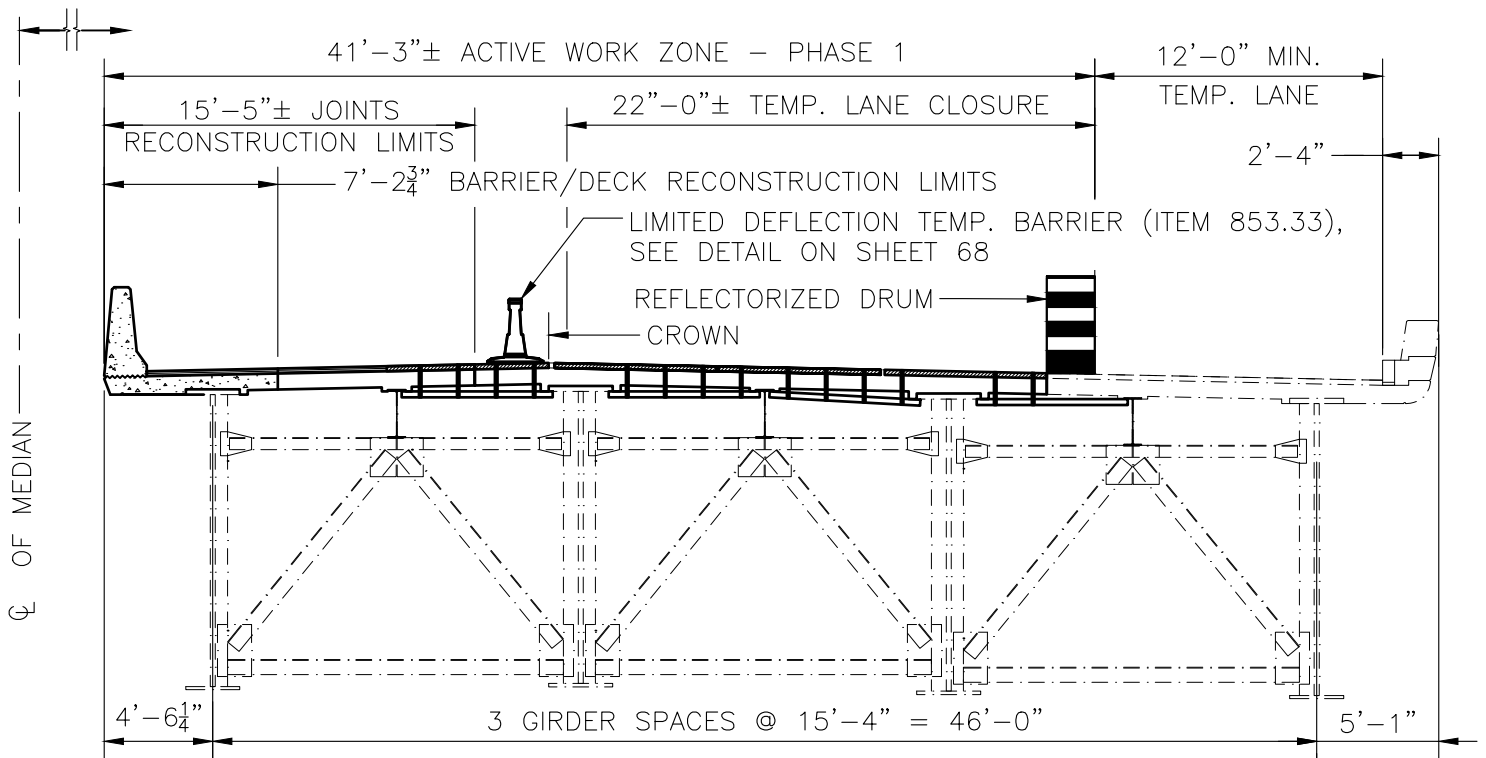
SUBJECT: SUGGESTED STAGING SEQUENCE - 2

SHEET: 73 OF 87

DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN MAINTENANCE\10.0 SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26.DWG - 2 MAIN 2026.DWG



PHASE 2 - STAGE 3 - WORK ZONE LIMITS (NIGHT WORK ONLY)

SCALE: $\frac{1}{8}$ " = 1'-0"

NOTES:

1. REINFORCED CONCRETE EXCAVATION (PARTIAL AND FULL DEPTH) AT OVERHANG SHOULD BE PAID UNDER ITEM 127.31.
2. THE BRIDGE JOINT WORK AT THE MIDDLE LANE OR SECTION OF THE BRIDGES, OUTSIDE OF THE TEMPORARY BARRIER LIMITS, IS PROPOSED DURING NIGHTS HOURS FROM 8:00 PM TO 5:00 AM OR EXTENDED WORK HOURS AS APPROVED BY THE ENGINEER.
3. POSITIONING AND REPOSITIONING DRUMS, SIGNS AND OTHER TRAFFIC DEVICES, FROM PHASE 1 TO PHASE 2 - WORK ZONE LIMITS (NIGHT WORK ONLY) IS CONSIDERED INCIDENTAL TO THE TRAFFIC ITEMS.
4. THE DESIGN AND LAYOUT OF THE TEMPORARY BARRIER MUST ACCOUNT FOR THE NEED TO REMOVE AND REINSTALL SECTIONS OF THE BARRIER ON A NIGHTLY BASIS TO ALLOW ACCESS TO THE JOINT OVER THE WEST ABUTMENT AND PIERS DURING PHASE 2 RECONSTRUCTION. THE REMOVAL AND RESETTING OF TEMPORARY BARRIERS REQUIRED TO ACCESS THE EXPANDED WORK ZONE (PHASE 2 -WORK ZONE LIMITS, NIGHT WORK ONLY) DURING NIGHT SHIFTS SHALL BE CONSIDERED INCIDENTAL TO THE JOINT WORK.



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

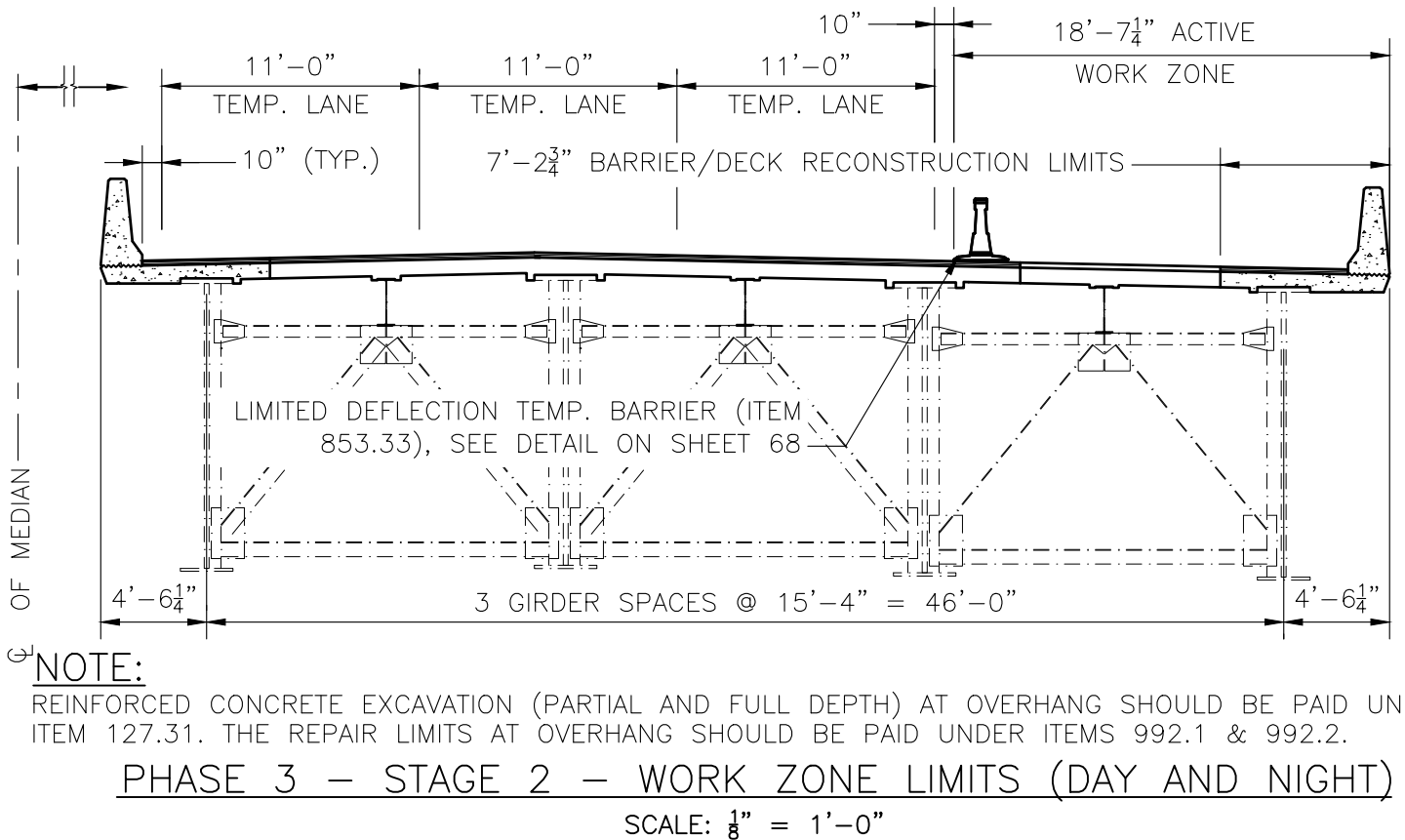
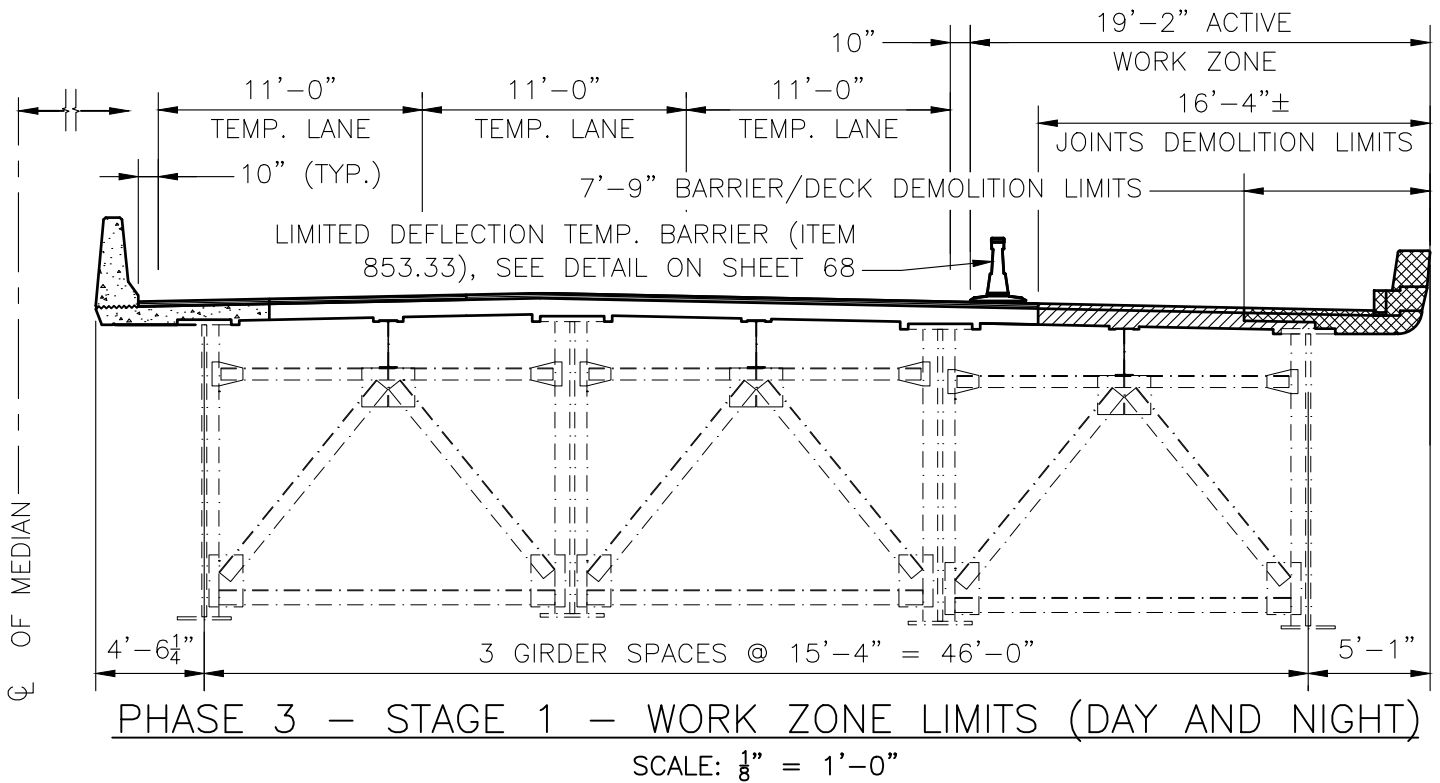
SUBJECT: SUGGESTED STAGING SEQUENCE - 3

SHEET: 74 OF 87

DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26.DWG - 2 MAIN 2026.DWG



NOTE:

REINFORCED CONCRETE EXCAVATION (PARTIAL AND FULL DEPTH) AT OVERHANG SHOULD BE PAID UNDER ITEM 127.31. THE REPAIR LIMITS AT OVERHANG SHOULD BE PAID UNDER ITEMS 992.1 & 992.2.



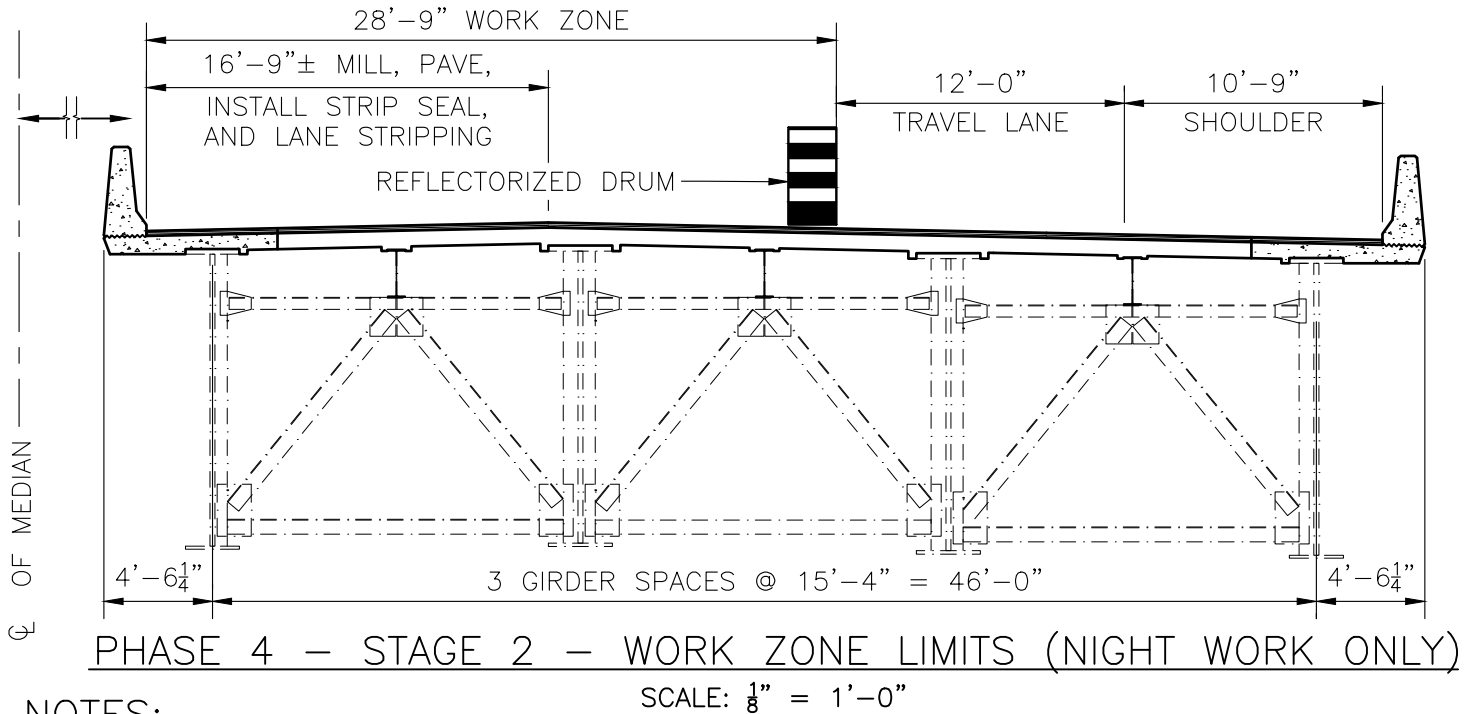
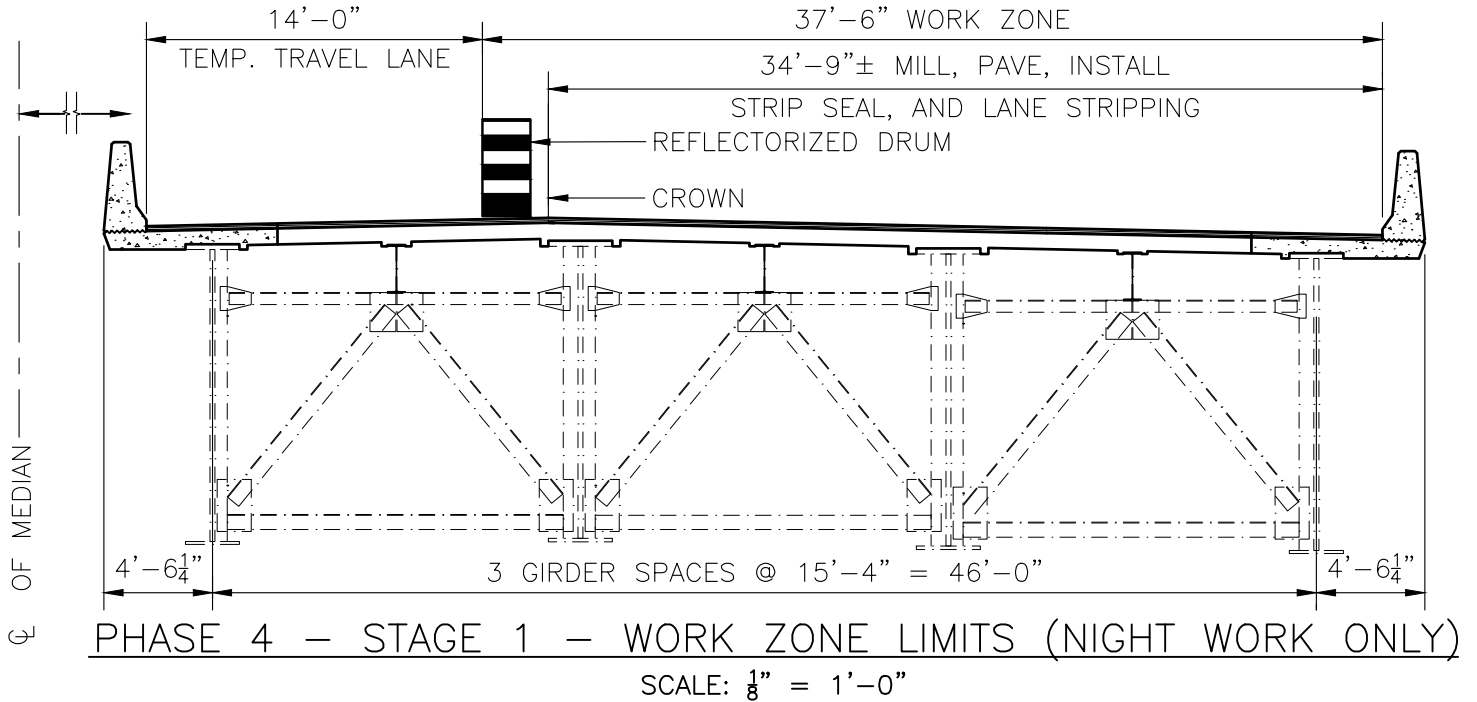
DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: SUGGESTED STAGING SEQUENCE - 4

SHEET: 75 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUTURE MAINTENANCE\10.0 SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874 WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26.DWG - 2 MAIN 2026.DWG



NOTES:

1. THE STRIP SEAL EXTRUSION SHALL BE FABRICATED AS A CONTINUOUS RAIL EXTENDING FROM THE CURB TO THE ROADWAY CROWN, WITH A SINGLE FIELD SPLICE PERMITTED ONLY AT THE CROWN.
2. DURING PHASE 4, WHEN TRAFFIC IS SHIFTED TO OPERATE IN THE LEFT LANE, THE MAIN STREET OFF-RAMP SHALL BE CLOSED. TRAFFIC SHALL BE DETOURED VIA WEST BOYLSTON STREET (EXIT 26B). SIMILARLY, FOR I-290 WESTBOUND, THE MAIN STREET ON-RAMP SHALL BE CLOSED, AND TRAFFIC SHALL BE DETOURED TO THE PLANTATION STREET ON-RAMP (EXIT 24). SEE SHEETS 82 AND 83.



