



# Town of Sudbury, MA

Old Sudbury Road Culverts  
Replacement

2024-OSRC-1

## Bidding Documents For Construction

Project No. 233335.05  
Town of Sudbury, MA

Issued: April 2024

250 Royall Street | Suite 200E  
Canton, Massachusetts 02021  
800.426.4262

[woodardcurran.com](http://woodardcurran.com)



SECTION 00 01 07

SEALS PAGE

The engineering material and data contained in these Bidding Documents were prepared under the supervision and direction of the undersigned, whose seal as registered professional engineer is affixed below.

Date of Issue: April 10, 2024



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Scott C. Salvucci, P.E.  
Woodard & Curran, Inc. (Engineer)

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Last Modified: 04/10/2024 at 4:04PM EDT

SECTION 00 11 16

INVITATION TO BID

**THIS PROJECT IS BEING ELECTRONICALLY BID AND HARD COPY BIDS WILL NOT BE ACCEPTED.** Please review the instructions in the Bidding Documents on how to register as an electronic Bidder. The Bids are to be prepared and submitted at [www.biddocsonline.com](http://www.biddocsonline.com). Tutorials and instructions on how to complete the electronic Bidding Documents are available online (click on the “Tutorial” tab in the bottom footer).

Electronic Bids for the **Old Sudbury Road Culvert Replacements** Project, Contract No. 2024-OSRC-1, shall be submitted to BidDocs ONLINE Inc. until **Thursday May 02, 2024 at 11:00 a.m. EST**, at which time they will be publicly opened online. Complete instructions for filing Bids are included in Section 00 21 13 Instructions to Bidders.

**This procurement is subject to all applicable public bidding laws of Massachusetts, including, but not limited to the requirements contained in MGL c 30, § 39M.**

The proposed Work generally includes roadway sawcutting and trench excavation; replacement of box culvert/pipe culvert and headwall structures; construction of large segmented block retaining walls; removal and reconstruction of stone walls; removal and reconstruction of guardrails; reconstruction of the roadway, road subbase; grading of side slopes; erosion and sedimentation control; other surficial improvements as shown on the plans; development and execution of a water control management plan as necessary during construction; protection and support of existing utilities; and all materials and equipment, services, and construction inherent to the Work.

Bid period inquiries regarding the Work and questions concerning this Invitation to Bid must be submitted in writing via email to: James Case, Woodard & Curran, Inc. email: [jcase@woodardcurran.com](mailto:jcase@woodardcurran.com). Written responses will be sent by BidDocs ONLINE, Inc. to all Bidders on record as having received Bidding Documents. All questions shall be submitted by the end of the day on Friday April 26, 2024 at 3:00 p.m. EST.

Bid Security: Each Bid must be accompanied by cash, or certified, treasurer’s, or cashier’s check, or bid bond payable to the Town of Sudbury in the amount of five percent (5%) of the total amount of the Bid. This Bid Security shall be in the form and subject to the conditions provided in Section 00 21 13 Instructions to Bidders and following, eBIDDING INSTRUCTIONS TO BIDDERS.

Bidding Documents shall be available for review and/or acquisition after 11:00 a.m. EST on **Thursday April 11, 2024**.

Bidding Documents will be available in hardcopy for pick-up at [www.biddocsonline.com](http://www.biddocsonline.com) (may be viewed electronically and hardcopy requested) or at Nashoba Blue, Inc., at 433 Main Street, Hudson, MA 01749 (978) 568-1167.

There is a plan deposit of \$50.00 per set (maximum of 2) payable to BidDocs ONLINE Inc. Plan deposit may be electronically paid or by certified check. This deposit will be refunded for up to 2 sets for Bidders upon return of the sets in good condition to BidDocs ONLINE, Inc. within thirty (30) days of receipt of Bids. Otherwise the deposit shall be the property of the Awarding Authority.

Bidders requesting Bidding Documents to be mailed to them shall include a separate check for \$40.00 per set for UPS Ground (or \$65 per set for UPS overnight), non refundable, payable to the BidDocs ONLINE Inc. to cover mail handling costs.

Hard copies of the Bidding Documents may be examined at, but not removed from, the following locations:

Nashoba Blue Inc.  
433 Main Street  
Hudson, MA 01749  
978-568-1167

The selected Contractor shall furnish a Performance and a Payment bond each in an amount at least equal to one hundred percent (100%) of the Contract Price.

No Bidder may withdraw their Bid for a period of one hundred (100) days excluding Saturdays, Sundays, and legal holidays after the date of the opening of the Bids.

Funding for this Project is dependent upon appropriation of funds at the Sudbury Annual Town Meeting scheduled to begin Monday, May 6<sup>th</sup>, 2024. If funding is approved at Annual Town Meeting, a Contract Award date will be in early July at the start of the Town's new Fiscal Year.

The Work shall be substantially complete within 116 calendar days from the commencement of Contract Times and completed and ready for final payment, 130 calendar days from the commencement of Contract Times. The roadway shall remain open to traffic and the Contractor must provide traffic details and temporary traffic controls as necessary.

Each Bidder agrees to pay liquidated damages as specified in the Agreement (Section 00 52 10.).

Prevailing wage rates, as determined by the Executive Office of Labor and Workforce Development, Department of Labor Standards under the provisions of the MGL c149, §§ 26 to 27D, as amended, apply to this Project.

Only Bidders who can comply with the following should submit Bids as only such Bidders will be considered qualified.

MassDOT prequalification of contractors with the class of work as, Highway – Construction for the project with an estimated value of \$585,046 will be required.

A non-mandatory pre-Bid Conference will be held at Town of Sudbury Department of Public Works in the Engineering Conference Room at 275 Old Lancaster Road, Sudbury, MA on **Thursday, April 25** at **11:00 a.m. EST.** An optional site visit will be available following the pre-Bid Conference.

The Owner, being considered the sole and only judge, reserves the right to waive any informalities in, or to reject, any or all Bids, should the Owner deem it to be in the public's best interest to do so. Owner may conduct investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of the Bidders, proposed Subcontractors, Suppliers, individuals, or entities proposed to perform the Work in accordance with the Contract Documents. The Owner reserves the right to complete post-Bid opening interviews to support its evaluation of the Bids.

Andrew J. Sheehan  
Sudbury Town Manager  
278 Old Sudbury Road  
Sudbury, MA 01776

**END OF SECTION**

Section 00 11 13  
**ADVERTISEMENT TO BID**  
MGL c.30 §39M Over \$50K

The **TOWN OF SUDBURY - DEPARTMENT OF PUBLIC WORKS**, the Awarding Authority, invites sealed bids from Contractors for the Old Sudbury Road Culverts 110 and 149 Replacement at in Sudbury, Massachusetts, in accordance with the documents prepared by .

The Project consists of but not limited to:  
roadway sawcutting and trench excavation; replacement of box culvert/pipe culvert and headwall structures; construction of large segmented block retaining walls; removal and reconstruction of stone walls; removal and reconstruction of guardrails; reconstruction of the roadway, road subbase; grading of side slopes; erosion and sedimentation control; other surficial improvements as shown on the plans; development and execution of a water control management plan as necessary during construction; protection and support of existing utilities; and all materials and equipment, services, and construction inherent to the Work.

The work is estimated to cost **\$585,046.00**.

Bids are subject to M.G.L. c.30§39M and to minimum wage rates as required by M.G.L. c.149 §§26 to 27H inclusive.

**THIS PROJECT IS BEING ELECTRONICALLY BID AND HARD COPY BIDS WILL NOT BE ACCEPTED.** Please review the instructions in the bid documents on how to register as an electronic bidder. All Bids shall be submitted online at [www.biddocs.com](http://www.biddocs.com) and received no later than the date and time specified.

General Bids will be received until **02 May 2024** on **11:00AM EDT** and publicly opened online, forthwith.

General bids and sub-bids shall be accompanied by a bid deposit that is not less than five (5%) of the greatest possible bid amount (including all alternates), and made payable to the **TOWN OF SUDBURY - DEPARTMENT OF PUBLIC WORKS**. Note: A bid deposit is not required for Projects advertised under \$50,000.

Bid Forms and Contract Documents will be available for review at [www.biddocs.com](http://www.biddocs.com) (may be viewed and downloaded electronically at no cost).

PRE-BID CONFERENCE / SITE VISIT: Scheduled  
Date and Time: 04/25/2024 at 11:00AM EDT  
Address: Town of Sudbury Dept. of Public Works, 275 Old Lancaster Road, Sudbury, MA 01776

Instructions: Please meet in the Engineering Conference Room. An optional site visit will be available following the pre-Bid Conference.

The hard copy Contract Documents may be seen at:

Nashoba Blue Inc.  
433 Main Street  
Hudson, MA 01749  
978-568-1167

END OF SECTION



Section 00 21 13  
INSTRUCTIONS TO BIDDERS  
MGL c.30 §39M Over \$50K

**THIS PROJECT IS BEING ELECTRONICALLY BID AND HARD COPY BIDS WILL NOT BE ACCEPTED. Please review the instructions in the bid documents on how to register as an electronic bidder. The bids are to be prepared and submitted at [biddocs.com](http://biddocs.com) .**

**ARTICLE 1 - BIDDER'S REPRESENTATION**

- 1.1 Each General Bidder or Sub-bidder (hereinafter called the "**Bidder**") by making a bid or sub-bid (hereinafter called "**bid**") represents that:
- .1 The Bidder has read and understands the Contract Documents and the bid is made in accordance therewith.
  - .2 The Bidder has visited the site and is familiar with the local conditions under which the Work must be performed.
- 1.2 Failure to so examine the Contract Documents and site will not relieve any Bidder from any obligation under the bid as submitted.

**ARTICLE 2 - REQUESTS FOR INTERPRETATION**

- 2.1 Bidders shall promptly notify the contact specified in the Advertisement via written request for information (RFI) of any ambiguity, inconsistency, or error which they may discover upon examination of the Contract Documents, the site, and local conditions.
- 2.2 Bidders requiring clarification or interpretation of the Contract Documents shall make a written request for information (RFI) as specified in the Advertisement. The Awarding Authority may answer such requests if received before the bid date and/or within the time specified in the Advertisement. The Awarding Authority has no obligation to respond to the written requests.
- 2.3 Interpretation, correction, or change in the Contract Documents will be made by written Addendum which will become part of the Contract Documents. Neither the Awarding Authority nor the Prime Designer will be held accountable for any oral interpretations, corrections, or changes.
- 2.4 Copies of addenda will be made available for inspection at the locations listed in the Advertisement where Contract Documents are on file or at [biddocs.com](http://biddocs.com). **Hard copies of the addenda will not be forwarded to the plan holders. The bidder is solely responsible for reviewing all addenda posted on the project website.**

## ARTICLE 3 - PREPARATION AND SUBMISSION OF BIDS

### 3.1 Forms and Bid Preparation

Bids shall be submitted electronically on the "**Form for General Bid**" at [biddocs.com](http://biddocs.com), as appropriate and available at no cost.

The forms enclosed in the Project Manual shall not be extracted or used.

- .1 All bidders must create a User Profile account at [biddocs.com](http://biddocs.com), at no cost, to complete and submit a bid. The Awarding Authority, the Prime Designer or BidDocs ONLINE Inc. will not be held accountable if the bidder fails to create a User Profile in a timely manner.
- .2 All entries on the bid form shall be made online. Any documents that are attached to the bid must be in a pdf format.
- .3 Sums shall be expressed in both words and figures in the space indicated on the bid form. The electronic bid forms automatically match the "word" amount to the numeric "figure" amount entered.

### 3.1 Bid Deposits shall be:

- .1 at least five percent (5%) of the greatest possible bid amount, considering all alternates (except for projects bid under MGL c. 149 or MGL c. 3039M under \$50,000);
- .2 made payable to the **Awarding Authority**.
- .3 conditioned upon faithful performance by the principal of the agreements contained in the bid, and
- .4 in the form of:
  - .1 cash,
  - .2 certified check, treasurer's or cashier's check issued by a responsible bank or trust company, or
  - .3 bid bond issued by a surety company licensed to do business in the Commonwealth of Massachusetts.

Note: Both the "bid bond" or "check" bid deposits are to be scanned and uploaded to the system as a pdf file. **IMPORTANT NOTICE:** If the bidder elects to make a bid deposit in the form of "cash" or "check", the Bidder must have the cash or check physically delivered to the Awarding Authority prior to the date and time of the bid opening.

- .5 retained until the execution and delivery of the Awarding Authority / Contractor Agreement if they represent the bid deposit of one of the three (3) lowest responsible and eligible General Bidders or one of the three (3) lowest Sub-bidders in a filed sub-bid trade, or a sub-bidder listed by one of the three (3) lowest General Bidders.

### 3.3 Electronic Submission of General Bids

General Bids, including the bid deposit (if applicable), and required miscellaneous forms noted in the bid documents shall be submitted electronically online at

[biddocs.com](https://biddocs.com) . No hard copy bids will be accepted.

The Bidder will receive an email and/or system notification confirming submission of the bid. Click on the email link to review and print the submitted bid documents. Keep the email as a **receipt** that the bid was submitted. **Note:** The Bidder may modify the bid at any time prior to the bid date and time advertised. The Bidder will receive a new email each time the Bidder re-submits the bid.

- .1 Date and time for receipt of bids is set forth in the Advertisement.
- .2 Timely submission of a bid online shall be the full responsibility of the Bidder.  
Note: The project countdown clock on the website is the official clock that will determine when the bids are due.

### 3.4 Addenda

All modifications to the bid documents will be issued via an addendum. All registered plan holders will be electronically notified when addenda are issued. **Hard copies of the addenda will not be forwarded to the plan holders.** The Bidder is solely responsible for reviewing all addenda posted on the project website. The Bidder must acknowledge all addenda have been reviewed by selecting “yes” or “no” as part of the e-bidding process. If the Bidder selects “no”, the Bidder will automatically be directed to the Addenda icon on the project page.

## ARTICLE 4 - ALTERNATES

- 4.1 Each General Bidder shall acknowledge Alternates in Section C on the Form for General Bid by entering the dollar amount of addition or subtraction necessitated by each Alternate.
- 4.2 In the event an Alternate does not involve a change in the amount of the base bid, the Bidder shall so indicate by entering "**0**" (**numeric figure**) in the “Add” space provided for that Alternate.
- 4.3 General Bidders shall enter on the Form for General Bid a single amount for each Alternate.
- 4.4 The low Bidder will be determined based on the sum of the base bid and the accepted alternates.
- 4.5 Alternates will be considered in numerical sequence as required by Chapter 149, Section 44G of the Massachusetts General Laws.

## ARTICLE 5 - WITHDRAWAL OF BIDS

### 5.1 Before Opening of Bids

Any bid may be withdrawn (retracted) prior to the time designated for receipt of bids upon clicking the tab to "Retract Bid". The Bidder and the Awarding Authority will receive an email confirming that the bidder retracted the bid. Withdrawn bids may be modified and resubmitted up to the time designated for the receipt of bids.

## 5.2 After Opening of Bids

Bidders may withdraw a bid, without penalty, any time up to the time of Award as defined in paragraph 6.1, and upon demonstrating, to the satisfaction of the – Awarding Authority, that a bona fide clerical error was made during the preparation of the bid. Failure to conclusively demonstrate a bona fide clerical error may result in forfeiture of the bid deposit.

- 5.3 In the event of a general bid withdrawal after opening of bids, the Awarding Authority shall consider the bid from the next lowest eligible and responsible bidder.

## ARTICLE 6 - CONTRACT AWARD

- 6.1 **Award** means both the determination and selection of the lowest, responsible, and eligible bidder, by the Awarding Authority.
- 6.2 The Awarding Authority will award the contract to the lowest responsible and eligible bidder within thirty days, Saturdays, Sundays, and legal holidays excluded after the opening of bids in accordance with M.G.L. c.149 §44A.
- 6.3 The Contract will be awarded to the lowest responsible and eligible Bidder, except in the event of substitution as provided under M.G.L. c.149 §§44E and 44F, in which cases the procedure as required by said sections shall govern the award of the Contract.
- 6.4 The award of this Contract is subject to the approval of the Awarding Authority. Contracts without approval shall not be considered valid.
- 6.5 The Awarding Authority reserves the right to waive any informalities in or to reject any or all Bids if it is in the public interest to do so.
- 6.6 As used herein, the term "lowest responsible and eligible bidder" shall mean the General Bidder whose bid is the lowest of those Bidders demonstrably possessing the skill, ability, and integrity necessary for the faithful performance of the work, and who meets the requirements for Bidders set forth in M.G.L. c.149 §44A-J and is not debarred from bidding under M.G.L. c.149 §44C; and who shall certify that they are able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work.

**ARTICLE 7 - FORMS REQUIRED FOR CONTRACT APPROVAL**

**7.1** Upon Award, the General Bidder shall complete the following forms to ensure prompt contract validation. These forms will be provided to the selected General Bidder by the Awarding Authority.

**7.2 Awarding Authority / Contractor Agreement and Form of Corporate Vote.**

**7.3 Form of Contractor's Equal Employment Certification** in accordance with the General Conditions.

**.1 Form of Sub-Contractor's Equal Employment Certification**

**7.4 Form of Performance Bond and Form of Payment Bond** must be submitted by the General Contractor on the Awarding Authority's form, in accordance with the General Conditions. The dates on the bonds must coincide with the contract date, and a current Power-of-Authority must be attached to each bond. The minimal performance and payment bonds are as follows.

BOND	MGL c. 149		MGL c. 3039M	
	\$25K to \$50K	\$50K to \$150K	\$25K to \$50K	Over \$50K
Performance	None	None	None	None
Payment	50%	50%	50%	50%

**7.5 Insurance Certificates** for the General Contractor is required and must be submitted in accordance with the General Conditions. General Contractors must indicate on Builder's Risk insurance or installation floater if stored materials are covered.

**7.6 Statement of Management on Internal Accounting Controls and a Statement prepared by a CPA** expressing an opinion to the state of Management Controls, as required by M.G.L. c.30 §39R. This applies to the General Contractor only.

**ARTICLE 8 - CONTRACT VALIDATION**

**8.1** The Awarding Authority -Contractor Agreement shall not be valid until signed by the Authorized Signatory of the Awarding Authority.

**8.2** The Notice to Proceed for construction shall not be issued until the Awarding Authority/Contractor Agreement has been validated by the Authorized Signatory of the Awarding Authority.

**8.3** Incomplete or unacceptable submissions of forms required by paragraphs 7.2 - 7.6 will delay the validation of the Awarding Authority/Contractor Agreement by the Awarding Authority.

END OF SECTION

**SECTION 00 21 13**

**INSTRUCTIONS TO BIDDERS**

1. Receipt and Opening of Bids
  2. Location and Work to be Done
  3. Pre-Bid Conference
  4. Qualification of Bidders
  5. Bidder's Representation
  6. Bidding Documents
  7. Deposit for Bidding Documents
  8. Information Not Guaranteed
  9. Borings
  10. Property Lines and Easements
  11. Access to Work
  12. Other Contracts (not used)
  13. Bidders to Investigate
  14. Questions Regarding the Bidding Documents
  15. Delivery of Bids
  16. Bid Security
  17. Foreign Corporations
  18. Modification and Withdrawal of Bids
  19. Addenda
  20. Alternates (not used)
  21. Comparison of Bids
  22. Right to Reject Bids
  23. Contract Bonds
  24. Award of Contract
  25. Interpretation of Estimated Quantities
  26. Monthly Price Adjustments for Diesel Fuel, Gasoline, Asphalt, Concrete, and Steel
  27. Insurance Certificates
  28. Massachusetts Sales Tax
  29. Safety and Health Regulations
  30. Prevailing Wage Rates
  31. Competitive Bidding
  32. Work and Equipment Warranty
  33. Permits and Approvals
  34. Laws and Regulations
- Attachments

**1. RECEIPT AND OPENING OF BIDS**

Electronic Bids for the **Old Sudbury Road Culverts 110 And 149 Replacement** Project, Contract No. 2024-OSRC-1, shall be submitted to BidDocs ONLINE Inc. until **Thursday May 02, 2024 at 11:00 a.m. EST**, at which time they will be publicly opened online. Complete instructions for filing Bids are included in the attachments to this Section .

**THIS PROJECT IS BEING ELECTRONICALLY BID AND HARD COPY BIDS WILL NOT BE ACCEPTED.** Please review the instructions attached to this Section on how to register as an electronic Bidder. The Bids are to be prepared and submitted at [www.biddocsonline.com](http://www.biddocsonline.com).

Tutorials and instructions on how to complete the electronic Bidding Documents are available online (click on the "Tutorial" tab at the bottom footer).

Refer to attachments to this Section to view eBIDDING INSTRUCTIONS TO BIDDERS and required forms with electronic Bid.

## 2. LOCATION AND WORK TO BE DONE

The proposed Work generally includes replacement of box culvert/pipe culvert and headwall structures; construction of large segmented block retaining walls; removal and reconstruction of stone walls; removal and reconstruction of guardrails; reconstruction of the roadway, road subbase; grading of side slopes; erosion and sedimentation control; other surficial improvements as shown on the plans; development and execution of a water control management plan as necessary during construction; protection and support of existing utilities; and all materials and equipment, services, and construction inherent to the Work, as specified and shown on the Drawings.

Additional Drawings showing details in accordance with which the Work is to be done shall be furnished from time to time by the Engineer, if found necessary, and shall then become a part of the Contract Documents.

The Contractor shall furnish all labor, services, materials, equipment, plant, machinery, apparatus, appliances, tools, supplies, and all other things necessary to do all Work required for the completion of each item of Work and as herein specified.

## 3. PRE-BID CONFERENCE

A non-mandatory pre-Bid Conference will be held at Town of Sudbury Department of Public Works in the Engineering Conference Room at 275 Old Lancaster Road, Sudbury, MA on **Thursday, April 25** at **11:00 a.m. EST**. An optional site visit will be available following the pre-Bid Conference.

## 4. QUALIFICATION OF BIDDERS

To bid on this Project, Contractors must be prequalified by the Massachusetts Department of Transportation, Highway Division in **Bridge – Culverts** category in accordance with 720 CMR 5.00, Prequalification of Contractors and Prospective Bidders for Statewide Engineering Field Survey Services.

Bidders may be investigated by the Owner to determine if they are qualified to perform the Work. All Bidders shall be prepared to submit within five (5) days of the Owner's or the Engineer's request, written evidence of such information and data necessary to make this determination.

The investigation of a Bidder shall seek to determine whether the organization is adequate in size to complete the Work in accordance with the Contract Documents, is authorized to do business in the jurisdiction where the Project is located, has had previous experience and whether available equipment and financial resources are adequate to assure the Owner that the Work shall be completed in accordance with the terms of the Agreement. The amount of other work to which the Bidder is committed may also be considered.

In evaluating Bids, the Owner shall consider the qualifications of only those Bidders whose Bids are in compliance with the prescribed requirements.

The Owner reserves the right to reject any Bid if the evidence submitted by, or the investigation of, such Bidder fails to satisfy the Owner that such Bidder is properly qualified to carry out the obligations of the Contract Documents and to complete the Work contemplated therein.

## 5. BIDDER'S REPRESENTATION



Each Bidder, by making a Bid, represents that:

- Before submitting the Bid, the Bidder has read and understands the Contract Documents (as defined in Article 6 of this Section), has investigated in detail the locations of the Work to be performed and has made such examination thereof as may necessary to satisfy itself in regard to the character of the Work involved and all conditions affecting the Work to be performed and labor and materials needed, including impact on other Town work.
- Statements as to the condition under which Work is to be performed are made solely to furnish a basis for comparison of Bids, and while the Town believes them to be correct, the Town does not guarantee their accuracy. The Bidder is responsible for verifying visible and reasonably anticipated conditions at the Site of the Work.
- Failure to examine the Contract Documents and Site does not relieve any Bidder from any obligation under the Bid as submitted.

#### 6. BIDDING DOCUMENTS

The Invitation to Bid, Bidding Requirements, the Agreement (also sometimes referred to as the Contract), the General Conditions, General and Project Specific Supplementary Conditions, the Drawings, the Specifications, and all Addenda and forms thereto (together, the "Bidding Documents") may be examined and obtained at the locations designated in Invitation to Bid.

#### 7. DEPOSIT FOR BIDDING DOCUMENTS

Bidding Documents will be available for pick-up at [www.biddocsonline.com](http://www.biddocsonline.com) (may be viewed electronically and hardcopy requested) or at Nashoba Blue, Inc., at 433 Main Street, Hudson, MA 01749 (978) 568-1167.

There is a plan deposit of \$50.00 per set (maximum of 2) payable to BidDocs ONLINE Inc. Plan deposit may be electronically paid or by certified check. This deposit will be refunded for up to two sets for Bidders upon return of the sets in good condition within thirty (30) days of receipt of Bids. Otherwise the deposit shall be the property of the Awarding Authority.

Bidders requesting Bidding Documents to be mailed to them shall include a separate check for \$40.00 per set for UPS Ground (or \$65 per set for UPS overnight), non-refundable, payable to the BidDocs ONLINE Inc. to cover mail handling costs.

#### 8. INFORMATION NOT GUARANTEED

All information given in the Contract Documents relating to subsurface and other conditions, natural phenomena, existing pipes and other structures is from the best sources at present available to the Owner. All such information is furnished only for the information and convenience of Bidders and is not guaranteed.

It is agreed and understood that the Owner does not warrant or guarantee that the subsurface or other conditions, natural phenomena, existing pipes, or other structures encountered during construction will be the same as those indicated in the Bidding Documents. It is agreed further and understood that no Bidder or Contractor shall use or be entitled to use any of the information made available to it or obtained in any examination made by it in any manner as a basis of or ground for any claim or demand against the Owner or the Engineer, arising from or by reason of any variance which may exist between the information made available and the actual subsurface or other conditions, natural phenomena, existing pipes or other structures actually encountered during the construction Work, except as may otherwise be expressly provided for in the Contract Documents.

9. BORINGS

Soil borings and other subsurface information is identified in Section 00 73 15.

10. PROPERTY LINES AND EASEMENTS

Work performed on this Project will be performed entirely within Town of Sudbury property or easement or license areas. The Contractor will be responsible for limiting the prosecution of the Work to within these areas.