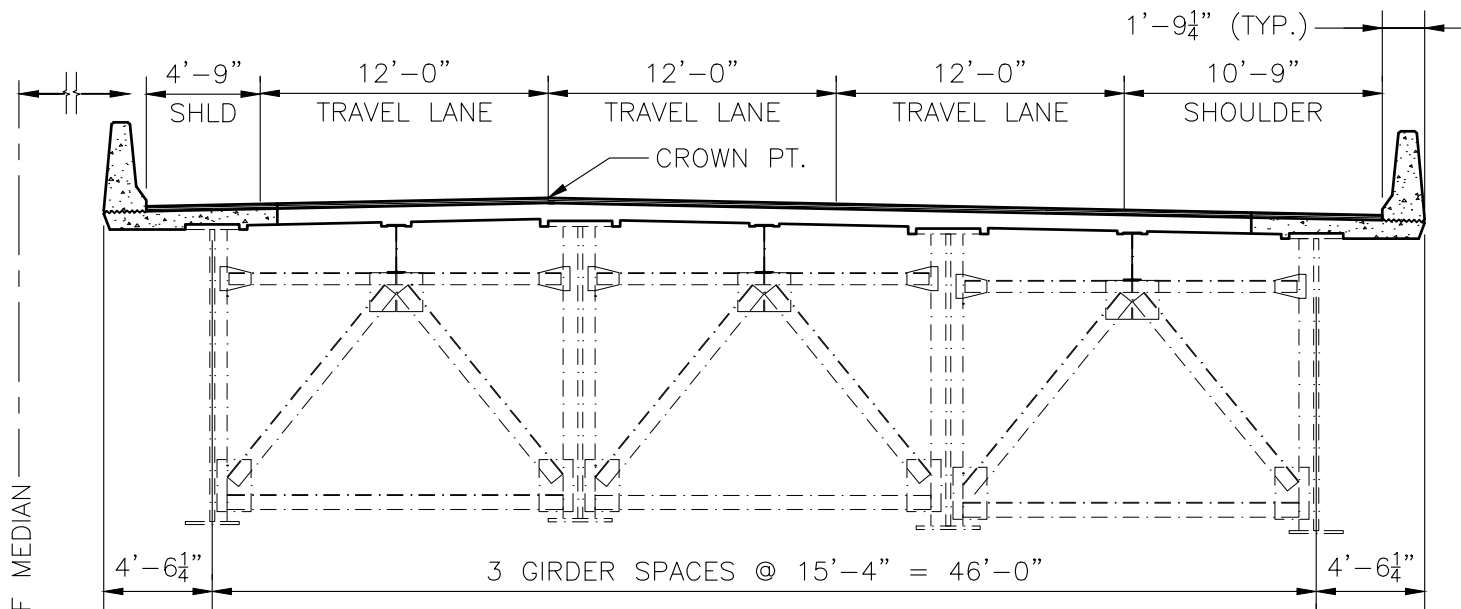
DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: SUGGESTED STAGING SEQUENCE - 5

SHEET: 76 OF 87
DRAWN BY: ME
DATE: 9/1/2026
CHECKED BY: JON
DATE: 9/1/2026

S:\D3\BRIDGE\DESIGN-REVIEW\PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0 SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26.DWG - 2 MAIN 2026.DWG



PROPOSED BRIDGE CROSS SECTION
(EASTBOUND SHOWN, WESTBOUND SIMILAR)

SCALE: $\frac{1}{8}" = 1'-0"$



DISTRICT 3
BRIDGE SECTION

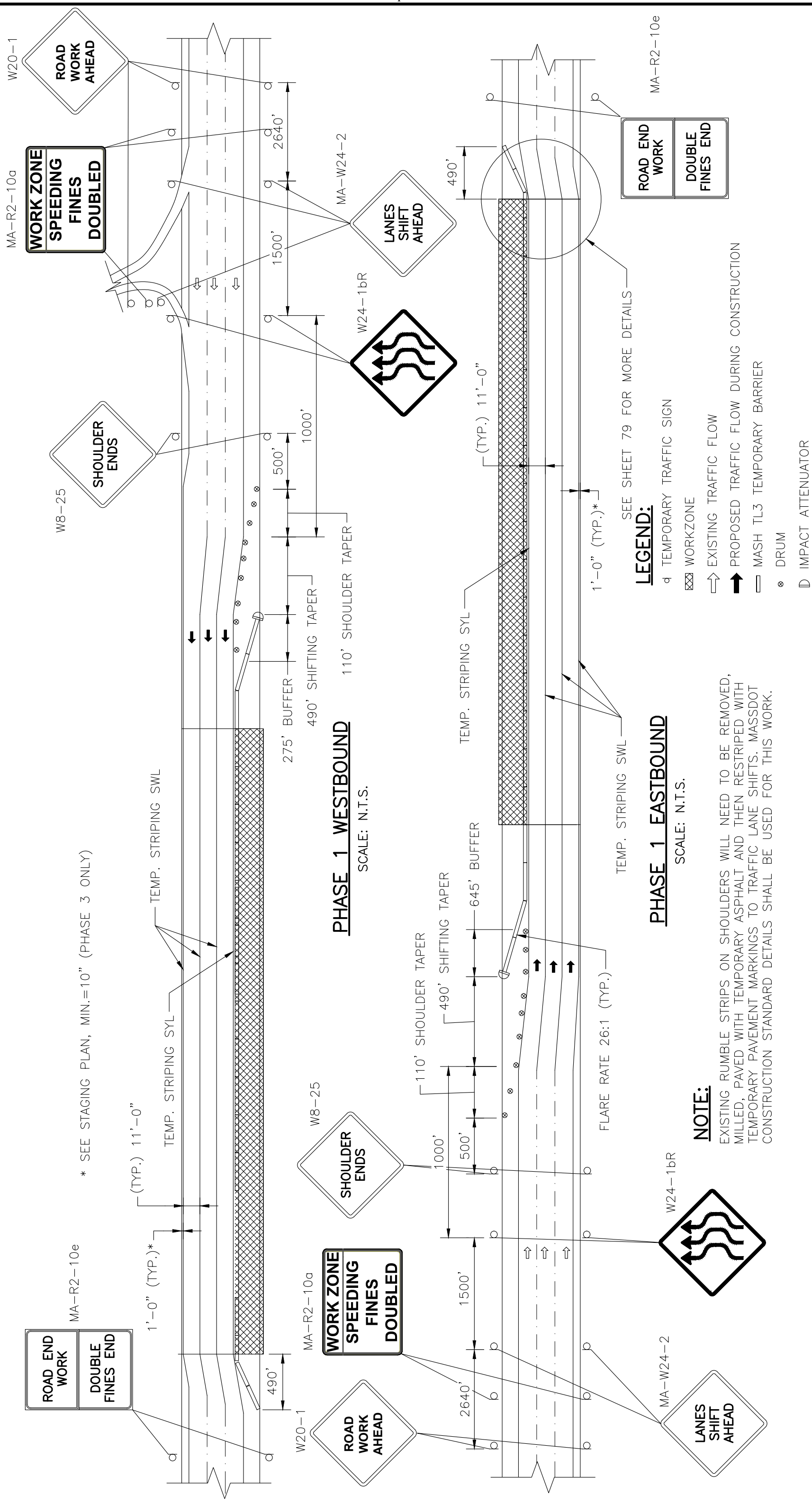
PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE
PRESERVATION, S-14-021=W-44-115,
I-290 (EB AND WB) OVER LAKE
QUINSIGAMOND AND LAKE AVENUE NORTH

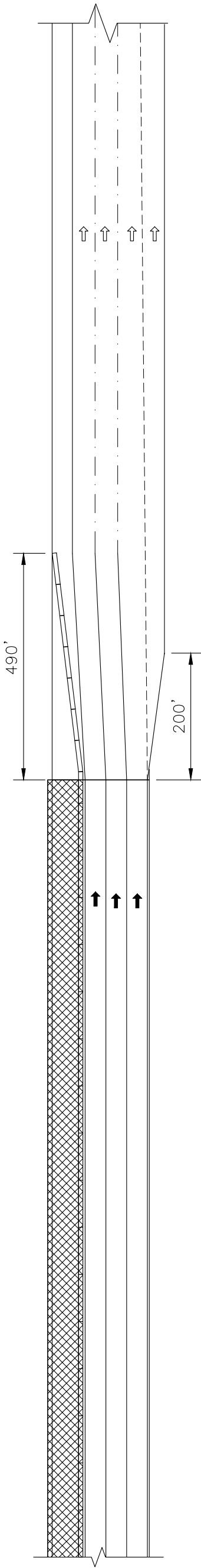
SUBJECT: SUGGESTED STAGING SEQUENCE - 6

SHEET: 77 OF 87

DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026





PHASE 1 EASTBOUND

SCALE: N.T.S.

LEGEND:

- WORKZONE
- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW DURING CONSTRUCTION
- MASH TL3 TEMPORARY BARRIER

NOTES:

EXISTING RUMBLE STRIPS ON SHOULDERS WILL NEED TO BE REMOVED, MILLED, PAVED WITH TEMPORARY ASPHALT AND THEN RESTRIPE WITH TEMPORARY PAVEMENT MARKINGS PRIOR TO TRAFFIC LANE SHIFTS.
MASSDOT CONSTRUCTION STANDARD DETAILS SHALL BE USED FOR THIS WORK.



DISTRICT 6
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY–WORCESTER–BRIDGE PRESERVATION, S–14–021= W–44–115, I–290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: TEMPORARY TRAFFIC CONTROL PLAN – 2

SHEET: 79 OF 87

DRAWN BY: ME

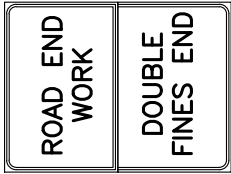
DATE: 9/1/2026

CHECKED BY: MN

DATE: 9/1/2026

NOTE:

EXISTING RUMBLE STRIPS ON SHOULDERS WILL NEED TO BE REMOVED, MILLED, PAVED WITH TEMPORARY ASPHALT AND THEN RESTRIPE WITH TEMPORARY PAVEMENT MARKINGS PRIOR TO TRAFFIC LANE SHIFTS. MASSDOT CONSTRUCTION STANDARD DETAILS SHALL BE USED FOR THIS WORK.

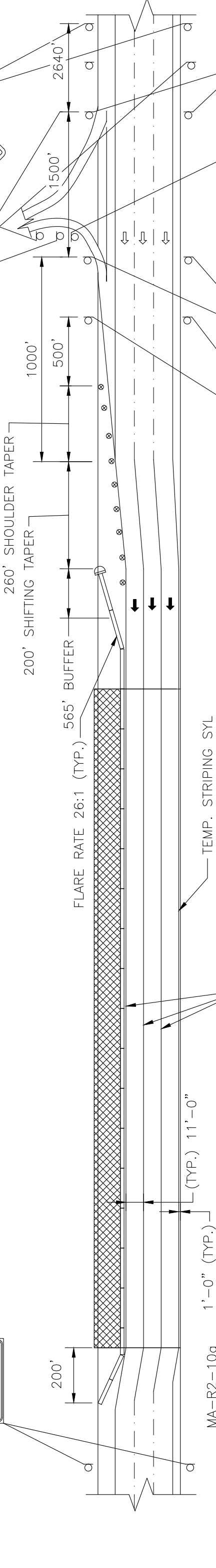


MA-R2-10e

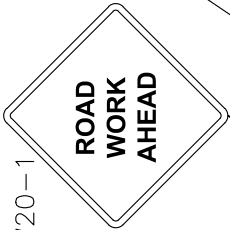
MA-R2-10a



W20-1



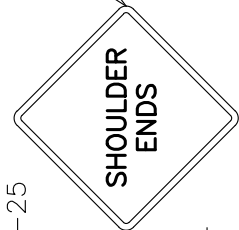
MA-R2-10a



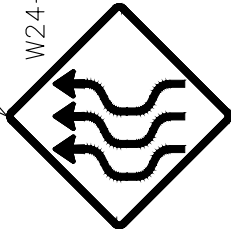
W20-1

PHASE 3 WESTBOUND

SCALE: N.T.S.



W8-25

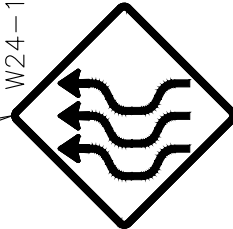


W24-1bL

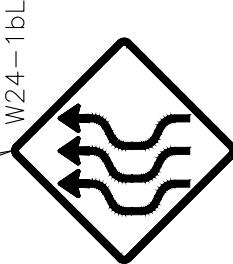
MA-W24-2

PHASE 3 EASTBOUND

SCALE: N.T.S.



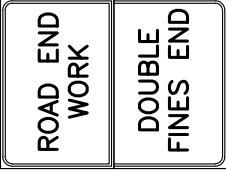
W8-25



MA-W24-2

LEGEND:

- TEMPORARY TRAFFIC SIGN
- WORKZONE
- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC FLOW DURING CONSTRUCTION
- MASH TL3 TEMPORARY BARRIER
- DRUM
- IMPACT ATTENUATOR



MA-R2-10e



DISTRICT 6
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021= W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: TEMPORARY TRAFFIC CONTROL PLAN - 3

SHEET: 80 OF 87

DRAWN BY: ME

DATE: 9/1/2026

CHECKED BY: MN

DATE: 9/1/2026

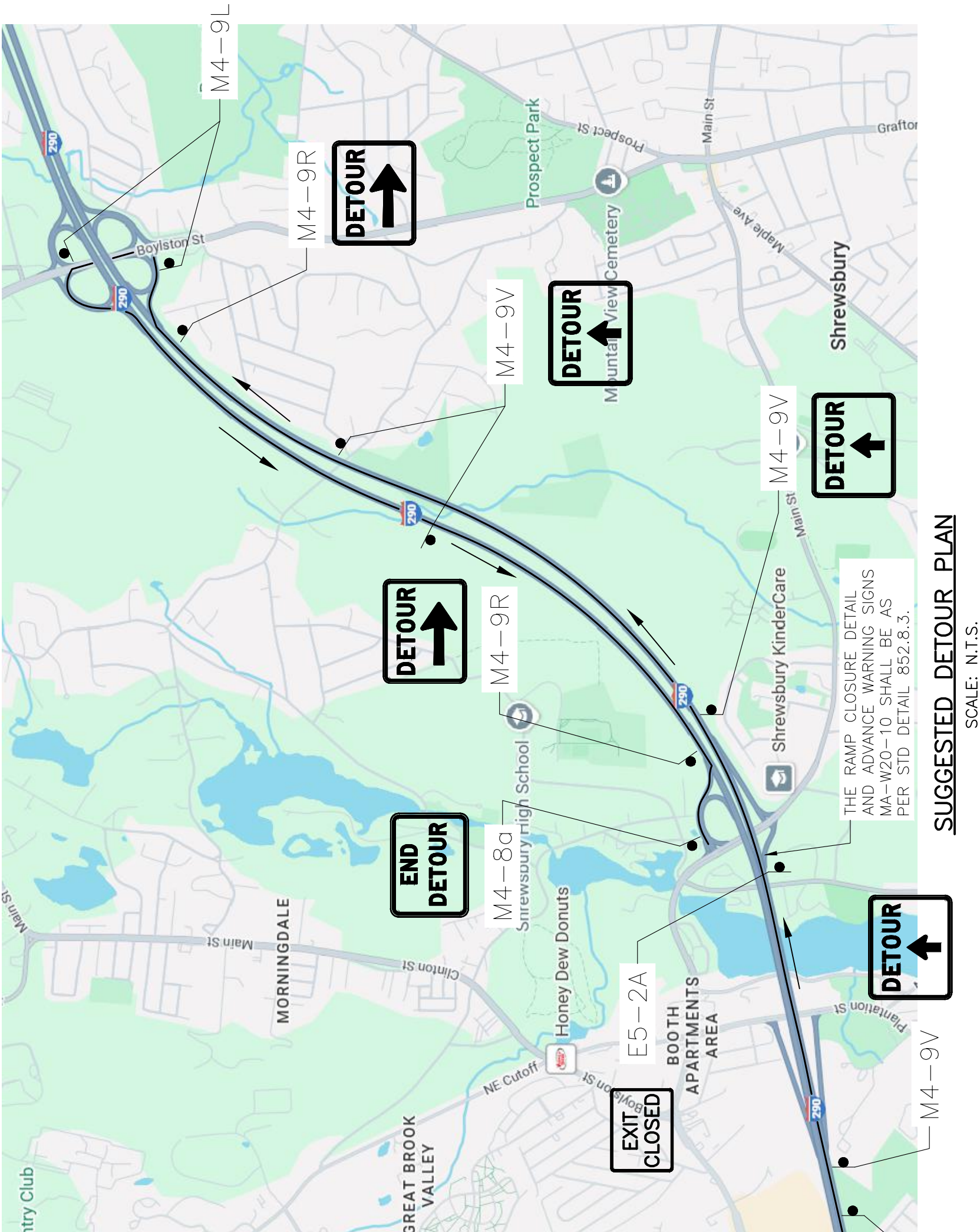
CONSTRUCTION STANDARD DETAILS		
DETAIL NUMBER	DETAIL NAME	CURRENT VERSION
852.7.1	DIVIDED HIGHWAY RIGHT SHOULDER CLOSURE (SHORT TERM)	JAN 2025
852.7.2	DIVIDED HIGHWAY LEFT SHOULDER CLOSURE (SHORT TERM)	JAN 2025
852.7.3	DIVIDED HIGHWAY RIGHT LANE CLOSURE (SHORT TERM)	JAN 2025
852.7.4	DIVIDED HIGHWAY LEFT LANE CLOSURE (SHORT TERM)	JAN 2025
852.7.8	DIVIDED HIGHWAY RIGHT TWO LANES CLOSURE (SHORT TERM)	JAN 2025
852.7.9	DIVIDED HIGHWAY LEFT TWO LANES CLOSURE (SHORT TERM)	JAN 2025
852.8.3	EXIT RAMP TYPICAL CLOSURE	JAN 2025
852.8.5	EXIT RAMP WORK WITHIN VICINITY OF RAMP (DEPARTURE SIDE)	JAN 2025
852.8.6	EXIT RAMP WORK WITHIN VICINITY OF RAMP (APPROACH SIDE)	JAN 2025
852.9.3	ENTRANCE RAMP WORK DOWNSTREAM	JAN 2025

NOTE:

EXISTING RUMBLE STRIPS ON SHOULDERS WILL NEED TO BE REMOVED, MILLED, PAVED WITH TEMPORARY ASPHALT AND THEN RESTRIPE WITH TEMPORARY PAVEMENT MARKINGS PRIOR TO TRAFFIC LANE SHIFTS. MASSDOT CONSTRUCTION STANDARD DETAILS SHALL BE USED FOR THIS WORK.