11. ACCESS TO THE WORK

Town representatives including Conservation Commission, Department of Public Works, and any other local, state and federal agency having a direct interest in the Work shall have access to the Work during Site preparation and/or progress. The Contractor shall provide access to the Town representatives for inspection of the Work.

12. OTHER CONTRACTS

Not used

13. BIDDERS TO INVESTIGATE

Bidders must satisfy themselves by personal examination of the Site of the Work and by such other means as they may wish, as to the actual conditions there existing, the character and requirements of the Work, the difficulties attendant upon its execution and the accuracy of all estimated quantities stated in the Bid.

Failure of any Bidder to thoroughly examine the Bidding Documents or to visit and examine the Site shall in no way relieve the Bidder of any obligation with respect to its Bid or any responsibility assigned it under the Bid or resulting Contract.

14. QUESTIONS REGARDING THE BIDDING DOCUMENTS

Bid period inquiries regarding the Work and questions concerning this Invitation to Bid must be submitted in writing via email to: James Case, Woodard & Curran, Inc., email: [jcase@woodardcurran.com](mailto:jcase@woodardcurran.com). Written responses will be sent by BidDocs ONLINE, Inc. to all Bidders on record as having received Bidding Documents. All questions shall be submitted by the end of the day on **Friday, April 26, 2024 at 3:00 p.m. EST.**

Oral questions shall not be accepted, and oral responses to questions shall not be given. The Engineer shall review and consolidate the questions received before the deadline, prepare written answers and respond by addenda via BidDocs ONLINE, Inc. at least two (2) days prior to the receipt of Bids to those prospective Bidders on record as having received the Invitation to Bid.

No employee of the Town is authorized to give interpretations of any portion of the Bidding Documents or to give information as to the requirements of the Bidding Documents. Interpretations of the Bidding Documents or additional information as to its requirements, where necessary, shall be communicated to Bidders by written addendum, which addendum shall be considered part of the Contract Documents, as applicable.

#### 15. DELIVERY OF BIDS

See Part 1 of this Section.

#### 16. BID SECURITY

Each Bid submitted shall be accompanied by a Bid security in the form of cash, a Bid bond, a certified check, or a treasurer's or cashier's check issued by a responsible bank or trust company qualified to do business in the Commonwealth of Massachusetts and satisfactory to the Owner and payable to the Town of Sudbury, Massachusetts.

The amount of the Bid security shall be as designated in Section 01 11 16 Invitation to Bid. Refer to the attachment to 01 11 16 entitled eBIDDING INSTRUCTION TO BIDDERS for information on submission of Bid security with electronic Bid. **When in the form of cash or check, the Bid security must be enclosed in a sealed envelope, appropriately labeled and delivered to the Awarding Authority prior to the BidDocs ONLINE, Inc. electronic Bid opening deadline.**

Each Bid security may be held by the Owner as security for the fulfillment of the Bidder's promises that the Bidder shall not withdraw its Bid while it is being considered and shall execute the Agreement and furnish the required Contract Bonds and Insurance if its Bid is accepted.

Surety Companies executing bonds shall appear on the U.S. Treasury Department's Circular 570 which is the Department of Treasury's Listing of Certified Companies or Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies. The Bid bond shall be signed by a resident agent of the surety who is licensed as a surety broker in Massachusetts.

A Bid bond not meeting these requirements may be declared non-responsive and be cause for the Town to reject the Bid.

The Bid security shall be returned to all except the three (3) lowest Bidders within five (5) working days after the opening of Bids, and the remaining Bid securities shall be returned promptly after the Owner and the successful Bidder have executed the Contract, or, if no award has been made within 30 calendar days after the date of the opening of Bids, upon the demand of the Bidder at any time thereafter, so long as it has not been notified of the acceptance of its Bid.

#### 17. FOREIGN CORPORATIONS

The attention: of Bidders is called to MGL c30, § 39L. If a Contractor is a foreign corporation as defined by MGL c156D, § 1.4, then when Contractor delivers the counterparts of the Agreement to Owner, Contractor shall also deliver the certificate of the State Secretary stating that the Contractor has complied with requirements of Section 15.03 of subdivision A of Part 15 of Chapter 156D and the date of compliance, and further has filed all annual reports required by section 16.22 of subdivision B of Part 16 of said Chapter 156D.

If the successful Bidder is a foreign corporation as defined at MGL c156D, § 1.4, and if the successful Bidder fails to perform the requirements noted in the preceding paragraph, the Bid security shall become and be the property of the Town as liquidated damages; provide that, the amount of the Bid security which becomes the property of the Town shall not, in any event, exceed the difference between the successful Bidder's Bid price and the Bid price of the next lowest responsible and eligible Bidder.

#### 18. MODIFICATION AND WITHDRAWAL OF BIDS

Except as hereinafter in this subsection or otherwise expressly provided, once its Bid is submitted and received by the Owner for consideration and comparison with other Bids similarly submitted, the Bidder agrees that it may not withdraw its Bid for a period of one hundred (100) days excluding Saturdays, Sundays, and legal holidays after the date of the opening of the Bids.

Bids may be modified or withdrawn at any time prior to the designated time for the opening of Bids at BidDocs ONLINE, Inc.

Unless a Bid is withdrawn as provided above, the Bidder agrees that it shall be deemed open for acceptance until a Agreement has been executed by both parties thereto or until the Owner notifies the Bidder in writing that its Bid is rejected or that the Owner does not intend to accept it, or returns its Bid security. Notice of acceptance of a Bid shall not constitute rejection of any other Bid.

After Bid opening, a Bidder may not change any provision of the Bid in a manner prejudicial to the interests of the Town or fair competition. Minor informalities will be waived or the Bidder will be allowed to correct them.

#### 19. ADDENDA

Addenda may be required during the Bidding period to modify, clarify or interpret the Bidding Documents, and shall become part of the Contract Documents. Failure to review such Addenda shall in no way relieve any Bidder from the execution of its provisions. All Bidders are cautioned to verify the number of addenda which have been issued and to review their contents before submitting a Bid.

#### 20. ALTERNATES

Bidders shall include a separate price for each alternate described in the Bidding Documents as provided for in the Bid Form and Supplements, if any. The price for each alternate will be the amount added to or deleted from the base Bid if Owner selects the alternate and will be applied in the same order as listed in the Bid form.

#### 21. COMPARISON OF BIDS

The Owner agrees to examine and consider each Bid submitted in consideration of the Bidder's agreements, as hereinabove set forth and as set forth in the Bid. The Bidder shall state the proposed price for the Work by which the Bids will be compared. This price is to cover all the expenses incidental to the completion of the Work in full conformity with the Bidding Documents, Specifications, and Drawings. In the event that there is a discrepancy between the unit prices and the extended totals, the unit prices shall govern. In the event that there is a discrepancy between the lump-sum or unit prices written in words and numerical figures, the prices written in words shall govern. No Bid will be accepted which does not contain a unit price or lump sum as indicated for each of the applicable items enumerated in the Bid Form.

If the Contract is to be awarded, Owner may award the Contract to the responsive and responsible Bidder, offering the lowest price for the base Bid, OR base Bid plus Alternate A at the Owner's option, and whose Bid is in the best interests of the Project or public.

## 22. RIGHT TO REJECT BIDS

The Owner reserves the right to reject any or all Bids, to waive minor deviations, and cancel the Invitation to Bid at any time prior to award, and/or to advertise for new Bids if funds are not available for the Project or any of these actions are in the best interest of the Town.

Bids which are incomplete, conditional or obscure, or which contain any additions not called for, or which otherwise do not conform to the requirements of the applicable statutes or to the requirements for Bid submission set forth herein will be rejected as non-responsive. Bids which contain erasures, alterations or irregularities of any kind or which fail to fully meet the requirements for Bid submission set forth herein, or which contain abnormally low prices for any item of Work may be rejected as non-responsive.

More than one Bid from the same Bidder, whether or not the same or different names appear on the signature page, will not be considered. Reasonable grounds for believing that any Bidder is so interested in more than one Bid for the Work contemplated may cause rejection of all Bids made by that Bidder directly or indirectly.

Any and all Bids potentially affected by collusion will be rejected if there is reason for believing that collusion exists among the Bidders. The decision of the Town will be final. Bidders whose Bids have been rejected because of evidence of collusion will not be considered in future bids for the same work and may be rejected from bidding on future work.

The Owner shall reject every Bid which is not accompanied by the required Bid security and may reject any Bid which is on a form not completely filled in, which is incomplete, conditional or obscure or which contains any addition not called for. Moreover, the Town shall reject any Bid that does not include the signed Non-Collusion Affidavit provided in the Bidding Documents.

## 23. CONTRACT BONDS

The Bidder whose Bid is accepted agrees to furnish the Contract bonds in the forms included in the Bidding Documents each in the sum of the full amount of the Contract Price and duly executed by the said Bidder as Principal and by a Surety Company qualified to do business under the laws of the Commonwealth of Massachusetts and satisfactory to the Owner, as Surety, for the faithful performance of the Contract and payment for labor and materials. The Surety Company shall have a rating of B+ or better within the Best Key Rating Guide. The premiums for these bonds shall be paid by the Contractor.

Surety Companies executing bonds shall appear on the U.S. Treasury Department's Circular 570 which is the Department of Treasury's Listing of Certified Companies or Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies.

Attorneys-in-fact who sign Contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

Should the successful Bidder fail to perform its agreement to furnish the required bonds and insurance certificates required herein, the Bid security shall become and be the property of the Town as liquidated damages; provided that, the amount of the Bid security which becomes the property of the Town shall not, in any event, exceed the difference between the successful Bidder's Bid price and the Bid price of the next lowest responsible and eligible Bidder.

## 24. AWARD OF CONTRACT

An Agreement may be awarded to the "lowest responsible and eligible Bidder" pursuant to MGL. c30, §39M, as amended. Such Bidder shall possess the skill, ability and integrity necessary for the faithful performance of the Work, shall be able to furnish labor that can work in harmony with all other elements of labor employed, or to be employed, in the Work, who shall certify that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins Work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee, and shall otherwise

comply with all applicable provisions of law. Contract award shall be subject to availability of an appropriation for funding.

The successful Bidder will within ten (10) calendar days of the notification of contract award by the Town, execute the Agreement in accordance with the Bidding Documents and furnish insurance certificates, contract bonds, and, if applicable, certification from the State Secretary as required herein.

The date that Contract Times will commence to run shall be communicated to the successful Bidder by the Town's written Notice to Proceed.

Funding for this Project is dependent upon appropriation of funds at the Sudbury Annual Town Meeting scheduled to begin May 6, 2024.

#### 25. INTERPRETATION OF ESTIMATED QUANTITIES

The Town reserves the right to increase, decrease, or delete the amount of any or all items of Work after Bids have been received. Such increase, decrease or deletion in the quantity for any item shall not be regarded as cause for an increase or decrease in the unit prices.

No allowance will be made for an increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly or indirectly from such increased, decreased, or deleted quantities or from unbalanced allocation among the Contract items or overhead expenses on the part of the Bidder and subsequent loss of expected reimbursement therefore or from any other cause.

#### 26. MONTHLY PRICE ADJUSTMENT FOR DIESEL FUEL, GASOLINE, ASPHALT, CONCRETE AND STEEL

Monthly price adjustments will be made for qualifying Work using Diesel Fuel, Gasoline, Asphalt, Concrete, and Steel in accordance with Section 00 73 15.

#### 27. INSURANCE CERTIFICATES

The certificates covering all insurance called for under Article 5 of the General Conditions and General and Project Specific Supplementary Conditions, must be submitted by the Contractor to the Owner with the executed copies of the Agreement. The Town, the Town's Engineer, and the owner of any easement shall be named as an additional insureds. The Contractor covenants and agrees to hold the Town and its employees, agents and officials harmless from loss or damage due to claims for bodily injury or death and/or property damage arising from, or in connection with, operations under any resulting Contract.

#### 28. MASSACHUSETTS SALES TAX

Bidders are advised that the Town is exempt from Sales and Use Tax and shall submit its Bid prices without such taxes. An exemption certificate may be obtained by the successful Bidder from the Town upon request.

#### 29. SAFETY AND HEALTH REGULATIONS

This Project is subject to the health and safety regulations of the U.S. Department of Labor, as set forth in Title 29 CFR Part 1926 and to all subsequent amendments, and to the Massachusetts Department of Labor and Workforce Development, Division of Industrial Safety "Rules and Regulations for the Prevention of Accidents in Construction Operations" set forth in 454 CMR 10.00 et seq. Bidders shall be familiar with the requirements of these regulations.

The Successful Bidder shall comply with the Department of Labor's safety and health regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL-91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL-91-54).

The Successful Bidder shall have a competent person or persons, as required under the Occupational Safety and Health Act, on the Site to inspect the Work and to supervise the conformance of the Work with the Regulations of the Act.

### 30. PREVAILING WAGE RATES

The prevailing wage rates, as determined by the Department of Labor and Workforce Development, Department of Labor Standards, under the provision of the MGL c. 149, §§ 26 to 27D, as amended, apply to this Project.

It is the responsibility of the Contractor, before Bid opening, to request, if necessary, any additional information on the prevailing wage rates for those tradespeople who may be employed for the proposed Work under the resulting Contract.

The prevailing wage rates are included in Section 00 73 43 and are subject to adjustment as provided in the Bidding Documents.

### 31. COMPETITIVE BIDDING

Any Bid which does not comply with the provisions of MGL, c30, § 39M need not be accepted, and the Owner may reject every such Bid.

### 32. WORK, AND EQUIPMENT WARRANTY

The Contractor shall guarantee that the Work to be performed under the Contract and all workmanship, materials and equipment performed, furnished, used or installed in the construction of the same shall be free from defects and flaws, and shall be performed and furnished in strict accordance with the Contract Documents, that the strength of all parts of all manufactured equipment shall be adequate and as specified and that the performance test requirements of the Contract shall be fulfilled. This warranty shall be for a period of **one (1) year** from and after the date of Substantial Completion of the Work as stated in the General Conditions and General and Project Specific Supplementary Conditions. If part of the Work is accepted prior to completion of all the Work, the warranty for that part of the Work shall be for a period of one (1) year from the date fixed for such acceptance.

### 33. PERMITS AND APPROVALS

The successful Bidder will be solely responsible for obtaining all necessary construction permits, licenses, and approvals required in connection with the Project and/or under the Contract Documents. All Bidders shall be responsible for investigating in detail the permitting requirements of the Work and shall be responsible for making such examination thereof as may be necessary to satisfy themselves and shall Bid in sole reliance upon their own investigation.

### 34. LAWS AND REGULATIONS

The Bidder's attention is directed to the fact that all applicable Federal and State Laws, municipal ordinances or bylaws, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the resulting Contract throughout, and they will be deemed to be included in the Contract the same as though written out in full.

## ATTACHMENTS

- A. ELECTRONIC BIDDING INSTRUCTIONS – REQUIRED FORMS WITH ELECTRONIC BID
- B. eBIDDING INSTRUCTIONS

**END OF SECTION**

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**ATTACHMENT 00 22 13A**

**ELECTRONIC BIDDING INSTRUCTIONS –  
REQUIRED FORMS WITH ELECTRONIC BID**

- A. The following forms are required to be filled out and submitted for the Bid to be considered complete.  
**THIS AN ELECTRONIC BID – HARD COPY SUBMISSIONS WILL NOT BE ACCEPTED**
1. ELECTRONIC Form for General Bid (completed on-line)
  2. ELECTRONIC Bidder's Reference Form (completed on-line)
  3. Bid Bond (sample)
  4. Section 00 41 01 Bid Form - Detailed
  5. Section 00 43 36 Proposed Subcontractors and Subcontractor References for Similar Projects
  6. Section 00 45 05 Bidders Representations and Certifications
    - 00 45 05A - Anti-Fraudulent Documentation of Prime Bidder
    - 00 45 05B - Certificate of Compliance with Tax Laws
    - 00 45 05C - Bidder's Certificate of Equal Employment Opportunity/Affirmative Action/Non-Discrimination
    - 00 45 05D - Conflict of Interest Certificate
    - 00 45 05E - Bidders Certificate Regarding Payment of Prevailing Wages
  7. Section 00 45 19 Non-Collusion Affidavit of Prime Bidder

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**SECTION 00 31 00**

**AVAILABLE PROJECT INFORMATION**

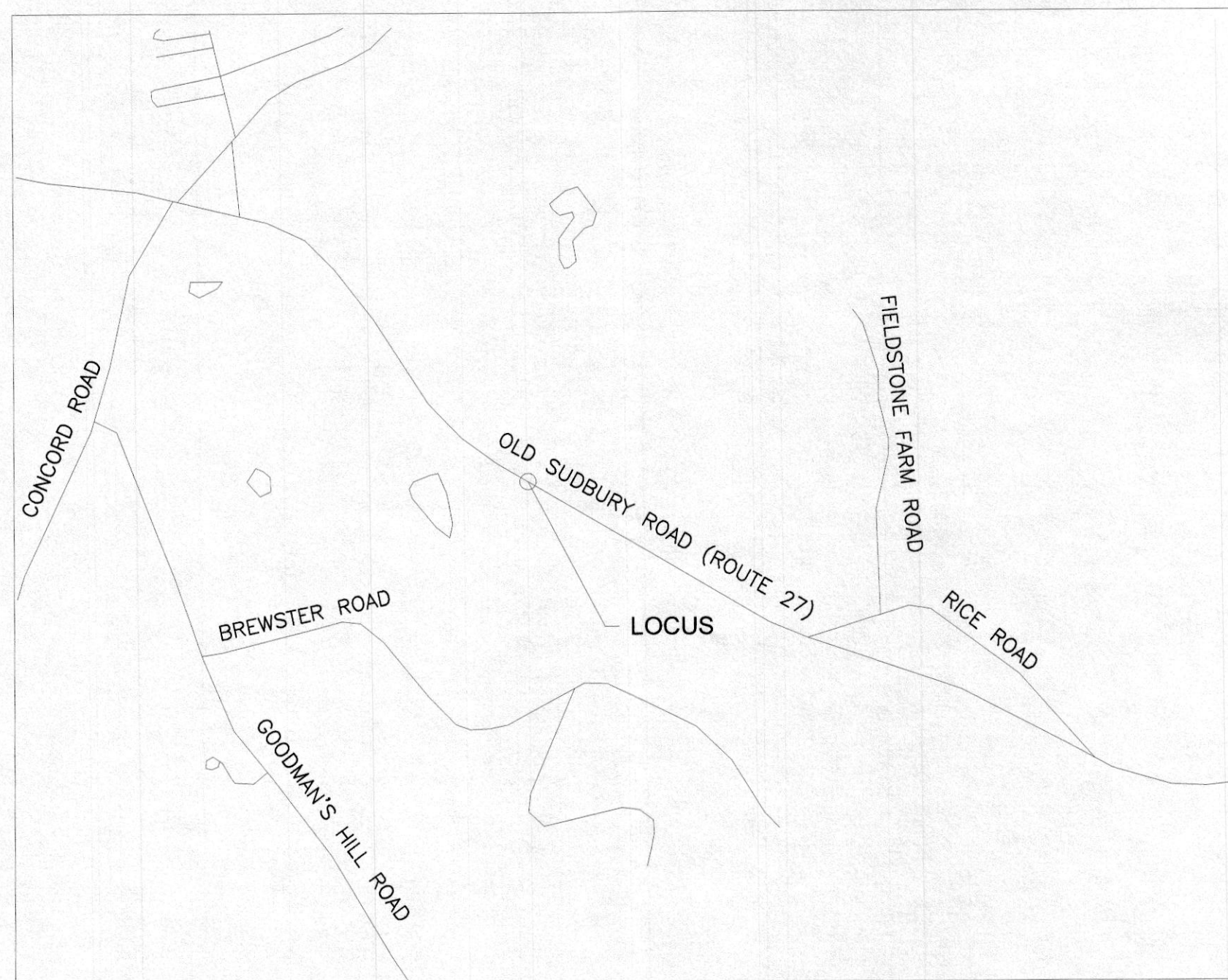
<b>INFORMATION</b>	<b>LOCATION OF INFORMATION</b>
Survey	Following this page
Easements, Permits, Rights-of-Way	Available from Owner
Town of Sudbury Conservation Commission Order of Conditions	Following this page
Geotechnical Data Geotechnical Report Soil Boring Data, Results of Laboratory Testing	Following this page

**END OF SECTION**

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Last Modified: 04/10/2024 at 4:04PM EDT

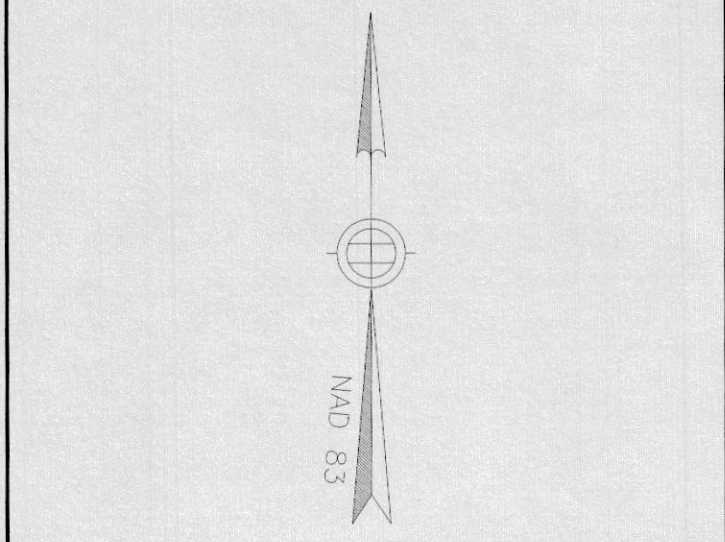




LOCUS MAP

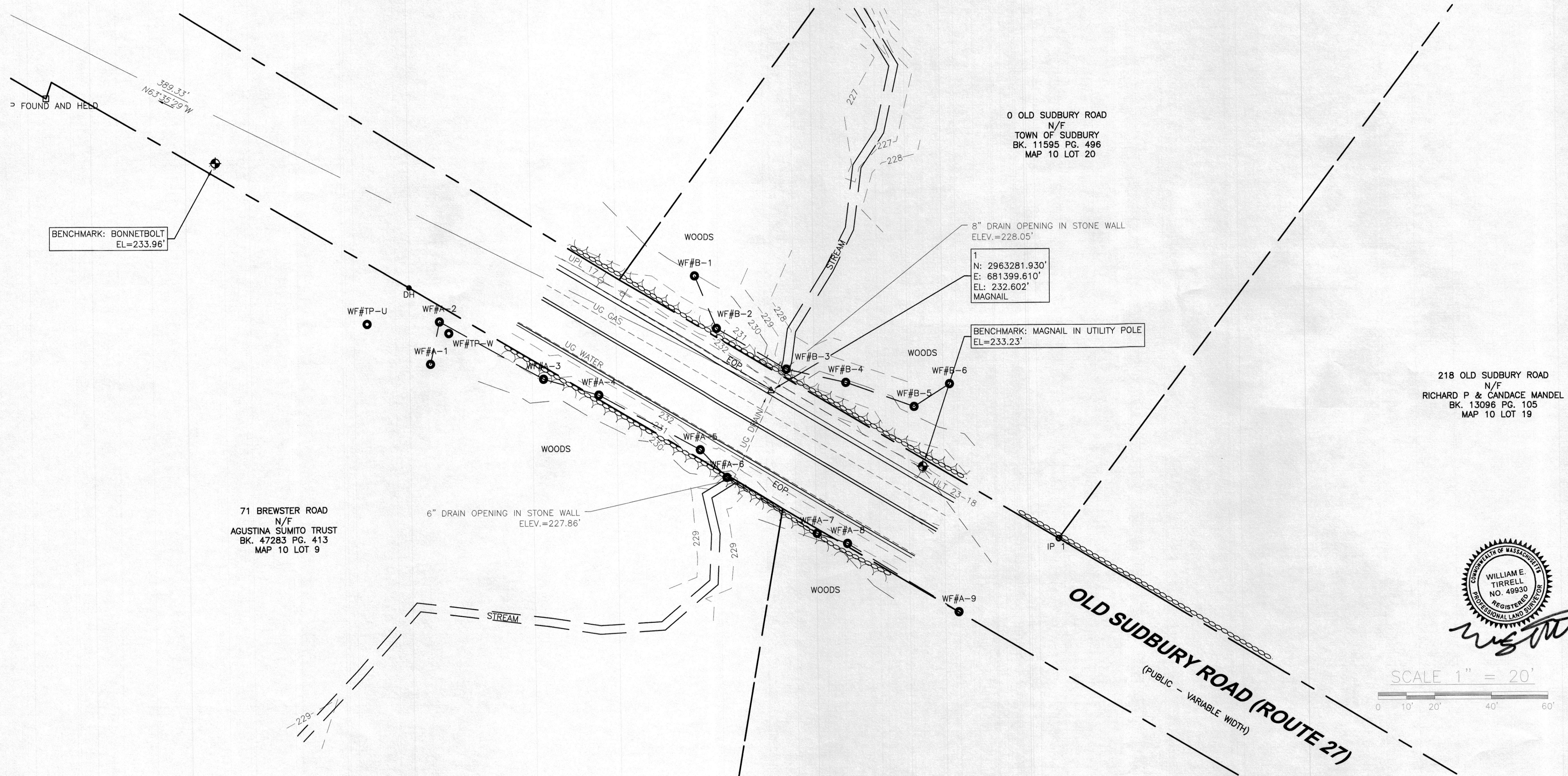
GENERAL NOTES:

1. THE EXISTING CONDITIONS INFORMATION SHOWN HEREON IS THE RESULT OF AN ON-GROUND SURVEY PERFORMED BY CHAPPELL ENGINEERING ASSOCIATES, LLC., BETWEEN OCTOBER 26TH - 30TH, 2020.
2. ALL DEED/PLAN REFERENCES ARE TO MIDDLESEX REGISTRY OF DEEDS SOUTHERN DISTRICT.
3. THE PROJECT AREA IS LOCATED IN FLOOD ZONE "X" AS SHOWN ON FLOOD INSURANCE RATE MAP FOR THE TOWN OF SUDBURY, COMMUNITY PANEL NUMBER 25017C 0369F, EFFECTIVE DATE JULY 7, 2014.
4. PROPERTY DOES NOT RESIDE IN A WATER RESOURCE PROTECTION DISTRICT.
5. ZONING DISTRICT RESIDENCE A.
6. LOCATION OF SUBSURFACE UTILITIES SHOWN HEREON ARE APPROXIMATE AND ADDITIONAL UTILITIES MAY EXIST THAT ARE NOT SHOWN ON THIS PLAN. LOCATIONS ARE COMPILED FROM UTILITY PLANS OF RECORD AND DIG-SAFE FIELD MARKINGS. RIM AND INVERT INFORMATION HAS BEEN FIELD VERIFIED WHERE POSSIBLE. THIS INFORMATION IS NOT TO BE USED FOR CONSTRUCTION. PRIOR TO ANY CONSTRUCTION, CONTACT DIG-SAFE (1-800-344-7233) TO FIELD VERIFY LOCATION OF ALL UTILITIES.
7. PLAN REFERENCES: (PLAN NO. / PLAN YEAR)  
9063-449 227 OF 1947 1501 OF 1962 1181 OF 1996 620 OF 2002
8. BORDERING WETLAND LOCATION FLAGS SET BY ECOTEC, LLC. ON OCTOBER 15TH, 2020.
9. HORIZONTAL DATUM: NAD 83 MASS STATE PLANE MAINLAND ZONE HORIZONTAL CONTROL SYSTEM.
10. VERTICAL DATUM: NAVD 88 VERTICAL CONTROL SYSTEM.