PROJECT: 612874, SHREWSBURY–WORCESTER–BRIDGE PRESERVATION, S–14–021= W–44–115, I–290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH	SHEET: 81 OF 87
	DRAWN BY: ME
SUBJECT: TEMPORARY TRAFFIC CONTROL PLAN – 4	DATE: 9/1/2026
	CHECKED BY: MN DATE: 9/1/2026

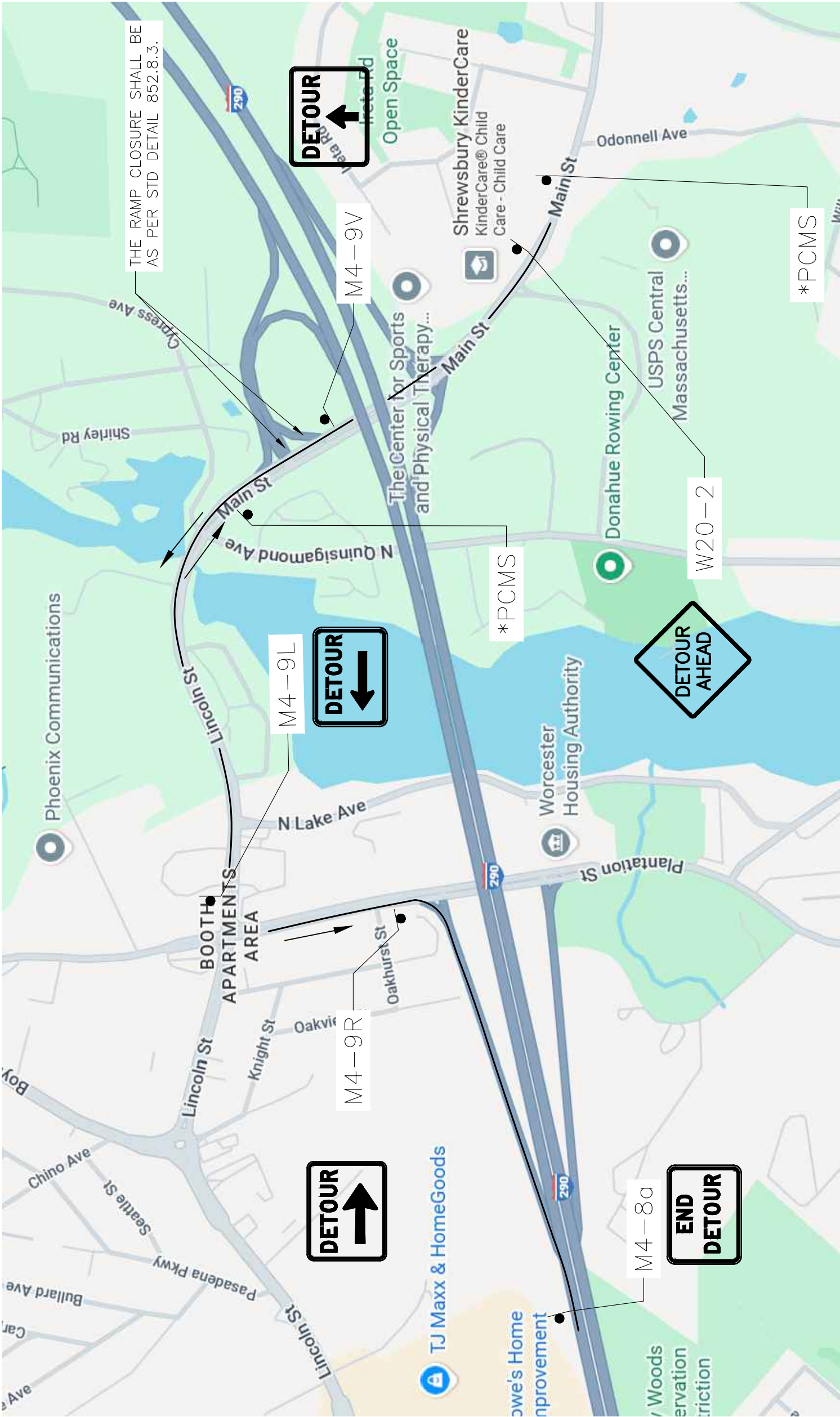


SUGGESTED DETOUR PLAN

SCALE: N.T.S.

* 2 WEEKS PRIOR TO RAMP CLOSURE—
MESSAGE 1:
EXIT 25 RAMP CLOSED
MESSAGE 2:
STARTS MMM/DD XXPM—XAM
DURING CLOSURE—
MESSAGE 1:
EXIT 25 RAMP CLOSED
MESSAGE 2:
USE EXIT 26B

*PCMS 1 MILE
PRIOR TO EXIT
25 ON I-290 EB



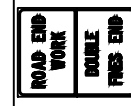
* 2 WEEKS PRIOR TO RAMP CLOSURE--
MESSAGE 1:
I-290 WB RAMP CLOSED
MESSAGE 2:
STARTS MMM/DD XXPM-XAM
DURING CLOSURE--
MESSAGE 1:
I-290 WB RAMP CLOSED
MESSAGE 2:
FOLLOW DETOUR

SUGGESTED DETOUR PLAN

SCALE: N.T.S.

 DISTRICT 6 BRIDGE SECTION	PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021= W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH		SHEET: 83 OF 87
			DRAWN BY: ME
	SUBJECT: SUGGESTED DETOUR PLAN - 2		DATE: 9/1/2026
			CHECKED BY: MN
			DATE: 9/1/2026

TRAFFIC SIGN SUMMARY

IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			(1) POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	TOTAL AREA IN SQUARE FEET
	WIDTH (IN.)	HEIGHT (IN.)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE MKR		BACK-- GROUND	LEGEND	BORDER			
W20-1	36"	36"		SEE STANDARDS (2)			11	SEE STANDARDS (2)			11	9	99
MA-W24-2*	36"	36"					10				10	9	90
W24-1b R	36"	36"					4				4	9	36
W24-1b L	36"	36"					4				4	9	36
W8-25	36"	36"					8				8	9	72
MA-R2-10A*	48"	36"					10				10	12	120
MA-R2-10E*	36"	48"					8				8	12	96
R1-2	36"	36"					1				1	9	9

NOTES:

1. SIGN SUPPORTS SHALL BE WOODEN BREAKAWAY POSTS PER MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) STANDARD.

2. PER LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

* PER MASSDOT STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TEMPORARY TRAFFIC CONTROL PLANS



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=
W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE
AVENUE NORTH

SUBJECT: CONSTRUCTION SIGN SUMMARY - 1

SHEET: 84 OF 87

DRAWN BY: ME

DATE: 9/1/2026

CHECKED BY: JON

DATE: 9/1/2026

S:\D3\BRIDGE\DESIGN-REVIEW PROJECTS\DESIGN PHASE STRUCTURE MAINTENANCE\10.0_SITE SPECIFIC PROJECT\FY 25 BIL BRIDGE PRESERVATION\612874_WORCESTER (LAKE BRIDGE) 9-13-25, 8-29-26\DWG - 2\MAIN 2026.DWG

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			(1) POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	TOTAL AREA IN SQUARE FEET
	WIDTH (IN.)	HEIGHT (IN.)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE MKR		BACK-GROUND	LEGEND	BORDER			
E5-2A	48"	36"		SEE STANDARDS (2)	SEE STANDARDS (2)	SEE STANDARDS (2)	2	SEE STANDARDS (2)			2	12	24
W4-2L	36"	36"					8				8	9	72
W4-2R	36"	36"					14				14	9	126
MA-W28-1*	36"	36"					16				16	9	144
MA-W20-5BR*	36"	36"					2				2	9	18
MA-W20-5BL*	36"	36"					2				2	9	18
W3-3	36"	36"					1				1	9	9
W4-1R	36"	36"					1				1	9	9

NOTES:

- SIGN SUPPORTS SHALL BE WOODEN BREAKAWAY POSTS PER MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) STANDARD.
 - PER LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- * PER MASSDOT STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TEMPORARY TRAFFIC CONTROL PLANS

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES) OF			COLOR			(1) POST SIZE AND NUMBER REQUIRED	UNIT AREA IN SQUARE FEET	TOTAL AREA IN SQUARE FEET
	WIDTH (IN.)	HEIGHT (IN.)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR	BACK-GROUND	LEGEND	BORDER			
MA-W20-10*	48"	48"		SEE STANDARDS (2)			SEE STANDARDS (2)			1	16	16
MA-W20-10*	36"	36"								4	9	36
E5-2A	48"	36"								1	12	12
M4-10L	48"	18"								1	6	6
R11-2B	48"	30"								1	12	12
W20-5R	36"	36"								11	9	99
W20-5L	36"	36"								4	9	36
M4-9L	30"	24"								3	5	15

NOTES:

- SIGN SUPPORTS SHALL BE WOODEN BREAKAWAY POSTS PER MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) STANDARD.
- PER LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

* PER MASSDOT STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TEMPORARY TRAFFIC CONTROL PLANS



PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: CONSTRUCTION SIGN SUMMARY - 3

SHEET: 86 OF 87
 DRAWN BY: ME
 DATE: 9/1/2026
 CHECKED BY: JON
 DATE: 9/1/2026

TRAFFIC SIGN SUMMARY														
IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			(1) POST SIZE AND NUMBER REQUIRED	UNIT SQUARE FEET	TOTAL AREA IN SQUARE FEET	
	WIDTH (IN.)	HEIGHT (IN.)		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE MKR		BACK - GROUND	LEGEND	BORDER				
M4-8A	24"	18"		SEE STANDARDS (2)			2	SEE STANDARDS (2)			2	3	6	
W21-5AR	36"	36"					1				1	9	9	
W21-5BR	36"	36"					1				1	9	9	
W21-5AL	36"	36"					1				1	9	9	
W21-5BL	36"	36"					1				1	9	9	
W20-2	36"	36"					2				2	9	18	
M4-9V	30"	24"					4				4	5	20	
M4-9R	30"	24"					3				3	5	15	

NOTES:

- SIGN SUPPORTS SHALL BE WOODEN BREAKAWAY POSTS PER MASSACHUSETTS DEPARTMENT OF TRANSPORTATION (MASSDOT) STANDARD.
 - PER LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- * PER MASSDOT STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TEMPORARY TRAFFIC CONTROL PLANS



DISTRICT 3
BRIDGE SECTION

PROJECT: 612874, SHREWSBURY-WORCESTER-BRIDGE PRESERVATION, S-14-021=W-44-115, I-290 (EB AND WB) OVER LAKE QUINSIGAMOND AND LAKE AVENUE NORTH

SUBJECT: CONSTRUCTION SIGN SUMMARY - 4

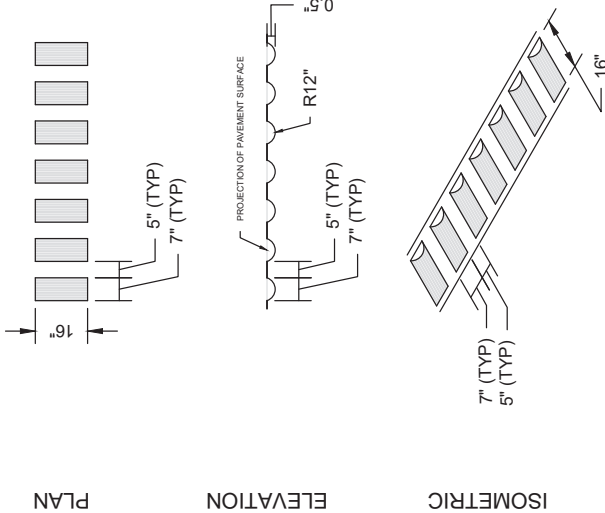
SHEET: 87 OF 87
DRAWN BY: ME
DATE: 9/1/2026

CHECKED BY: JON
DATE: 9/1/2026

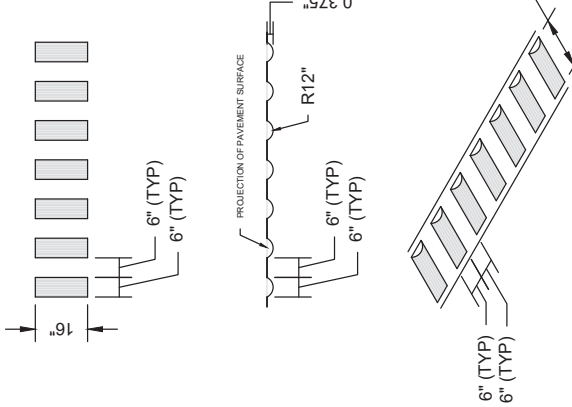
THIS PAGE IS INTENTIONALLY LEFT BLANK

RUMBLE STRIP DETAILS

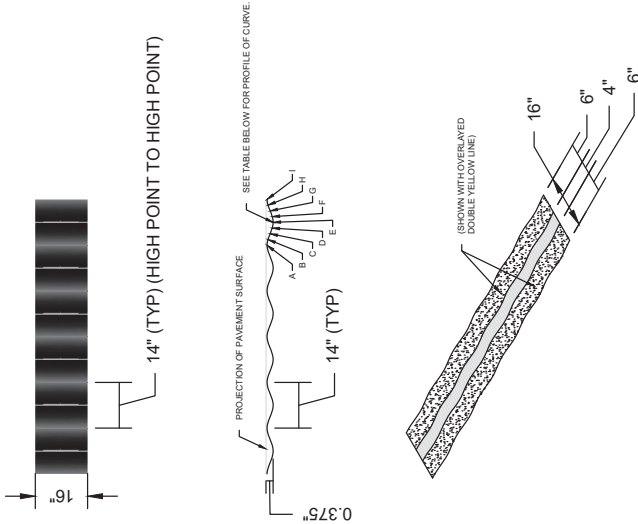
TYPE A
CYLINDER RUMBLE STRIP
(BICYCLE TRAVEL PROHIBITED)



TYPE B
CYLINDER RUMBLE STRIP
(BICYCLE TRAVEL PERMITTED)



TYPE C
CONTINUOUS SINUSOIDAL
RUMBLE STRIP



- NOTES:
1. NOT TO SCALE. SOME LINE WORK EXAGGERATED FOR CLARITY.
 2. SEE PLANS FOR LOCATION(S) AND START AND END STATIONS FOR ALL RUMBLE STRIP INSTALLATIONS.
 3. HIGH POINT OF SINUSOIDAL RUMBLE STRIP LOCATED $\frac{1}{16}$ " BELOW PAVEMENT SURFACE.

DESIGN OF CURVE PROFILE FOR SINUSOIDAL RUMBLE STRIP									
POINT	A	B	C	D	E	F	G	H	I
DEPTH FROM PAVEMENT SURFACE (IN.)	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{7}{32}$	$\frac{11}{32}$	$\frac{3}{8}$	$\frac{11}{32}$	$\frac{7}{32}$	$\frac{1}{8}$	$\frac{1}{16}$
DISTANCE FROM HIGH POINT "A" (IN.)	0	1.75	3.5	5.25	7	8.75	10.5	12.25	14

RUMBLE STRIP DETAILS

D-TE OF ISSUE
2020

DR- ING NUMBER
XXX.X.X

DOCUMENT A00817

Bridge Routine Inspection Reports

ROUTINE INSPECTION REPORT

Bridge No. S-14-021=W-44-115 (B.I.N. 1 RA).....3 through 34

ROUTINE INSPECTION REPORT

Bridge No. S-14-021=W-44-115 (B.I.N. 1 RB).....35 through 68

THIS PAGE IS INTENTIONALLY LEFT BLANK

STRUCTURES INSPECTION FIELD REPORT

2-DIST

B.I.N.

03

1RA

ROUTINE INSPECTION

BR. DEPT. NO.

S-14-021=W-44-115

CITY/TOWN SHREWSBURY=WORCESTER		8-STRUCTURE NO. S14021-1RA-DOT-NBI		11-Kilo. POINT 015.864	41-STATUS A:OPEN	90-ROUTINE INSP. DATE AUG 31, 2024
07-FACILITY CARRIED I 290 EB		MEMORIAL NAME/LOCAL NAME ERNEST JOHNSON		27-YR BUILT 1968	106-YR REBUILT 0000	YR REHAB'D (NON 106) 0000
06-FEATURES INTERSECTED COMB LK QUINSIG&LK AV N		26-FUNCTIONAL CLASS Urban Interstate		DIST. BRIDGE INSPECTION ENGINEER M. Azizi		
43-STRUCTURE TYPE 402 : Steel continuous Stringer/Girder		22-OWNER State Highway Agency	21-MAINTAINER State Highway Agency	TEAM LEADER T. T. Gumula		
107-DECK TYPE 1 : Concrete Cast-in-Place		WEATHER Clear	TEMP. (air) 24°C	TEAM MEMBERS G. LEE, R. ROGERS, B. R. SANTEUFEMIO, S. A. VAILLANCOURT		

ITEM 58		6	
DECK		DEF	
1.Wearing Surface	7	M-P	
2.Deck Condition	6	M-P	
3.Stay in Place Forms	6	M-P	
4.Curbs	6	M-P	
5.Median	N	-	
6.Sidewalks	N	-	
7.Parapets	5	S-P	
8.Railing	6	M-P	
9.Anti Missile Fence	N	-	
10.Drainage System	3	S-A	
11.Lighting Standards	N	-	
12.Utilities	N	-	
13.Deck Joints	4	S-A	
14.	N	-	
15.	N	-	
16.	N	-	

CURB REVEAL (In millimeters)	N	S
	250	230

APPROACHES		DEF	
a. Appr. Pavement Condition	7	M-P	
b. Appr. Roadway Settlement	7	-	
c. Appr. Sidewalk Settlement	N	-	
d.	N	-	

OVERHEAD SIGNS (Attached to bridge)		(Y/N)		N	
		DEF			
a. Condition of Welds	N	-			
b. Condition of Bolts	N	-			
c. Condition of Signs	N	-			

ITEM 59		6	
SUPERSTRUCTURE		DEF	
1.Stringers	7	M-P	
2.Floorbeams	N	-	
3.Floor System Bracing	7	M-P	
4.Girders or Beams	6	M-P	
5.Trusses - General	N	-	
a. Upper Chords	N	-	
b. Lower Chords	N	-	
c. Web Members	N	-	
d. Lateral Bracing	N	-	
e. Sway Bracings	N	-	
f. Portals	N	-	
g. End Posts	N	-	
6.Pin & Hangers	N	-	
7.Conn Plt's, Gussets & Angles	6	M-P	
8.Cover Plates	N	-	
9.Bearing Devices	6	M-P	
10.Diaphragms/Cross Frames	5	M-P	
11.Rivets & Bolts	7	M-P	
12.Welds	7	M-P	
13.Member Alignment	7	-	
14.Paint/Coating	5	S-P	
15.Catwalk	4	S-A	

Year Painted

1991

COLLISION DAMAGE: Please explain
None (X) Minor () Moderate () Severe ()LOAD DEFLECTION: Please explain
None () Minor (X) Moderate () Severe ()LOAD VIBRATION: Please explain
None () Minor (X) Moderate () Severe ()

Any Fracture Critical Member: (Y/N)

N

Any Cracks: (Y/N)

N

ITEM 60		6	
SUBSTRUCTURE		DEF	
1. Abutments	Dive	Cur	7
a. Pedestals	N	N	-
b. Bridge Seats	N	7	-
c. Backwalls	N	7	-
d. Breastwalls	N	7	-
e. Wingwalls	N	6	M-P
f. Slope Paving/Rip-Rap	N	6	M-P
g. Pointing	N	N	-
h. Footings	N	H	-
i. Piles	N	N	-
j. Scour	N	N	-
k. Settlement	N	7	-
l.	N	N	-
m.	N	N	-
2. Piers or Bents			6
a. Pedestals	N	7	-
b. Caps	N	7	M-P
c. Columns	N	7	M-P
d. Stems/Webs/Pierwalls	N	6	M-P
e. Pointing	N	N	-
f. Footing	6	6	M-P
g. Piles	H	H	-
h. Scour	8	H	-
i. Settlement	7	7	-
j.	N	N	-
k.	N	N	-
3. Pile Bents			N
a. Pile Caps	N	N	-
b. Piles	N	N	-
c. Diagonal Bracing	N	N	-
d. Horizontal Bracing	N	N	-
e. Fasteners	N	N	-

UNDERMINING (Y/N) If YES please explain

N

COLLISION DAMAGE:
None (X) Minor () Moderate () Severe ()SCOUR: Please explain
None (X) Minor () Moderate () Severe ()

I-60 (Dive Report):

6

I-60 (This Report):