LEGEND

- STREET R.O.W. LINE
- - - ABUTTER PROPERTY LINE
- - - EASEMENT LINES
- ===== EDGE OF PAVEMENT
- ===== VGC VERT. GRAN. CURB
- o IRON HAND RAIL
- x CHAIN-LINK FENCE
- ===== PAINTED TRAFFIC LINES
- OH-OH OVERHEAD WIRES
- GUARD RAIL
- ⊙ DRAIN MANHOLE
- ⊙ SEWER MANHOLE
- ⊙ CATCH BASIN
- ⊙ FIRE HYDRANT
- WG WATER GATE
- ⊙ GAS VALVE
- GUY WIRE
- ⊙ LIGHT POLE
- ⊙ UTILITY POLE
- 24" ● TREE
- CBDH □ MONUMENT
- ⊙ BENCHMARK
- ⊙ SIGN
- ⊙ CONCRETE
- WF#A-14 ● BORDERING VEGETATIVE WETLAND FLAG
- ⊙ DH DRILL HOLE OR IRON ROD
- STONE OR CONC. BOUND
- TRAVERSE POINT



BENCHMARK: BONNETBOLT  
EL=233.96'

1  
N: 2963281.930'  
E: 681399.610'  
EL: 232.602'  
MAGNAIL

BENCHMARK: MAGNAIL IN UTILITY POLE  
EL=233.23'

71 BREWSTER ROAD  
N/F  
AGUSTINA SUMITO TRUST  
BK. 47283 PG. 413  
MAP 10 LOT 9

0 OLD SUDBURY ROAD  
N/F  
TOWN OF SUDBURY  
BK. 11595 PG. 496  
MAP 10 LOT 20

218 OLD SUDBURY ROAD  
N/F  
RICHARD P & CANDACE MANDEL  
BK. 13096 PG. 105  
MAP 10 LOT 19



SCALE 1" = 20'  
0 10' 20' 40' 60'

REVISIONS

REV. #	DATE	DESCRIPTION
1		
0		

PROJECT NO.	DRAWN BY:	MLT	SCALE:
XXXXX	CHECKED BY:	TPC	1" = 20'

EXISTING CONDITIONS SURVEY

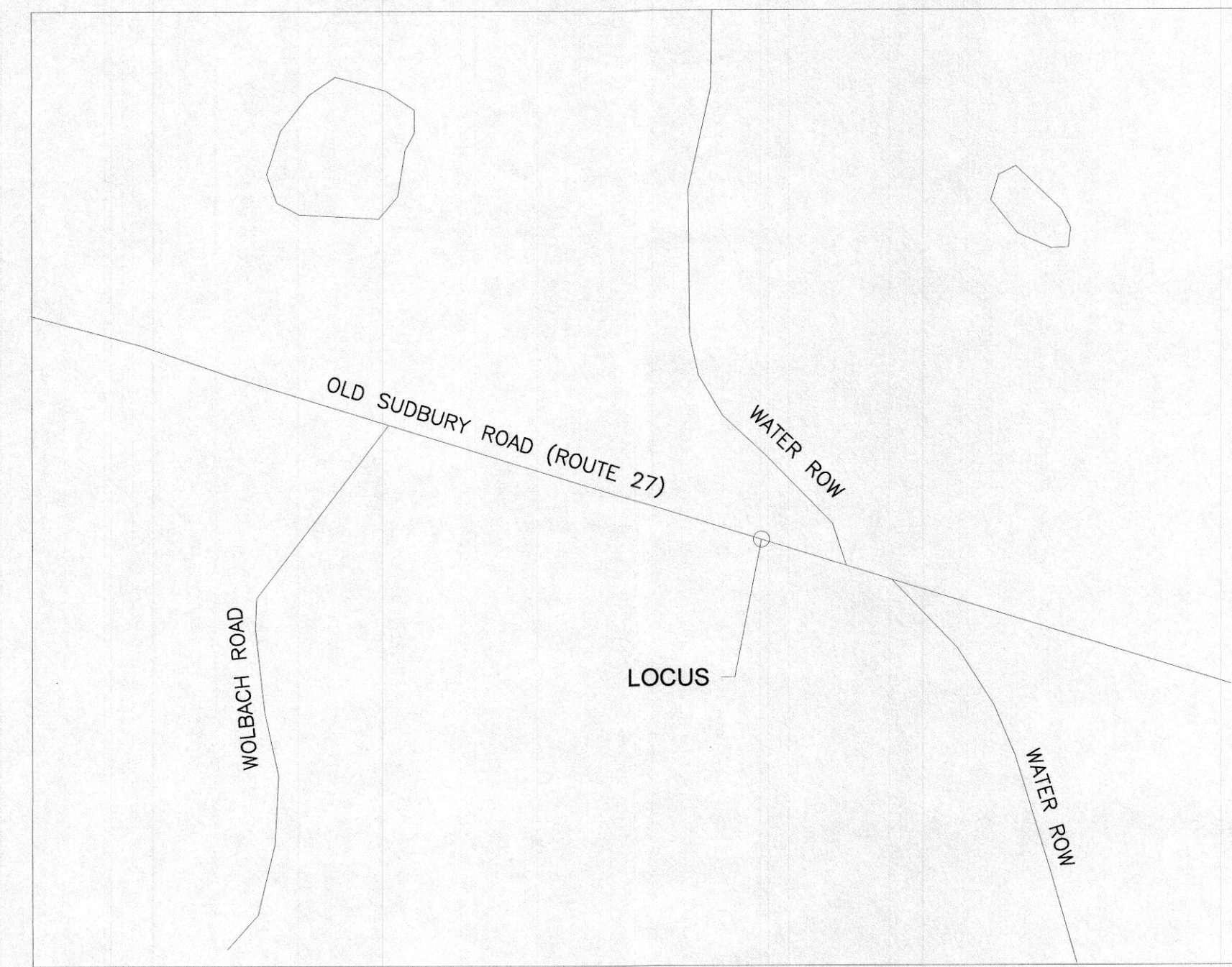
CULVERT #110  
OLD SUDBURY ROAD,  
SUDBURY, MASSACHUSETTS

JANUARY 19, 2021  
SHEET 1 OF 1



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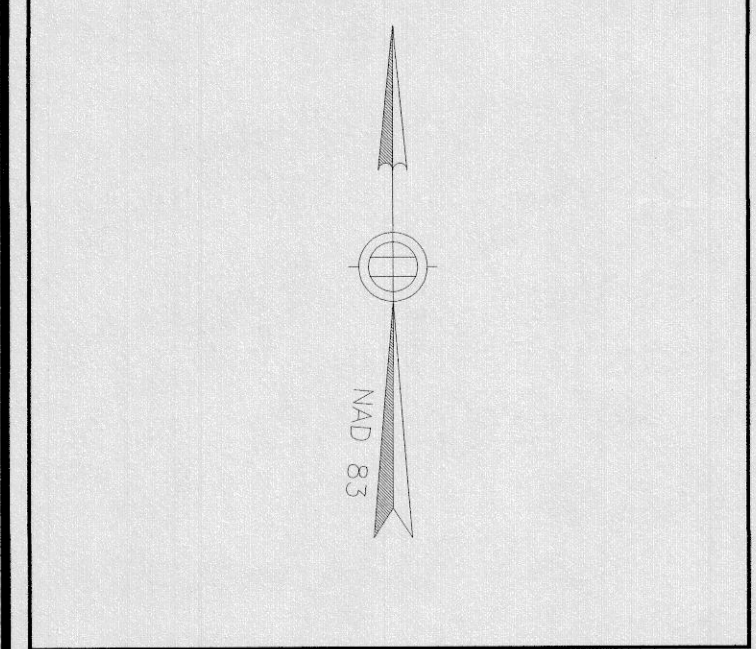




LOCUS MAP

GENERAL NOTES:

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2. ALL DEED/PLAN REFERENCES ARE TO MIDDLESEX REGISTRY OF DEEDS SOUTHERN DISTRICT.
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4. PROPERTY DOES NOT RESIDE IN A WATER RESOURCE PROTECTION DISTRICT.
5. ZONING DISTRICT RESIDENCE C.
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7. PLAN REFERENCES: 436-35 OF 1949
8. BORDERING WETLAND LOCATION FLAGS SET BY ECOTEC, LLC. ON OCTOBER 15TH, 2020.
9. HORIZONTAL DATUM: NAD 83 MASS STATE PLANE MAINLAND ZONE HORIZONTAL CONTROL SYSTEM.
10. VERTICAL DATUM: NAVD 88 VERTICAL CONTROL SYSTEM.



LEGEND

- STREET R.O.W. LINE
- ABUTTER PROPERTY LINE
- EASEMENT LINES
- EDGE OF PAVEMENT
- VGC VERT. GRAN. CURB
- IRON HAND RAIL
- CHAIN-LINK FENCE
- PAINTED TRAFFIC LINES
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- DRAIN MANHOLE
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- DH DRILL HOLE OR IRON ROD
- STONE OR CONC. BOUND
- TRAVERSE POINT

**CHAPPELL ENGINEERING ASSOCIATES, LLC**  
 Civil Structural Land Surveying  
 201 BOSTON POST ROAD WEST-SUITE 101  
 MARLBOROUGH, MA 01752  
 TEL (508) 481-7400  
 WWW.CHAPPELLENGINEERING.COM

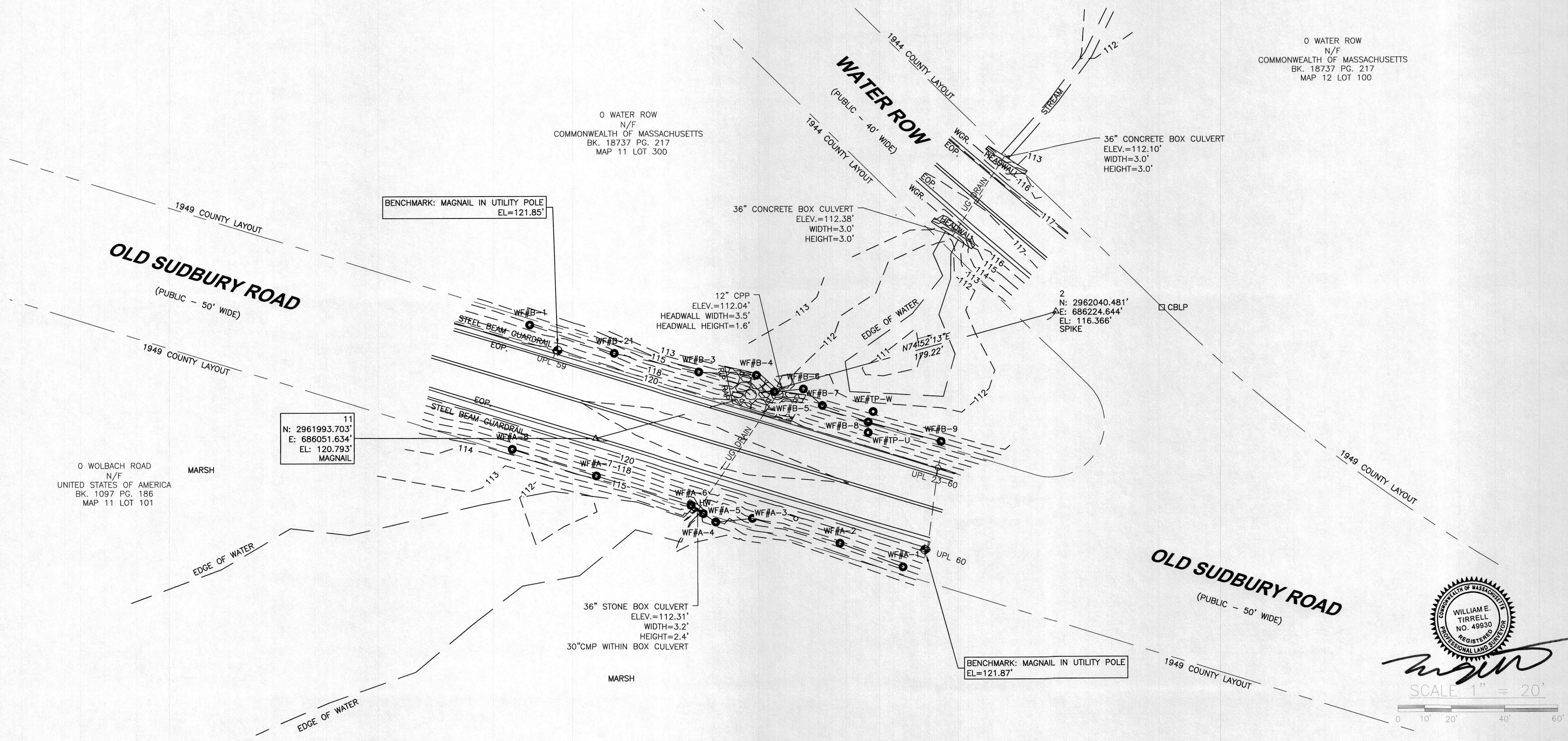
REVISIONS		
REV. #	DATE	DESCRIPTION
1		
0		

PROJECT NO. xxxxxx	DRAWN BY: MLT	SCALE: 1" = 20'
	CHECK'D BY: TPC	

EXISTING CONDITIONS SURVEY

CULVERT #149  
 OLD SUDBURY ROAD,  
 SUDBURY, MASSACHUSETTS

JANUARY 19, 2021  
 SHEET 1 OF 1



0 WATER ROW  
 N/F  
 COMMONWEALTH OF MASSACHUSETTS  
 BK. 18737 PG. 217  
 MAP 12 LOT 100

0 WATER ROW  
 N/F  
 COMMONWEALTH OF MASSACHUSETTS  
 BK. 18737 PG. 217  
 MAP 11 LOT 300

BENCHMARK: MAGNAIL IN UTILITY POLE  
 EL=121.85'

11  
 N: 2961993.703'  
 E: 686051.634'  
 EL: 120.793'  
 MAGNAIL

0 WOLBACH ROAD  
 N/F  
 UNITED STATES OF AMERICA  
 BK. 1097 PG. 186  
 MAP 11 LOT 101

36" STONE BOX CULVERT  
 ELEV.=112.31'  
 WIDTH=3.2'  
 HEIGHT=2.4'  
 30"CMP WITHIN BOX CULVERT

BENCHMARK: MAGNAIL IN UTILITY POLE  
 EL=121.87'

COMMONWEALTH OF MASSACHUSETTS  
 REGISTERED PROFESSIONAL LAND SURVEYOR  
 WILLIAM E. TIRRELL  
 NO. 49930

SCALE: 1" = 20'



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-Nason



Massachusetts Department of Environmental Protection

# eDEP Transaction Copy

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Here is the file you requested for your records.

To retain a copy of this file you must save and/or print.

Username: **CAPONEL**

Transaction ID: **1263941**

Document: **WPA Form 5 - OOC**

Size of File: **134.99K**

Status of Transaction: **In Process**

Date and Time Created: **4/27/2021:9:47:36 AM**

**Note:** This file only includes forms that were part of your transaction as of the date and time indicated above. If you need a more current copy of your transaction, return to eDEP and select to "Download a Copy" from the Current Submittals page.

**Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

**WPA Form 5 - Order of Conditions**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File #:301-1327

eDEP Transaction #:1263941

City/Town:SUDBURY

**A. General Information**

- 1. Conservation Commission SUDBURY
- 2. Issuance a.  OOC b.  Amended OOC
- 3. Applicant Details
  - a. First Name DANIEL b. Last Name NASON
  - c. Organization TOWN OF SUDBURY DEPT. OF PUBLIC WORKS
  - d. Mailing Address 275 OLD LANCASTER ROAD
  - e. City/Town SUDBURY f. State MA g. Zip Code 01776
- 4. Property Owner
  - a. First Name DANIEL b. Last Name NASON
  - c. Organization TOWN OF SUDBURY DEPT. OF PUBLIC WORKS
  - d. Mailing Address 275 OLD LANCASTER ROAD
  - e. City/Town SUDBURY f. State MA g. Zip Code 01776
- 5. Project Location
  - a. Street Address OLD SUDBURY ROAD
  - b. City/Town SUDBURY c. Zip Code 01776
  - d. Assessors Map/Plat# N/A e. Parcel/Lot# N/A
  - f. Latitude 42.37936N g. Longitude 71.40669W
- 6. Property recorded at the Registry of Deed for:
 

<b>a. County</b>	<b>b. Certificate</b>	<b>c. Book</b>	<b>d. Page</b>
SOUTHERN MIDDLESEX		N/A	N/A
- 7. Dates
  - a. Date NOI Filed : 3/8/2021
  - b. Date Public Hearing Closed: 4/5/2021
  - c. Date Of Issuance: 4/27/2021
- 8. Final Approved Plans and Other Documents
 

<b>a. Plan Title:</b>	<b>b. Plan Prepared by:</b>	<b>c. Plan Signed/Stamped by:</b>	<b>d. Revised Final Date:</b>	<b>e. Scale:</b>
OLD SUDBURY ROAD CULVERTS 110 AND 149 REPLACEMENT	WOODARD AND CURRAN	SCOTT J. MEDEIROS, P.E.	MARCH 30, 2021	AS NOTED

**B. Findings**

1. Findings pursuant to the Massachusetts Wetlands Protection Act  
Following the review of the the above-referenced Notice of Intent and based on the information provided in this application and presented at the public hearing, this Commission finds that the areas in which work is proposed is significant to the following interests of the Wetlands Protection Act.

Check all that apply:

- |  |   |  |
|--|---|--|
| <input checked="" type="checkbox"/> Public Water Supply  | <input type="checkbox"/> Land Containing Shellfish          | <input checked="" type="checkbox"/> Prevention of Pollution        |
| <input checked="" type="checkbox"/> Private Water Supply | <input type="checkbox"/> Fisheries                          | <input checked="" type="checkbox"/> Protection of Wildlife Habitat |
| <input checked="" type="checkbox"/> Ground Water Supply  | <input checked="" type="checkbox"/> Storm Damage Prevention | <input checked="" type="checkbox"/> Flood Control                  |

**Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

**WPA Form 5 - Order of Conditions**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

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2. Commission hereby finds the project, as proposed, is:

**Approved** subject to:

- a.  The following conditions which are necessary in accordance with the performance standards set forth in the wetlands regulations. This Commission orders that all work shall be performed in accordance with the Notice of Intent referenced above, the following General Conditions, and any other special conditions attached to this Order. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, these conditions shall control.

**Denied** because:

- b.  The proposed work cannot be conditioned to meet the performance standards set forth in the wetland regulations. Therefore, work on this project may not go forward unless and until a new Notice of Intent is submitted which provides measures which are adequate to protect interests of the Act, and a final Order of Conditions is issued. **A description of the performance standards which the proposed work cannot meet is attached to this Order.**
- c.  The information submitted by the applicant is not sufficient to describe the site, the work or the effect of the work on the interests identified in the Wetlands Protection Act. Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides sufficient information and includes measures which are adequate to protect the interests of the Act, and a final Order of Conditions is issued. **A description of the specific information which is lacking and why it is necessary is attached to this Order as per 310 CMR 10.05(6)(c).**

- 3.  Buffer Zone Impacts: Shortest distance between limit of project disturbance and the wetland resource area specified in 310CMR10.02(1)(a). \_\_\_\_\_ a. linear feet

**Inland Resource Area Impacts:(For Approvals Only):**

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
4. <input type="checkbox"/> Bank	_____ a. linear feet	_____ b. linear feet	_____ c. linear feet	_____ d. linear feet
5. <input type="checkbox"/> Bordering Vegetated Wetland	_____ a. square feet	_____ b. square feet	_____ c. square feet	_____ d. square feet
6. <input type="checkbox"/> Land under Waterbodies and Waterways	_____ a. square feet	_____ b. square feet	_____ c. square feet	_____ d. square feet
	_____ e. c/y dredged	_____ f. c/y dredged		
7. <input checked="" type="checkbox"/> Bordering Land Subject to Flooding	1805 _____ a. square feet	1805 _____ b. square feet	1168 _____ c. square feet	1168 _____ d. square feet
Cubic Feet Flood Storage	0 _____ e. cubic feet	0 _____ f. cubic feet	0 _____ g. cubic feet	0 _____ h. cubic feet
8. <input type="checkbox"/> Isolated Land Subject to Flooding	_____ a. square feet	_____ b. square feet		
Cubic Feet Flood Storage	_____	_____	_____	_____

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	c. cubic feet	d. cubic feet	e. cubic feet	f. cubic feet
9. <input type="checkbox"/> Riverfront Area	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
	a. total sq. feet	b. total sq. feet		
Sq ft within 100 ft	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
	c. square feet	d. square feet	e. square feet	f. square feet
Sq ft between 100-200 ft	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
	g. square feet	h. square feet	i. square feet	j. square feet

**Coastal Resource Area Impacts:**

Resource Area	Proposed Alteration	Permitted Alteration	Proposed Replacement	Permitted Replacement
10. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below			
11. <input type="checkbox"/> Land Under the Ocean	<u>                    </u>	<u>                    </u>		
	a. square feet	b. square feet		
	<u>                    </u>	<u>                    </u>		
	c. c/y dredged	d. c/y dredged		
12. <input type="checkbox"/> Barrier Beaches	Indicate size under Coastal Beaches and/or Coastal Dunes below			
13. <input type="checkbox"/> Coastal Beaches	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
14. <input type="checkbox"/> Coastal Dunes	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
	a. square feet	b. square feet	c. c/y nourishment	d. c/y nourishment
15. <input type="checkbox"/> Coastal Banks	<u>                    </u>	<u>                    </u>		
	a. linear feet	b. linear feet		
16. <input type="checkbox"/> Rocky Intertidal Shores	<u>                    </u>	<u>                    </u>		
	a. square feet	b. square feet		
17. <input type="checkbox"/> Salt Marshes	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
	a. square feet	b. square feet	c. square feet	d. square feet
18. <input type="checkbox"/> Land Under Salt Ponds	<u>                    </u>	<u>                    </u>		
	a. square feet	b. square feet		
	<u>                    </u>	<u>                    </u>		
	c. c/y dredged	d. c/y dredged		
19. <input type="checkbox"/> Land Containing Shellfish	<u>                    </u>	<u>                    </u>	<u>                    </u>	<u>                    </u>
	a. square feet	b. square feet	c. square feet	d. square feet
20. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above			
	<u>                    </u>	<u>                    </u>		
	c. c/y dredged	d. c/y dredged		
21. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	<u>                    </u>	<u>                    </u>		
	a. square feet	b. square feet		

Last Modified: 04/10/2024 at 4:04PM EDT

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22.

Restoration/Enhancement (For Approvals Only)

If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.5.c & d or B.17.c & d above, please entered the additional amount here.

\_\_\_\_\_ a. square feet of BVW

\_\_\_\_\_ b. square feet of Salt Marsh

23.

Streams Crossing(s)

If the project involves Stream Crossings, please enter the number of new stream crossings/number of replacement stream crossings.

\_\_\_\_\_ a. number of new stream crossings

\_\_\_\_\_ b. number of replacement stream crossings

**C. General Conditions Under Massachusetts Wetlands Protection Act**

**The following conditions are only applicable to Approved projects**

1. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
2. The Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
3. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, bylaws, or regulations.
4. The work authorized hereunder shall be completed within three years from the date of this Order unless either of the following apply:
  - a. the work is a maintenance dredging project as provided for in the Act; or
  - b. the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance. If this Order is intended to be valid for more than three years, the extension date and the special circumstances warranting the extended time period are set forth as a special condition in this Order.
5. This Order may be extended by the issuing authority for one or more periods of up to three years each upon application to the issuing authority at least 30 days prior to the expiration date of the Order.
6. If this Order constitutes an Amended Order of Conditions, this Amended Order of Conditions does not exceed the issuance date of the original Final Order of Conditions.
7. Any fill used in connection with this project shall be clean fill. Any fill shall contain no trash, refuse, rubbish, or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles, or parts of any of the foregoing.
8. This Order is not final until all administrative appeal periods from this Order have elapsed, or if such an appeal has been taken, until all proceedings before the Department have been completed.
9. No work shall be undertaken until the Order has become final and then has been recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land upon which the proposed work is to be done. In the case of the registered land, the Final Order shall also be noted on the Land Court Certificate of Title of the owner of the land upon which the proposed work is done. The recording information shall be submitted to the Conservation Commission on the form at the end of this Order, which form must be stamped by the Registry of Deeds, prior to the commencement of work..
10. A sign shall be displayed at the site not less then two square feet or more than three square feet in size bearing

**Massachusetts Department of Environmental Protection**

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the words,

" Massachusetts Department of Environmental Protection"

[or 'MassDEP']

File Number : "301-1327"

11. Where the Department of Environmental Protection is requested to issue a Superseding Order, the Conservation Commission shall be a party to all agency proceedings and hearings before Mass DEP.
12. Upon completion of the work described herein, the applicant shall submit a Request for Certificate of Compliance (WPA Form 8A) to the Conservation Commission.
13. The work shall conform to the plans and special conditions referenced in this order.
14. Any change to the plans identified in Condition #13 above shall require the applicant to inquire of the Conservation Commission in writing whether the change is significant enough to require the filing of a new Notice of Intent.
15. The Agent or members of the Conservation Commission and the Department of Environmental Protection shall have the right to enter and inspect the area subject to this Order at reasonable hours to evaluate compliance with the conditions stated in this Order, and may require the submittal of any data deemed necessary by the Conservation Commission or Department for that evaluation.
16. This Order of Conditions shall apply to any successor in interest or successor in control of the property subject to this Order and to any contractor or other person performing work conditioned by this Order.
17. Prior to the start of work, and if the project involves work adjacent to a Bordering Vegetated Wetland, the boundary of the wetland in the vicinity of the proposed work area shall be marked by wooden stakes or flagging. Once in place, the wetland boundary markers shall be maintained until a Certificate of Compliance has been issued by the Conservation Commission.
18. All sedimentation barriers shall be maintained in good repair until all disturbed areas have been fully stabilized with vegetation or other means. At no time shall sediments be deposited in a wetland or water body. During construction, the applicant or his/her designee shall inspect the erosion controls on a daily basis and shall remove accumulated sediments as needed. The applicant shall immediately control any erosion problems that occur at the site and shall also immediately notify the Conservation Commission, which reserves the right to require additional erosion and/or damage prevention controls it may deem necessary. Sedimentation barriers shall serve as the limit of work unless another limit of work line has been approved by this Order.

**NOTICE OF STORMWATER CONTROL AND MAINTENANCE REQUIREMENTS**

19. The work associated with this Order(the "Project") is (1)  is not (2)  subject to the Massachusetts Stormwater Standards. If the work is subject to Stormwater Standards, then the project is subject to the following conditions;
  - a) All work, including site preparation, land disturbance, construction and redevelopment, shall be implemented in accordance with the construction period pollution prevention and erosion and sedimentation control plan and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Construction General Permit as required by Stormwater Standard 8. Construction period erosion, sedimentation and pollution control measures and best management practices (BMPs) shall remain in place until the site is fully stabilized.
  - b) No stormwater runoff may be discharged to the post-construction stormwater BMPs unless and until a Registered Professional Engineer provides a Certification that: *i.* all construction period BMPs have been removed or will be removed by a date certain specified in the Certification. For any construction period BMPs intended to be converted to post construction operation for stormwater attenuation, recharge, and/or treatment, the conversion is allowed by the MassDEP Stormwater Handbook BMP specifications and that the BMP has been properly cleaned or prepared for post construction operation, including removal of all construction period sediment trapped in inlet and outlet control structures; *ii.* as-built final construction

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BMP plans are included, signed and stamped by a Registered Professional Engineer, certifying the site is fully stabilized; *iii.* any illicit discharges to the stormwater management system have been removed, as per the requirements of Stormwater Standard 10; *iv.* all post-construction stormwater BMPs are installed in accordance with the plans (including all planting plans) approved by the issuing authority, and have been inspected to ensure that they are not damaged and that they are in proper working condition; *v.* any vegetation associated with post-construction BMPs is suitably established to withstand erosion.

- c) The landowner is responsible for BMP maintenance until the issuing authority is notified that another party has legally assumed responsibility for BMP maintenance. Prior to requesting a Certificate of Compliance, or Partial Certificate of Compliance, the responsible party (defined in General Condition 19(e)) shall execute and submit to the issuing authority an Operation and Maintenance Compliance Statement ("O&M Statement") for the Stormwater BMPs identifying the party responsible for implementing the stormwater BMP Operation and Maintenance Plan ("O&M Plan") and certifying the following: *i.*) the O&M Plan is complete and will be implemented upon receipt of the Certificate of Compliance, and *ii.*) the future responsible parties shall be notified in writing of their ongoing legal responsibility to operate and maintain the stormwater management BMPs and implement the Stormwater Pollution Prevention Plan.
- d) Post-construction pollution prevention and source control shall be implemented in accordance with the long-term pollution prevention plan section of the approved Stormwater Report and, if applicable, the Stormwater Pollution Prevention Plan required by the National Pollutant Discharge Elimination System Multi-Sector General Permit.
- e) Unless and until another party accepts responsibility, the landowner, or owner of any drainage easement, assumes responsibility for maintaining each BMP. To overcome this presumption, the landowner of the property must submit to the issuing authority a legally binding agreement of record, acceptable to the issuing authority, evidencing that another entity has accepted responsibility for maintaining the BMP, and that the proposed responsible party shall be treated as a permittee for purposes of implementing the requirements of Conditions 19(f) through 19(k) with respect to that BMP. Any failure of the proposed responsible party to implement the requirements of Conditions 19(f) through 19(k) with respect to that BMP shall be a violation of the Order of Conditions or Certificate of Compliance. In the case of stormwater BMPs that are serving more than one lot, the legally binding agreement shall also identify the lots that will be serviced by the stormwater BMPs. A plan and easement deed that grants the responsible party access to perform the required operation and maintenance must be submitted along with the legally binding agreement.
- f) The responsible party shall operate and maintain all stormwater BMPs in accordance with the design plans, the O&M Plan, and the requirements of the Massachusetts Stormwater Handbook.
- g) The responsible party shall:
  - 1. Maintain an operation and maintenance log for the last three (3) consecutive calendar years of inspections, repairs, maintenance and/or replacement of the stormwater management system or any part thereof, and disposal (for disposal the log shall indicate the type of material and the disposal location);
  - 2. Make the maintenance log available to MassDEP and the Conservation Commission ("Commission") upon request; and
  - 3. Allow members and agents of the MassDEP and the Commission to enter and inspect the site to evaluate and ensure that the responsible party is in compliance with the requirements for each BMP established in the O&M Plan approved by the issuing authority.
- h) All sediment or other contaminants removed from stormwater BMPs shall be disposed of in accordance with all applicable federal, state, and local laws and regulations.
- i) Illicit discharges to the stormwater management system as defined in 310 CMR 10.04 are prohibited.
- j) The stormwater management system approved in the Order of Conditions shall not be changed without the prior written approval of the issuing authority.

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- k) Areas designated as qualifying pervious areas for the purpose of the Low Impact Site Design Credit (as defined in the MassDEP Stormwater Handbook, Volume 3, Chapter 1, Low Impact Development Site Design Credits) shall not be altered without the prior written approval of the issuing authority.
- l) Access for maintenance, repair, and/or replacement of BMPs shall not be withheld. Any fencing constructed around stormwater BMPs shall include access gates and shall be at least six inches above grade to allow for wildlife passage.

**Special Conditions:**

**D. Findings Under Municipal Wetlands Bylaw or Ordinance**

1. Is a municipal wetlands bylaw or ordinance applicable?  Yes  No

2. The Conservation Commission hereby (check one that applies):

a.  DENIES the proposed work which cannot be conditioned to meet the standards set forth in a municipal ordinance or bylaw specifically:

1. Municipal Ordinance or Bylaw \_\_\_\_\_

2. Citation \_\_\_\_\_

Therefore, work on this project may not go forward unless and until a revised Notice of Intent is submitted which provides measures which are adequate to meet these standards, and a final Order or Conditions is issued. Which are necessary to comply with a municipal ordinance or bylaw:

b.  APPROVES the proposed work, subject to the following additional conditions.

1. Municipal Ordinance or Bylaw SUDBURY ADMINISTRATIVE WETLANDS BYLAW

2. Citation XXII

3. The Commission orders that all work shall be performed in accordance with the following conditions and with the Notice of Intent referenced above. To the extent that the following conditions modify or differ from the plans, specifications, or other proposals submitted with the Notice of Intent, the conditions shall control.

The special conditions relating to municipal ordinance or bylaw are as follows:  
SEE ATTACHED

Last Modified: 04/10/2024 at 4:04PM EDT



**Massachusetts Department of Environmental Protection**  
Bureau of Resource Protection - Wetlands  
**WPA Form 5 - Order of Conditions**  
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
MassDEP File #:301-1327  
eDEP Transaction#:1263941  
City/Town:SUDBURY

**E. Signatures**

This Order is valid for three years from the date of issuance, unless otherwise specified pursuant to General Condition #4. If this is an Amended Order of Conditions, the Amended Order expires on the same date as the original Order of Conditions.

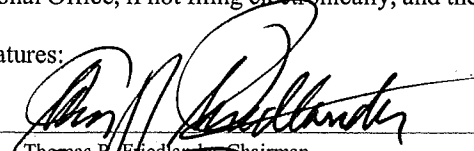
Please indicate the number of members who will sign this form. This Order must be signed by a majority of the Conservation Commission.

The Order must be mailed by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate Department of Environmental Protection Regional Office, if not filing electronically, and the property owner, if different from applicant.

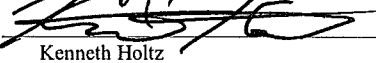
\_\_\_\_\_  
1. Date of Original Order

\_\_\_\_\_  
2. Number of Signers

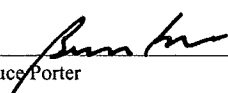
Signatures:

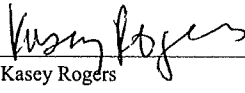
  
\_\_\_\_\_  
Thomas R. Friedlander - Chairman

  
\_\_\_\_\_  
Dave Henkels - Vice Chairman

  
\_\_\_\_\_  
Kenneth Holtz

  
\_\_\_\_\_  
Richard Morse

  
\_\_\_\_\_  
Bruce Porter

  
\_\_\_\_\_  
Kasey Rogers

\_\_\_\_\_  
Mark Sevier

by hand delivery on

by certified mail, return receipt requested, on

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

**F. Appeals**

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate MassDEP Regional Office to issue a Superseding Order of Conditions. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order associated with this appeal will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order, or providing written information to the Department prior to issuance of a Superseding Order.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act (M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.



**ORDER OF CONDITIONS  
State Wetlands Protection Act &  
Sudbury Wetlands Administration Bylaw**

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**DEP FILE #301-1327  
Address: Culverts 110 and 149, Old Sudbury Road  
Applicant: Department of Public Works  
Issued: April 27, 2021**

**The Sudbury Conservation Commission hereby finds that the following conditions are necessary, in accordance with the Performance Standards set forth in the Wetlands Protection Act, its corresponding regulations, and the Sudbury Wetlands Administration Bylaw to the protect those interests checked above. To aid in implementation, compliance, and enforcement the specific conditions are divided into several broad categories for reference.**

**The Sudbury Conservation Commission orders that all work shall be performed in accordance with said conditions and with the Notice of Intent referenced. To the extent that the following conditions modify or differ from the plans, specifications or other proposals submitted with the Notice of Intent, the conditions shall control.**

**This Decision of the Sudbury Conservation Commission under the Wetlands Protection Act may be appealed the MA Department of Environmental Protection, Northeast Region.**

**This Decision of the Sudbury Conservation Commission under the Sudbury Wetlands Administrative Bylaw may be appealed in the Superior Court in accordance with G.L. Ch. 249 §4.**

**Findings:**

The Notice of Intent was filed for the replacement of two culverts within Bordering Land Subject to Flooding and the 100-foot Buffer Zone, pursuant to the Wetlands Protection Act and the Sudbury Wetlands Protection Bylaw.

The Commission finds that this project is designed to meet the performance standards of the Wetlands Protection Act and the Sudbury Wetlands Administration Bylaw. The Commission finds the project, as conditioned in this Order is sufficient to meet the requirements of the state and local wetland regulations. All proposed work is to be located on already disturbed areas for the scope of the work covered by this Order.

**SPECIAL CONDITIONS:**

**1. CONDITIONS IN PERPETUITY:**

The following conditions shall continue in perpetuity and be included on the Certificate of Compliance. Owners of this property shall be made aware of restrictions in perpetuity on the



**ORDER OF CONDITIONS**  
**State Wetlands Protection Act &**  
**Sudbury Wetlands Administration Bylaw**

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activities allowed on this property. If the property owner has good cause to request an amendment to the conditions in perpetuity, he/she shall have the right to make a request for an amendment to the issuing authority. If, in the judgment of the issuing authority, the proposed activities will not detrimentally impact the wetland resource area functions, this Order, or the Certificate of Compliance shall be amended.

- a. Wetlands are located on this property that are subject of the Massachusetts Protection Act (Chapter 131, section 40) and the Sudbury Wetlands Administration Bylaw. Any work within a wetland resource area (including the 200' riverfront area) or within 100' of a wetland resource area requires review and approval by the Sudbury Conservation Commission prior to the commencement of such work.
- b. No fertilization of any wetland resource area is allowed.
- c. No pesticides or herbicides are allowed within a wetland resource area, including the 200' riverfront area, or within 100' of a wetland resource area (the adjacent upland resource area under the local bylaw).
- d. No coal tar-based driveway sealants may be applied to any area draining into the upland or wetland resource areas of the property.
- e. All components of the stormwater management system shall be maintained in accordance with the Department of Public Works standard operation and maintenance procedures.

**II. GENERAL PROJECT CONDITIONS:**  
**PART I**

These conditions apply to all projects permitted by the Sudbury Conservation Commission. They shall remain in force until issuance of a Certificate of Compliance by the Commission. A violation of any of these conditions shall constitute reason for enforcement action by the issuing authority:

- a. Failure to comply with all conditions stated herein, and with all related statutes and other regulatory measures, shall be deemed cause to revoke or modify this Order.
- b. This Order does not grant any property rights or any exclusive privileges; it does not authorize any injury to private property or invasion of private rights.
- c. This Order does not relieve the permittee or any other person of the necessity of complying with all other applicable federal, state, or local statutes, ordinances, by-laws, or regulations.
- d. The work authorized hereunder, except for that work which has specific timeframes indicated, shall be completed within three years from the date of issuance of this Order unless either of the following apply:
  - 1) the work is a maintenance dredging project as provided for in the Act; or



**ORDER OF CONDITIONS**  
**State Wetlands Protection Act &**  
**Sudbury Wetlands Administration Bylaw**

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- 2) the time for completion has been extended to a specified date more than three years, but less than five years, from the date of issuance and both that date and the special circumstances warranting the extended time period are set forth in this Order.
- e. This Order may be extended by the issuing authority up to one year upon application to the issuing authority at least thirty days prior to the expiration date of this Order. In determining whether or not to grant an Extension Permit, the Sudbury Conservation Commission shall review and apply the criteria for extensions of time as set forth in the Regulations.
- f. Any fill used in connection with this project shall be clean fill, containing no trash, refuse, rubbish or debris, including but not limited to lumber, bricks, plaster, wire, lath, paper, cardboard, pipe, tires, ashes, refrigerators, motor vehicles or parts of any of the foregoing.
- g. No work shall be undertaken until all administrative appeal periods from the date of issuance of this Order have elapsed or, if such an appeal has been filed, until all proceedings before the Department of Environmental Protection have been completed.
- h. Where the Department of Environmental Protection is requested to make a determination and to issue a Superseding Order, the Sudbury Conservation Commission shall be party to all agency proceedings and hearings before the Department.
- i. Upon completion of the work described therein, the applicant shall forthwith request in writing that a Certificate of Compliance be issued stating that the work has been satisfactorily completed and clearly documenting any deviations or deficiencies from the approved plans. (See section VI).
- j. The work shall conform to the plans and special conditions incorporated in this document.
- k. No equipment refueling may occur within a wetland or upland resource area.

**PART II**

- a. **Prior to any site disturbance, with the exception of the installation of the erosion control barrier, the applicant shall schedule a pre-construction site visit** with the Conservation Coordinator as least one week prior to commencement of work. At a minimum, those in attendance at this site visit should include the applicant and general contractor for the project.
- b. The excavation process and excavated subgrade shall be observed by a qualified geotechnical engineer for culvert 149, prior to backfilling, to confirm that the subgrade is suitable for the placement of crushed stone, bearing the pipe or proposed concrete box culvert.
- c. All work must conform to the plans referenced, the Notice of Intent, and this Order. In case of conflict, the requirements in this Order shall prevail.
- d. All spoils of construction, construction material, and equipment shall be stored or placed in the staging area shown on the approved plans.



**ORDER OF CONDITIONS**  
**State Wetlands Protection Act &**  
**Sudbury Wetlands Administration Bylaw**

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- e. The project engineer, contractors, and all subcontractors must be informed of the conditions in this Order.
- f. The applicant is held responsible for compliance with this Order of Conditions.
- g. This Order of Conditions shall apply to any successor in control, or successor in interest, of the property described in the Notice of Intent and accompanying plans.
- h. Members and agents of the Sudbury Conservation Commission shall have the right to enter and inspect the property to evaluate compliance with the conditions stated in this Order.
- i. There shall be no disturbance beyond the limits of activities permitted as part of this Order.
- j. Disturbed areas shall be stabilized with a native seed mix, within 30 days of completion of final grade.

**PART III. EROSION, SEDIMENTATION, STABILIZATION CONDITIONS**

- a. Erosion control shall be installed per the approved plan and maintained as necessary to prevent erosion and sedimentation from entering the resource areas.
- b. Stabilization of slopes shall be accomplished as soon as possible. Jute netting shall be properly anchored in place on unstabilized slopes over the winter.
- c. It is the applicant's responsibility to take appropriate measures to control sedimentation into the wetland resource areas.

**PART IV. PLAN MODIFICATIONS:**

- a. Any changes during construction due to soil types found or other conditions discovered during construction shall require immediate notification of the Conservation Commission for a determination if the changes require revisions to this Order or the filing of a new Notice of Intent. Any modifications or revisions to the plans referenced, or any new plans, must be submitted to the Commission for review and a determination as to whether a new Notice of Intent is required. If this procedure is not followed, this Order may not be amended. No additional work not specifically allowed by this Order shall be accomplished on the site without the approval of the Sudbury Conservation Commission and the appropriate new filings or amendment requests are approved. Amendment procedures as described in the Wetlands Protection Act, the regulations, and the Department of Environmental Protection's Wetlands Program Policies shall be followed.
- b. No additional new construction or disturbance of a wetland resource area, as defined in the Wetlands Protection Act and its regulations, or within the 100' wetland resource area buffer zone, not covered by this Order of Conditions, shall be permitted on this site until a



**ORDER OF CONDITIONS**  
**State Wetlands Protection Act &**  
**Sudbury Wetlands Administration Bylaw**

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determination has been made by the Commission as to whether a new Notice of Intent is required, and the new work or disturbance is incorporated into a new or amended Order of Conditions.

- c. Should the Sudbury Conservation Commission become aware of work on site being accomplished that was not approved as part of the Order of Conditions or subsequent amendments, the Commission reserves the right to require a new Notice of Intent. The plan filed with the new Notice of Intent must be based on an interim as-built plan prepared by a registered engineer. The new Notice must provide a detailed description of the discrepancies between the approved plan and the site conditions to date. The Commission reserves the right to require as part of the interim as-built plan, but not be limited to requiring, new topography survey, new drainage calculations, building footprints, and details or all disturbance within the wetland resource and the 100' wetland buffer zone.

**PART V. CERTIFICATE OF COMPLIANCE REQUIREMENTS:**

- a. Following completion of work and stabilization of the site, the applicant shall submit to the Commission a Request for Certificate of Compliance, accompanied by as-built plans, stamped by a professional land surveyor or other qualified professional, detailing any deviations from the approved plans.

**Massachusetts Department of Environmental Protection**

Bureau of Resource Protection - Wetlands

**WPA Form 5 - Order of Conditions**

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File #:301-1327

eDEP Transaction #:1263941

City/Town:SUDBURY

(M.G.L. c. 131, § 40), and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal ordinance or bylaw, and not on the Massachusetts Wetlands Protection Act or regulations, the Department has no appellate jurisdiction.

**G. Recording Information**

This Order of Conditions must be recorded in the Registry of Deeds or the Land Court for the district in which the land is located, within the chain of title of the affected property. In the case of recorded land, the Final Order shall also be noted in the Registry's Grantor Index under the name of the owner of the land subject to the Order. In the case of registered land, this Order shall also be noted on the Land Court Certificate of Title of the owner of the land subject to the Order of Conditions. The recording information on this page shall be submitted to the Conservation Commission listed below.

SUDBURY

Conservation Commission

Detach on dotted line, have stamped by the Registry of Deeds and submit to the Conservation Commission.

To:

SUDBURY

Conservation Commission

Please be advised that the Order of Conditions for the Project at:

OLD SUDBURY ROAD

Project Location

301-1327

MassDEP File Number

Has been recorded at the Registry of Deeds of:

County

Book

Page

for:

Property Owner DANIEL NASON

and has been noted in the chain of title of the affected property in:

Book

Page

In accordance with the Order of Conditions issued on:

Date

If recorded land, the instrument number identifying this transaction is:

Instrument Number

If registered land, the document number identifying this transaction is:

Document Number

**Massachusetts Department of Environmental  
Protection**  
Bureau of Resource Protection - Wetlands  
**WPA Form 5 - Order of Conditions**  
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:  
MassDEP File #:301-1327  
eDEP Transaction #:1263941  
City/Town:SUDBURY

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Signature of Applicant

Rev. 4/1/2010





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5 Commerce Park North  
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T: 603.623.3600  
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## MEMORANDUM

To: Mr. Scott Salvucci  
Woodard & Curran, Inc. (W&C)

From: Mirsad Alihodzic and Bruce W. Fairless, P.E.  
GZA GeoEnvironmental, Inc. (GZA)

Date: January 7, 2021

File No.: 04.0191167.00

Re: Geotechnical Engineering Memorandum  
Old Sudbury Road Culverts #110 and #149  
Sudbury, Massachusetts

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This memorandum presents the results of the subsurface exploration program performed at the above-referenced sites by GZA. The subsurface exploration program was completed in accordance with GZA's Proposal for Geotechnical Services dated October 7, 2020. GZA's objectives were to evaluate subsurface conditions and provide geotechnical recommendations for the proposed culvert replacements. The contents of this report are subject to the **Limitations** contained in **Appendix A** and the Terms and Conditions of our agreement. Note that elevations in this memorandum are in feet referenced to the North American Vertical Datum of 1988 (NAVD 88).

### BACKGROUND/SITE DESCRIPTION

Based on discussions with you, we understand that the existing Culvert #110, located near 230 Old Sudbury Road, and Culvert #149, located near the intersection of Old Sudbury Road and Water Row, need to be replaced because of their current undersized hydraulic capacities and the historic flooding conditions which occur at Culvert #149. See **Figure 1, Locus Plan** for relative culvert locations.

#### CULVERT #110

The existing Culvert #110 allows an unnamed stream to pass under the roadway and flow downstream to the south. The current culvert is approximately 43 feet long and spans the width of the roadway and slopes down from the north to the south.

Based on the survey plan provided to us by W&C on November 17, 2020, the typical water elevation of the stream upstream is about Elevation 228 feet, with the pipe invert on the north (inlet) side at about Elevation 228 and the south (outlet) side at about Elevation 227.8 feet. Based on a review of the plans provided and our visual observations in the field, an approximately 2-foot-wide, 6-foot-long, 2-foot-tall stacked stone headwall with an 8-inch-diameter drain opening (drain pipe was not observed) located at the inlet side of the culvert, while at the outlet side the culvert is incorporated into an approximately 2-foot-wide, 5-foot-long, 2-foot-tall stacked stone headwall, with a 6-inch drain opening (drain pipe was not observed).



The 8-inch-diameter inlet opening and stone stacked headwall at the upstream (north) side of the culvert can be seen on **Photograph 1** below, while the 6-inch-diameter outlet opening and stone stacked headwall at the downstream (south) is shown in **Photograph 2** below.

The roadway at this culvert area currently slopes from the northwest to the southeast with stone walls on each side of the road. Based on the plans and information provided by W&C, it is our understating that multiple utilities are present under Old Sudbury Road in the area of Culvert #110, including an 8-inch-diameter water main on the south side of the roadway and a 2-inch-diameter gas main on the north side of the roadway. An overhead utility is also present on the north side of the roadway.



Photograph 1 – Stone headwall Culvert # 110 inlet



Photograph 2 – Stone headwall Culvert #110 outlet

At this time, the proposed culvert replacement being considered for Culvert #110 is a single 18-inch-diameter Reinforced Concrete Pipe (RCP) culvert at approximately the same elevation as the existing culvert, or a 30-inch-diameter RCP culvert that would be embedded approximately 1 foot. The new culvert would be in the same approximate alignment as the existing culvert. The existing stacked stone headwalls would be rebuilt on both sides.

#### CULVERT #149

The existing Culvert #149, located near the intersection of Old Sudbury Road and Water Row, connects the wetlands of the Bay Circuit Trail by allowing an unnamed stream to pass under the roadway and flow downstream to the north towards the Sudbury River. The current culvert, which is approximately 56 feet long, spans the width of the roadway and slopes down from the south to the north. Based on information provided by W&C, it is our understanding that flooding occurs in this area due to the fluctuating levels of the Sudbury River which is located approximately 1,500 feet to the northeast.

Based on the survey plan provided to us by W&C on November 17, 2020, the typical water elevation of the stream/wetland area upstream is about Elevation 113 feet, with the pipe invert on the south (inlet) side at about Elevation 112.3 and the north (outlet) side at about Elevation 112 feet. Based on our review of the plans provided and our visual observations in the field, a 2-foot-wide, 6-foot-long, 3-foot-tall stone headwall with an approximately 3-foot-wide stone box culvert opening is located at the inlet side of the culvert, while the outlet side of the culvert is incorporated into an approximately 2-foot-wide, 12-foot-long, 2-foot-tall stacked stone headwall, with a 6-inch corrugated plastic pipe at the outlet side of the culvert which discharges into the wetland area at the north side of the road. The 3-foot-wide stone box culvert opening with a metal grate screen grate at





the upstream side (south) of the culvert can be seen on **Photograph 3** below, while the 6-inch-diameter storm drain pipe outlet opening with the headwall at the downstream side (north) of the culvert to the east is shown in **Photograph 4** below.