6

93B-U/W (DIVE) Insp

05/07/2024

X=UNKNOWN

N=NOT APPLICABLE H=HIDDEN/INACCESSIBLE

R=REMOVED

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

ITEM 61 CHANNEL & CHANNEL PROTECTION <table border="1" style="width:100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th></th> <th>Dive</th> <th>Cur</th> <th>DEF</th> </tr> </thead> <tbody> <tr><td>1.Channel Scour</td><td>8</td><td>H</td><td>-</td></tr> <tr><td>2.Embankment Erosion</td><td>6</td><td>7</td><td>-</td></tr> <tr><td>3.Debris</td><td>7</td><td>7</td><td>-</td></tr> <tr><td>4.Vegetation</td><td>7</td><td>7</td><td>-</td></tr> <tr><td>5.Utilities</td><td>N</td><td>N</td><td>-</td></tr> <tr><td>6.Rip-Rap/Slope Protection</td><td>6</td><td>7</td><td>-</td></tr> <tr><td>7.Aggradation</td><td>7</td><td>H</td><td>-</td></tr> <tr><td>8.Fender System</td><td>N</td><td>N</td><td>-</td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> STREAM FLOW VELOCITY: Tidal () High () Moderate () Low (X) None () ITEM 61 (Dive Report): 7 ITEM 61 (This Report): 7 93b-U/W INSP. DATE: 05/07/2024		Dive	Cur	DEF	1.Channel Scour	8	H	-	2.Embankment Erosion	6	7	-	3.Debris	7	7	-	4.Vegetation	7	7	-	5.Utilities	N	N	-	6.Rip-Rap/Slope Protection	6	7	-	7.Aggradation	7	H	-	8.Fender System	N	N	-													ITEM 36 TRAFFIC SAFETY <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th></th> <th>36</th> <th>COND</th> <th>DEF</th> </tr> </thead> <tbody> <tr><td>A. Bridge Railing</td><td>0</td><td>5</td><td>S-P</td></tr> <tr><td>B. Transitions</td><td>1</td><td>7</td><td>-</td></tr> <tr><td>C. Approach Guardrail</td><td>1</td><td>5</td><td>S-A</td></tr> <tr><td>D. Approach Guardrail Ends</td><td>N</td><td>N</td><td>-</td></tr> </tbody> </table> WEIGHT POSTING Not Applicable X <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th></th> <th>H</th> <th>3</th> <th>3S2</th> <th>Single</th> </tr> </thead> <tbody> <tr><td>Actual Posting</td><td>N</td><td>N</td><td>N</td><td>N</td></tr> <tr><td>Recommended Posting</td><td>N</td><td>N</td><td>N</td><td>N</td></tr> </tbody> </table> Waived Date: 00/00/0000 EJDMT Date: 00/00/0000 <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2">At bridge</th> <th colspan="2">Other Advance</th> </tr> <tr> <th>E</th> <th>W</th> <th>E</th> <th>W</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">[X]</td> <td style="text-align: center;">[X]</td> <td style="text-align: center;">[X]</td> <td style="text-align: center;">[X]</td> </tr> </tbody> </table>		36	COND	DEF	A. Bridge Railing	0	5	S-P	B. Transitions	1	7	-	C. Approach Guardrail	1	5	S-A	D. Approach Guardrail Ends	N	N	-		H	3	3S2	Single	Actual Posting	N	N	N	N	Recommended Posting	N	N	N	N	At bridge		Other Advance		E	W	E	W	[X]	[X]	[X]	[X]	ACCESSIBILITY (Y/N/P) <table border="1" style="width:100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th></th> <th>Needed</th> <th>Used</th> </tr> </thead> <tbody> <tr><td>Lift Bucket</td><td>N</td><td>N</td></tr> <tr><td>Ladder</td><td>N</td><td>N</td></tr> <tr><td>Boat</td><td>N</td><td>N</td></tr> <tr><td>Waders</td><td>N</td><td>N</td></tr> <tr><td>Inspector 50</td><td>Y</td><td>Y</td></tr> <tr><td>Rigging</td><td>N</td><td>N</td></tr> <tr><td>Staging</td><td>N</td><td>N</td></tr> <tr><td>Traffic Control</td><td>Y</td><td>Y</td></tr> <tr><td>RR Flagger</td><td>N</td><td>N</td></tr> <tr><td>Police</td><td>Y</td><td>Y</td></tr> <tr><td>Other:</td><td> </td><td> </td></tr> <tr><td> </td><td>N</td><td>N</td></tr> </tbody> </table> TOTAL HOURS 12 PLANS (Y/N): Y (V.C.R.) (Y/N): N TAPE#: _____ List of field tests performed: Visual and Hands On Inspections		Needed	Used	Lift Bucket	N	N	Ladder	N	N	Boat	N	N	Waders	N	N	Inspector 50	Y	Y	Rigging	N	N	Staging	N	N	Traffic Control	Y	Y	RR Flagger	N	N	Police	Y	Y	Other:				N	N
	Dive	Cur	DEF																																																																																																																																					
1.Channel Scour	8	H	-																																																																																																																																					
2.Embankment Erosion	6	7	-																																																																																																																																					
3.Debris	7	7	-																																																																																																																																					
4.Vegetation	7	7	-																																																																																																																																					
5.Utilities	N	N	-																																																																																																																																					
6.Rip-Rap/Slope Protection	6	7	-																																																																																																																																					
7.Aggradation	7	H	-																																																																																																																																					
8.Fender System	N	N	-																																																																																																																																					
	36	COND	DEF																																																																																																																																					
A. Bridge Railing	0	5	S-P																																																																																																																																					
B. Transitions	1	7	-																																																																																																																																					
C. Approach Guardrail	1	5	S-A																																																																																																																																					
D. Approach Guardrail Ends	N	N	-																																																																																																																																					
	H	3	3S2	Single																																																																																																																																				
Actual Posting	N	N	N	N																																																																																																																																				
Recommended Posting	N	N	N	N																																																																																																																																				
At bridge		Other Advance																																																																																																																																						
E	W	E	W																																																																																																																																					
[X]	[X]	[X]	[X]																																																																																																																																					
	Needed	Used																																																																																																																																						
Lift Bucket	N	N																																																																																																																																						
Ladder	N	N																																																																																																																																						
Boat	N	N																																																																																																																																						
Waders	N	N																																																																																																																																						
Inspector 50	Y	Y																																																																																																																																						
Rigging	N	N																																																																																																																																						
Staging	N	N																																																																																																																																						
Traffic Control	Y	Y																																																																																																																																						
RR Flagger	N	N																																																																																																																																						
Police	Y	Y																																																																																																																																						
Other:																																																																																																																																								
	N	N																																																																																																																																						

RATING Rating Report (Y/N): Y Date: 01/01/2005 Inspection data at time of existing rating I 58: 7 I 59: 7 I 60: 5 Date :08/26/2004	Recommend for Rating or Rerating (Y/N): N If YES please give priority: HIGH () MEDIUM () LOW () REASON: _____
---	---

CONDITION RATING GUIDE			(For Items 58, 59, 60 and 61)
CODE	CONDITION	DEFECTS	
N	NOT APPLICABLE		
G 9	EXCELLENT	Excellent condition.	
G 8	VERY GOOD	No problem noted.	
G 7	GOOD	Some minor problems.	
F 6	SATISFACTORY	Structural elements show some minor deterioration.	
F 5	FAIR	All primary structural elements are sound but may have minor section loss, cracking, spalling or scour.	
P 4	POOR	Advanced section loss, deterioration, spalling or scour.	
P 3	SERIOUS	Loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	
C 2	CRITICAL	Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.	
C 1	"IMMINENT" FAILURE	Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put it back in light service.	
0	FAILED	Out of service - beyond corrective action.	

DEFICIENCY REPORTING GUIDE	
DEFICIENCY:	A defect in a structure that requires corrective action.
CATEGORIES OF DEFICIENCIES:	
M= Minor Deficiency	Deficiencies which are minor in nature, generally do not impact the structural integrity of the bridge and could easily be repaired. Examples include but are not limited to: Spalled concrete, Minor pot holes, Minor corrosion of steel, Minor scouring, Clogged drainage, etc.
S= Severe/Major Deficiency	Deficiencies which are more extensive in nature and need more planning and effort to repair. Examples include but are not limited to: Moderate to major deterioration in concrete, Exposed and corroded rebars, Considerable settlement, Considerable scouring or undermining, Moderate to extensive corrosion to structural steel with measurable loss of section, etc.
C-S= Critical Structural Deficiency	A deficiency in a structural element of a bridge that poses an extreme unsafe condition due to the failure or imminent failure of the element which will affect the structural integrity of the bridge.
C-H= Critical Hazard Deficiency	A deficiency in a component or element of a bridge that poses an extreme hazard or unsafe condition to the public, but does not impair the structural integrity of the bridge. Examples include but are not limited to: Loose concrete hanging down over traffic or pedestrians, A hole in a sidewalk that may cause injuries to pedestrians, Missing section of bridge railing, etc.
URGENCY OF REPAIR:	
I = Immediate-	[Inspector(s) immediately contact District Bridge Inspection Engineer (DBIE) to report the Deficiency and to receive further instruction from him/her].
A = ASAP-	[Action/Repair should be initiated by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) upon receipt of the Inspection Report].
P = Prioritize-	[Shall be prioritized by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) and repairs made when funds and/or manpower is available].

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

REMARKS

BRIDGE ORIENTATION

This four span structure carries Interstate 290 Eastbound over Lake Avenue North and Lake Quinsigamond between the Town of Shrewsbury and the City of Worcester. **See Sketch 1.**

According to the plans the approaches are east and west and the elevations are north and south.

This a 4 span welded steel girder bridge with 4 girders. There is a stringer between each girder and 6 bays in each span numbered south to north. Span #1 is a simple span. Spans #2 - #4 are continuous. The spans and 3 piers are numbered west to east.

The girders are numbered **north** to **south**, contiguous with the sister bridge (BIN 1RB) as follows:

- Span #1: #13 through #16;
- Span #2 through #4: #5 through #8. **See Sketches 2 and 3.**

Each pier has 2 columns labeled **north** and **south**, and a concrete wall between columns. Directions in **bold** are a change from previous inspections.

GENERAL REMARKS

Clearance:

Minimum underclearance was measured under span #1 girder #13 at east edge of road.

Accessibility:

The bridge was inspected using the A-62 under bridge inspection unit, with a single right lane closure, and Massachusetts State Police detail between the hours of 10:00AM and 3:00PM.

ITEM 58 - DECK

Item 58.1 - Wearing Surface

Bituminous concrete wearing surface and both approaches have heavy sand/gravel buildup along both curbs, heaviest at the south curb. See Item 58.10 - Drainage System for additional comments.

Span #1, right lane, 8' wide x 10' long concrete patch 7' from the west abutment joint. **See Photo 1.**

Span #1, right lane, 10' wide x 6' long concrete patch at pier #1. **See Photo 2.** See Item 58.13 - Deck Joints for additional comments.

Item 58.2 - Deck Condition

Deck underside is not visible due to stay-in-place (SIP) forms. See Item 58.3 - Stay in Place Forms for additional comments.

Span #1 west end center lane has a concrete repair adjacent to a joint repair. See Item 58.13 - Deck Joints for additional comments.

Both soffits have many transverse hairline cracks, some with efflorescence, that reflect up the parapet. **See Photo 3.**

South soffit west end has a 2' ø x 3" deep spall with exposed rebar. **See Photo 4.**

North soffit near west end has a 1' long x 5" wide x 2" deep spall with exposed rusted rebar.

Item 58.3 - Stay in Place Forms

Span #1:

- Bays #5 & #6 east end near pier #1; heavy rust flaking with 100% section loss 5' wide x 1'-6" long and 1' wide x 6" long, respectively. **See Photo 5.**

Span #2:

- Bay #1 along girder 4; isolated rust flaking.
- Bay #1 west of splice; minor rust flaking. **See Photo 6.**
- Bays #1, #5, and #6 just west of the girder splice; heavy rust flaking with 100% section loss up to full width x 5' long. **See Photo 7.**

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

REMARKS

Span #3:

- Bays #5 & #6 between the first and second girder splices; heavy rust flaking 5' wide x 1' long.

Span #4:

- Bay #5 near girder splice; heavy rust flaking with 100% section loss.

Item 58.4 - Curbs

Both curbs have several areas of minor cracking, staining, displacement, vegetation growth, and mortar joint deterioration throughout. **See Photo 8.**

Item 58.7 - Parapets

Both concrete parapets have several full height hairline cracks throughout, some with bleeding efflorescence and rust. Bottom outside faces have isolated small areas of concrete deterioration. The concrete between the curb and the parapets is cracked and spalled in many areas throughout. There are minor collision scrapes throughout.

South Parapet:

- Spans #1 - #3, both faces at removed lighting standard junction boxes; up to 4' long x 1'-2" high x 4" deep delamination/spalling. **See Photos 9 and 10.**
- Span #3 outside face midspan; 1' ø x 1" deep spall.
- Span #4 adjacent to junction box, 7' long x full height x full width.

North Parapet:

- Span #1 inside face west end; 1'-6" ø spall with exposed rebar.

Item 58.8 - Railing

Both AL-1 rails have isolated minor scrapes and dents in several areas throughout.

Item 58.10 - Drainage System

All scupper drains are mostly or completely plugged throughout. **See Photo 11.**

Several span #3 & #4 drain pipes have heavy corrosion with up to 100% section loss. **See Photos 12 and 13.**

Both east abutment drain pipes are missing/short. **See Photo 14.**

Item 58.13 - Deck Joints

West Abutment Sliding Plate Joint:

- All sliding plate joint steel has been removed, with the exception of the breakdown lane.
- There are new concrete headers up to 5' long x full width with foam board in the opening.

Pier #1 Compression Seal Joint:

- Joint system was removed and replaced.
- There are full x 5' long concrete headers with a foam board joint. **See Photo 2.**

East Abutment Finger Joint:

- Steel, breakdown lane; minor rust flaking. **See Photo 15.**
- Steel, throughout; minor plow gouges.
- Trough; missing throughout, allowing water to drain directly onto elements below, heaviest at south end.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

REMARKS

APPROACHES

Approaches a - Appr. Pavement Condition

East deck transition right lane and breakdown lane have minor transverse and map cracking with a bituminous concrete patch. **See Photo 16.**

See Item 58.1 - Wearing Surface for additional comments.

ITEM 59 - SUPERSTRUCTURE

Item 59.1 - Stringers

Span #2 stringer #1 top flange near midspan has minor corrosion.

Item 59.3 - Floor System Bracing

Span #4 girder #7 east end south side floor system bracing has moderate rust flaking.

Pier #1 bracing has isolated areas of pitting.

Item 59.4 - Girders or Beams

Span #1 & #2 girders have field splices west of piers #1 & #2, respectively. Span #3 girders have four field splices numbered west to east. Span #4 girders have field splices east of pier #3.

Several span #1 & #4 abutment girder ends have heavy surface rust with minor rust flaking at the bottom flange tops. **See Photo 17.**

Pier #1 end bottom flanges and web bottoms have isolated areas of pitting.

Span #2:

- Girder #5 & #7 inside top flanges; intermittent minor surface rust.

Span #3:

- Girder #5 & #8 bottom flanges; minor fabrication flaw (slightly wavy) between splices #1 & #2.
- Girders #5 & #8 outside bottom flange tops between field splices #2 & #3; minor rust flaking throughout. **See Photo 18.**

Span #4:

- Girders #6 - #8 east end 5'; moderate rust and minor flaking at bottom flange, stiffener bottoms, and web bottom 3'.
- Girder #7 east end web bottom behind bearing (total length 8.5"); 100% section loss 6" long x 1" high at 1" up from bottom flange top. **See Photo 19.**
- Girder #8 east end web bottom, starting at 4' from bearing face; section loss 2'-6" long x 5" high with as little as 0.13" remaining at 75" from bearing face (original web thickness = 0.375").

Item 59.7 - Conn Plt's, Gussets & Angles

At several lower cross frame connection plate locations, a section was torched out and a new plate was re-welded on top of the original plate. The welds have numerous undercuts and appear to be of poor quality. Several gussets and angles under the expansion joints have minor rust flaking. Many of the gusset welds are poor.

Span #3 girder #5 splice 2 bottom flange plate top has minor rust flaking.

Item 59.9 - Bearing Devices

All expansion bearing keeper plates have minor pack rust.

All expansion bearing keeper angles have minor pack rust and section loss.

All abutment bearings have minor rust flaking.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

REMARKS

Several pier #1 and east abutment keeper angles have up to 100% section loss. **See Photo 20.**
 East abutment bearing #4 north angle has 100% section loss and a small plate welded to it.
 East abutment bearing #3 north angle has heavy flaking and section loss.
 Pier #3 bearing #1 southeast anchor bolt nut is not fully tightened.

Item 59.10 - Diaphragms/Cross Frames
 Pier #1 concrete encased end diaphragms in spans #1 & #2 have moderate cracking and spalling with exposed rusted rebar. **See Photo 21.**

Item 59.11 - Rivets & Bolts
 Span #2 girder #7 north face fourth cross frame lower diagonal connection has a loose bolt.
 Span #4 girder #7 bay #4 first cross frame connection east of pier #3 has four loose bolts. **See Photo 22.**

Item 59.12 - Welds
 Butt welds were not ground smooth on the girders. Tack welds used during fabrication and erection were also not ground down.
 West girder #7 splice in span #3 has an undercut weld on the south side of the flange, and poorly done tack welds. See Item 59.7 - Connection Plates, Gussets, and Angles for additional comments.

Item 59.14 - Paint/Coating
 Superstructure paint system has fading and chalking throughout. Girder #8 in spans #2 and #3 typically has locations of painted over graffiti to the exterior face that are faded. **See Photo 23.**

- Span #1 girder #13 interior face has peeling to the top coat exposing primer throughout. **See Photo 24.**
- Span #1 girder #16 outside face has moderate to heavy paint peel exposing minor surface rust throughout. At the interior face there are many locations of peeling top coat. **See Photo 25.**
- Span #2 girder #5 has many locations of peeling top coat to the inside face. **See Photo 26.**
- The bottom flange of all girders has light to moderate paint peeling to the bottom flange in spans #1 and #4.
- Span #4 girders #5 through #8 have heavy paint peeling exposing rusted steel at the east 10'.

Item 59.15 - Catwalk
 Catwalk at pier #1 and east abutment has 100% section loss at the floor grating and isolated vertical supports. Handrails and grating remainder have minor to moderate surface rust and paint peel throughout. **See Photos 27 and 28.**
 The west entrance to the catwalk is secured with a locked gate, the east is open and accessible. **See Photo 29.**

SuperStructure Load Deflection Notes
 Minor under heavy live loads.

SuperStructure Load Vibration Notes
 Minor under heavy live loads.

ITEM 60 - SUBSTRUCTURE

Item 60.1 - Abutments
Item 60.1.d - Breastwalls
 West breastwall under bay #4 has a 1' long hairline crack.
 East breastwall under girder #6 has a full height hairline vertical crack.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

REMARKS

Item 60.1.e - Wingwalls

Both south wingwalls have minor map cracking and scaling with some bleeding rust and efflorescence.

Item 60.1.f - Slope Paving/Rip-Rap

Both slopes have minor vegetation throughout. West slope has minor erosion.

Item 60.2 - Piers or Bents

Item 60.2.b - Caps

Pier #1:

- Moderate construction debris throughout the top of the cap.

Pier #2:

- Under girder #6 west face has small shallow spalls with exposed rusted rebar.

Pier #3:

- South face top has a 2'-6" long x 6" wide x 3" deep spall with exposed rusted rebar. **See Photo 30.** Remainder has hairline vertical and horizontal cracks.

Item 60.2.c - Columns

Pier #1 north column northwest corner has an 8' high hairline vertical crack.

Item 60.2.d - Stems/Webs/Pierwalls

Pier #1:

- Isolated minor bleeding rust on both faces.
- East face below bay #3, 1' high x 3' wide x 1" deep spall at the top.
- East face below bay #5, 5'-8" high x 3'-5" wide x up to 3" deep spall/delamination at the top. **See Photo 31.**

Pier #2:

- Bottom east face has hairline map cracking.

Item 60.2.f - Footing

The rating is based on the visible portion of the footing that is above the water line.
All footings have moderate waterline abrasion.

Item 60.2.h - Scour

See the Underwater Routine Inspection report dated 5/7/2024 for comments.

ITEM 61 - CHANNEL AND CHANNEL PROTECTION

Item 61.1 - Channel Scour

See the Underwater Routine Inspection report dated 5/7/2024 for comments.

Item 61.7 - Aggradation

See the Underwater Routine Inspection report dated 5/7/2024 for comments.

TRAFFIC SAFETY

Item 36a - Bridge Railing

The concrete parapet does not conform to current standards.

CITY/TOWN	B.I.N.	BR. DEPT. NO.	8.-STRUCTURE NO.	INSPECTION DATE
SHREWSBURY=WORCESTER	1RA	S-14-021=W-44-115	S14021-1RA-DOT-NBI	AUG 31, 2024

REMARKS

See Items 58.7 - Parapets and 58.8 - Railing for comments.

Item 36c - Approach Guardrail

Southwest approach guardrail has heavy collision damage. **See Photo 32.**

Sketch / Photo Log

Sketch 1 : Location Map
 Sketch 2 : Framing Plan (1 of 2)
 Sketch 3 : Framing Plan (2 of 2)
 Photo 1 : Concrete patch in span #1, right lane.
 Photo 2 : Concrete patch in span #1 adjacent to pier #1 joint. Note pier #1 joint.
 Photo 3 : Spans #3 and #4 at pier #3.
 Photo 4 : Spall to the south soffit at the west end.
 Photo 5 : SIP forms in span #1, bays #5 and #6 at the east end.
 Photo 6 : Bay #1, span #1 west of the splice.
 Photo 7 : Bays #5 and #6 in span #2, west of the splice plate.
 Photo 8 : Typical condition of the curb. Span #4 shown.
 Photo 9 : Utility junction box at the south parapet in span #1. Note condition of the utility box.
 Photo 10 : Condition of the south parapet at the utility box. Span #3 shown.
 Photo 11 : Typical clogged scupper.
 Photo 12 : Missing north scupper pipe in span #4.
 Photo 13 : Span #4, south scupper with 100% section loss.
 Photo 14 : Missing scupper at the north end of the east joint.
 Photo 15 : East finger joint at the south end.
 Photo 16 : Patch at the east approach adjacent to the south end of the east joint.
 Photo 17 : Corrosion to the bottom flange of girder #13 in span #1.
 Photo 18 : Span #3, girder #5, top face of bottom flange.
 Photo 19 : Span #4, girder #7 at the east end.
 Photo 20 : Missing keeper plate to girder #5 bearing at pier #1.
 Photo 21 : Concrete end diaphragm condition over pier #1.
 Photo 22 : Span #4, girder #7.
 Photo 23 : Typical paint condition and painted over graffiti. Span #3, girder #8 shown.
 Photo 24 : Span #1, girder #13 inside face.
 Photo 25 : Span #1, girder #16 exterior face.
 Photo 26 : Span #2, girder #5 inside face.
 Photo 27 : Section loss to the catwalk grate over pier #1.
 Photo 28 : Section loss to the vertical connections over pier #1.
 Photo 29 : Unsecured east end of the catwalk in span #4.
 Photo 30 : Pier #3 south face.
 Photo 31 : Pier #1, east face at the top.
 Photo 32 : Southwest approach guardrail.