The roadway in this area currently slopes from the west to the east with steel beam guard rail on each side of the road. An overhead utility is present on the north side of the roadway and based on the plans and information provided by the Town of Sudbury and W&C, underground utilities are not present in this section of the Old Sudbury Road.



Photograph 3 – Stone headwall Culvert # 149 inlet



Photograph 4 – Stacked stone headwall Culvert #149 outlet

Based on our communications with you, we understand that the proposed culvert replacement being considered for Culvert #149 is a single 5-foot-wide, 7-foot-tall, 4-sided concrete box culvert with a 5-foot opening and 2-foot embedment and would be installed at approximately elevation 109, and in the same approximate alignment as the existing culvert. The stacked stone walls would be replaced with block stone headwalls on both the inlet and outlet sides.

### SUBSURFACE EXPLORATIONS

GZA performed a subsurface exploration program to evaluate subsurface conditions in the vicinity of the proposed culverts. New England Boring Contractors of Derry, New Hampshire coordinated utility clearance and drilled test borings B-1 and B-2 on November 17, 2020, and test boring B-3 on December 11, 2020. Boring B-1 was drilled in the roadway to the northwest of the existing Culvert #149 and extended to a depth of about 31 feet below ground surface (bgs). Boring B-2 was drilled in the roadway to the southeast of the existing Culvert # 149 and extended to a depth of about 25 feet bgs. Boring B-3 was drilled in the roadway to the northwest of the existing Culvert #110 to a depth of about 15 feet bgs. GZA field personnel located the test borings by tape measurements from prominent site features. The approximate locations of the test borings are shown on **Figure 2 – Exploration Location Plan at Culvert #149** and **Figure 3 – Exploration Location Plan at Culvert #110**.

Borings B-1 and B-2 were drilled using a truck-mounted drill rig with 4-inch-inside-diameter (ID), flush-joint casing and drive-and-wash drilling methods. Standard Penetration Testing and split spoon sampling were performed generally at 5-foot intervals.



Boring B-3 was drilled using a truck-mounted drill rig with 2.25-inch-ID, hollow stem augers. Standard Penetration Testing and split spoon sampling were performed continuously for the first 10 feet and then at 5-foot intervals thereafter.

Samples were classified in accordance with the Modified Burmister System. The test borings were backfilled with drill cuttings upon the completion of the drilling and repaired at the surface with asphalt cold-patch. GZA field personnel monitored the drilling and prepared the test boring logs which are included in **Appendix B**.

**GEOTECHNICAL LABORATORY TESTING**

Four soil samples obtained from test borings were submitted to GZA’s geotechnical laboratory subcontractor, Thielsch Engineering, for grain size distribution analyses and organic content. Laboratory test results for these samples are attached as **Appendix C** and are summarized in the table below.

Test Boring No.	Sample ID	Depth Below Grade (ft)	Stratum	Soil Description	Test Performed
B-1	S-2	4-6	Fill	Brown, fine to coarse SAND, some Clayey Silt, little fine Gravel.	Index (Gradation, Moisture)
B-1	S-4	14-16	Sand	Gray, fine SAND, some Silt	Index (Gradation, Moisture)
B-2	S-3B	9-11	Peat	Black, fine grained PEAT	Organic Content, Moisture
B-2	S-5	19-21	Sand	Brown, fine SAND, some Silt.	Index (Gradation, Moisture)

**GENERALIZED SUBSURFACE CONDITIONS**

Based on the completed test borings, subsurface conditions at the site consisted of very loose to very dense sand fill over natural peat over sand, with the soils encountered generally becoming denser with depth. Descriptions of the geologic units encountered are as follows, in general order of occurrence below ground surface at each culvert location.

GENERALIZED SUBSURFACE CONDITIONS NEAR CULVERT 110 (Boring B-3)		
Soil Unit	Approx. Depth Range (feet)	Generalized Description
Asphalt	0 to 0.8	10 inches of bituminous asphalt pavement was encountered at the ground surface in boring B-3.
Fill (Silty Sand)	0.8 to 4.0	Approximately 3 feet of Sand was encountered directly below the asphalt in boring B-3. The material generally consisted of very dense, gray, fine to coarse SAND, with up to about 35 percent Silt and up to 20 percent Gravel.
Peat	4 to 5	Approximately 1 foot of PEAT was encountered directly below the Fill in boring B-3. The PEAT consisted of dense, black fine-grained PEAT, with up to 35 percent sand.
Sand	9.5 to 28.5	Approximately 10 feet of Sand was encountered at a depth of 5 feet bgs in boring B-3; the Sand was not fully penetrated as the boring was terminated in the Sand. The Sand generally consisted of dense to very dense, gray, fine to coarse SAND, with up to 35 percent Silt and up to 20 percent of Gravel. Based on drilling observations, cobbles and/or boulders were encountered from approximately 5 to 15 feet bgs in boring B-3.

Last Modified: 04/10/2024 at 4:04PM EDT



GENERALIZED SUBSURFACE CONDITIONS NEAR CULVERT 149 (Borings B-1 and B-2)		
Soil Unit	Approx. Depth Range (feet)	Generalized Description
Asphalt	0 to 0.8	8 to 10 inches of bituminous asphalt pavement was encountered at the ground surface in borings B-1 and B-2.
Fill (Silty Sand)	0.8 to 10.9	Approximately 10 and 11 feet of Fill was encountered directly below the asphalt in borings B-1 and B-2, respectively. The Fill generally consisted of medium dense to very dense, brown to gray, fine to coarse SAND, with up to about 35 percent Silt and/or Gravel.
Peat	1.9 to 2	Approximately 2 feet of PEAT was encountered directly below the Fill in borings B-1 and B-2. The PEAT consisted of medium dense, black fine-grained PEAT, with more than 50 percent fine sand/ and or silt. Laboratory testing indicated a PEAT moisture content of 110 percent and an organic content of 19.1 percent by weight.
Sand	12.5 to 18	Sand was encountered below the Peat at a depth of about 13 feet bgs in borings B-1 and B-2. The material generally consisted of loose to medium dense, gray or brown, fine SAND, with up to 35 percent Silt.

Detailed descriptions of the materials encountered are presented on the boring logs in **Appendix B**.

**GROUNDWATER**

Groundwater was measured in test borings B-1 and B-2 at approximately 9 and 8 feet bgs (corresponding to Elevations 111.6 and 112.4), respectively, as shown on the boring logs included in **Appendix B**. Groundwater depths and elevations are approximate representations of the hydrostatic groundwater level, as the drive-and-wash method of drilling introduces drill water to stabilize the borehole and remove drill spoils. Therefore, the groundwater level observed in the test borings B-1 and B-2 may not represent stabilized groundwater levels. The stream/wetland level at the time the borings were completed in this area was at approximately Elevation ±112.

Groundwater was measured in test boring B-3 at approximately 7.4 feet bgs (corresponding to Elevation 224.6) as shown on the boring logs included in **Appendix B**. This depth and elevation are an approximate groundwater level observed at the time the test boring was performed. Therefore, the groundwater level observed in the test boring B-3 may not represent stabilized groundwater levels. The stream level at the time the boring was completed in this area was at approximately Elevation ±228.

Water level readings were made in the borings at the time and under conditions stated on the logs. Note that fluctuations in the level of the groundwater will occur due to variations in season, rainfall, temperature, construction, and other factors occurring since the time measurements were made.

**BEDROCK**

Bedrock was not encountered beneath the sand in borings B-1 and B-2. Based on observed drill action including auger and split spoon refusal, probable bedrock may have been encountered in test boring B-3 at approximately 15.1 feet bgs, corresponding to approximately elevation 216.9. No split spoon samples were retrieved, and rock coring was not attempted. Bedrock underlying each site area is mapped as quartzite, schist, calc-silicate quartzite, and amphibolite which are part of the Westboro Formation.



## **IMPLICATIONS OF SUBSURFACE CONDITIONS**

### **CULVERT #110**

The subsurface conditions at Culvert #110 site, based on boring B-3, generally consist of very dense sand fill overlying a thin layer of peat, over very dense sand. Based on plans provided by W&C, the estimated elevation of the bottom of the proposed culvert at this site will be about Elevation  $\pm 226$  feet or  $\pm 228$  feet. Based on the test boring, soils at this elevation are likely to be within the peat stratum with an estimated bottom of peat elevation of 227.

### **CULVERT #149**

The subsurface conditions at the Culvert #149 site generally consist of medium dense sand fill overlying peat, and medium dense silty fine sand, with no gravel. Based on plans provided by W&C, the estimated elevation of the bottom of the proposed culvert at this site will be about Elevation  $\pm 110$  feet. Based on the borings, soils at this elevation are likely to be within the peat stratum with an estimated bottom of peat elevation of 108.

### **GENERAL**

Supporting the new culverts over compressible peat will cause the culverts to settle over time. Thus, if peat is observed to be present along the culvert alignment during construction, over-excavation to remove the peat is recommended at both proposed culvert alignments. Backfill with crushed stone to the culvert subgrade elevations.

Based on the borings, the anticipated over-excavation depth to remove peat will be up to about 3 feet. Dewatering to remove the peat "in the dry" may be difficult. It is likely to be more practical to attempt to remove the peat along the culvert alignments "in the wet" to mitigate (but not eliminate) the settlement risk. The excavation process and excavated subgrade, before backfilling, should be observed by a qualified geotechnical engineer to confirm that the subgrade is suitable for placement of crushed stone, bearing the pipe or proposed concrete box culvert.

## **RECOMMENDATIONS**

The following recommendations are based on the assumption that the peat stratum will be removed at Culvert #110 in the wet. In addition, the proposed 5-foot-wide, 7-foot-tall concrete box culvert at Culvert #149 will be installed at about Elevation 110 feet on about 3 feet of 1¼-inch crushed stone placed in the wet following overexcavation of the peat.

### **DEWATERING**

Based on the survey plans provided to GZA on November 17, 2020, the typical water elevation of the brook at Culvert #149 upstream is about Elevation  $\pm 112$  feet. Temporary construction dewatering to control groundwater seepage, precipitation, and surface inflow in excavations, to maintain the integrity of soil bearing surfaces, and allow construction in-the-dry will be difficult without utilizing steel sheeting. The anticipated excavated sand subgrade can become unstable if exposed to high dewatering gradients. Excavation in the wet is recommended with careful construction protocols established with the contractor.



**FROST PROTECTION**

Typical frost depth in the Commonwealth of Massachusetts is 4 feet bgs. We recommend that spread footings for abutments and wingwalls be supported a minimum of 4 feet below the lowest adjacent ground surface to provide frost protection.

**BEARING PRESSURE**

The proposed RCP at Culvert #110 and the concrete box culvert at Culvert #149 can be supported over the natural undisturbed Sand, once the peat is removed, and replaced with 1¼-inch crushed stone, assuming up to about 3 feet of over excavation. Recommended maximum net allowable bearing pressure for the proposed abutments and wingwalls bearing on at least 1 foot of dense-graded crushed stone over the 1¼-inch crushed stone is 2,000 pounds per square foot. Potential settlement is difficult to estimate as there may be limited peat remaining below the crushed stone, even after the over-excavation process in the wet.

**CONCLUSION**

We appreciate the opportunity to work with Woodard & Curran, Inc. on this project. If you have any questions regarding this memorandum, please contact Mirsad Alihodzic at 603-232-8755 or Bruce Fairless at 781-603-2254.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Mirsad Alihodzic  
Project Manager

David G. Lamothe, P.E.  
Consultant/Reviewer

Bruce W. Fairless, P.E., LEED AP  
Associate Principal

MA/BWF/DGL:tmd

\\gzabedford\jobs\04\jobs\0191100s\04.0191167.00\report\final 04.0191167.00 geotech memo 172021.docx

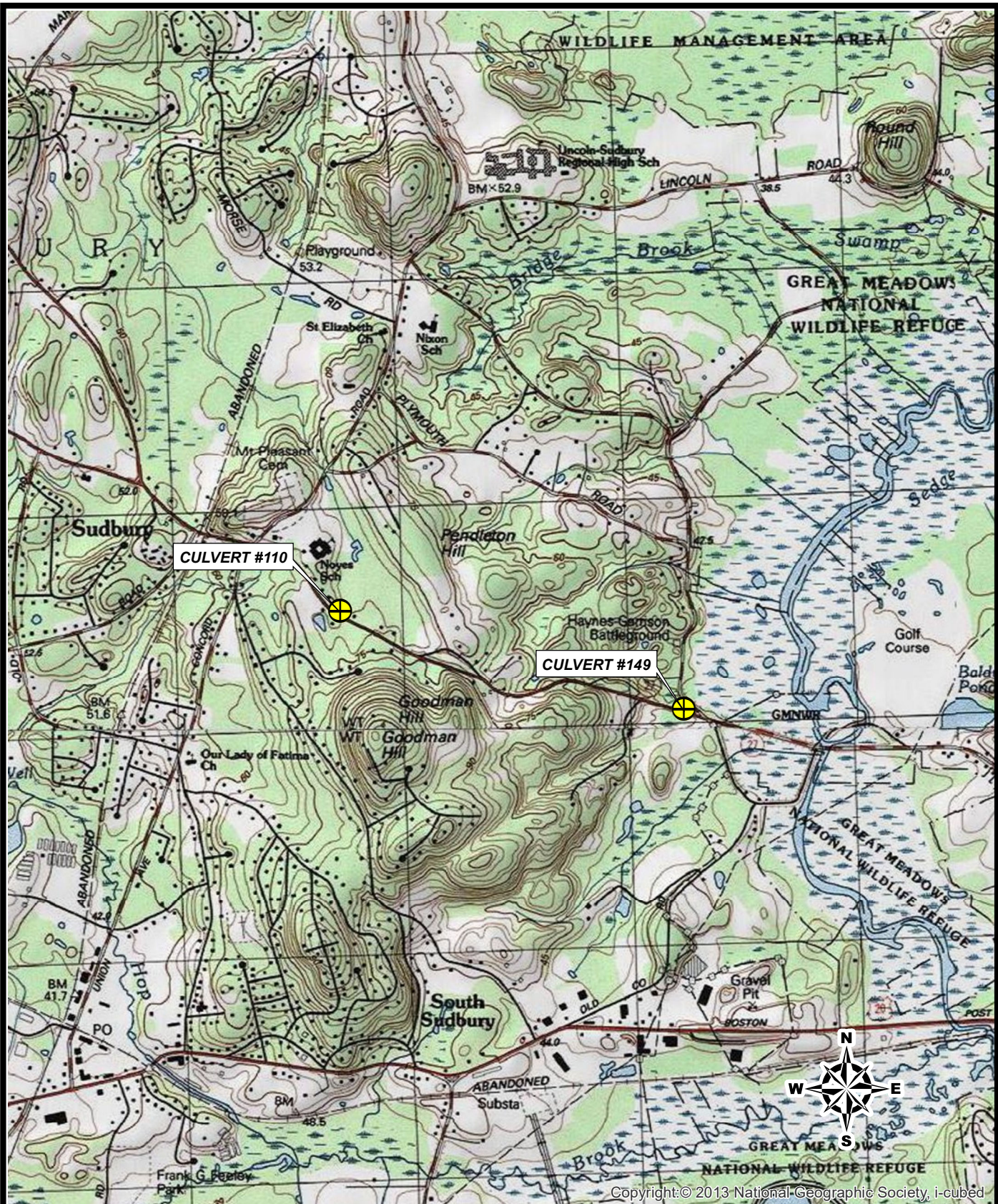
- Attachments:
- Figure 1 – Locus Plan
  - Figure 2 – Exploration Location Plan at Culvert #149
  - Figure 3 – Exploration Location Plan at Culvert #110
  - Appendix A – Limitations
  - Appendix B – Boring Logs
  - Appendix C – Laboratory Test Results



## Figures



C:\Users\lindsey.white\Desktop\191167 Locus\Figure 1 - Locus.mxd, 1/6/2021, 8:23:24 AM, lindsey.white



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NO.	ISSUE / DESCRIPTION	BY	DATE

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: WOODARD & CURRAN, INC.
PROJ MGR: MA DESIGNED BY: MA DATE: JANUARY 2021	REVIEWED BY: BF DRAWN BY: LW PROJECT NO: 04.0191167.00
CHECKED BY: DL SCALE: 1 in = 2,000 ft REVISION NO.	FIGURE 1

OLD SUDBURY ROAD  
CULVERTS #110 AND #149

LOCUS PLAN





0 WATER ROW  
N/F  
COMMONWEALTH OF MASSACHUSETTS  
BK. 18737 PG. 217  
MAP 11 LOT 300

36" CONCRETE BOX CULVERT  
ELEV.=112.38'

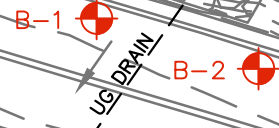
12" CPP  
ELEV.=112.04'

WATER ROW  
(PUBLIC - 40' WIDE)

STEEL BEAM GUARDRAIL  
EOP.  
UPL 59  
**OLD SUBBURY ROAD**  
(PUBLIC - 50' WIDE)  
STEEL BEAM GUARDRAIL  
EOP.

36" STONE BOX CULVERT  
ELEV.=112.31'

MARSH



**NOTES:**

1. BASE PLAN WAS DEVELOPED FROM AN ELECTRONIC BASE PLAN ENTITLED "CULVERT 149" DATED NOVEMBER 17, 2020; PREPARED BY CHAPPELL ENGINEERING ASSOCIATES, LLC OF MARLBOROUGH, MASSACHUSETTS PROVIDED BY WOODARD AND CURRAN VIA EMAIL ON NOVEMBER 18, 2020.
2. TEST BORINGS B-1 AND B-2 WERE PERFORMED BY NEW ENGLAND BORING CONTRACTORS OF DERRY, NEW HAMPSHIRE ON NOVEMBER 17, 2020 AND WERE OBSERVED AND LOGGED BY GZA PERSONNEL.
3. TEST BORING B-1 AND B-2 LOCATIONS WERE DETERMINED BY GZA USING TAPE MEASUREMENTS FROM EXISTING TOPOGRAPHIC FEATURES. THESE LOCATIONS SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

**LEGEND:**

B-1 APPROXIMATE BORING LOCATION AND DESIGNATION



UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

NO.	ISSUE/DESCRIPTION	BY	DATE

OLD SUBBURY ROAD CULVERT #149  
SUBBURY, MA

PREPARED BY:  
 **GZA** GeoEnvironmental, Inc.  
Engineers and Scientists  
www.gza.com

PREPARED FOR:  
WOODARD & CURRAN, INC

**EXPLORATION LOCATION PLAN**

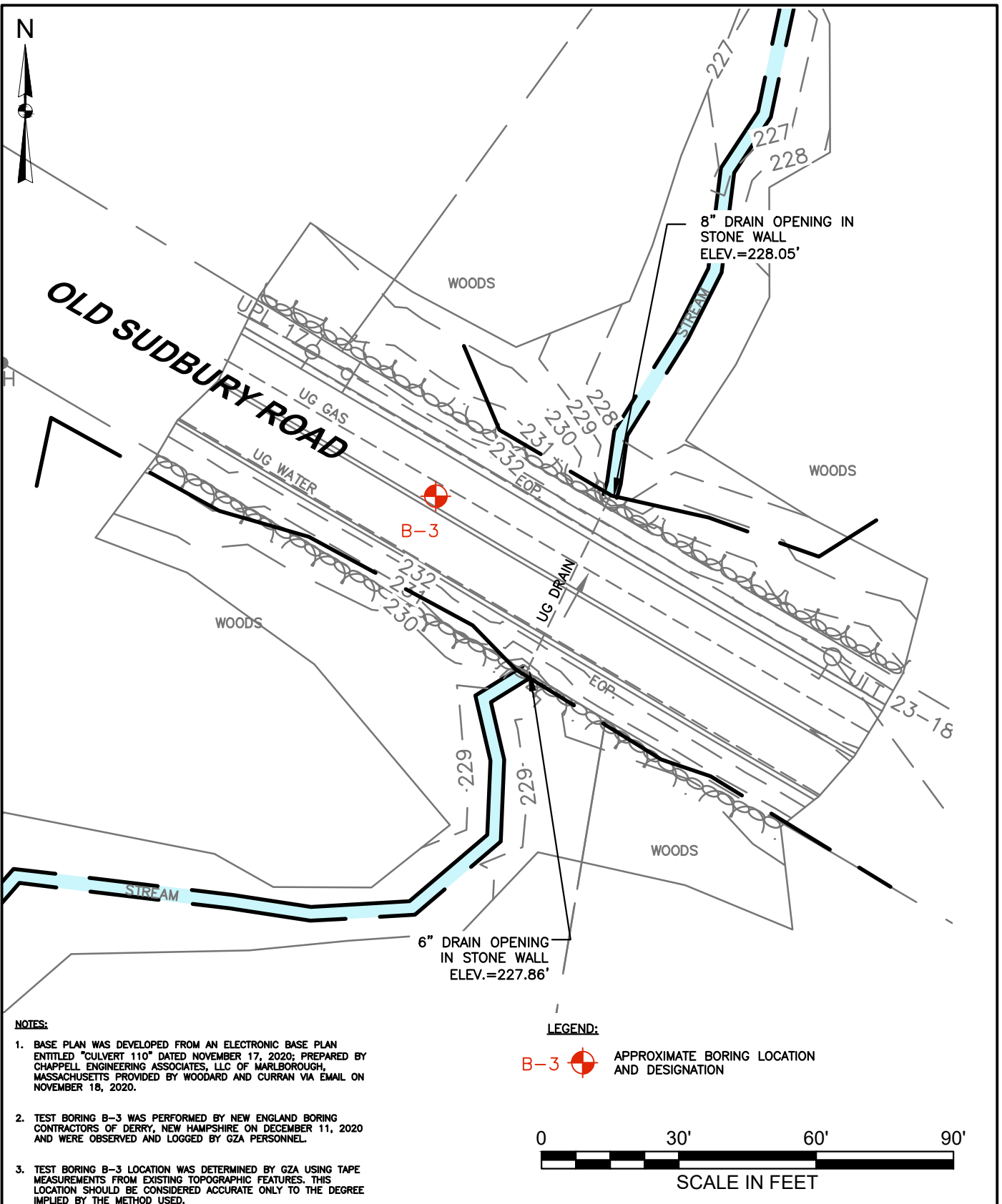
PROJ MGR: MA    REVIEWED BY: BWF    CHECKED BY: DGL  
DESIGNED BY: MA    DRAWN BY: MA    SCALE: AS SHOWN  
DATE: JANUARY, 2021    PROJECT NO. 04.0191167.00    REVISION NO.

FIGURE  
**2**  
SHEET NO.

© 2021 - GZA GeoEnvironmental, Inc. GZA-P:\04Jobs\0191100s\04-0191167.00\Figures\Figures 2 and 3.dwg [2] January 06, 2021 - 9:30am mirsad.althodzic  
Last Modified: 04/10/2024 at 4:04PM EDT

Last Modified: 04/10/2024 at 4:04PM EDT

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**NOTES:**

1. BASE PLAN WAS DEVELOPED FROM AN ELECTRONIC BASE PLAN ENTITLED "CULVERT 110" DATED NOVEMBER 17, 2020; PREPARED BY CHAPPELL ENGINEERING ASSOCIATES, LLC OF MARLBOROUGH, MASSACHUSETTS PROVIDED BY WOODARD AND CURRAN VIA EMAIL ON NOVEMBER 18, 2020.
2. TEST BORING B-3 WAS PERFORMED BY NEW ENGLAND BORING CONTRACTORS OF DERRY, NEW HAMPSHIRE ON DECEMBER 11, 2020 AND WERE OBSERVED AND LOGGED BY GZA PERSONNEL.
3. TEST BORING B-3 LOCATION WAS DETERMINED BY GZA USING TAPE MEASUREMENTS FROM EXISTING TOPOGRAPHIC FEATURES. THIS LOCATION SHOULD BE CONSIDERED ACCURATE ONLY TO THE DEGREE IMPLIED BY THE METHOD USED.

**LEGEND:**

B-3 APPROXIMATE BORING LOCATION AND DESIGNATION



UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

NO.	ISSUE/DESCRIPTION	BY	DATE

PREPARED BY: <b>GZA</b> GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: WOODARD & CURRAN, INC
PROJ MGR: MA    REVIEWED BY: BWF    CHECKED BY: DGL DESIGNED BY: MA    DRAWN BY: MA    SCALE: AS SHOWN DATE: JANUARY, 2021    PROJECT NO. 04.0191167.00    REVISION NO.	FIGURE <div style="font-size: 2em; font-weight: bold; text-align: center;">3</div> SHEET NO.

OLD SUDBURY ROAD CULVERT #110  
SUDBURY, MA

**EXPLORATION LOCATION PLAN**



## **Appendix A – Limitations**



## USE OF REPORT

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of our Client for the stated purpose(s) and location(s) identified in the Proposal for Services and/or Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not expressly identified in the contract documents, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

## STANDARD OF CARE

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in Proposal for Services and/or Report, and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. If conditions other than those described in this report are found at the subject location(s), or the design has been altered in any way, GZA shall be so notified and afforded the opportunity to revise the report, as appropriate, to reflect the unanticipated changed conditions .
3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made.
4. In conducting our work, GZA relied upon certain information made available by public agencies, Client and/or others. GZA did not attempt to independently verify the accuracy or completeness of that information. Inconsistencies in this information which we have noted, if any, are discussed in the Report.

## SUBSURFACE CONDITIONS

5. The generalized soil profile(s) provided in our Report are based on widely-spaced subsurface explorations and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and were based on our assessment of subsurface conditions. The composition of strata, and the transitions between strata, may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location refer to the exploration logs. The nature and extent of variations between these explorations may not become evident until further exploration or construction. If variations or other latent conditions then become evident, it will be necessary to reevaluate the conclusions and recommendations of this report.
6. In preparing this report, GZA relied on certain information provided by the Client, state and local officials, and other parties referenced therein which were made available to GZA at the time of our evaluation. GZA did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this evaluation.
7. Water level readings have been made in test holes (as described in this Report) and monitoring wells at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this Report. Fluctuations in the level of the groundwater however occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, the presence of subsurface utilities, and/or natural or artificially induced perturbations. The water table encountered in the course of the work may differ from that indicated in the Report.