CITY/TOWN	BR. DEPT. NO.	8-STRUCTURE NO.	INSPECTION DATE
SHREWSBURY=WORCESTER	S-14-021=W-44-115	S14021-1RA-DOT-NBI	AUG 31, 2024

SKETCHES



Sketch 1: Location Map

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

PHOTOS

Photo 1: Concrete patch in span #1, right lane.



Photo 2: Concrete patch in span #1 adjacent to pier #1 joint. Note pier #1 joint.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

PHOTOS

Photo 3: Spans #3 and #4 at pier #3.



Photo 4: Spall to the south soffit at the west end.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	--	--

PHOTOS

Photo 5: SIP forms in span #1, bays #5 and #6 at the east end.



Photo 6: Bay #1, span #1 west of the splice.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

PHOTOS

Photo 7: Bays #5 and #6 in span #2, west of the splice plate.



Photo 8: Typical condition of the curb. Span #4 shown.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

PHOTOS

Photo 9: Utility junction box at the south parapet in span #1. Note condition of the utility box.



Photo 10: Condition of the south parapet at the utility box. Span #3 shown.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

PHOTOS

Photo 11: Typical clogged scupper.



Photo 12: Missing north scupper pipe in span #4.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	--	--

PHOTOS

Photo 13: Span #4, south scupper with 100% section loss.

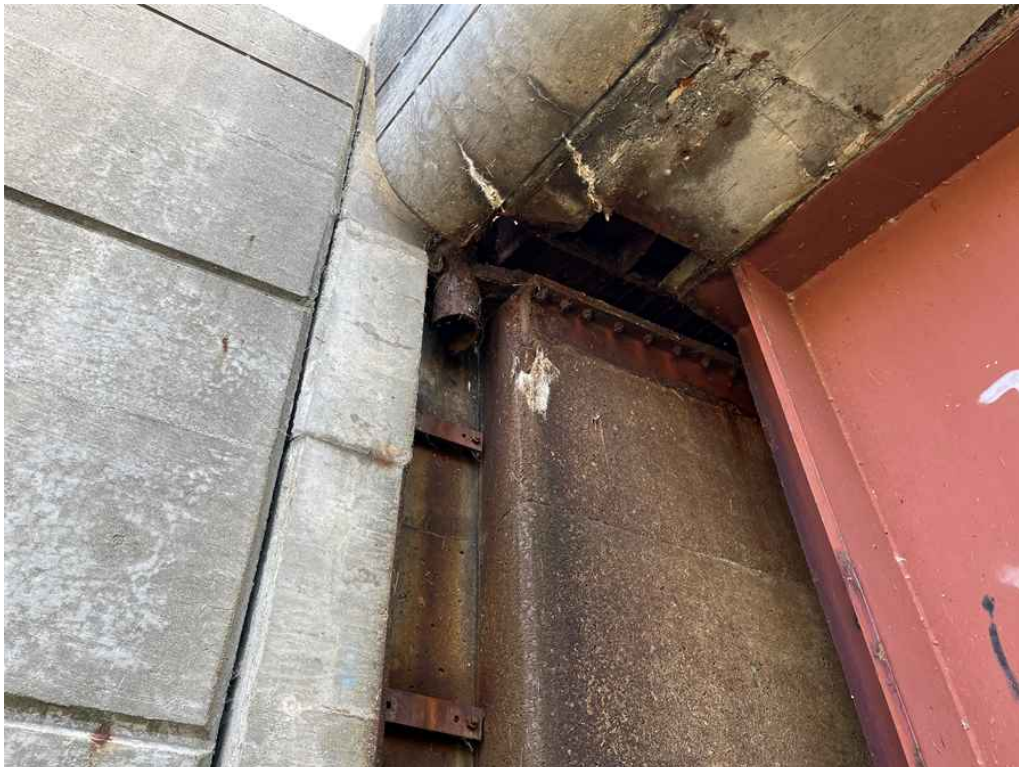


Photo 14: Missing scupper at the north end of the east joint.

CITY/TOWN	B.I.N.	BR. DEPT. NO.	8.-STRUCTURE NO.	INSPECTION DATE
SHREWSBURY=WORCESTER	1RA	S-14-021=W-44-115	S14021-1RA-DOT-NBI	AUG 31, 2024

PHOTOS

Photo 15: East finger joint at the south end.



Photo 16: Patch at the east approach adjacent to the south end of the east joint.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

PHOTOS

Photo 17: Corrosion to the bottom flange of girder #13 in span #1.



Photo 18: Span #3, girder #5, top face of bottom flange.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

PHOTOS

Photo 19: Span #4, girder #7 at the east end.



Photo 20: Missing keeper plate to girder #5 bearing at pier #1.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

PHOTOS

Photo 21: Concrete end diaphragm condition over pier #1.



Photo 22: Span #4, girder #7.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	--	--

PHOTOS



Photo 23: Typical paint condition and painted over graffiti. Span #3, girder #8 shown.



Photo 24: Span #1, girder #13 inside face.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

PHOTOS

Photo 25: Span #1, girder #16 exterior face.



Photo 26: Span #2, girder #5 inside face.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

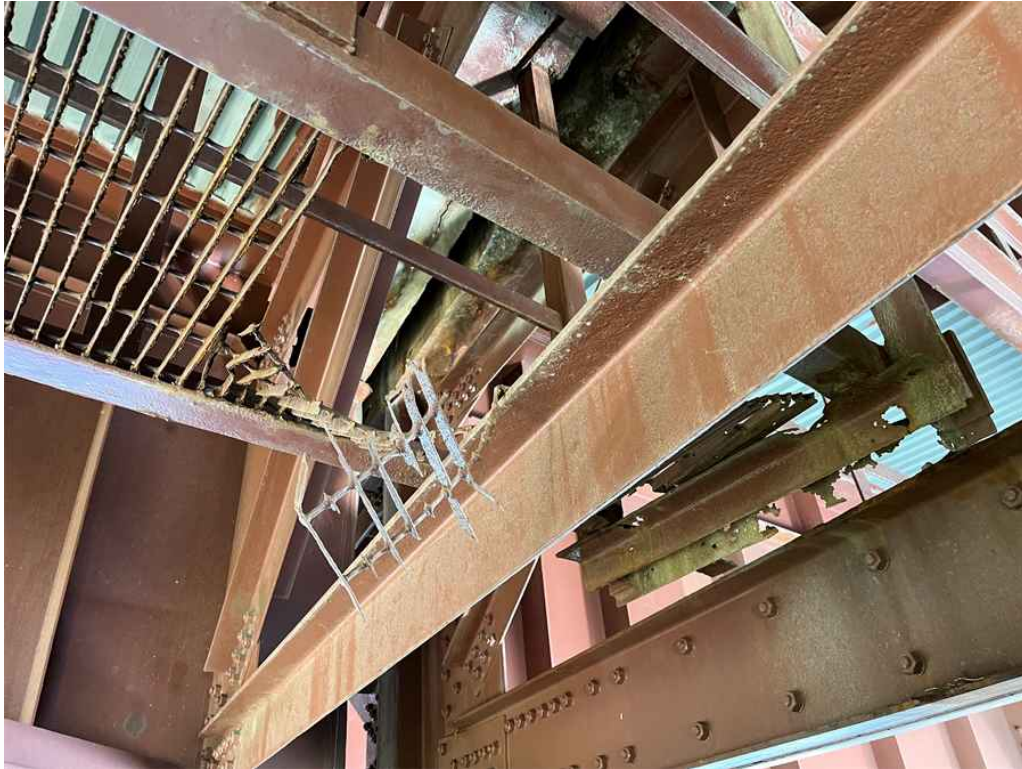
PHOTOS

Photo 27: Section loss to the catwalk grate over pier #1.



Photo 28: Section loss to the vertical connections over pier #1.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

PHOTOS

Photo 29: Unsecured east end of the catwalk in span #4.



Photo 30: Pier #3 south face.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RA	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RA-DOT-NBI	INSPECTION DATE AUG 31, 2024
--	----------------------	---	---	--

PHOTOS

Photo 31: Pier #1, east face at the top.



Photo 32: Southwest approach guardrail.

National Bridge Element Inspection

BDEPT# **S-14-021**Date **08/31/2024**B.I.N. **1RA**District Bridge Inspection Eng'r **Mahmood Azizi**Item 8 **S14021-1RA-DOT-NBI**Inspecting Agency **Mass. Highway Dept.**Span Group **1**Team Leader **Thaddeus T. Gumula**Town **Shrewsbury**Team
Member(s) **Gregory Lee, Robert Rogers,
Benjamin R. Santeufemio, et al.**District **3**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
12	Re Concrete Deck	sq feet	2	47,489.000	☐ %	45,473.000	2,016.000		
Notes :									
> 1080	Delamination/Spall/Patched Area	sq feet	2	16.000	☐ %		16.000		
Notes :									
> 1120	Efflorescence/Rust Staining	sq feet	2	1,250.000	☐ %		1,250.000		
Notes :									
> 1130	Cracking (RC and Other)	sq feet	2	750.000	☐ %		750.000		
Notes :									
> 510	Wearing Surfaces	sq feet	2	42,960.000	☐ %	42,296.000	664.000		
Notes :									
> > 3210	Del/Spall/Patch/Pot(Wear Surf)	sq feet	2	660.000	☐ %		660.000		
Notes :									
> > 3220	Crack (Wearing Surface)	sq feet	2	4.000	☐ %		4.000		
Notes :									
107	Steel Opn Girder/Beam	feet	2	3,288.000	☐ %	3,088.000	160.000	40.000	
Notes :									
> 1000	Corrosion	feet	2	200.000	☐ %		160.000	40.000	
Notes :									
> 515	Steel Protective Coating	sq feet	2	445,000.000	☐ %		441,000.000	4,000.000	
Notes :									
> > 3440	Eff (Stl Protect Coat)	sq feet	2	445,000.000	☐ %		441,000.000	4,000.000	
Notes :									
107	Steel Opn Girder/Beam	feet	3	60.000	☐ %	40.000	5.000	15.000	
Notes :									

National Bridge Element Inspection

BDEPT# **S-14-021**Date **08/31/2024**B.I.N. **1RA**District Bridge Inspection Eng'r **Mahmood Azizi**Item 8 **S14021-1RA-DOT-NBI**Inspecting Agency **Mass. Highway Dept.**Span Group **1**Team Leader **Thaddeus T. Gumula**Town **Shrewsbury**Team
Member(s) **Gregory Lee, Robert Rogers,
Benjamin R. Santeufemio, et al.**District **3**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> 1000	Corrosion	feet	3	20.000	☐ %		5.000	15.000	
Notes :									
> 515	Steel Protective Coating	sq feet	3	7,500.000	☐ %		4,000.000	3,500.000	
Notes :									
> > 3440	Eff (Stl Protect Coat)	sq feet	3	7,500.000	☐ %		4,000.000	3,500.000	
Notes :									
113	Steel Stringer	feet	2	2,466.000	☐ %	2,416.000	50.000		
Notes :									
> 1000	Corrosion	feet	2	50.000	☐ %		50.000		
Notes :									
> 515	Steel Protective Coating	sq feet	2	20,000.000	☐ %		19,000.000	1,000.000	
Notes :									
> > 3440	Eff (Stl Protect Coat)	sq feet	2	20,000.000	☐ %		19,000.000	1,000.000	
Notes :									
113	Steel Stringer	feet	3	60.000	☐ %	60.000			
Notes :									
> 515	Steel Protective Coating	sq feet	3	480.000	☐ %		480.000		
Notes :									
> > 3440	Eff (Stl Protect Coat)	sq feet	3	480.000	☐ %		480.000		
Notes :									
205	Re Conc Column	each	2	4	☐ %	4			
Notes :									
205	Re Conc Column	each	3	2	☐ %	2			
Notes :									

National Bridge Element Inspection

BDEPT# **S-14-021**Date **08/31/2024**B.I.N. **1RA**District Bridge Inspection Eng'r **Mahmood Azizi**Item 8 **S14021-1RA-DOT-NBI**Inspecting Agency **Mass. Highway Dept.**Span Group **1**Team Leader **Thaddeus T. Gumula**Town **Shrewsbury**Team
Member(s) **Gregory Lee, Robert Rogers,
Benjamin R. Santeufemio, et al.**District **3**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
210	Re Conc Pier Wall	feet	2	80.000	☐ %	80.000			
Notes :									
210	Re Conc Pier Wall	feet	3	40.000	☐ %	29.500		10.500	
Notes :									
> 1080	<i>Delamination/Spall/Patched Area</i>	feet	3	6.500	☐ %			6.500	
Notes :									
> 1120	<i>Efflorescence/Rust Staining</i>	feet	3	4.000	☐ %			4.000	
Notes :									
215	Re Conc Abutment	feet	3	180.000	☐ %	180.000			
Notes :									
234	Re Conc Pier Cap	feet	2	104.000	☐ %	102.000	2.000		
Notes :									
> 1080	<i>Delamination/Spall/Patched Area</i>	feet	2	2.000	☐ %		2.000		
Notes :									
234	Re Conc Pier Cap	feet	3	52.000	☐ %	52.000			
Notes :									
304	Open Expansion Joint	feet	2	52.000	☐ %			32.000	20.000
Notes :									
> 2310	<i>Leakage</i>	feet	2	52.000	☐ %			32.000	20.000
Notes :									
306	Other Joint	feet	2	104.000	☐ %		52.000		52.000
Notes :									
> 2310	<i>Leakage</i>	feet	2	104.000	☐ %		52.000		52.000
Notes :									

National Bridge Element Inspection

BDEPT# **S-14-021**Date **08/31/2024**B.I.N. **1RA**District Bridge Inspection Eng'r **Mahmood Azizi**Item 8 **S14021-1RA-DOT-NBI**Inspecting Agency **Mass. Highway Dept.**Span Group **1**Team Leader **Thaddeus T. Gumula**Town **Shrewsbury**Team
Member(s) **Gregory Lee, Robert Rogers,
Benjamin R. Santeufemio, et al.**District **3**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
311	Moveable Bearing	each	2	4	☐ %	4			
Notes :									
> 515	Steel Protective Coating	sq feet	2	20.000	☐ %	20.000			
Notes :									
311	Moveable Bearing	each	3	12	☐ %			12	
Notes :									
> 1000	Corrosion	each	3	12	☐ %			12	
Notes :									
> 515	Steel Protective Coating	sq feet	3	60.000	☐ %	20.000			40.000
Notes :									
> > 3440	Eff (Stl Protect Coat)	sq feet	3	20.000	☐ %				20.000
Notes :									
313	Fixed Bearing	each	2	4	☐ %	4			
Notes :									
> 515	Steel Protective Coating	sq feet	2	20.000	☐ %	20.000			
Notes :									
313	Fixed Bearing	each	3	4	☐ %			4	
Notes :									
> 1000	Corrosion	each	3	4	☐ %			4	
Notes :									
> 515	Steel Protective Coating	sq feet	3	20.000	☐ %	20.000			
Notes :									
330	Metal Bridge Railing	feet	2	1,810.000	☐ %	1,810.000			
Notes :									

National Bridge Element Inspection

BDEPT# **S-14-021**Date **08/31/2024**B.I.N. **1RA**District Bridge Inspection Eng'r **Mahmood Azizi**Item 8 **S14021-1RA-DOT-NBI**Inspecting Agency **Mass. Highway Dept.**Span Group **1**Team Leader **Thaddeus T. Gumula**Town **Shrewsbury**Team
Member(s) **Gregory Lee, Robert Rogers,
Benjamin R. Santeufemio, et al.**District **3**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
331	Re Conc Bridge Railing	feet	2	1,810.000	☐ %	1,775.000	35.000		
Notes :									
> 1080	Delamination/Spall/Patched Area	feet	2	35.000	☐ %		35.000		
Notes :									

STRUCTURES INSPECTION FIELD REPORT

2-DIST
03B.I.N.
1RB

ROUTINE INSPECTION

BR. DEPT. NO.
S-14-021=W-44-115

CITY/TOWN SHREWSBURY=WORCESTER		8-STRUCTURE NO. S14021-1RB-DOT-NBI		11-Kilo. POINT 015.864	41-STATUS A:OPEN	90-ROUTINE INSP. DATE AUG 21, 2024
07-FACILITY CARRIED I 290 WB		MEMORIAL NAME/LOCAL NAME ERNEST JOHNSON		27-YR BUILT 1969	106-YR REBUILT 0000	YR REHAB'D (NON 106) 0000
06-FEATURES INTERSECTED COMB LK QUINSIG&LK AV N		26-FUNCTIONAL CLASS Urban Interstate		DIST. BRIDGE INSPECTION ENGINEER M. Azizi		
43-STRUCTURE TYPE 402 : Steel continuous Stringer/Girder		22-OWNER State Highway Agency	21-MAINTAINER State Highway Agency	TEAM LEADER T. Toloczko		
107-DECK TYPE 1 : Concrete Cast-in-Place		WEATHER P Cloudy	TEMP. (air) 21°C	TEAM MEMBERS G. LEE, S. A. VAILLANCOURT, B. N. THONGPHALA, M. DYGON		

ITEM 58		5	
DECK		DEF	
1.Wearing Surface	6	M-P	
2.Deck Condition	5	M-P	
3.Stay in place forms	5	M-P	
4.Curbs	6	M-P	
5.Median	N	-	
6.Sidewalks	N	-	
7.Parapets	5	S-P	
8.Railing	7	-	
9.Anti Missile Fence	N	-	
10.Drainage System	4	S-A	
11.Lighting Standards	N	-	
12.Utilities	N	-	
13.Deck Joints	4	S-A	
14.	N	-	
15.	N	-	
16.Deck Weeps	4	S-A	
CURB REVEAL (In millimeters)		N 240	S 250

APPROACHES		DEF	
a. Appr. Pavement Condition	7	-	
b. Appr. Roadway Settlement	7	-	
c. Appr. Sidewalk Settlement	N	-	
d.	N	-	

OVERHEAD SIGNS (Attached to bridge)		(Y/N) N	
		DEF	
a. Condition of Welds	N	-	
b. Condition of Bolts	N	-	
c. Condition of Signs	N	-	

ITEM 59		7	
SUPERSTRUCTURE		DEF	
1.Stringers	7	M-P	
2.Floorbeams	N	-	
3.Floor System Bracing	7	-	
4.Girders or Beams	7	M-P	
5.Trusses - General	N	-	
a. Upper Chords	N	-	
b. Lower Chords	N	-	
c. Web Members	N	-	
d. Lateral Bracing	N	-	
e. Sway Bracings	N	-	
f. Portals	N	-	
g. End Posts	N	-	
6.Pin & Hangers	N	-	
7.Conn Plt's, Gussets & Angles	6	M-P	
8.Cover Plates	N	-	
9.Bearing Devices	6	M-P	
10.Diaphragms/Cross Frames	6	M-P	
11.Rivets & Bolts	6	M-P	
12.Welds	7	-	
13.Member Alignment	7	-	
14.Paint/Coating	6	M-P	
15.Inspection Catwalk	4	S-A	

Year Painted	1991
COLLISION DAMAGE: <i>Please explain</i> None (X) Minor () Moderate () Severe ()	
LOAD DEFLECTION: <i>Please explain</i> None () Minor () Moderate (X) Severe ()	
LOAD VIBRATION: <i>Please explain</i> None () Minor (X) Moderate () Severe ()	
Any Fracture Critical Member: (Y/N) N	
Any Cracks: (Y/N) N	

ITEM 60		6	
SUBSTRUCTURE		DEF	
1. Abutments	Dive	Cur	7
a. Pedestals	N	N	-
b. Bridge Seats	N	7	-
c. Backwalls	N	7	-
d. Breastwalls	N	7	-
e. Wingwalls	N	6	M-P
f. Slope Paving/Rip-Rap	N	5	S-P
g. Pointing	N	N	-
h. Footings	N	H	-
i. Piles	N	N	-
j. Scour	N	N	-
k. Settlement	N	7	-
l.	N	N	-
m.	N	N	-
2. Piers or Bents		6	
a. Pedestals	N	7	-
b. Caps	N	7	-
c. Columns	N	7	-
d. Stems/Webs/Pierwalls	N	7	M-P
e. Pointing	N	N	-
f. Footing	6	6	M-P
g. Piles	H	H	-
h. Scour	8	H	-
i. Settlement	7	7	-
j.	N	N	-
k.	N	N	-
3. Pile Bents		N	
a. Pile Caps	N	N	-
b. Piles	N	N	-
c. Diagonal Bracing	N	N	-
d. Horizontal Bracing	N	N	-
e. Fasteners	N	N	-

UNDERMINING (Y/N)	If YES please explain	N
COLLISION DAMAGE: None (X) Minor () Moderate () Severe ()		
SCOUR: <i>Please explain</i> None (X) Minor () Moderate () Severe ()		
I-60 (Dive Report):	6	I-60 (This Report): 6
93B-U/W (DIVE) Insp		05/07/2024

X=UNKNOWN

N=NOT APPLICABLE H=HIDDEN/INACCESSIBLE

R=REMOVED

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	--	--

ITEM 61 CHANNEL & CHANNEL PROTECTION <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th></th> <th>Dive</th> <th>Cur</th> <th>DEF</th> </tr> <tr><td>1.Channel Scour</td><td>8</td><td>H</td><td>-</td></tr> <tr><td>2.Embankment Erosion</td><td>6</td><td>7</td><td>-</td></tr> <tr><td>3.Debris</td><td>7</td><td>7</td><td>-</td></tr> <tr><td>4.Vegetation</td><td>7</td><td>7</td><td>-</td></tr> <tr><td>5.Utilities</td><td>N</td><td>N</td><td>-</td></tr> <tr><td>6.Rip-Rap/Slope Protection</td><td>6</td><td>7</td><td>-</td></tr> <tr><td>7.Aggradation</td><td>7</td><td>H</td><td>-</td></tr> <tr><td>8.Fender System</td><td>N</td><td>N</td><td>-</td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </table> STREAM FLOW VELOCITY: Tidal () High () Moderate () Low () None (X)		Dive	Cur	DEF	1.Channel Scour	8	H	-	2.Embankment Erosion	6	7	-	3.Debris	7	7	-	4.Vegetation	7	7	-	5.Utilities	N	N	-	6.Rip-Rap/Slope Protection	6	7	-	7.Aggradation	7	H	-	8.Fender System	N	N	-													7	ITEM 36 TRAFFIC SAFETY <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th></th> <th>36</th> <th>COND</th> <th>DEF</th> </tr> <tr><td>A. Bridge Railing</td><td>0</td><td>5</td><td>S-P</td></tr> <tr><td>B. Transitions</td><td>1</td><td>6</td><td>M-P</td></tr> <tr><td>C. Approach Guardrail</td><td>1</td><td>7</td><td>-</td></tr> <tr><td>D. Approach Guardrail Ends</td><td>N</td><td>N</td><td>-</td></tr> </table> WEIGHT POSTING Not Applicable X <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th></th> <th>H</th> <th>3</th> <th>3S2</th> <th>Single</th> </tr> <tr><td>Actual Posting</td><td>N</td><td>N</td><td>N</td><td>N</td></tr> <tr><td>Recommended Posting</td><td>N</td><td>N</td><td>N</td><td>N</td></tr> </table> Waived Date: 00/00/0000 EJDMT Date: 00/00/0000 At bridge <table border="1" style="width: 100px; height: 100px;"> <tr><td>E</td><td>W</td></tr> <tr><td style="border: none;"></td><td style="border: none;"></td></tr> </table> Other Advance <table border="1" style="width: 100px; height: 100px;"> <tr><td>E</td><td>W</td></tr> <tr><td style="border: none;"></td><td style="border: none;"></td></tr> </table> Signs In Place (Y=Yes, N=No, NR=Not Required) Legibility/Visibility <table border="1" style="width: 100%; height: 100px;"> <tr><td style="border: none;"></td><td style="border: none;"></td></tr> </table>		36	COND	DEF	A. Bridge Railing	0	5	S-P	B. Transitions	1	6	M-P	C. Approach Guardrail	1	7	-	D. Approach Guardrail Ends	N	N	-		H	3	3S2	Single	Actual Posting	N	N	N	N	Recommended Posting	N	N	N	N	E	W			E	W				
	Dive	Cur	DEF																																																																																												
1.Channel Scour	8	H	-																																																																																												
2.Embankment Erosion	6	7	-																																																																																												
3.Debris	7	7	-																																																																																												
4.Vegetation	7	7	-																																																																																												
5.Utilities	N	N	-																																																																																												
6.Rip-Rap/Slope Protection	6	7	-																																																																																												
7.Aggradation	7	H	-																																																																																												
8.Fender System	N	N	-																																																																																												
	36	COND	DEF																																																																																												
A. Bridge Railing	0	5	S-P																																																																																												
B. Transitions	1	6	M-P																																																																																												
C. Approach Guardrail	1	7	-																																																																																												
D. Approach Guardrail Ends	N	N	-																																																																																												
	H	3	3S2	Single																																																																																											
Actual Posting	N	N	N	N																																																																																											
Recommended Posting	N	N	N	N																																																																																											
E	W																																																																																														
E	W																																																																																														
CLEARANCE POSTING Not X <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th></th> <th>ft</th> <th>in</th> <th>meter</th> </tr> <tr><td>Actual Field Measurement</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Posted Clearance</td><td>0</td><td>0</td><td>0</td></tr> </table> At bridge <table border="1" style="width: 100px; height: 100px;"> <tr><td>N</td><td>S</td></tr> <tr><td style="border: none;"></td><td style="border: none;"></td></tr> </table> Advance <table border="1" style="width: 100px; height: 100px;"> <tr><td>N</td><td>S</td></tr> <tr><td style="border: none;"></td><td style="border: none;"></td></tr> </table> Signs In Place (Y=Yes, N=No, NR=Not Required) Legibility/Visibility <table border="1" style="width: 100%; height: 100px;"> <tr><td style="border: none;"></td><td style="border: none;"></td></tr> </table>		ft	in	meter	Actual Field Measurement	0	0	0	Posted Clearance	0	0	0	N	S			N	S					ACCESSIBILITY (Y/N/P) <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th></th> <th>Needed</th> <th>Used</th> </tr> <tr><td>Lift Bucket</td><td>N</td><td>N</td></tr> <tr><td>Ladder</td><td>N</td><td>N</td></tr> <tr><td>Boat</td><td>N</td><td>N</td></tr> <tr><td>Waders</td><td>N</td><td>N</td></tr> <tr><td>Inspector 50</td><td>Y</td><td>Y</td></tr> <tr><td>Rigging</td><td>N</td><td>N</td></tr> <tr><td>Staging</td><td>N</td><td>N</td></tr> <tr><td>Traffic Control</td><td>Y</td><td>Y</td></tr> <tr><td>RR Flagger</td><td>N</td><td>N</td></tr> <tr><td>Police</td><td>Y</td><td>Y</td></tr> <tr><td>Other:</td><td> </td><td> </td></tr> <tr><td> </td><td>N</td><td>N</td></tr> </table> TOTAL HOURS 8 PLANS (Y/N): Y (V.C.R.) (Y/N): N TAPE#: _____ List of field tests performed: 		Needed	Used	Lift Bucket	N	N	Ladder	N	N	Boat	N	N	Waders	N	N	Inspector 50	Y	Y	Rigging	N	N	Staging	N	N	Traffic Control	Y	Y	RR Flagger	N	N	Police	Y	Y	Other:				N	N																																	
	ft	in	meter																																																																																												
Actual Field Measurement	0	0	0																																																																																												
Posted Clearance	0	0	0																																																																																												
N	S																																																																																														
N	S																																																																																														
	Needed	Used																																																																																													
Lift Bucket	N	N																																																																																													
Ladder	N	N																																																																																													
Boat	N	N																																																																																													
Waders	N	N																																																																																													
Inspector 50	Y	Y																																																																																													
Rigging	N	N																																																																																													
Staging	N	N																																																																																													
Traffic Control	Y	Y																																																																																													
RR Flagger	N	N																																																																																													
Police	Y	Y																																																																																													
Other:																																																																																															
	N	N																																																																																													

RATING Rating Report (Y/N): Y Date: 01/01/2005 Inspection data at time of existing rating I 58: 7 I 59: 7 I 60: 5 Date :08/11/2004	Recommend for Rating or Rerating (Y/N): N REASON: _____ If YES please give priority: HIGH () MEDIUM () LOW ()
--	---

CONDITION RATING GUIDE			(For Items 58, 59, 60 and 61)
CODE	CONDITION	DEFECTS	
N	NOT APPLICABLE		
G 9	EXCELLENT	Excellent condition.	
G 8	VERY GOOD	No problem noted.	
G 7	GOOD	Some minor problems.	
F 6	SATISFACTORY	Structural elements show some minor deterioration.	
F 5	FAIR	All primary structural elements are sound but may have minor section loss, cracking, spalling or scour.	
P 4	POOR	Advanced section loss, deterioration, spalling or scour.	
P 3	SERIOUS	Loss of section, deterioration, spalling or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present.	
C 2	CRITICAL	Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored it may be necessary to close the bridge until corrective action is taken.	
C 1	"IMMINENT" FAILURE	Major deterioration or section loss present in critical structural components or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put it back in light service.	
0	FAILED	Out of service - beyond corrective action.	

DEFICIENCY REPORTING GUIDE	
DEFICIENCY:	A defect in a structure that requires corrective action.
CATEGORIES OF DEFICIENCIES:	
M= Minor Deficiency	Deficiencies which are minor in nature, generally do not impact the structural integrity of the bridge and could easily be repaired. Examples include but are not limited to: Spalled concrete, Minor pot holes, Minor corrosion of steel, Minor scouring, Clogged drainage, etc.
S= Severe/Major Deficiency	Deficiencies which are more extensive in nature and need more planning and effort to repair. Examples include but are not limited to: Moderate to major deterioration in concrete, Exposed and corroded rebars, Considerable settlement, Considerable scouring or undermining, Moderate to extensive corrosion to structural steel with measurable loss of section, etc.
C-S= Critical Structural Deficiency	A deficiency in a structural element of a bridge that poses an extreme unsafe condition due to the failure or imminent failure of the element which will affect the structural integrity of the bridge.
C-H= Critical Hazard Deficiency	A deficiency in a component or element of a bridge that poses an extreme hazard or unsafe condition to the public, but does not impair the structural integrity of the bridge. Examples include but are not limited to: Loose concrete hanging down over traffic or pedestrians, A hole in a sidewalk that may cause injuries to pedestrians, Missing section of bridge railing, etc.
URGENCY OF REPAIR:	
I = Immediate-	[Inspector(s) immediately contact District Bridge Inspection Engineer (DBIE) to report the Deficiency and to receive further instruction from him/her].
A = ASAP-	[Action/Repair should be initiated by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) upon receipt of the Inspection Report].
P = Prioritize-	[Shall be prioritized by District Maintenance Engineer or the Responsible Party (if not a State owned bridge) and repairs made when funds and/or manpower is available].

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

REMARKS

BRIDGE ORIENTATION

According to the plans the approaches are east and west and the elevations are north and south.

This a 4 span welded steel girder bridge with 4 girders numbered north to south. Each span has a stringer between each girder and 6 bays numbered north to south. Span 1 is a simple span with girders numbered 9 - 12. Spans 2 - 4 are continuous with girders numbered 1 - 4. The spans and 3 piers are numbered west to east. Each pier has 2 columns labeled south and north, and a concrete wall between columns. **See Sketches 1 - 3.**

Note: Field splices and other elements are numbered west to east in each span unless otherwise noted.

GENERAL REMARKS

- Curb reveal measurements were verified along north curb.
- See the Underwater Inspection dated 5/7/2024.

ITEM 58 - DECK

Item 58.1 - Wearing Surface

Span 1:

Right lane east end at white edge line has bituminous patches 25' long x 4' wide with adjacent settlement/map cracking/bituminous patches 20' long x 3' wide. Adjacent breakdown lane has minor shoving 18' long x 1' wide. **See Photo 1.**

Span 3:

Right lane near pier 3 has a bituminous patch 6' x 6'. **See Photo 2.**

Right lane remainder in right wheel path (along longitudinal paving joint) has near full length longitudinal/map cracking up to 2' wide.

Item 58.2 - Deck Condition

Deck underside is mostly inaccessible due to stay in place forms. Deck condition rating is based on condition of exposed fascias/soffits, wearing surface, and stay in place forms. See Items 58.1 & 58.3.

Both soffits have isolated hairline transverse cracking with some heavy efflorescence. **See Photo 3.**

Both soffits at east abutment (adjacent to weeps and open joint) have spalls 2' Ø x 3" deep with exposed rebar. **See Photos 4 & 5.**

Item 58.3 - Stay in place forms

Stay in place forms in all spans have several areas of minor to heavy corrosion.

Spans 2 - 4 have isolated 100% section loss exposing the concrete. **See Photos 6 - 8.**

Deck over pier 1 at bays 1 & 6 has full depth concrete repair patches (spans 1 & 2) with removed stay in place forms. Span 2 side bay 6 repair patch has a corner spall 8" Ø x 3" deep with exposed rebar. **See Photo 9.**

Item 58.4 - Curbs

Both curbs have several areas of minor scrapes, cracking, staining, and mortar joint deterioration throughout. Concrete between the curb and the bridge rail bases has many areas of minor cracking and moderate to heavy scaling throughout. Curb sections have minor vertical/horizontal misalignment throughout.

Item 58.7 - Parapets

Both concrete bridge parapets have several full height hairline vertical cracks, some with efflorescence and rust staining.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

REMARKS

North parapet has several spalls throughout, up to full height x up to 4" deep, some with exposed rebar, heaviest at the electrical pull boxes for the removed lighting standards (up to 1'-6" high x 2' long x 6" deep). **See Photos 10 & 11.**

Item 58.10 - Drainage System
All drainage grates along north curb have been cleaned since the previous inspection. Only minor debris remains. **See Photo 12.**
Scupper drains outside of span 1 have corrosion with up to 100% section loss. **See Photos 4, 5, & 13.**
See Item 58.13.

Item 58.13 - Deck Joints
East steel finger joint is allowing water to drain directly onto the bridge elements below (drainage trough has been removed). **See Photos 4, 5, & 14.** Joint steel below the finger joint and adjacent girder ends have heavy rust and rust flaking.

Pier 1 strip seal joint has been removed and replaced with a pourable joint seal since the previous inspection. Left lane has missing/pushed through sealer 6' long (total). **See Photo 15.**

West abutment joint has been removed and replaced with a pourable joint seal since the previous inspection (travel lanes only). **See Photo 16.**

Item 58.16 - Deck Weeps
Both fascias at all joints have deck weeps. None of the weeps extend beyond the superstructure.

ITEM 59 - SUPERSTRUCTURE

Item 59.1 - Stringers
The steel stringers have isolated areas of minor surface rust, some with minor rust flaking.
See Item 59.7.

Item 59.4 - Girders or Beams
Girders have minor surface rust adjacent to stay in place form corrosion, e.g. span 2 girder 4 top flange near splice 1, span 2 & 4 girder 1, and span 3 girder 1 north side near splice 1.

Span 2 & 3 girder 4 bottom flange top has minor rust flaking (no measurable section loss), heaviest at span 3 east of splice 1. **See Photo 17.**

Span 3 girder 4 web bottom near splices 3 & 4 has minor rust flaking. **See Photo 18.**

East abutment ends (below open finger joint) have minor rust flaking at girder bottoms up to 4' out from end and vertical stiffener bases up to 6" high. **See Photo 19.**

Span 1 girder 9 at pier 1 has slight web bottom distortion up to 0.75" southward over 2' high. **See Photo 20.**

Span 2 girder 2 bottom flange at 1/4 point from pier 1 is bent approximately 0.5" downward out of plane (minor fabrication flaw). **See Photo 21.**
See Item 59.11.

Item 59.7 - Conn Plt's, Gussets & Angles
At several lower cross frame connection locations, a section of vertical stiffener was torched out, and a new plate was re-welded. The same method was used at the splice plates due to the bolts.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

REMARKS

See Item 59.11.

Item 59.9 - Bearing Devices
 Several keeper plate bases have 100% section loss.
 Span 2 girder 1 at pier 1 has a bent keeper plate with minor corrosion.

West abutment ("A"):
 All bearings have bent/rust impacted keeper plates. **See Photo 22.**

East abutment ("B"):
 All keeper plates have moderate rust flaking with up to 100% section loss. **See Photo 23.**
 All bearings have light to moderate rust flaking.

Item 59.10 - Diaphragms/Cross Frames
 Pier 1 concrete end diaphragms in all bays have delamination with spalls, exposed rebar, and rust staining. **See Photo 24.**
 East abutment cross frames have several areas of rust flaking. Girder 2 bay 2 top connection plate has 100% section loss 8" wide x 1" high. **See Photo 25.**
 There is a minor bend in the steel to the 1st cross frame east of pier 3 in bay 2.

Item 59.11 - Rivets & Bolts
 Superstructure has several missing or bent (not fully torqued down) bolts throughout.

Span 1:
 Girder 9 bottom connection plate to cross frame 4 has a missing bolt.
 Stringer 1 bottom flange splice 2 and stringer 3 bottom flange splice 3 each have two bolts not tightened down.
 Girder 10 & 11 bottom flange splices each have a bolt not tightened down.
 Girder 11 bottom connection plate to cross frame 5 has two extra bolt holes.
 Girder 11 north side bottom lateral brace connection at cross frame 3 from pier 1 has 4 loose bolts.

Span 2:
 Girder 1 stiffener at cross frame 3 connection has an additional bolt hole.
 Girder 2 bottom flange splice 3 has two bolts not tightened down. **See Photo 26.**
 Girder 3 bay 5 connection to cross frame 5 has two additional bolt holes. **See Photo 27.**
 Girder 3 bottom connection plate at cross frame 2 has two bolts missing.

Span 3:
 Girder 4 bottom flange splice at cross frames 1 & 2 has a missing bolt.
 Girder 3 bay 5 web stiffener at cross frame 9 has an additional bolt hole. Gusset plate has no corresponding hole.
 Girder 3 diaphragm gusset 3 has an additional hole.
 Cross brace 2 between girders 2 & 3 has four bolts not fully tightened (negative thread on the nuts). **See Photo 28.**
 Girder 2 bottom flange splice 2 has two bolts not tightened down, and splice 3 has one missing bolt. **See Photos 29 & 30.**
 Girder 1 top flange splice 1 has a bolt not tightened down and bottom flange splice 2 has two loose bolts. **See Photo 31.**

Item 59.12 - Welds
 Superstructure has many tack welds throughout. These welds are non-structural.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

REMARKS

Item 59.14 - Paint/Coating
Paint system has minor chalking and isolated minor surface rust/flaking throughout, heaviest at cross frames, lateral braces, girder horizontal stiffeners, and girder top flanges at SIP form interfaces.
South fascia girder webs and bottom flanges have several areas of peeling paint and rust flaking throughout.
See Photo 32.

Item 59.15 - Inspection Catwalk
Span 1 west end catwalk gate is closed and locked. **See Photo 33.**
Catwalk at pier 1 has a 10' long section of severe rust flaking with small isolated areas of 100% section loss at the platform and rail. **See Photo 34.**
Catwalk remainder has moderate surface rust.

SuperStructure Load Deflection Notes
Moderate under heavy live loads.

SuperStructure Load Vibration Notes
Minor under heavy live loads.

ITEM 60 - SUBSTRUCTURE

Item 60.1 - Abutments
Item 60.1.b - Bridge Seats
See Item 60.1.d.

Item 60.1.c - Backwalls
West backwall:
Backwall has isolated horizontal hairline cracking.

East backwall:
Backwall below south deck fascia has several surface patches with hairline cracks and rust staining.
See Item 60.1.d.

Item 60.1.d - Breastwalls
West breastwall ("A"):

- Bay 5 & 6 seat; minor concrete debris.
- Under girder 11; full height hairline crack that extends up through the bridge seat and backwall.

East breastwall ("B"):

- Bay 5 & 6 seat; moderate concrete debris.

Item 60.1.e - Wingwalls
Northeast wingwall has minor vertical and horizontal hairline cracks with efflorescence and rust staining at various locations.

Item 60.1.f - Slope Paving/Rip-Rap
West abutment concrete block slope has moderate to heavy deterioration and vegetation at the ends, heaviest under bays 1 & 2. **See Photo 35.**

Item 60.2 - Piers or Bents
Item 60.2.d - Stems/Webs/Pierwalls
Pier 2 has minor scaling and several vertical hairline cracks.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

REMARKS

Pier 3 has several diagonal hairline cracks extending up from the south footing.

Item 60.2.f - Footing
Pier 1 south footing south face has a full width light to moderate diagonal crack with minor efflorescence with other hairline cracks extending off of this crack.
Pier 2 south footing south face has a full width light to moderate horizontal crack extending into both the east and west faces.
Pier 3 north footing has waterline abrasion with some hairline cracking.