8. GZA's services did not include an assessment of the presence of oil or hazardous materials at the property. Consequently, we did not consider the potential impacts (if any) that contaminants in soil or groundwater may have on construction activities, or the use of structures on the property.
9. Recommendations for foundation drainage, waterproofing, and moisture control address the conventional geotechnical engineering aspects of seepage control. These recommendations may not preclude an environment that allows the infestation of mold or other biological pollutants.

#### **COMPLIANCE WITH CODES AND REGULATIONS**

10. We used reasonable care in identifying and interpreting applicable codes and regulations. These codes and regulations are subject to various, and possibly contradictory, interpretations. Compliance with codes and regulations by other parties is beyond our control.

#### **COST ESTIMATES**

11. Unless otherwise stated, our cost estimates are only for comparative and general planning purposes. These estimates may involve approximate quantity evaluations. Note that these quantity estimates are not intended to be sufficiently accurate to develop construction bids, or to predict the actual cost of work addressed in this Report. Further, since we have no control over either when the work will take place or the labor and material costs required to plan and execute the anticipated work, our cost estimates were made by relying on our experience, the experience of others, and other sources of readily available information. Actual costs may vary over time and could be significantly more, or less, than stated in the Report.

#### **ADDITIONAL SERVICES**

12. GZA recommends that we be retained to provide services during any future: site observations, design, implementation activities, construction and/or property development/redevelopment. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.



## **Appendix B – Boring Logs**

**TEST BORING LOG**



**GZA**  
**GeoEnvironmental, Inc.**  
*Engineers and Scientists*

**Woodard and Curran**  
**Old Sudbury Road Culverts**  
**Sudbury, MA**

**EXPLORATION NO.: B-1 (Culvert 149)**  
**SHEET: 1 of 1**  
**PROJECT NO: 04.0191167.00**  
**REVIEWED BY: MA**

**Logged By:** D. Shaffer  
**Drilling Co.:** New England Boring Contractors  
**Foreman:** P. Schofield

**Type of Rig:** Truck  
**Rig Model:** MB-48  
**Drilling Method:** Drive & Wash

**Boring Location:** See Plan  
**Ground Surface Elev. (ft.):** 120.5  
**Final Boring Depth (ft.):** 31  
**Date Start - Finish:** 11/17/2020 - 11/17/2020

**H. Datum:** NAD83  
**V. Datum:** NAVD88

**Hammer Type:** Automatic Hammer  
**Hammer Weight (lb.):** 140  
**Hammer Fall (in.):** 30  
**Auger or Casing O.D./I.D Dia (in.):** 4

**Sampler Type:** SS  
**Sampler O.D. (in.):** 2  
**Sampler Length (in.):** 24  
**Rock Core Size:** None

**Groundwater Depth (ft.)**

Date	Time	Water Depth	Stab. Time
11/17/2020	1:12 p.m.	8.96	10 min.
11/17/2020	1:27 p.m.	9.19	25 min

Depth (ft)	Casing Blows/ Core Rate	Sample					Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)						
5		S-1	0.8-2.0	15	13	26 37	S-1: Very dense, brown, fine to coarse SAND, some Clayey Silt, little Gravel, moist. S-2: Medium dense, brown, fine to coarse SAND, some Silt, trace Gravel, moist.	1		0.8	ASPHALT	119.7
		S-2	2-4	24	14	50/3" 15 15 7 5						
10		S-3	9-11	24	12	4 2 1 1	S-3: Very loose, gray, fine SAND, some Silt, little Gravel, wet.	2		11.2		109.3
										13	POSSIBLE PEAT	107.5
15		S-4	14-16	24	12	5 9 7 7	S-4: Medium dense, gray, fine SAND, some Silt, wet.	3				
20		S-5	19-21	24	14	7 10 12 13	S-5: Medium dense, brown, fine SAND, some Silt, wet.					
25		S-6	24-26	24	15	3 5 5 6	S-6: Medium dense, gray, fine SAND, some Silt, wet.					
30		S-7	29-31	24	12	5 6 7 11	S-7: Medium dense, gray, fine SAND, some Silt, wet.	4				
							End of exploration at 31 feet.			31		89.5

**REMARKS**

- The ground surface elevation at this test boring location is based on interpolation of topographic contours shown on Figure 2 - Exploration Location Plan. Elevations shown are in feet and refer to NAVD 1988 from the provided site plans.
- A color change from gray to black was observed during drilling in wash water between 11.2 feet and 13 feet below ground surface (b.g.s).
- Drilling difficulty increased at approximately 15 feet b.g.s.
- Test boring was terminated at approximately 31 feet b.g.s. Borehole was backfilled with drill cuttings upon completion.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

**Exploration No.:**  
**B-1 (Culvert 149)**

Last Modified: 04/10/2024 at 4:04PM EDT

04.0191167.00 - OLD SUDBURY ROAD CULVERTS W&C.GPJ.GZA TEMPLATE TEST BORING 300; GZA TEMPLATE 0210.GDT; LIBRARY - COPY.GLB; 1/7/2021; 7:31:44 AM





**TEST BORING LOG**



**GZA**  
**GeoEnvironmental, Inc.**  
*Engineers and Scientists*

**Woodard and Curran**  
**Old Sudbury Road Culverts**  
**Sudbury, MA**

**EXPLORATION NO.: B-3 (Culvert 110)**  
**SHEET: 1 of 1**  
**PROJECT NO: 04.0191167.00**  
**REVIEWED BY: MA**

**Logged By:** M. Alihodzic  
**Drilling Co.:** New England Boring Contractors  
**Foreman:** P. Schofield

**Type of Rig:** Truck  
**Rig Model:** MB-48  
**Drilling Method:** HSA

**Boring Location:** See Plan  
**Ground Surface Elev. (ft.):** 232.0  
**Final Boring Depth (ft.):** 15.1  
**Date Start - Finish:** 12/11/2020 - 12/11/2020

**H. Datum:** NAD83  
**V. Datum:** NAVD88

**Hammer Type:** Automatic Hammer  
**Hammer Weight (lb.):** 140  
**Hammer Fall (in.):** 30  
**Auger or Casing O.D./I.D Dia (in.):** 2.25

**Sampler Type:** SS  
**Sampler O.D. (in.):** 2  
**Sampler Length (in.):** 24  
**Rock Core Size:** None

**Groundwater Depth (ft.)**

Date	Time	Water Depth	Stab. Time
12/11/2020	10:37 a.m.	7.41	15 min.

Depth (ft)	Casing Blows/ Core Rate	Sample					Sample Description and Identification (Modified Burmister Procedure)	Remark	Field Test Data	Depth (ft.)	Stratum Description	Elev. (ft.)
		No.	Depth (ft.)	Pen. (in)	Rec. (in)	Blows (per 6 in.)						
		S-1	1-3	24	20	24 22 23 24	S-1: Very dense, gray fine to coarse SAND, some Silt, little Gravel, dry.	1		0.8	ASPHALT	231.2
5		S-2	4-6	24	12	70 10 12 14	S-2: A: (Top 6-inches) Dense, black, fine grained PEAT, some Sand, wet. S-2 B: (Bottom 6-inches) Dense, gray, fine to medium SAND, some Silt, wet.	2		4	FILL	228.0
		S-3	6-8	24	20	12 21 21 23	S-3: Dense, gray, fine to coarse SAND, some Silt, little Gravel, wet.			5	PEAT	227.0
		S-4	8-10	24	24	15 24 66 36	S-4: Very dense, gray, fine to coarse SAND, some Silt, little Gravel, wet.				SAND	
15		S-5	14-14.7	8	8	23 50/2"	S-5: Very dense, gray, fine to coarse SAND, some Silt, little Gravel, wet.	3		15.1		216.9
							End of exploration at 15.1 feet.	4				

**REMARKS**

- The ground surface elevation at this test boring location is based on interpolation of topographic contours shown on Figure 3 - Exploration Location Plan. Elevations shown are in feet and refer to NAVD 1988 from the provided site plans.
- Cobbles and/or boulders were encountered during drilling from approximately 5 to 15 feet b.g.s.
- Test boring was terminated at approximately 15.1 feet below ground surface (b.g.s).
- Auger refusal encountered at approximately 15.1 feet b.g.s. Borehole was backfilled with drill cuttings upon completion.

See Log Key for explanation of sample description and identification procedures. Stratification lines represent approximate boundaries between soil and bedrock types. Actual transitions may be gradual. Water level readings have been made at the times and under the conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the times the measurements were made.

**Exploration No.:**  
**B-3 (Culvert 110)**

Last Modified: 04/10/2024 at 4:04PM EDT

04.0191167.00 - OLD SUDBURY ROAD CULVERTS W&C.GPJ.GZA TEMPLATE TEST BORING 300; GZA TEMPLATE 0210.GDT; LIBRARY - COPY.GLB; 1/7/2021; 7:31:45 AM



## **Appendix C – Laboratory Test Results**



195 Frances Avenue  
 Cranston RI, 02910  
 Phone: (401)-467-6454  
 Fax: (401)-467-2398  
[thielsch.com](http://thielsch.com)  
*Let's Build a Solid Foundation*

Client Information:  
 GZA GeoEnvironmental  
 Bedford, NH  
 PM: Mirsad Alihodzic  
 Assigned By: Mirsad Alihodzic  
 Collected By: Dylan S.

Project Information:  
**Old Sudbury Rd. Culvert**  
**Sudbury, MA**  
 GZA Project Number: 04.0191167.00  
 Summary Page: 1 of 1  
 Report Date: 12.15.2020

**LABORATORY TESTING DATA SHEET, Report No.: 7420-L-169, Rev.1**

Boring No.	Sample No.	Depth (Ft)	Laboratory No.	Identification Tests								Proctor / CBR / Permeability Tests							Laboratory Log and Soil Description	
				As Received Water Content %	LL %	PL %	Gravel %	Sand %	Fines %	Org. %	G <sub>s</sub>	Dry unit wt. pcf	Test Water Content %	$\gamma_d$ MAX (pcf) / $\gamma_d$ W <sub>opt</sub> (%)	$\gamma_d$ MAX (pcf) / $\gamma_d$ W <sub>opt</sub> (%) (Corr.)	Target Test Setup as % of Proctor	CBR @ 0.1"	CBR @ 0.2"		Permeability cm/sec
				D2216	D4318		D6913			D2974	D854			D1557						
B-1	S-2	4-6	20-S-3594	15.4			10.6	60.4	29.0											Brown f-c SAND, some Clayey Silt, little fine Gravel
B-1	S-4	14-16	20-S-3595	21.1			0.0	69.7	30.3											Gray fine SAND, some Silt
B-2	S-3B	9-11	20-S-3596	110						19.1										Fine Grained Peat
B-2	S-5	19-21	20-S-3597	27.1			0.0	70.9	29.1											Light Brown fine SAND, some Silt
Organic Content test completed by JM on 11.25.2020.																				

Date Received: 11.23.2020

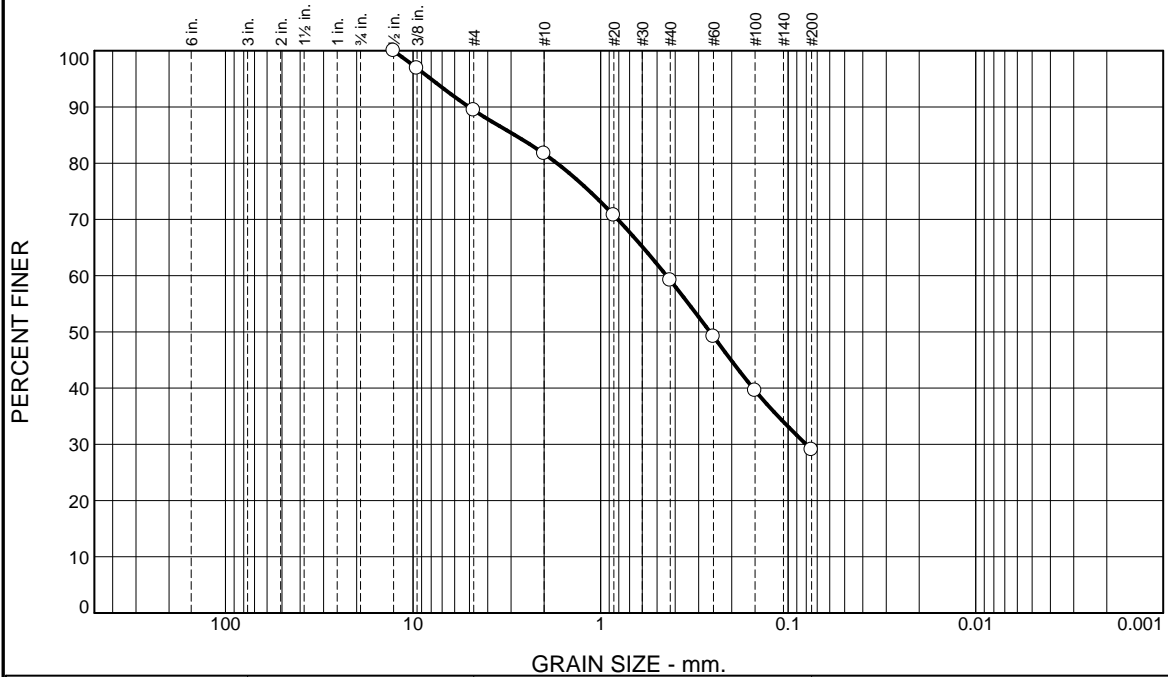
Reviewed By:

Date Reviewed: 12.15.2020

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 This report shall not be reproduced, except in full, without prior written approval from the Agency, as defined in ASTM E329.

Last Modified: 04/10/2024 at 4:04PM EDT

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	10.6	7.7	22.5	30.2	29.0	

Test Results (D6913 & ASTM D 1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.5"	100.0		
0.375"	96.9		
#4	89.4		
#10	81.7		
#20	70.7		
#40	59.2		
#60	49.2		
#100	39.6		
#200	29.0		

\* (no specification provided)

**Material Description**

Brown f-c SAND, some Clayey Silt, little fine Gravel

**Atterberg Limits (ASTM D 4318)**

PL=                      LL=                      PI=

**Classification**

USCS (D 2487)= SM                      AASHTO (M 145)= A-2-4(0)

**Coefficients**

D<sub>90</sub>= 5.0301                      D<sub>85</sub>= 2.8658                      D<sub>60</sub>= 0.4453  
D<sub>50</sub>= 0.2611                      D<sub>30</sub>= 0.0803                      D<sub>15</sub>=  
D<sub>10</sub>=                                      C<sub>u</sub>=                                      C<sub>c</sub>=

**Remarks**

Sample visually classified as plastic. Sample rolled to 1/4".

Date Received: 11.23.2020      Date Tested: 11.30.2020

Tested By: JM

Checked By: Steven Accetta

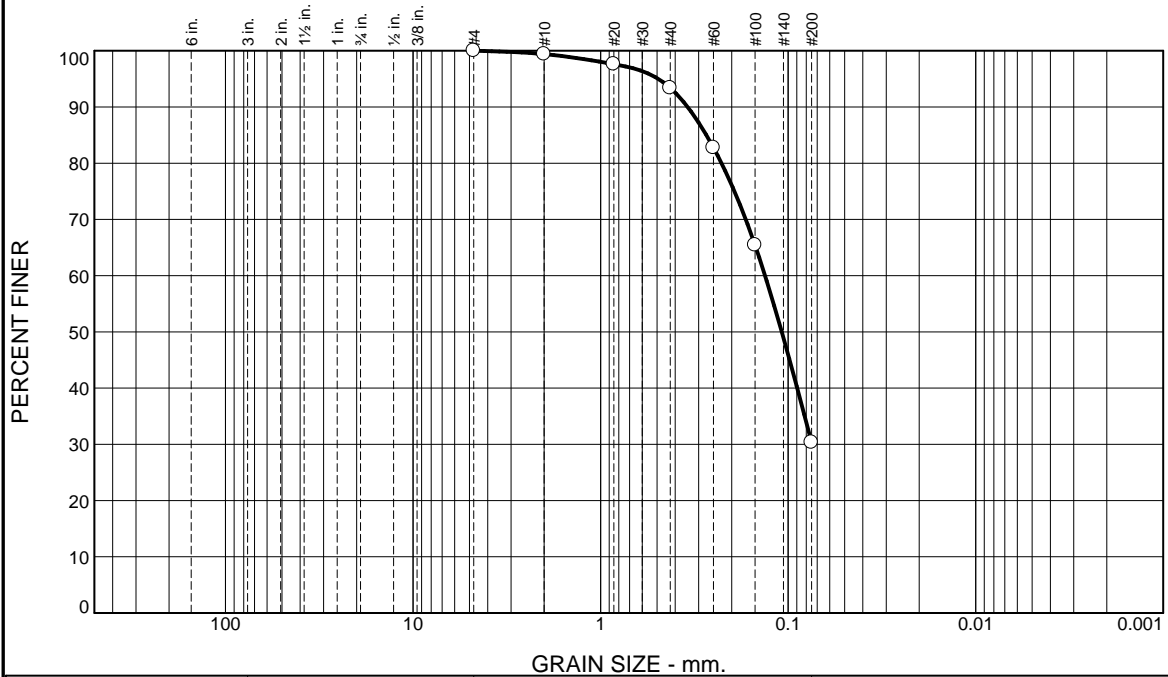
Title: Laboratory Coordinator

Source of Sample: Boring      Depth: 4-6'  
Sample Number: B-1 / S-2

Date Sampled:

<b>Thielsch Engineering Inc.</b>	Client: GZA GeoEnvironmental	
<b>Cranston, RI</b>	Project: Old Sudbury Rd Culvert Sudbury, MA	
	Project No: 04.0191167.00	Figure 20-S-3594

## Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	6.0	63.1	30.3	

Test Results (D6913 & ASTM D 1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.4		
#20	97.6		
#40	93.4		
#60	82.8		
#100	65.4		
#200	30.3		

\* (no specification provided)

**Material Description**

Gray fine SAND, some Silt

**Atterberg Limits (ASTM D 4318)**

PL= NP                      LL= NV                      PI= NP

**Classification**

USCS (D 2487)= SM                      AASHTO (M 145)= A-2-4(0)

**Coefficients**

D<sub>90</sub>= 0.3432                      D<sub>85</sub>= 0.2728                      D<sub>60</sub>= 0.1327  
D<sub>50</sub>= 0.1082                      D<sub>30</sub>=                                      D<sub>15</sub>=  
D<sub>10</sub>=                                      C<sub>u</sub>=                                      C<sub>c</sub>=

**Remarks**

Sample visually classified as non-plastic.

Date Received: 11.23.2020      Date Tested: 11.30.2020

Tested By: JM

Checked By: Steven Accetta

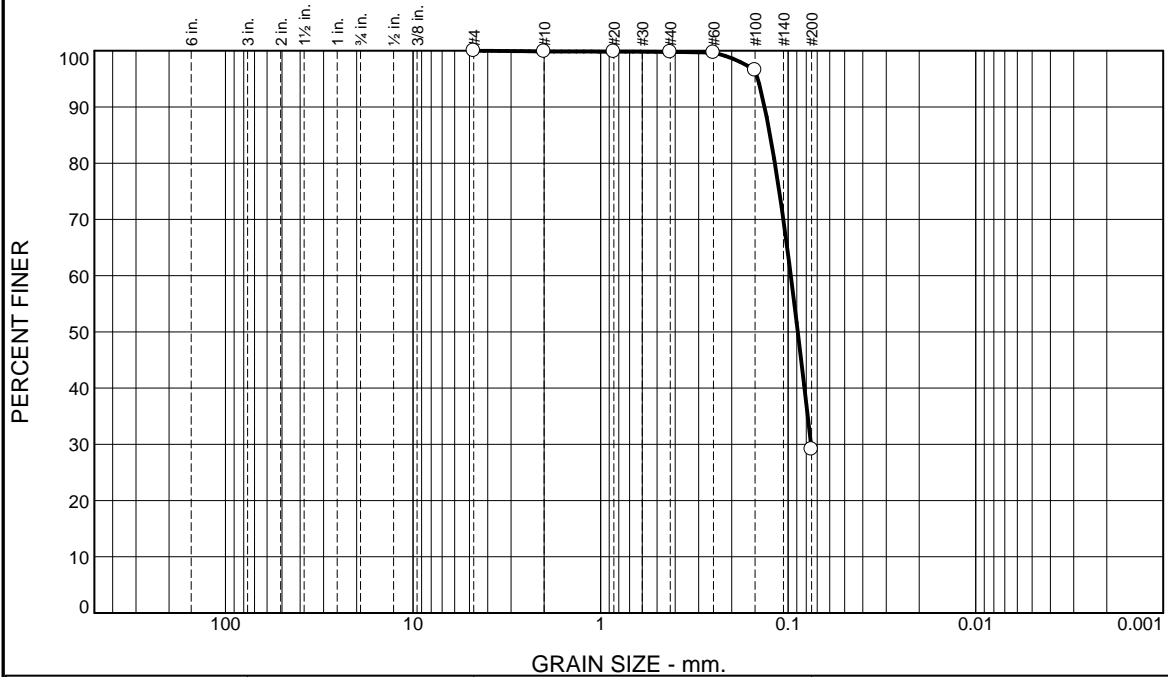
Title: Laboratory Coordinator

Source of Sample: Boring                      Depth: 14-16'  
Sample Number: B-1 / S-4

Date Sampled:

<b>Thielsch Engineering Inc.</b>	Client: GZA GeoEnvironmental
<b>Cranston, RI</b>	Project: Old Sudbury Rd Culvert Sudbury, MA
	Project No: 04.0191167.00
	Figure 20-S-3595

# Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	0.1	70.7	29.1	

Test Results (D6913 & ASTM D 1140)			
Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	100.0		
#10	99.9		
#20	99.8		
#40	99.8		
#60	99.7		
#100	96.5		
#200	29.1		

**Material Description**

Light Brown fine SAND, some Silt

**Atterberg Limits (ASTM D 4318)**

PL= NP                      LL= NV                      PI= NP

**Classification**

USCS (D 2487)= SM                      AASHTO (M 145)= A-2-4(0)

**Coefficients**

D<sub>90</sub>= 0.1334                      D<sub>85</sub>= 0.1247                      D<sub>60</sub>= 0.0968  
D<sub>50</sub>= 0.0889                      D<sub>30</sub>= 0.0755                      D<sub>15</sub>=  
D<sub>10</sub>=                                      C<sub>u</sub>=                                      C<sub>c</sub>=

**Remarks**

Sample visually classified as non-plastic.

Date Received: 11.23.2020      Date Tested: 11.30.2020

Tested By: JM

Checked By: Steven Accetta

Title: Laboratory Coordinator

\* (no specification provided)

Source of Sample: Boring                      Depth: 19-21'  
Sample Number: B-2 / S-5

Date Sampled:

<b>Thielsch Engineering Inc.</b>	Client: GZA GeoEnvironmental Project: Old Sudbury Rd Culvert Sudbury, MA	
<b>Cranston, RI</b>	Project No: 04.0191167.00	Figure 20-S-3597

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Section 00 41 00  
FORM FOR GENERAL BID  
MGL c.30 §39M Over \$50K

**TO THE AWARDING AUTHORITY:** Town of Sudbury - Department of Public Works

**A.** The Undersigned proposes to furnish all labor and materials required for **Old Sudbury Road Culverts 110 and 149 Replacement [Project #2024-OSRC-1]** at in Sudbury, Massachusetts, in accordance with the accompanying plans and specifications prepared by for the contract price specified below, subject to additions and deductions according to the terms of the specifications.

**B.** This bid includes addenda numbered: \_\_\_\_\_

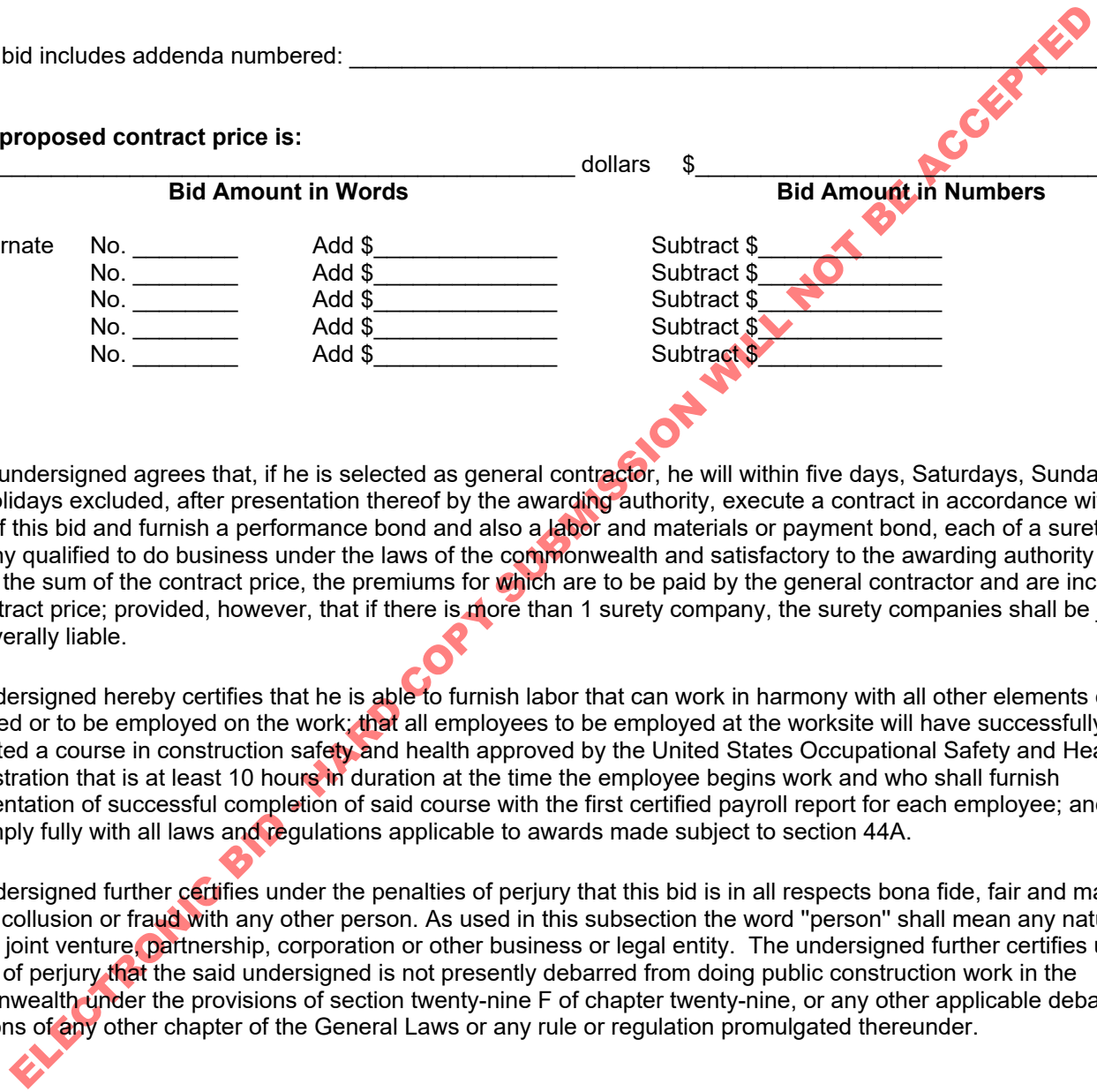
**C. The proposed contract price is:**

_____		dollars	\$	_____
<b>Bid Amount in Words</b>				<b>Bid Amount in Numbers</b>
For alternate	No. _____	Add \$	_____	Subtract \$ _____
	No. _____	Add \$	_____	Subtract \$ _____
	No. _____	Add \$	_____	Subtract \$ _____
	No. _____	Add \$	_____	Subtract \$ _____
	No. _____	Add \$	_____	Subtract \$ _____

**D.** The undersigned agrees that, if he is selected as general contractor, he will within five days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the awarding authority, execute a contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price; provided, however, that if there is more than 1 surety company, the surety companies shall be jointly and severally liable.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply fully with all laws and regulations applicable to awards made subject to section 44A.