TRAFFIC SAFETY

Item 36a - Bridge Railing
Both bridge rails are AL-1 rails with concrete parapets and end posts. See Items 58.7 & 58.8.

Item 36b - Transitions
Northwest and southeast transition connector panels have 2 missing bolts and the northeast is missing one.
See Photo 36.

Sketch / Photo Log

Sketch 1 : Location map (I-290 westbound).
Sketch 2 : Framing plan, spans 1 - 2. Note west abutment ("A") at left.
Sketch 3 : Framing plan, spans 3 - 4. Note east abutment ("B") at right.
Photo 1 : Wearing surface span 1 east end, looking southeast.
Photo 2 : Wearing surface span 3 right lane near pier 3, looking southeast.
Photo 3 : Span 4 north fascia/soffit near pier 3, looking southwest. Typical cracking with efflorescence.
Photo 4 : Span 4 south soffit east end, looking northeast. Note missing drain at right and missing drainage trough.
Photo 5 : Span 4 north soffit east end, looking east. Note short drain.
Photo 6 : Span 2 bays 5 & 6, looking west. Typical SIP form corrosion.
Photo 7 : Span 2 bays 1 & 2 near midspan, looking northwest.
Photo 8 : Span 4 bays 5 & 6 near west end, looking west.
Photo 9 : Span 2 bay 6 west end at pier 1, looking southwest. Note bay 6 corner spall.
Photo 10 : Span 2 north parapet near west end, looking northwest. Typical condition at utility pull boxes.
Photo 11 : Span 3 north parapet near midspan, looking northeast.
Photo 12 : Span 4 north drainage grate, looking northeast. Typical condition.
Photo 13 : Span 4 midspan south scupper, looking west. Typical scupper condition outside span 1.
Photo 14 : East abutment finger joint, looking south.
Photo 15 : Pier 1 joint, looking south. Removed/replaced since previous inspection.
Photo 16 : West abutment joint, looking south. Travel lanes removed/replaced since previous inspection.
Photo 17 : Span 3 girder 4 at splice 1, looking east. Typical girder 4 bottom flange flaking in spans 2 & 3.
Photo 18 : Span 3 girder 4 splice 3, looking west. Note minor rust flaking at web bottom.
Photo 19 : Span 4 girder 2 east end south face (east abutment).
Photo 20 : Span 1 girder 9 east end north face at pier 1, looking southwest. Note southward web bottom distortion.
Photo 21 : Span 2 girder 2 at 1/4 point from pier 1, looking southeast. Note isolated bottom flange distortion.
Photo 22 : Span 1 girder 2 west abutment end. Note typical bent/rusted keeper plate at left.
Photo 23 : Span 4 girder 1 east abutment end north face. Note typical 100% section loss at keeper plate.
Photo 24 : Pier 1 bays 1 & 2, looking west. Typical pier 1 end diaphragm condition.
Photo 25 : Span 4 girder 2 east end north face top connection plate, looking southeast (below open joint).
Photo 26 : Span 2 girder 2 splice 3, looking northwest.

CITY/TOWN	B.I.N.	BR. DEPT. NO.	8.-STRUCTURE NO.	INSPECTION DATE
SHREWSBURY=WORCESTER	1RB	S-14-021=W-44-115	S14021-1RB-DOT-NBI	AUG 21, 2024

REMARKS

- Photo 27 : Span 2 girder 3 bay 5 cross frame 5 connection, looking northwest.
- Photo 28 : Span 3 cross brace 2 between girders 2 & 3, looking southeast. Note nuts not fully threaded at left.
- Photo 29 : Span 3 girder 2 splice 2, looking northwest.
- Photo 30 : Span 3 girder 2 splice 3, looking north.
- Photo 31 : Span 3 girder 1 splice 2, looking northeast.
- Photo 32 : Span 4 girder 4 west end north face. Typical paint peel.
- Photo 33 : Span 1 west end catwalk gate, looking northeast.
- Photo 34 : Catwalk at pier 1, looking southeast. Note 100% section loss at platform and rail.
- Photo 35 : West abutment slope north end, looking northwest.
- Photo 36 : Northeast transition, looking north. Note typical missing connector panel bolt.

CITY/TOWN	B.N.	BR. DEPT. NO.	8-STRUCTURE NO.	INSPECTION DATE
SHREWSBURY=WORCESTER	1RB	S-14-021=W-44-115	S14021-1RB-DOT-NBI	AUG 21, 2024

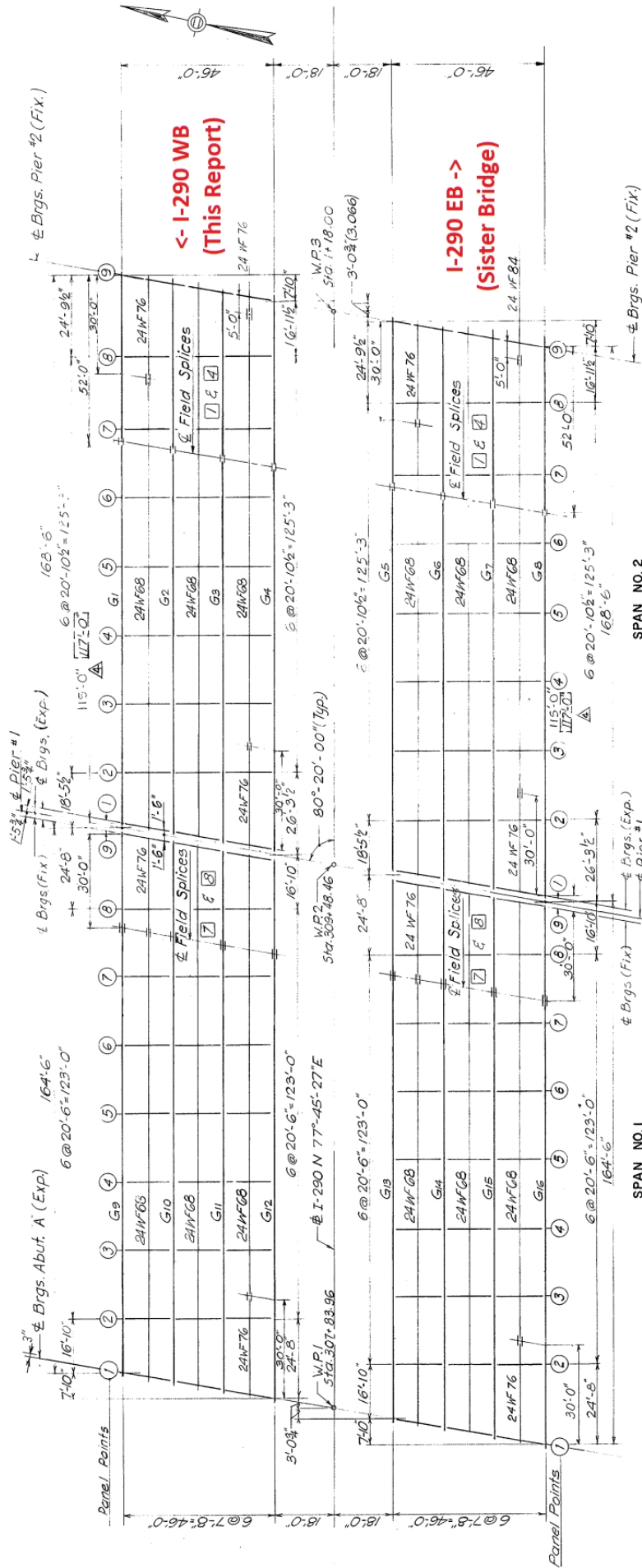
SKETCHES



Sketch 1: Location map (I-290 westbound).

CITY/TOWN	BR. DEPT. NO.	8-STRUCTURE NO.	INSPECTION DATE
SHREWSBURY=WORCESTER	S-14-021=W-44-115	S14021-1RB-DOT-NBI	AUG 21, 2024

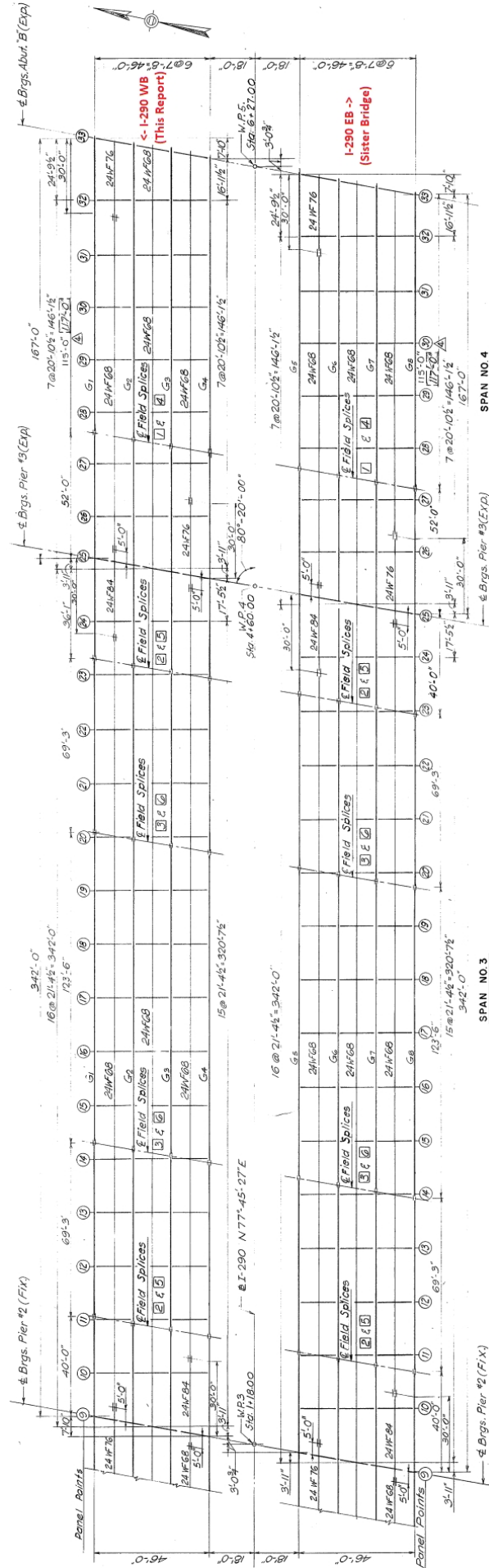
SKETCHES



Sketch 2: Framing plan, spans 1 - 2. Note west abutment ("A") at left.

CITY/TOWN	B.I.N.	BR. DEPT. NO.	8-STRUCTURE NO.	INSPECTION DATE
SHREWSBURY=WORCESTER	1RB	S-14-021=W-44-115	S14021-1RB-DOT-NBI	AUG 21, 2024

SKETCHES



Sketch 3: Framing plan, spans 3 - 4. Note east abutment ("B") at right.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

PHOTOS

Photo 1: Wearing surface span 1 east end, looking southeast.



Photo 2: Wearing surface span 3 right lane near pier 3, looking southeast.

CITY/TOWN	B.I.N.	BR. DEPT. NO.	8-STRUCTURE NO.	INSPECTION DATE
SHREWSBURY=WORCESTER	1RB	S-14-021=W-44-115	S14021-1RB-DOT-NBI	AUG 21, 2024

PHOTOS

Photo 3: Span 4 north fascia/soffit near pier 3, looking southwest. Typical cracking with efflorescence.



Photo 4: Span 4 south soffit east end, looking northeast. Note missing drain at right and missing drainage trough.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

PHOTOS

Photo 5: Span 4 north soffit east end, looking east. Note short drain.



Photo 6: Span 2 bays 5 & 6, looking west. Typical SIP form corrosion.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

PHOTOS

Photo 7: Span 2 bays 1 & 2 near midspan, looking northwest.



Photo 8: Span 4 bays 5 & 6 near west end, looking west.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

PHOTOS

Photo 9: Span 2 bay 6 west end at pier 1, looking southwest. Note bay 6 corner spall.



Photo 10: Span 2 north parapet near west end, looking northwest. Typical condition at utility pull boxes.

CITY/TOWN	B.I.N.	BR. DEPT. NO.	8.-STRUCTURE NO.	INSPECTION DATE
SHREWSBURY=WORCESTER	1RB	S-14-021=W-44-115	S14021-1RB-DOT-NBI	AUG 21, 2024

PHOTOS

Photo 11: Span 3 north parapet near midspan, looking northeast.



Photo 12: Span 4 north drainage grate, looking northeast. Typical condition.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

PHOTOS

Photo 13: Span 4 midspan south scupper, looking west. Typical scupper condition outside span 1.



Photo 14: East abutment finger joint, looking south.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

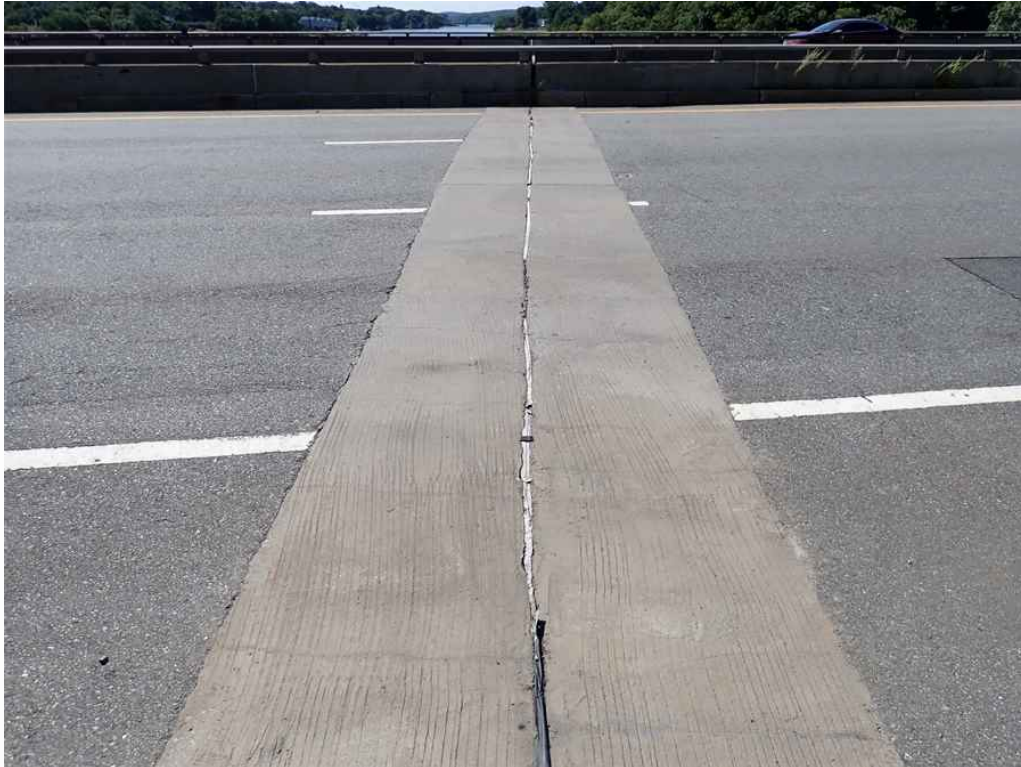
PHOTOS

Photo 15: Pier 1 joint, looking south. Removed/replaced since previous inspection.



Photo 16: West abutment joint, looking south. Travel lanes removed/replaced since previous inspection.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

PHOTOS

Photo 17: Span 3 girder 4 at splice 1, looking east. Typical girder 4 bottom flange flaking in spans 2 & 3.



Photo 18: Span 3 girder 4 splice 3, looking west. Note minor rust flaking at web bottom.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

PHOTOS

Photo 19: Span 4 girder 2 east end south face (east abutment).



Photo 20: Span 1 girder 9 east end north face at pier 1, looking southwest. Note southward web bottom distortion.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

PHOTOS

Photo 21: Span 2 girder 2 at 1/4 point from pier 1, looking southeast. Note isolated bottom flange distortion.



Photo 22: Span 1 girder 2 west abutment end. Note typical bent/rusted keeper plate at left.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

PHOTOS



Photo 23: Span 4 girder 1 east abutment end north face. Note typical 100% section loss at keeper plate.



Photo 24: Pier 1 bays 1 & 2, looking west. Typical pier 1 end diaphragm condition.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

PHOTOS

Photo 25: Span 4 girder 2 east end north face top connection plate, looking southeast (below open joint).



Photo 26: Span 2 girder 2 splice 3, looking northwest.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
-----------------------------------	---------------	------------------------------------	--	---------------------------------

PHOTOS

Photo 27: Span 2 girder 3 bay 5 cross frame 5 connection, looking northwest.



Photo 28: Span 3 cross brace 2 between girders 2 & 3, looking southeast. Note nuts not fully threaded at left.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

PHOTOS

Photo 29: Span 3 girder 2 splice 2, looking northwest.



Photo 30: Span 3 girder 2 splice 3, looking north.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

PHOTOS

Photo 31: Span 3 girder 1 splice 2, looking northeast.



Photo 32: Span 4 girder 4 west end north face. Typical paint peel.

CITY/TOWN SHREWSBURY=WORCESTER	B.I.N. 1RB	BR. DEPT. NO. S-14-021=W-44-115	8.-STRUCTURE NO. S14021-1RB-DOT-NBI	INSPECTION DATE AUG 21, 2024
--	----------------------	---	---	--

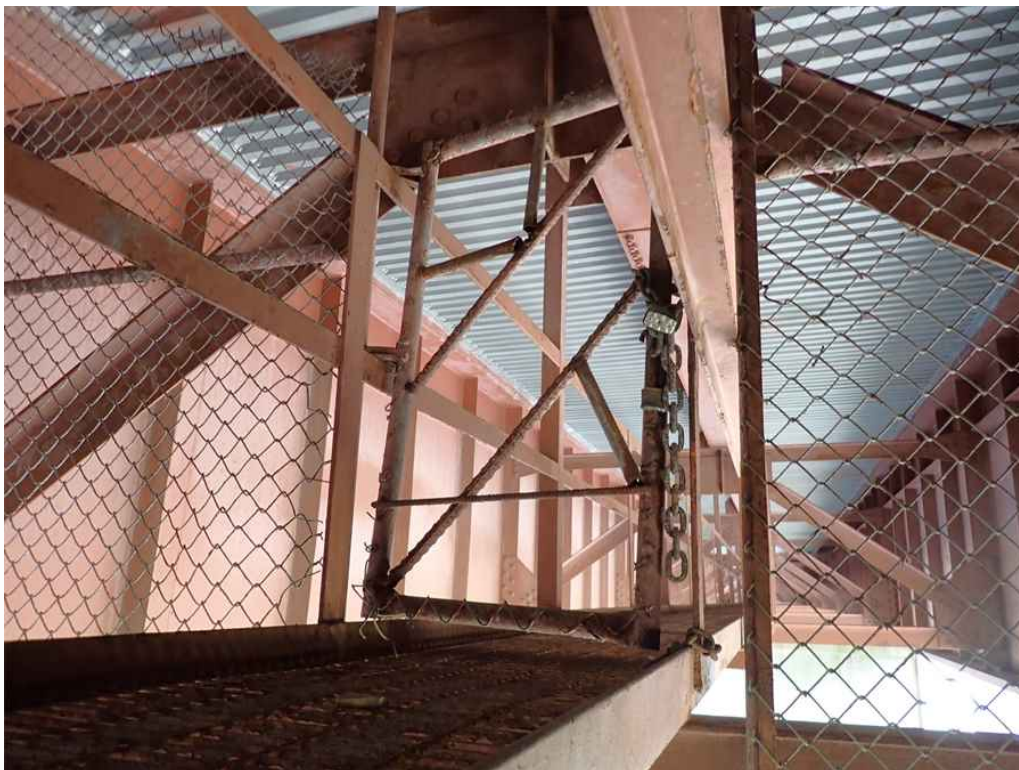
PHOTOS

Photo 33: Span 1 west end catwalk gate, looking northeast.



Photo 34: Catwalk at pier 1, looking southeast. Note 100% section loss at platform and rail.

CITY/TOWN	B.I.N.	BR. DEPT. NO.	8.-STRUCTURE NO.	INSPECTION DATE
SHREWSBURY=WORCESTER	1RB	S-14-021=W-44-115	S14021-1RB-DOT-NBI	AUG 21, 2024

PHOTOS

Photo 35: West abutment slope north end, looking northwest.



Photo 36: Northeast transition, looking north. Note typical missing connector panel bolt.