The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.



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\_\_\_\_\_  
**NAME OF BIDDER**

\_\_\_\_\_  
**SIGNATURE AND TITLE OF PERSON SIGNING BID**

\_\_\_\_\_  
**BUSINESS ADDRESS**  
\_\_\_\_\_

Date: \_\_\_\_\_

**ELECTRONIC BID - HARD COPY SUBMISSION WILL NOT BE ACCEPTED**

# BID BOND

**CONTRACTOR:**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**SURETY:**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**AWARDING AUTHORITY:**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

**BOND AMOUNT:** \_\_\_\_\_**PROJECT:** \_\_\_\_\_

The Contractor and Surety are bound to the Awarding Authority in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Awarding Authority accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Awarding Authority and Contractor, and the Contractor either (1) enters into a contract with the Awarding Authority in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise, acceptable to the Awarding Authority, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Awarding Authority may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Awarding Authority and Contractor to extend the time in which the Awarding Authority may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Awarding Authority and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here from and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory and not as a common law bond.

**IN THE WITNESS WHEREOF,**

the Principal and Surety signed and sealed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

\_\_\_\_\_  
 (Witness) \_\_\_\_\_ (Contractor as Principal) (Seal)

\_\_\_\_\_  
 (Title)

\_\_\_\_\_  
 (Witness) \_\_\_\_\_ (Surety) (Seal)

\_\_\_\_\_  
 (Title)

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**SECTION 00 41 01**

**BID FORM-DETAILED**

**ARTICLE 1 – DEFINED TERMS**

- 1.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions and General and Project Specific Supplementary Conditions, if any.

**ARTICLE 2 – BID RECIPIENT**

- 2.01 This Bid is submitted to:

**Town of Sudbury, MA  
Office of the Town Engineer  
Department of Public Works  
275 Old Lancaster Road  
Sudbury, MA 01776**

- 2.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

**ARTICLE 3 – BIDDER’S ACKNOWLEDGEMENTS**

- 3.01 Bidder accepts all of the terms and conditions of the Bidding Documents including, without limitation:
- A. those dealing with disposition of Bid security;
  - B. those included in the Supplementary Instructions to Bidders;
  - C. insurance and bonding requirements (Payment Bond and Performance Bond each equal to 100% of the total Contract Price) set forth in the General Conditions and Supplementary Conditions, if any;
  - D. Contract Times as set forth in the Agreement; and
  - E. provisions for liquidated damages as set forth in the Agreement.
- 3.02 This Bid will remain subject to acceptance for 100 days after the Bid opening or for such longer period of time that Bidder may agree to in writing upon request of Owner.

3.03 Bidder acknowledges receipt of the following Addenda.

<u>Addendum No.</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

3.04 Bidder acknowledges the representations and certifications included in Section 00 45 05 are made a condition of the Bid.

**ARTICLE 4 – BASIS OF BID**

4.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s). The method for determining award is as set forth in Section 00 21 13.

**BID PRICES SHALL EXCLUDE SALES AND USE TAX.**

**LUMP SUM BASE PRICE**

Item 1 All Work for *Removal and Replacement of Culvert 149* as specified. \$ \_\_\_\_\_

Item 2 All Work for *Removal and Replacement of Culvert 110* as specified. \$ \_\_\_\_\_

**TOTAL LUMP SUM BASE BID PRICE (ITEMS 1 THROUGH 2)**

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_ Dollars and \_\_\_\_\_ Cents \$ \_\_\_\_\_  
(Use words) (Use figures)

**ALTERNATE 1 BID PRICE: all Work for *Removal and Replacement of Culvert 110***

\_\_\_\_\_ ADD

\_\_\_\_\_ Dollars and \_\_\_\_\_ Cents \$ \_\_\_\_\_  
(Use words) (Use figures)

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**ALTERNATE 2 BID PRICE:** all Work for *Removal and Replacement of Culvert 149*

_____	ADD
_____	
_____ Dollars and _____ Cents	\$ _____
<i>(Use words)</i>	<i>(Use figures)</i>

**TOTAL PRICE FOR BASE BID PLUS ALTERNATE 1 PLUS ALTERNATE 2 (BASIS OF AWARD)**

_____	Dollars and _____ Cents	\$ _____
<i>(Use words)</i>		<i>(Use figures)</i>

4.01

4.04 Contract Price Adjustments

A. Owner’s Contingency Allowance (per Agreement)

1. For Traffic Police Details per Paragraph 11.02 of the General Conditions: TWO THOUSAND Dollars and ZERO Cents **NOT TO EXCEED** (\$2,000). Adjustments are established in Section 00 73 15 SC-12.01.
2. For Materials Escalation Price Adjustment (statutory requirement) per MGL c30s38A: ONE THOUSAND Dollars and ZERO Cents **NOT TO EXCEED** (\$1,000). Adjustments are established in Section 00 73 15, SC-12.01.

**ARTICLE 5 – TIME OF COMPLETION**

5.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions and Supplementary Conditions, if any, on or before the dates or within the number of calendar days indicated in the Agreement.

5.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

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**ARTICLE 6 – COMMUNICATIONS WITH BIDDER**

6.01 Communications concerning this Bid shall be addressed to:

Name \_\_\_\_\_

Title \_\_\_\_\_

Business Address \_\_\_\_\_

\_\_\_\_\_

Telephone No. \_\_\_\_\_

Facsimile No. \_\_\_\_\_

Email address \_\_\_\_\_

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SUBMITTED ON:
---------------

7.01 This Bid is submitted by:

**A Corporation**

Corporation Name: \_\_\_\_\_

State of incorporation: \_\_\_\_\_

Type: \_\_\_\_\_  
*(General Business, Professional, Service, other)*

By: \_\_\_\_\_  
*(Signature – attach evidence of authority to sign)*

Name *(typed or printed)*: \_\_\_\_\_

Title: \_\_\_\_\_

(CORPORATE SEAL)

Attest: \_\_\_\_\_  
*(Signature of Corporate Secretary)*

Business Address: \_\_\_\_\_  
\_\_\_\_\_

Phone & Facsimile Nos: \_\_\_\_\_

Email address: \_\_\_\_\_

Date of qualification to do business as out-of-state corporation: \_\_\_\_\_

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**A Limited Liability Company (LLC)**

LLC Name: \_\_\_\_\_

State in which organized: \_\_\_\_\_

By: \_\_\_\_\_  
*(Signature – attach evidence of authority to sign)*

Name *(typed or printed)*: \_\_\_\_\_

Title: \_\_\_\_\_

Business Address: \_\_\_\_\_  
\_\_\_\_\_

Phone & Facsimile Nos: \_\_\_\_\_

Email address: \_\_\_\_\_

**A Joint Venture**

First Joint Venturer Name: \_\_\_\_\_

By: \_\_\_\_\_  
*(Signature – attach evidence of authority to sign)*

Name *(typed or printed)*: \_\_\_\_\_

Title: \_\_\_\_\_

Business Address: \_\_\_\_\_  
\_\_\_\_\_

Phone & Facsimile Nos: \_\_\_\_\_

Email address: \_\_\_\_\_

0233335.05  
Issue Date: April 2024

Old Sudbury Road Culverts 110 And 149 Replacement  
Sudbury, MA

Second Joint Venturer Name: \_\_\_\_\_

By: \_\_\_\_\_  
(Signature – attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business Address: \_\_\_\_\_  
\_\_\_\_\_

Phone & Facsimile Nos: \_\_\_\_\_

Email address: \_\_\_\_\_

(Each joint venturer must sign. The manner of signing for each individual, partnership, corporation and limited liability company that is a party to the joint venture should be in the manner indicated above.)

**A Partnership**

Partnership Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
(Signature of general partner – attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Business Address: \_\_\_\_\_  
\_\_\_\_\_

Phone & Facsimile Nos: \_\_\_\_\_

Email address: \_\_\_\_\_

Last Modified: 04/10/2024 at 4:04PM EDT

**0233335.05**  
**Issue Date: April 2024**  
**An Individual**

**Old Sudbury Road Culverts 110 And 149 Replacement**  
**Sudbury, MA**

Name (*typed or printed*): \_\_\_\_\_

By: \_\_\_\_\_  
*(Individual's signature)*

Doing business as: \_\_\_\_\_

Business Address: \_\_\_\_\_  
\_\_\_\_\_

Phone & Facsimile Nos: \_\_\_\_\_

Email address: \_\_\_\_\_

**END OF SECTION**

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***Sudbury, MA***  
**WOODARD & CURRAN**

**BID FORM-DETAILED**  
**00 41 01-8**

**SIMILAR PROJECTS - REFERENCE FORM**

The bidder must provide five (5) similar projects performed & completed within the past five (5) years.

Similar Project 1	
Project Address: _____	
Start Date: _____	End Date: _____
Current Cost: _____	Original Cost: _____
Cost Change Explanation: _____	
Project Description: _____ _____ _____	
Awarding Authority Reference Contact	Prime Designer Reference Contact
_____ _____ _____	_____ _____ _____
Project Manager Reference Contact	General Contractor Reference Contact
_____ _____ _____	_____ _____ _____

Similar Project 2	
Project Address: _____	
Start Date: _____	End Date: _____
Current Cost: _____	Original Cost: _____
Cost Change Explanation: _____	
Project Description: _____ _____ _____	
Awarding Authority Reference Contact	Prime Designer Reference Contact
_____ _____ _____	_____ _____ _____
Project Manager Reference Contact	General Contractor Reference Contact
_____ _____ _____	_____ _____ _____

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**SIMILAR PROJECTS - REFERENCE FORM**

Similar Project 3	
Project Address: _____	
Start Date: _____	End Date: _____
Current Cost: _____	Original Cost: _____
Cost Change Explanation: _____	
Project Description: _____ _____ _____	
Awarding Authority Reference Contact	Prime Designer Reference Contact
_____ _____ _____	_____ _____ _____
Project Manager Reference Contact	General Contractor Reference Contact
_____ _____ _____	_____ _____ _____

Similar Project 4	
Project Address: _____	
Start Date: _____	End Date: _____
Current Cost: _____	Original Cost: _____
Cost Change Explanation: _____	
Project Description: _____ _____ _____	
Awarding Authority Reference Contact	Prime Designer Reference Contact
_____ _____ _____	_____ _____ _____
Project Manager Reference Contact	General Contractor Reference Contact
_____ _____ _____	_____ _____ _____

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**SIMILAR PROJECTS - REFERENCE FORM**

Similar Project 5	
Project Address: _____	
Start Date: _____	End Date: _____
Current Cost: _____	Original Cost: _____
Cost Change Explanation: _____	
Project Description: _____ _____ _____	
Awarding Authority Reference Contact	Prime Designer Reference Contact
_____ _____ _____	_____ _____ _____
Project Manager Reference Contact	General Contractor Reference Contact
_____ _____ _____	_____ _____ _____

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SECTION 00 43 36

PROPOSED SUBCONTRACTORS AND  
SUBCONTRACTOR REFERENCES FOR SIMILAR PROJECTS

The Bidder shall state the names of all the subcontractors that they propose to use. If none, write "None" and sign below.

\_\_\_\_\_

Description of Work \_\_\_\_\_

Proposed Subcontractor \_\_\_\_\_

Address \_\_\_\_\_

Description of Work \_\_\_\_\_

Proposed Subcontractor \_\_\_\_\_

Address \_\_\_\_\_

Description of Work \_\_\_\_\_

Proposed Subcontractor \_\_\_\_\_

Address \_\_\_\_\_

Use additional pages if necessary.

This is to certify that the names of the above listed Subcontractors are submitted with full knowledge and consent of the respective parties.

The Bidder warrants that none of the proposed Subcontractors have any conflict of interest as respects the Contract.

Bidder \_\_\_\_\_ (name)

By \_\_\_\_\_  
(signature)

Name and title: \_\_\_\_\_

Last Modified: 04/10/2024 at 4:04PM EDT

**SUBCONTRACTOR REFERENCES FOR SIMILAR PROJECTS**

Subcontractor Name: \_\_\_\_\_

	<u>Project Name</u>	<u>Contact Name / Number</u>	<u>Email</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____

Subcontractor Name: \_\_\_\_\_

	<u>Project Name</u>	<u>Contact Name / Number</u>	<u>Email</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____

Subcontractor Name: \_\_\_\_\_

	<u>Project Name</u>	<u>Contact Name / Number</u>	<u>Email</u>
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____

Attach narrative description of project scope, contact with current contact number, and project value for at least three (3) similar projects for each proposed sub-contractor which has been completed in the last five (5) years. Attach additional pages for additional Subcontractors as required.

**END OF SECTION**

## SECTION 00 45 05

### BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

Submit electronically with Bid.

The undersigned, under the penalties of perjury, represents and certifies the following which is made a condition of the Bid.

#### 1.01 BIDDER'S REPRESENTATIONS

- A. Bidder has examined and carefully studied the Bidding Documents and other related data identified in the Bidding Documents.
- B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in Section 00 73 15 Project Specific Supplementary Conditions Paragraph 4.02 as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Section 00 73 15 Project Specific Supplementary Conditions Paragraph 4.06 as containing reliable "technical data."
- E. Bidder has considered the information known to Bidder; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.
- F. Based on the information and observations referred to in Paragraph E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of the Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which the Bid is submitted.

## 1.02 BIDDER'S CERTIFICATIONS

- A. The Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid and has not solicited or induced any individual or entity to refrain from bidding.
- C. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph:
  - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;
  - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish Bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
  - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
  - 4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.
- D. Bidder will comply with the requirements of the Contract Documents, and if Bidder is awarded a Contract, agrees to incorporate applicable provisions into all subcontracts and Purchase Orders so that such provisions will be binding upon each Subcontractor or Supplier, including as a minimum, Statutory Requirements, safety and health regulations; and Wage Rate Requirements.

- E. The following certifications are included as attachments to this Section and Bidder has signed and submitted these **electronically** with its Bid.
- 00 45 05A - Anti-Fraudulent Documentation of Prime Bidder
  - 00 45 05B - Certificate of Compliance with Tax Laws
  - 00 45 05C - Bidder's Certificate of Equal Employment Opportunity/  
Affirmative Action/Non-Discrimination
  - 00 45 05D - Conflict of Interest Certificate
  - 00 45 05E - Bidders Certificate Regarding Payment of Prevailing Wages

SUBMITTED ON:
By:
<i>Authorized person per Bid Form</i>

**END OF SECTION**

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**ATTACHMENT 00 45 05A**

**ANTI-FRAUDULENT DOCUMENTATION OF PRIME BIDDER**

Attach documentation from the Secretary of the Commonwealth of Massachusetts stating that there are no pending proceedings under the Massachusetts General Laws Chapter 156D section 14.21 for the Bidder's dissolution, no articles of dissolution have been filed by the Bidder, the Bidder has filed all annual reports, the BIDDER has paid all fees with respect to such reports, and the Bidder has legal existence and is in good standing with the Secretary of the Commonwealth of Massachusetts.

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ATTACHMENT 00 45 05B

CERTIFICATE OF COMPLIANCE WITH TAX LAWS

PROJECT:

PROJECT LOCATION:

AWARDING AUTHORITY: Town of Sudbury, MA

Pursuant to MGL, c. 62C, § 49A(b), I, \_\_\_\_\_,  
(Name and Title)

authorized signatory for

\_\_\_\_\_  
(Contracting Party)

whose principal place of business is

\_\_\_\_\_  
\_\_\_\_\_  
(Street Address, City/Town, State)

do hereby certify under the pains and penalties of perjury that to the best knowledge and belief, have filed all state tax returns and paid all state taxes required under law, and complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

If an Individual:

Social Security Number \_\_\_\_\_

If a Corporation:

Federal I.D. Number \_\_\_\_\_

\_\_\_\_\_  
(Authorized Signature)

Subscribed and sworn to before me

This \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_

\_\_\_\_\_  
(Title)

My Commission Expires \_\_\_\_\_

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**ATTACHMENT 00 45 05C**

**BIDDER’S CERTIFICATE OF EQUAL EMPLOYMENT OPPORTUNITY/  
AFFIRMATIVE ACTION / NON-DISCRIMINATION**

The undersigned Bidder hereby certifies that, if awarded the contract, he/she will, in the performance of this contract, comply with all statutes and Executive Orders of the Commonwealth of Massachusetts regarding equal employment opportunity and non-discrimination in the workplace, in particular M.G.L. c.151B.

Bidder certifies that he will comply with Minority/Woman Business Enterprise and/or Affirmative Action requirements as may be set forth under the contract provisions if any.

Check if Bidder is certified by SOMWBA as either of the following :

Minority Business Enterprise.

Woman Business Enterprise.

Check if Bidder intends to use MBE/WBE as material supplier. \_\_\_\_\_

\_\_\_\_\_  
Signature of Individual, or Corporation Name

By: \_\_\_\_\_  
Corporate Office & Title (if applicable)

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ATTACHMENT 00 45 05D

CONFLICT OF INTEREST CERTIFICATE

PROJECT:

PROJECT LOCATION: Sudbury, Massachusetts

AUTHORITY: Town of Sudbury

I hereby certify that no official or employee of the Town of Sudbury has a financial interest in the Bidder's proposal or executed Contract or in the expected profit to arise therefrom, unless that official or employee has been compliance with the provisions of MGL, c. 43, § 27, *Interest in Public Contracts by Public Employees Prohibited; Penalty*, and with the provisions of MGL, c. 268A, § 20, *Municipal Employees; Financial Interest in Contracts; Holding One or More Elected Positions*.

If an Individual:

Social Security Number: \_\_\_\_\_

If a Corporation:

Federal I.D. Number: \_\_\_\_\_

\_\_\_\_\_  
(Authorized Signature)

Subscribed and sworn by me this

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_

\_\_\_\_\_  
\_\_\_\_\_

(Title)

My commission expires \_\_\_\_\_

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**ATTACHMENT 00 45 05E**

**BIDDER’S CERTIFICATION REGARDING PAYMENT OF PREVAILING WAGES**

The undersigned Bidder hereby certifies, under the pains and penalties of perjury, that its Bid is based upon the payment to laborers to be employed on the project of wages in an amount no less than the applicable prevailing wage rates (hereinafter Prevailing Wage Rates) established for the Project by the Massachusetts Director of the Executive Office of Labor and Workforce Development (EOLWD), Department of Labor Standards (DLS). The undersigned Bidder agrees to indemnify the Awarding Authority for, from and against any loss, expense, damages, actions or claims, including any expense incurred in connection with any delay or stoppage of the Project Work, arising out of or as a result of (1) the failure of the said Bid to be based upon the payment of the said applicable prevailing wage rates, or (2) the failure of the Bidder, if selected as the Contractor, to pay laborers employed on the Project the said applicable prevailing wage rates.

Dated: \_\_\_\_\_

Name of Bidder \_\_\_\_\_

By \_\_\_\_\_

Printed Name \_\_\_\_\_

Title \_\_\_\_\_

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SECTION 00 45 13

BIDDER'S QUALIFICATIONS

The following data, statements of experience, personnel, equipment and general qualifications are submitted as a part of the Bid and the Bidder represents and guarantees the truthfulness and accuracy thereof and **its ability to meet the qualifications requirements specified in Section 01 43 05 and the Specifications**. Attach additional sheets as necessary properly cross referenced.

1.01 GENERAL

A. Bidder's organization is a \_\_\_\_\_  
(entity type) and has been in business continuously from the year  
\_\_\_\_\_.

Bidder has operated under the same business name and organization structure for  
the last 5 years on at least 5 projects  yes  no

If no, indicate other business names: \_\_\_\_\_

B. Bidder's organization has had experience in construction comparable to that  
required by the Contract Documents as a prime contractor for \_\_\_\_\_ years  
and as a subcontractor for \_\_\_\_\_ years.





**1.04 PERSONNEL**

- A. Identify supervisory personnel that are currently employed by the Bidder and available for assignment to the Project (project manager, superintendents, principal foremen and engineers). Identify full-time on-Site project manager in responsible charge of the Work with at least 5 years' experience as project manager on comparable projects.

Name	Title	Years of Experience
	Full time, on-Site Project Manager	Minimum 5 years

- B. Attach detailed resumes of qualifications, previous employers and experience for each supervisory staff listed above.

**1.05 PROPOSED DESIGN PROFESSIONALS AND SURVEYORS**

A. The following design professionals and surveyors are to be employed or retained by the Bidder and available for assignment to the Project.

Name	Address	Area of Responsibility	Years of Experience

B. Attach detailed resumes of qualifications, previous employers and experience for each design professional and surveyor listed above.









### 1.10 VIOLATIONS

- A. Following is a list of violations Bidder and its main Subcontractors have received or been the subject of, or otherwise been involved in, regarding any state or local ethic laws, regulation, code, ordinance, policy, or standard, or offenses arising out of submission of bids or the performance of work on public works projects or contracts over the last 5 years. Attach additional sheets as necessary.

<b>Name and Location of the Project</b>	
<b>Nature of the Violation/Offense</b>	
<b>Duration and dates during which the violation/offense took place</b>	
<b>Name and Location of the Project</b>	
<b>Nature of the Violation/Offense</b>	
<b>Duration and dates during which the violation/offense took place</b>	
<b>Name and Location of the Project</b>	
<b>Nature of the Violation/Offense</b>	
<b>Duration and dates during which the violation/offense took place</b>	

**1.11 LABOR DISPUTES**

- A. Identify labor disputes the Bidder has been the subject of, or otherwise been involved in, during the last 5 years. For these purposes, "labor disputes" shall include picketing or any other activity which disrupted or delayed the work. Attach additional sheets as necessary.

<b>Name and Location of the Project</b>	
<b>Nature of the Dispute</b>	
<b>Duration and dates during which the dispute took place</b>	
<b>How the dispute was resolved</b>	
<b>Name and Location of the Project</b>	
<b>Nature of the Dispute</b>	
<b>Duration and dates during which the dispute took place</b>	
<b>How the dispute was resolved</b>	

**END OF SECTION**

SECTION 00 45 19

NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

Project Name: \_\_\_\_\_

State of \_\_\_\_\_

County of \_\_\_\_\_

I state that I am \_\_\_\_\_

(Title)

of \_\_\_\_\_ (Name of Firm)

and that I am authorized to make this Affidavit on behalf of the firm and its owners, directors and officers. I am the person responsible in firm for the price(s) and the amount of this Bid.

I state that:

1. The price(s) and amount of this Bid have been arrived at independently and without consultation, communication or agreement with any other contractor, Bidder or potential Bidder.
2. Neither the price nor the amount of this Bid, and neither the approximate price(s) nor approximate amount of this Bid have been disclosed to any other firm or person who is a Bidder or potential Bidder, and they shall not be disclosed before the Bid opening.
3. No attempt has been made or shall be made to induce any firm or person to refrain from bidding on this Contract, to submit a Bid higher than this Bid or to submit any intentionally high or noncompetitive Bid or other form of complementary Bid.
4. The Bid of my firm is made in good faith and not pursuant to any agreement or discussion with, or inducement from, any firm or person to submit a complementary or other noncompetitive Bid.
5. (Name of Firm), its affiliates, subsidiaries, officers, directors and employees are not currently under investigation by any governmental agency and have not in the last four (4) years been convicted or found liable for any act involving conspiracy or collusion prohibited by state or federal law in any jurisdiction with respect to bidding on any public contract except as follows:

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Last Modified: 04/10/2024 at 4:04PM EDT

**0233335.05**  
**Issue Date: April 2024**

**Old Sudbury Road Culverts 110 And 149 Replacement**  
**Sudbury, MA**

I state that \_\_\_\_\_ (Name of Firm) understands and acknowledges that the above representations are material and important and shall be relied on by the Owner in awarding the Contract(s) for which this Bid is submitted. I understand and my firm understands that any misstatement in this Affidavit is and shall be treated as fraudulent concealment from the Owner of the true facts relating to the submission of the Bids for this Contract.