National Bridge Element Inspection

BDEPT# **S-14-021**Date **08/21/2024**B.I.N. **1RB**District Bridge Inspection Eng'r **Mahmood Azizi**Item 8 **S14021-1RB-DOT-NBI**Inspecting Agency **Mass. Highway Dept.**Span Group **1**Team Leader **Tyson Toloczko**Town **Shrewsbury**Team Member(s) **Gregory Lee, Scott A.
Vaillancourt, Benjamin N.
Thongphala, et al.**District **3**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
12	Re Concrete Deck	sq feet	2	47,489.000	☐ %	47,481.000	8.000		
Notes :									
> 1080	Delamination/Spall/Patched Area	sq feet	2	8.000	☐ %		8.000		
Notes :									
> 1130	Cracking (RC and Other)	sq feet	2	500.000	☐ %	500.000			
Notes :									
> 510	Wearing Surfaces	sq feet	2	47,960.000	☐ %	41,730.000	3,730.000	2,500.000	
Notes :									
> > 3210	Del/Spall/Patch/Pot(Wear Surf)	sq feet	2	1,230.000	☐ %		1,230.000		
Notes :									
> > 3220	Crack (Wearing Surface)	sq feet	2	5,000.000	☐ %		2,500.000	2,500.000	
Notes :									
107	Steel Opn Girder/Beam	feet	2	3,288.000	☐ %	3,208.000	80.000		
Notes :									
> 1000	Corrosion	feet	2	80.000	☐ %		80.000		
Notes :									
> 515	Steel Protective Coating	sq feet	2	445,000.000	☐ %	267,000.000	133,500.000	44,500.000	
Notes :									
> > 3440	Eff (Stl Protect Coat)	sq feet	2	445,000.000	☒ %	60.00	30.00	10.00	
Notes :									
107	Steel Opn Girder/Beam	feet	3	80.000	☐ %	60.000	10.000	10.000	
Notes :									
> 1000	Corrosion	feet	3	20.000	☐ %		10.000	10.000	
Notes :									

National Bridge Element Inspection

BDEPT# **S-14-021**Date **08/21/2024**B.I.N. **1RB**District Bridge Inspection Eng'r **Mahmood Azizi**Item 8 **S14021-1RB-DOT-NBI**Inspecting Agency **Mass. Highway Dept.**Span Group **1**Team Leader **Tyson Toloczko**Town **Shrewsbury**Team Member(s) **Gregory Lee, Scott A.
Vaillancourt, Benjamin N.
Thongphala, et al.**District **3**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> 515	Steel Protective Coating	sq feet	3	10,000.000	☐ %	5,000.000	2,500.000	2,500.000	
Notes :									
> > 3440	<i>Eff (Stl Protect Coat)</i>	sq feet	3	10,000.000	☒ %	50.00	25.00	25.00	
Notes :									
113	Steel Stringer	feet	2	2,466.000	☐ %	2,466.000			
Notes :									
> 515	Steel Protective Coating	sq feet	2	20,000.000	☐ %	14,000.000	6,000.000		
Notes :									
> > 3440	<i>Eff (Stl Protect Coat)</i>	sq feet	2	20,000.000	☒ %	70.00	30.00		
Notes :									
113	Steel Stringer	feet	3	60.000	☐ %	60.000			
Notes :									
> 515	Steel Protective Coating	sq feet	3	480.000	☐ %	240.000	120.000	120.000	
Notes :									
> > 3440	<i>Eff (Stl Protect Coat)</i>	sq feet	3	480.000	☒ %	50.00	25.00	25.00	
Notes :									
205	Re Conc Column	each	2	4	☐ %	4			
Notes :									
205	Re Conc Column	each	3	2	☐ %	2			
Notes :									
210	Re Conc Pier Wall	feet	2	80.000	☐ %	80.000			
Notes :									
210	Re Conc Pier Wall	feet	3	40.000	☐ %	20.000	20.000		
Notes :									

National Bridge Element Inspection

BDEPT# **S-14-021**Date **08/21/2024**B.I.N. **1RB**District Bridge Inspection Eng'r **Mahmood Azizi**Item 8 **S14021-1RB-DOT-NBI**Inspecting Agency **Mass. Highway Dept.**Span Group **1**Team Leader **Tyson Toloczko**Town **Shrewsbury**Team
Member(s) **Gregory Lee, Scott A.
Vaillancourt, Benjamin N.
Thongphala, et al.**District **3**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> 1130	Cracking (RC and Other)	feet	3	20.000	☐ %		20.000		
Notes :									
215	Re Conc Abutment	feet	3	180.000	☐ %	178.000	2.000		
Notes :									
> 1130	Cracking (RC and Other)	feet	3	2.000	☐ %		2.000		
Notes :									
234	Re Conc Pier Cap	feet	2	104.000	☐ %	104.000			
Notes :									
234	Re Conc Pier Cap	feet	3	52.000	☐ %	52.000			
Notes :									
301	Pourable Joint Seal	feet	2	91.000	☐ %	85.000			6.000
Notes :									
> 2330	Seal Damage	feet	2	6.000	☐ %				6.000
Notes :									
304	Open Expansion Joint	feet	2	13.000	☐ %	13.000			
Notes :									
305	Assem Jnt Wthut Seal	feet	2	52.000	☐ %				52.000
Notes :									
> 2310	Leakage	feet	2	52.000	☐ %				52.000
Notes :									
311	Moveable Bearing	each	2	4	☐ %		4		
Notes :									
> 1000	Corrosion	each	2	4	☐ %		4		
Notes :									

National Bridge Element Inspection

BDEPT# **S-14-021**Date **08/21/2024**B.I.N. **1RB**District Bridge Inspection Eng'r **Mahmood Azizi**Item 8 **S14021-1RB-DOT-NBI**Inspecting Agency **Mass. Highway Dept.**Span Group **1**Team Leader **Tyson Toloczko**Town **Shrewsbury**Team Member(s) **Gregory Lee, Scott A.
Vaillancourt, Benjamin N.
Thongphala, et al.**District **3**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> 515	Steel Protective Coating	sq feet	2	16.000	☐ %			16.000	
Notes :									
> > 3440	<i>Eff (Stl Protect Coat)</i>	sq feet	2	16.000	☒ %			100.00	
Notes :									
311	Moveable Bearing	each	3	12	☐ %	4	4	4	
Notes :									
> 1000	<i>Corrosion</i>	each	3	4	☐ %		4		
Notes :									
> 1020	<i>Connection</i>	each	3	4	☐ %			4	
Notes :									
> 515	Steel Protective Coating	sq feet	3	72.000	☐ %	36.000	36.000		
Notes :									
> > 3440	<i>Eff (Stl Protect Coat)</i>	sq feet	3	72.000	☒ %	50.00	50.00		
Notes :									
313	Fixed Bearing	each	2	4	☐ %	4			
Notes :									
> 515	Steel Protective Coating	sq feet	2	16.000	☐ %	16.000			
Notes :									
313	Fixed Bearing	each	3	4	☐ %	4			
Notes :									
> 515	Steel Protective Coating	sq feet	3	16.000	☐ %	16.000			
Notes :									
333	Other Bridge Railing	feet	2	1,810.000	☐ %	1,448.000	356.000	6.000	
Notes :									

National Bridge Element Inspection

BDEPT# **S-14-021**Date **08/21/2024**B.I.N. **1RB**District Bridge Inspection Eng'r **Mahmood Azizi**Item 8 **S14021-1RB-DOT-NBI**Inspecting Agency **Mass. Highway Dept.**Span Group **1**Team Leader **Tyson Toloczko**Town **Shrewsbury**Team
Member(s) **Gregory Lee, Scott A.
Vaillancourt, Benjamin N.
Thongphala, et al.**District **3**

El #	Element Name	Units	Env.	Total Q.	% or Q	State 1	State 2	State 3	State 4
> 1080	<i>Delamination/Spall/Patched Area</i>	feet	2	362.000	☐ %		356.000	6.000	
Notes :									

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: SHREWSBURY-WORCESTERProject File Number: 612874Contract Number: 136561Project Description: Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB) over Lake Quinsigamond and Lake Avenue North

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: _____

THIS PAGE IS INTENTIONALLY LEFT BLANK

DOCUMENT A00875

**POLICY DIRECTIVE P-22-001
AND
POLICY DIRECTIVE P-22-002**

THIS PAGE INTENTIONALLY LEFT BLANK



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.).

THIS PAGE INTENTIONALLY LEFT BLANK

Number: P-22-002Date: 9/23/22

POLICY DIRECTIVE

Jonathan Gulliver (signature on original)

HIGHWAY ADMINISTRATOR

Use of MassDOT Property for Staging and other Construction-Related Operations

Purpose

This Policy Directive is intended to address the use of MassDOT property by MassDOT Contractors for construction staging and other construction-related operations that are not specifically defined in the construction contract. Such use of MassDOT property will only be allowed if permitted by the District Office in accordance with 700 CMR 13.00, Approval of Access to MassDOT Highways and Other Property. This includes the use of MassDOT property for staging, laydown, and storage of equipment and materials, including soil excavated from a project site.

This Policy Directive requires the Contractor/applicant to obtain a Non-Vehicular Access Permit from MassDOT to use MassDOT property for these purposes.

This Policy Directive is effective immediately and applies to all MassDOT construction projects.

General Permit Considerations and Conditions

In addition to other normal MassDOT Access Permit procedures, MassDOT shall consider the following during the application, review, implementation and monitoring processes of Access Permits required by this Policy Directive:

- Storage and placement of the Contractor's equipment and materials should not be allowed within the clear zone of the roadway.
- Stockpiled soils should not be located within 500 feet of residential receptors, as defined herein to include, but not be limited to, residential dwellings, residentially zoned property, schools, daycare facilities, playgrounds, parks, recreational areas, hospitals, elderly housing and convalescent facilities.
- The Contractor/applicant shall identify the access/egress locations of the proposed storage areas. MassDOT will only approve locations determined to be safe for roadway users, construction workers and the general public.
- The Contractor may be required to submit a Traffic Management Plan and/or Lighting Plan for MassDOT review and approval as part of the permit application, depending on the proposed use of the area.

- The Contractor shall submit the permit application through MassDOT's online State Highway Access Permit System (SHAPS).
- MassDOT will waive the permit application fee for any application received from a MassDOT Contractor for any permit required by this Policy Directive and will waive any subsequent amendment and extension fees that may otherwise be required.
- MassDOT will review the permit application in accordance with applicable standard procedures and will apply standard permit terms and conditions, as necessary.
- The Resident Engineer will verify that the permit is approved before allowing the Contractor to use the affected area for the requested purpose.
- Areas permitted are for use by the approved applicant only and are not to be shared with or used by other vendors. Subcontractors specifically engaged with the applicant working on the specific MassDOT project will be allowed to use the area in accordance with the terms of the permit.
- Permits are issued on an annual basis and will require the Contractor to file for an extension each year to continue use.

Exemptions from Permit Requirements

Equipment and materials being used for active construction operations and located within the work zone of the construction contract are exempt from this permit requirement, provided they do not interfere with the safety or operation of the roadway or the work zone. Examples of these types of exempt uses are:

- Equipment and materials parked or stored within a protected (barriered) work zone.
- Materials placed in the work zone prior to same-day installation or use.
- Soils excavated temporarily and scheduled to be replaced, such as for trenching operations or for installation of drainage structures.

DOCUMENT B00420

PROPOSAL

SHREWSBURY-WORCESTER

For: **Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB)
over Lake Quinsigamond and Lake Avenue North**

COMMONWEALTH OF MASSACHUSETTS

LOCATION

The work referred to herein is in the Town of SHREWSBURY and the City of WORCESTER, both in Worcester 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:

I-290 (EB and WB)

Bridge S-14-021 = W-44-115 (1RA & 1RB)

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 **1150 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.

THIS PAGE IS INTENTIONALLY LEFT BLANK

Project # 612874		Contract # 136561		
Location : SHREWSBURY - WORCESTER				
Description : Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB) over Lake Quinsigamond and Lake Avenue North				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
100.1	1,400	BASE LABOR RATE AT _____ PER HOUR		
100.9	1	SURVEY AT _____ LUMP SUM		
114.11	1	DEMOLITION OF CONCRETE COPING - BRIDGE NO. S-14-021=W-44-115 (1RA) AT _____ LUMP SUM		
114.12	1	DEMOLITION OF CONCRETE COPING - BRIDGE NO. S-14-021=W-44-115 (1RB) AT _____ LUMP SUM		
120.1	30	UNCLASSIFIED EXCAVATION AT _____ PER CUBIC YARD		
127.31	2,600	REINFORCED CONCRETE DECK EXCAVATION (PARTIAL & FULL DEPTH) AT OVERHANG AT _____ PER SQUARE YARD		
127.4	170	REINFORCED CONCRETE DECK EXCAVATION (FULL DEPTH) AT _____ PER SQUARE YARD		
127.41	80	REINFORCED CONCRETE DECK EXCAVATION (PARTIAL DEPTH) AT _____ PER CUBIC YARD		
127.42	45	REINFORCED CONCRETE DECK EXCAVATION AT JOINTS AT _____ PER CUBIC YARD		

Project # 612874		Contract # 136561		
Location : SHREWSBURY - WORCESTER				
Description : Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB) over Lake Quinsigamond and Lake Avenue North				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
129.6	275	BRIDGE PAVEMENT EXCAVATION AT _____ PER SQUARE YARD		
151.	40	GRAVEL BORROW AT _____ PER CUBIC YARD		
156.2	120	CRUSHED STONE FOR SLOPE TREATMENT AT _____ PER TON		
170.	300	FINE GRADING AND COMPACTING - SUBGRADE AREA AT _____ PER SQUARE YARD		
220.	4	DRAINAGE STRUCTURE ADJUSTED AT _____ EACH		
227.3	4	REMOVAL OF DRAINAGE STRUCTURE SEDIMENT AT _____ PER CUBIC YARD		
415.4	19,300	BRIDGE PAVEMENT MILLING AT _____ PER SQUARE YARD		
450.221	2,050	SUPERPAVE SURFACE COURSE - 9.5 POLYMER (SSC - 9.5 - P) AT _____ PER TON		
450.701	40	SUPERPAVE BRIDGE PROTECTIVE COURSE - 9.5 POLYMER (SPC-B - 9.5 - P) AT _____ PER TON		

Project # 612874		Contract # 136561		
Location : SHREWSBURY - WORCESTER				
Description : Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB) over Lake Quinsigamond and Lake Avenue North				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
451.	120	HMA FOR PATCHING AT _____ PER TON		
452.	1,870	ASPHALT EMULSION FOR TACK COAT AT _____ PER GALLON		
453.	19,500	HMA JOINT ADHESIVE AT _____ PER FOOT		
472.	50	TEMPORARY ASPHALT PATCHING AT _____ PER TON		
477.	5,800	MILLED RUMBLE STRIP (TYPE A) AT _____ PER FOOT		
505.	240	GRANITE CURB TYPE VA5 - STRAIGHT AT _____ PER FOOT		
620.13	600	GUARDRAIL, TL-3 (SINGLE FACED) AT _____ PER FOOT		
628.24	8	TRANSITION TO BRIDGE RAIL AT _____ EACH		
628.315	2	TEMPORARY IMPACT ATTENUATOR, REDIRECTIVE, TL-3 AT _____ EACH		

Project # 612874		Contract # 136561		
Location : SHREWSBURY - WORCESTER				
Description : Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB) over Lake Quinsigamond and Lake Avenue North				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
628.4	2	TEMPORARY IMPACT ATTENUATOR, REMOVED AND RESET AT _____ EACH		
644.060	260	60 INCH CHAIN LINK FENCE (SPRING TENSION WIRE) (LINE POST OPTION) AT _____ PER FOOT		
698.1	260	GEOTEXTILE FABRIC FOR STABILIZATION AT _____ PER SQUARE YARD		
722.3	1	SCHEDULE OF OPERATIONS (TYPE C) - FIXED PRICE \$117500 AT One Hundred Seventeen Thousand Five Hundred Dollars LUMP SUM	\$117,500.00	\$117,500.00
740.	38	ENGINEER'S FIELD OFFICE AND EQUIPMENT (TYPE A) AT _____ PER MONTH		
748.	1	MOBILIZATION AT _____ LUMP SUM		
821.09	1	HIGHWAY BRIDGE LIGHTING SYSTEM AT _____ LUMP SUM		
823.601	2	HIGHWAY LIGHTING LOAD CENTER AT _____ EACH		
851.1	290	TRAFFIC CONES FOR TRAFFIC MANAGEMENT AT _____ PER DAY		

Project # 612874		Contract # 136561		
Location : SHREWSBURY - WORCESTER				
Description : Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB) over Lake Quinsigamond and Lake Avenue North				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
852.	810	SAFETY SIGNING FOR TRAFFIC MANAGEMENT AT _____ PER SQUARE FOOT		
853.21	3,740	TEMPORARY BARRIER REMOVED AND RESET AT _____ PER FOOT		
853.33	3,740	TEMPORARY BARRIER - LIMITED DEFLECTION (TL-3) AT _____ PER FOOT		
853.403	1,000	TRUCK MOUNTED ATTENUATOR AT _____ PER DAY		
853.8	310	TEMPORARY ILLUMINATION FOR WORK ZONE AT _____ PER DAY		
854.016	34,500	TEMPORARY PAVING MARKINGS - 6 INCH (PAINTED) AT _____ PER FOOT		
854.1	17,300	PAVEMENT MARKING REMOVAL AT _____ PER SQUARE FOOT		
856.096	1,500	ARROW BOARD (TYPE C) AT _____ PER DAY		
856.12	750	PORTABLE CHANGEABLE MESSAGE SIGN AT _____ PER DAY		

Project # 612874		Contract # 136561		
Location : SHREWSBURY - WORCESTER				
Description : Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB) over Lake Quinsigamond and Lake Avenue North				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
859.	58,000	REFLECTORIZED DRUM AT _____ PER DAY		
859.1	1,380	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS AT _____ PER DAY		
863.506	3,400	6-IN. RECESSED YELLOW LINE (MC, FD, WR) AT _____ PER FOOT		
866.606	6,800	6-IN. RECESSED WHITE LINE (PF, WR) AT _____ PER FOOT		
905.21	45	5000 PSI, HIGH EARLY STRENGTH CEMENT CONCRETE AT _____ PER CUBIC YARD		
908.21	56	JOINT PROTECTION AT _____ PER FOOT		
908.22	56	JOINT PROTECTION REMOVED AND RESET AT _____ PER FOOT		
909.2	60	CEMENTITIOUS MORTAR FOR PATCHING AT _____ PER SQUARE FOOT		
909.3	120	RAPID SETTING LOW PERMEABILITY CONCRETE AT _____ PER CUBIC YARD		

Project # 612874		Contract # 136561		
Location : SHREWSBURY - WORCESTER				
Description : Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB) over Lake Quinsigamond and Lake Avenue North				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
910.1	25,900	STEEL REINFORCEMENT FOR STRUCTURES - EPOXY COATED AT _____ PER POUND		
912.	40	DRILLING AND GROUTING DOWELS AT _____ EACH		
961.201	1	CLEAN (FULL REMOVAL) AND PAINT STEEL BRIDGE NO. S-14-021=W-44-115 (1RA) AT _____ LUMP SUM		
961.202	1	CLEAN (FULL REMOVAL) AND PAINT STEEL BRIDGE NO. S-14-021=W-44-115 (1RB) AT _____ LUMP SUM		
964.3	22,000	ELASTOMERIC PROTECTIVE COATING AT _____ PER SQUARE FOOT		
966.	11,700	MEMBRANE WATERPROOFING FOR BRIDGE DECK REPAIRS AT _____ PER SQUARE FOOT		
968.1	16	SCUPPER AND DOWNSPOUT AT _____ EACH		
968.2	2	FINGER JOINT TROUGH, HOPPERS AND PIPES SYSTEM AT _____ EACH		
968.3	8	BRIDGE DECK DRAIN AT _____ EACH		

Project # 612874		Contract # 136561		
Location : SHREWSBURY - WORCESTER				
Description : Bridge Preservation, S-14-021=W-44-115, I-290 (EB and WB) over Lake Quinsigamond and Lake Avenue North				
ITEM #	QUANTITY	ITEM WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	AMOUNT
972.1	216	STRIP SEAL BRIDGE JOINT SYSTEM AT _____ PER FOOT		
987.	60	SLOPE PAVING UNDER BRIDGE AT _____ PER SQUARE YARD		
987.02	60	SPECIAL SLOPE PAVING UNDER BRIDGE REMOVED AND RESET AT _____ PER SQUARE YARD		
992.1	1	ALTERATION TO BRIDGE STRUCTURE NO. S-14-021=W-44-115 (1RA) AT _____ LUMP SUM		
992.2	1	ALTERATION TO BRIDGE STRUCTURE NO. S-14-021=W-44-115 (1RB) AT _____ LUMP SUM		
994.01	1	TEMPORARY PROTECTIVE SHIELDING BRIDGE NO. S-14-021=W-44-115 (1RA) - OUTSIDE FASCIA AT _____ LUMP SUM		
994.02	1	TEMPORARY PROTECTIVE SHIELDING BRIDGE NO. S-14-021=W-44-115 (1RB) - OUTSIDE FASCIA AT _____ LUMP SUM		
Total Qty:		249,081		