\_\_\_\_\_  
Name and Company Position

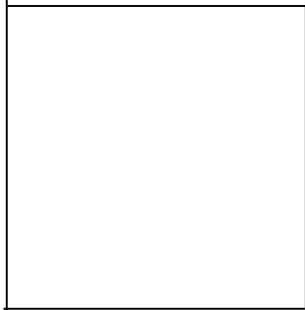
SWORN TO AND SUBSCRIBED BEFORE ME THIS

\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_ (Notary Public)

My commission expires: \_\_\_\_\_

Notary Public Seal:



**END OF SECTION**

SECTION 00510  
NOTICE OF AWARD

To: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date: \_\_\_\_\_, 2024

Attention: \_\_\_\_\_

RE: Old Sudbury Road Culvert Replacements Project  
Contract **2024-OSRC-1**

Gentlemen:

Please be advised that the Town of Sudbury has approved award of a contract for the above referenced project to your firm in the amount of \$ \_\_\_\_\_ Lump Sum.

You are requested to submit to this office, six (6) copies of the necessary insurance certificates and/or policies and Performance and Payment Bonds required as specified in the Information to Bidders and the Contract Form Section of the Specifications, and Contractor's Wage Certification Form.

Also, enclosed are six (6) copies of the Contract Agreement, and, the Exempt Purchase Certificate. Please review these documents verifying that all information regarding your company is correct and complete.

In all instances, please ensure that signatures are witnessed where called for on Bonds and do not predate the contract date.

We request that the Contract Agreement, insurance certificates and bonds be returned to this office no later than ten (10) days from the date of this Notice so that they may be reviewed with Town Counsel and incorporated into the Contract Documents. Once all forms have been received and accepted by the Town of Sudbury, you shall be contacted regarding the scheduling of a pre-construction meeting.

Should you have any questions, please feel free to contact this office at your earliest convenience.

Very Truly Yours,

Andrew J. Sheehan  
Town Manager, Sudbury, MA

END OF SECTION

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**SECTION 00 52 10**  
**STANDARD FORM OF AGREEMENT BETWEEN**  
**OWNER AND CONTRACTOR ON THE BASIS OF A STIPULATED PRICE**

THIS AGREEMENT, made this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, by and between the party of the first part, the **Town of Sudbury, MA**, hereinafter called "Owner," acting herein through its Town Manager, and the party of the second part \_\_\_\_\_ doing business as \*(an individual) (a partnership) (a joint venture) (a corporation) located in the (City) (Town) of \_\_\_\_\_, County of \_\_\_\_\_, and State of \_\_\_\_\_ hereinafter called "Contractor."

**Article 1. WORK.**

Contractor shall complete all Work for **Old Sudbury Road Culverts 110 And 149 Replacement** as specified or indicated in the Contract Documents. The Work is generally described in Section 01 11 00 – Summary of Work.

The Project for which the Work under the Contract Documents may be the whole or only a part is known as

**Old Sudbury Road Culverts 110 And 149 Replacement**

**Article 2. ENGINEER.**

The Project has been designed by Woodard & Curran, Inc. who is hereinafter called Engineer and who is to act as Owner's representative, assume all duties and responsibilities and have the rights and authority assigned to Engineer in the Contract Documents in connection with completion of the Work in accordance with the Contract Documents.

**Article 3. CONTRACT TIME.**

*3.1. Substantial Completion and Final Payment*

3.1.1. The Work shall be substantially complete within 116 calendar days from the commencement of Contract Times as provided in Paragraph 2.03 of the Standard General Conditions and completed and ready for final payment, in accordance with Paragraph 14.07 of the Standard General Conditions, 130 calendar days from the commencement of Contract Times.

*3.2 Liquidated Damages.*

3.2.1. Owner and Contractor recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the Work is not completed within the times specified in paragraph 3.1 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Owner \$500 for each day that expires after the time specified in paragraph 3.1 for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner \$500 for each day that expires after the time specified in Paragraph 3.1 above for completion and readiness for final payment until the Work is completed and ready for final payment.

**Article 4. CONTRACT PRICE.**

4.1. Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents in current funds as follows:

**TOTAL PRICE**

[IN WORDS] Dollars and [IN WORDS] Cents

[\$[DOLLAR AMOUNT]]

4.1.1. Unit Prices have been computed in accordance with Paragraph 11.03.A of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.

4.1.2. The prices for Unit Price Work set forth as of the Effective Date of the Agreement are based on estimated quantities. As provided in Paragraph 11.03 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, estimated quantities are not guaranteed (except for those that may be estimated by the Contractor), and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any. Final payment for unit price items will be based on actual quantities determined and based on the unit prices in the Bid Form.

4.1.3. When the accepted quantity of any item of Unit Price Work performed by the Contractor (as measured in accordance with 9.07 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any) differs from the estimated quantity indicated in the attachment(s) to this Agreement for an item of Unit Price Work, no adjustment or allowance will be made for any increased expenses, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly or indirectly from such increased or decreased quantities, or from unbalanced allocation of overhead expense among the Unit Price Work items on the part of the Contractor, or subsequent loss of expected reimbursements therefor.

**4.2 Owner's Contingency(s)**

4.2.1 Contractor agrees that any Owner's contingency(s) is for the sole use of Owner to cover estimated anticipated costs for certain items.

A. Adjustments to the Contract Price will be made for diesel fuel, gasoline, liquid asphalt, and portland cement in cast-in-place concrete based on the Base Prices and index established for adjustments in accordance with price adjustment clauses included in Section 00 73 15, SC-12.01.

**Article 5. PAYMENT PROCEDURES.**

Contractor shall submit Applications for Payment in accordance with Article 14 of the Standard General Conditions and General and Project Specific Supplementary Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

5.1. *Progress Payments.* Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment as recommended by Engineer, every month as provided below. All progress payments will be on the basis of the progress of the Work based on the number of units completed.

5.1.1. Prior to Substantial Completion, progress payments will be made in an amount indicated below, but, in each case, less the aggregate of payments previously made and less such amounts as Engineer shall determine, or Owner may withhold, in accordance with paragraph 14.02 of the Standard General Conditions and General and Project Specific Supplementary Conditions.

95% of Work completed. (5% retainage)



90% of materials and equipment not incorporated in the Work (10% retainage) and delivered, suitably stored and accompanied by documentation satisfactory to Owner as provided in paragraph 14.02 of the Standard General Conditions and General and Project Specific Supplementary Conditions.

5.1.2. Upon Substantial Completion, in an amount sufficient to increase total payments to Contractor to 95% of the Contract Price based on completed units, less such amounts as Engineer shall determine, or Owner may withhold, in accordance with Article 14 of the Standard General Conditions and General and Project Specific Supplementary Conditions.

5.2. *Final Payment.* Upon final completion and acceptance of the Work in accordance with paragraph 14.07 of the Standard General Conditions and General and Project Specific Supplementary Conditions, Owner shall pay the remainder of the Contract Price based on completed units as recommended by Engineer as provided in said paragraph 14.07.

#### **Article 6. INTEREST.**

All monies not paid when due as provided in Article 14 of the Standard General Conditions and General and Project Specific Supplementary Conditions shall bear interest at the current rate allowed by law at the place of the Project.

#### **Article 7. CONTRACTOR'S REPRESENTATIONS.**

In order to induce Owner to enter into this Agreement, Contractor makes the following representations:

7.1. Contractor has familiarized itself with the nature and extent of the Contract Documents, Work, site, locality and all local conditions and Laws and Regulations that in any manner may affect cost, progress, performance or furnishing of the Work.

7.2. Contractor has studied carefully all reports of explorations, tests of subsurface conditions and drawings of physical conditions which are identified in the Contract Documents as provided in paragraph 4.02 of the Standard General Conditions and General and Project Specific Supplementary Conditions of the extent of the technical data contained in such reports and drawings upon which Contractor is entitled to rely.

7.3. Contractor has obtained and carefully studied (or assumes responsibility for obtaining and carefully studying) all such examinations, investigations, explorations, tests, reports and studies (in addition to or to supplement those referred to in paragraph 7.2 above) which pertain to the subsurface or physical conditions at or contiguous to the site or otherwise may affect the cost, progress, performance or furnishing of the Work as Contractor considers necessary for the performance or furnishing of the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.02 of the Standard General Conditions and General and Project Specific Supplementary Conditions; and no additional examinations, investigations, explorations, tests, reports, studies or similar information or data are or will be required by Contractor for such purposes.

7.4. Contractor has reviewed and checked all information and data shown or indicated on the Contract Documents with respect to existing Underground Facilities at or contiguous to the site and assumes responsibility for the accurate location of said Underground Facilities. No additional examinations, investigations, explorations, tests, reports, studies or similar information or data in respect of said Underground Facilities are or will be required by Contractor in order to perform and furnish the Work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents, including specifically the provisions of paragraph 4.03 of the Standard General Conditions and General and Project Specific Supplementary Conditions.

7.5. Contractor has correlated the results of all such observations, examinations, investigations, explorations, tests, reports and studies with the terms and conditions of the Contract Documents.

7.6. Contractor has given Engineer written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Contractor.

#### **Article 8. CONTRACT DOCUMENTS.**

The Contract Documents which comprise the entire agreement between Owner and Contractor concerning the Work consist of the following:

8.1. This Agreement and attachments

Contractor's Bid and attachments –to the extent accepted by the Owner  
Contract Security  
Insurance Certificates

8.2 Standard General Conditions of the Construction Contract.

8.3 General and Project Specific Supplementary Conditions as listed in Section 00 01 10, Table of Contents.

8.4 Specifications as listed in Section 00 01 10, Table of Contents.

8.5 Drawings listed in Section 00 01 15, List of Drawing Sheets

8.6 Addenda numbers to inclusive.

8.7 Documentation submitted by Contractor prior to Notice of Award to the extent accepted by the Owner.

8.8 The following which may be delivered or issued after the Effective Date of the Agreement and are not attached hereto:

- Notice to Proceed;
- All Written Amendments and other documents amending, modifying or supplementing the Contract Documents pursuant to paragraphs 3.03 and 3.04 of the Standard General Conditions and General and Project Specific Supplementary Conditions.

There are no Contract Documents other than those listed above in this Article 8. The Contract Documents may only be amended, modified or supplemented as provided in paragraphs 3.03 and 3.04 of the Standard General Conditions and General and Project Specific Supplementary Conditions.

#### **Article 9 MISCELLANEOUS.**

9.1. Terms used in this Agreement which are defined in Article 1 of the Standard General Conditions and General and Project Specific Supplementary Conditions will have the meanings indicated in the Standard General Conditions and General and Project Specific Supplementary Conditions.

9.2. No assignment by Contractor of any rights or interests in the Contract Documents will be binding on Owner without the prior written consent of Owner; and specifically but without limitation monies that may become due to Contractor and monies that are due to Contractor may not be assigned without such consent (except to the extent the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release Contractor from any duty or responsibility under the Contract Documents.

9.2.1. Owner shall have the right to assign the Contract Documents, or specified provisions of, or rights and/or obligations under, the Contract Documents, to any person or private or governmental entity to whom Owner transfers the Work and Owner will be released from any duty and responsibility so assigned.

9.3. Contractor binds itself, its partners, successors, assigns and legal representatives to the other party hereto, its partners, successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

9.4. This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

9.5 The undersigned hereby certifies that it is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins works and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that it will comply fully with all laws and regulations applicable to awards made subject to section 39M of Chapter 30 of the General Laws.

9.6 The Contractor agrees not to discriminate against or exclude any person from participation herein on grounds of race, religion, color, sex, age or national origin; and that it shall take affirmative actions to ensure that applicants are employed, and that employees are treated during their employment, without regard to race, religion, color, sex, age, handicapped status, or national origin.

9.7 The Contractor agrees not to participate in or cooperate with an international boycott, as defined in Section 999 (b)(3) and (4) of the Internal Revenue Code of 1954, as amended, or engage in conduct declared to be unlawful by Section 2 of Chapter 151E of the Massachusetts General Laws.

9.8 The Owner agrees to pay the Contractor in current funds for the performance of the contract, subject to additions and deductions, as provided in the Standard General Conditions and General and Project Specific Supplementary Conditions.

9.9 IN WITNESS WHEREOF, the parties to these presents have executed this contract in counterparts, each of which shall be deemed an original, in the year and day first above mentioned.

AGREED:  
Town of Sudbury, Massachusetts (Owner)

By \_\_\_\_\_

\_\_\_\_\_ (Name)

\_\_\_\_\_ (Title)

\_\_\_\_\_  
**(Contractor)**

By \_\_\_\_\_

\_\_\_\_\_ (Name)

\_\_\_\_\_ (Title)

\_\_\_\_\_ (Address)

\_\_\_\_\_ (City and State)

Approved as to Form:

By \_\_\_\_\_ (Owner's Counsel)

\_\_\_\_\_ (Name)

0233335.05  
Issue Date: April 2024

Old Sudbury Road Culverts 110 And 149 Replacement  
Sudbury, MA

In accordance with M.G.L. C.44, Section 31C, this is to certify that an appropriation in the amount of this Contract is available therefor and that the \_\_\_\_\_  
\_\_\_\_\_ has been authorized to execute the Contract and approve all requisitions and change orders.

By \_\_\_\_\_  
(Owner's Accountant)

\_\_\_\_\_ (Name)

CERTIFICATE OF VOTE  
(to be filed if Contractor is a Corporation)

I, \_\_\_\_\_, hereby certify that I am the duly qualified (Secretary of the Corporation) and acting Secretary of \_\_\_\_\_  
(Name of Corporation)

and I further certify that a meeting of the Directors of said Company, duly called and held on \_\_\_\_\_, at which (Date of Meeting)

all Directors were present and voting, the following vote was unanimously passed:

VOTED: To authorize and empower

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Anyone acting singly, to execute Bid Forms, Contracts or Bonds on behalf of the Corporation.

I further certify that the above vote is still in effect and has not been changed or modified in any respect.

By: \_\_\_\_\_ (Secretary of Corporation)

A True Copy:

Attest: \_\_\_\_\_ (Notary Public)

My Commission Expires: \_\_\_\_\_ (Date)

Last Modified: 04/10/2024 at 4:04PM EDT

**CERTIFICATIONS REQUIRED BY  
LAW FOR PUBLIC CONSTRUCTION  
CONTRACTS**

**You must COMPLETE and SIGN the following certifications. You must also print, at the bottom of this page, the name of the contractor for whom these certifications are submitted.**

**TAX COMPLIANCE**

Pursuant to Chapter 62C of the Massachusetts General Laws, Section 49A(b), I, the undersigned, authorized signatory for the below named contractor, do hereby certify under the pains and penalties of perjury that said contractor has complied with all laws of the Commonwealth of Massachusetts relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

**NON-COLLUSION**

The undersigned certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

**PUBLIC CONTRACTOR DEBARMENT**

The undersigned certifies under penalty of perjury that the below named contractor is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

**OSHA TRAINING**

Pursuant to G.L. c. 30, §39S, the Contractor hereby certifies under penalties of perjury as follows:

- Contractor is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work;
- All employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and they shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and
- All employees to be employed in the work subject to this contract have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration.

**COMPLETE AND SIGN BELOW:**

\_\_\_\_\_  
Authorized Person's Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Print Name & Title of Signatory

\_\_\_\_\_  
Name of Contractor

**END OF SECTION**

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**PERFORMANCE BOND (C-00 61 13.13)**

KNOW ALL MEN BY THESE PRESENTS: That we \_\_\_\_\_  
(Name of Contractor)

a \_\_\_\_\_ hereinafter called "Principal" and  
(Corporation, Partnership, Joint Venture or Individual)

\_\_\_\_\_ of \_\_\_\_\_, State of \_\_\_\_\_  
(Surety) (City)

\_\_\_\_\_ hereinafter called the "Surety" and licensed by the State  
Division of Insurance to do business under the laws of the Commonwealth of Massachusetts, are  
held and firmly bound to the Town of \_\_\_\_\_, Massachusetts, hereinafter called  
"Owner", in the penal sum of

\_\_\_\_\_ Dollars  
(\$ \_\_\_\_\_) in lawful money of the United States, for the payment of which  
sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and  
successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas the Principal has  
entered into a certain contract with the Owner (the "Construction Contract"), dated the  
\_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, for the construction described as follows:  
\_\_\_\_\_.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties,  
all the undertakings, covenants, terms, conditions, and agreements of the Construction Contract  
during the original term thereof, and any extensions thereof which may be granted by the Owner,  
with or without notice to the Surety, and if he shall satisfy all claims and demands incurred under  
the Construction Contract, and shall fully indemnify and save harmless the Owner from all costs  
and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the  
Owner all outlay and expense which the Owner may incur in making good any default, then this  
obligation shall be void; otherwise, this obligation shall remain in full force and effect.

PROVIDED, FURTHER, that the Surety's obligation under this Bond shall arise after  
(1) the Owner has declared the Principal in default of the Construction Contract or any provision  
thereof, or (2) has declared that the Principal has failed, or is otherwise unable or unwilling, to  
execute the Work consistent with, and in conformance to, the Construction Contract (collectively  
referred to as a "Contractor Default"). The determination of a Contractor Default shall be made  
solely by the Owner. The Owner need not terminate the Construction Contract to declare a  
Contractor Default or to invoke its rights under this Bond, and Principal agrees, notwithstanding  
any agreement between it and the surety to the contrary, not to bring any claim against the Surety  
on account of the Surety's good faith fulfillment of its obligations before or without termination  
of the Construction Contract.

When the Surety's obligation under this Bond arises, the Surety, at its sole expense and at the consent and election of the Owner, shall promptly take one of following steps: (1) arrange for the Principal to perform and complete the Work of the Construction Contract; (2) arrange for a contractor other than the Principal to perform and complete the Work of the Construction Contract; (3) reimburse the Owner, in a manner and at such time as the Owner shall reasonably decide, for all costs and expenses incurred by the Owner in performing and completing the Work of the Construction Contract. Surety will keep Owner reasonably informed of the progress, status and results of any investigation of any claim of the Owner.

If the Surety does not proceed as provided in this Bond with due diligence and all deliberate speed, the Surety shall be deemed to be in default of this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner.

After the Surety's obligation under this Bond arises, the Surety is obligated, to the limit of the amounts of this Bond, for (1) the correction of defective Work and completion of the Construction Contract; (2) additional design, professional services, and legal costs, including attorney's fees, resulting from the Contractor Default or from the default of the Surety under this Bond; (3) any additional Work beyond the Construction Contract made necessary by the Contractor Default or default of the Surety under this Bond; (4) indemnification obligations of the Principal, if any, as provided in the Construction Contract; and (5) liquidated damages as provided in the Construction Contract, or if no such damages are specified, actual damages and consequential damages resulting from the Contractor Default or any default of the Surety under this Bond.

Any proceeding, legal or equitable, under this Bond shall be instituted in any court of competent jurisdiction in the Commonwealth of Massachusetts.

The Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the Construction Contract or to the Work to be performed thereunder or the Specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the Construction Contract or to the Work or to the Specifications.

IN WITNESS WHEREOF, this instrument is executed in \_\_\_\_ ( ) counterparts, each one of which shall be deemed an original, this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

ATTEST:

\_\_\_\_\_  
(Principal Secretary)

By \_\_\_\_\_

\_\_\_\_\_  
(Address-Zip Code)

\_\_\_\_\_  
Witness as to Principal (SEAL)

\_\_\_\_\_

\_\_\_\_\_  
(Address-Zip Code)

ATTEST:

\_\_\_\_\_ Surety

\_\_\_\_\_ By \_\_\_\_\_  
(Attorney-in-Fact)

\_\_\_\_\_

\_\_\_\_\_  
(Address-Zip Code)

\_\_\_\_\_  
Witness as to Surety (SEAL)

\_\_\_\_\_

\_\_\_\_\_  
(Address-Zip Code)

NOTE: Date of Bond must not be prior to date of Contract. If Contractor is a Partnership, all partners should execute Bond.

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# LABOR AND MATERIALS PAYMENT BOND (00 61 13.16)

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

## CONTRACT

Effective Date of Agreement:

Amount:

Description (*Name and Location*):

## BOND

Bond Number:

Date (*Not earlier than Effective Date of Agreement*):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

## CONTRACTOR AS PRINCIPAL

## SURETY

\_\_\_\_\_  
Contractor's Name and Corporate Seal

\_\_\_\_\_  
Surety's Name and Corporate Seal

By: \_\_\_\_\_  
Signature

By: \_\_\_\_\_  
Signature (Attach Power of Attorney)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

Attest: \_\_\_\_\_  
Signature

Attest: \_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

*Note: Provide execution by additional parties, such as joint venturers, if necessary.*

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
  - 2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
  - 2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
  - 4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
  - 4.2 Claimants who do not have a direct contract with Contractor:
    1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
    2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
    3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. Reserved.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions

15.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms “labor, materials or equipment” that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor’s subcontractors, and all other items for which a mechanic’s lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – *(Name, Address, and Telephone)*

Surety Agency or Broker:

Owner’s Representative *(Engineer or other)*:

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NOTICE TO PROCEED (C-00 55 00)

To: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date: \_\_\_\_\_, 20

Attention: \_\_\_\_\_

Project:

You are hereby notified to commence Work on the referenced Project in accordance with the above-referenced Contract dated \_\_\_\_\_, 20\_\_ on or before \_\_\_\_\_, 20\_\_.

In accordance with the Agreement, the number of days to achieve Substantial Completion is [#], and the number of days to achieve readiness for final payment is [#]. Therefore, the date of final completion is \_\_\_\_\_, 20\_\_.

OR [the date of Substantial Completion is [DATE], and the date of readiness for final payment is [DATE].

Before you may start Work, you must satisfy all requirements set forth in Article 2 of the General Conditions.

Town of Sudbury, MA

BY: \_\_\_\_\_

Henry L. Hayes, Jr.  
Town Manager

ACCEPTANCE OF NOTICE

Receipt of the above Notice to Proceed is hereby acknowledged by:

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Name)

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**SECTION 00 60 00**

**PROJECT FORMS**

The following forms are included in this Section and shall be used for the Project as specified in the General Conditions and Supplementary Conditions if any, and the General Requirements. Completed and execution versions of these forms used during the Project shall be incorporated into the Agreement and made a part thereof.

- Submittal Transmittal (Form C-00 62 11)*
- Application for Payment (Form C-00 62 76)*
- Request for Interpretation/Information (Form C-00 63 15)*
- Field Order (Form C-00 63 36)*
- Work Change Directive (Form C-00 63 49)*
- Change Request (Form C- 00 63 60)*
- Change Order (Form C-00 63 63 MA)*
- Notice of Substantial Completion (Form C-00 65 15)*
- Certificate of Substantial Completion (Form C-00 65 16)*
- Notice of Completion (Form C-00 65 18)*

**END OF SECTION**

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**REQUEST FOR  
INTERPRETATION/INFORMATION  
(Form C-00 63 15)**

**RFI #:** \_\_\_\_\_  Attachment

To: \_\_\_\_\_

From: \_\_\_\_\_

Attn: \_\_\_\_\_

Issue Date: \_\_\_\_\_

Project: \_\_\_\_\_

Required Reply Date: \_\_\_\_\_

**DISTRIBUTION:**

<u>Contractor</u>	<u>Owner</u>	<u>Engineer</u>
<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____
<input type="checkbox"/> _____	<input type="checkbox"/> _____	<input type="checkbox"/> _____

**REFERENCES:**

- Specifications: \_\_\_\_\_ Section: \_\_\_\_\_ Page/Paragraph: \_\_\_\_\_
- Drawings: \_\_\_\_\_ Issue Date: \_\_\_\_\_ Detail/Sections: \_\_\_\_\_
- Work Area: \_\_\_\_\_ Grid/Level: \_\_\_\_\_

**RFI DESCRIPTION:**

From: \_\_\_\_\_ Tel No: \_\_\_\_\_ Fax: No: \_\_\_\_\_

Initial: \_\_\_\_\_ E-mail: \_\_\_\_\_

**RFI REPLY: (response may be transmitted in separate document)**

**Possible Cost Effect** Yes:  No:

**Possible Schedule Effect** Yes:  No:

From: \_\_\_\_\_ Reply Date: \_\_\_\_\_ xc: \_\_\_\_\_

Initial: \_\_\_\_\_

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# Field Order (C-00 63 36)

No. \_\_\_\_\_

Date of Issuance: \_\_\_\_\_ Effective Date: \_\_\_\_\_

Project:	Owner:	Owner's Contract No.:
Contract:	Date of Contract:	
Contractor:	Engineer's Project No.:	

**Attention:**

You are hereby directed to promptly execute this Field Order issued in accordance with General Conditions Paragraph 9.04.A, for minor changes in the Work without changes in Contract Price or Contract Times. If you consider that a change in Contract Price or Contract Times is required, please notify the Engineer immediately and before proceeding with this Work.

Reference: \_\_\_\_\_  
(Specification Section(s))                      (Drawing(s) / Detail(s))

Description:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Attachments:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Engineer:  
\_\_\_\_\_

<b>Receipt Acknowledged by Contractor:</b>	Date:
--	-------

Copy to Owner

Last Modified: 04/10/2024 at 4:04PM EDT

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# CHANGE REQUEST (FORM C-00 63 60) (Design Changes/Deviations/Substitutions)

CR NO.  
DATE

## Project:

Request Initiated by:  
 Contractor  
 Owner  
 Engineer

Impact to Contract Price expected   
 Impact to Contract Time expected   
*Change Orders will be processed separately*

Request submitted as (format):

---

Description of Change ( documentation attached)

## Reason for Change

**Response:**  This constitutes a Written Amendment to the Agreement.

Review of the proposed change/deviation/substitution by Engineer is for general compatibility with the design concept of the Project. This review does not extend to means, methods, sequences, or procedures of construction or to issues of safety incident thereto. This review shall not relieve the Contractor from responsibility for full compliance with the requirements specified in the Contract Documents and to determine and verify the information contained therein.

<p>Recommended By Engineer for Acceptance (subject to above comments if any)</p> <p><input type="checkbox"/> recommended for processing and approval under a separate Change Order</p> <p>NAME:</p> <hr/> <p><i>Signature</i> <span style="float: right;"><i>Date</i></span></p>	<p><input type="checkbox"/> Approved by Owner (no schedule or cost impact)</p> <p><input type="checkbox"/> Acknowledged by Owner – to be processed and approved under a separate Change Order</p> <p>NAME:</p> <hr/> <p><i>Signature</i> <span style="float: right;"><i>Date</i></span></p>
<p>Approved by Contractor</p> <p><input type="checkbox"/> Change Order to be requested</p> <p>NAME:</p> <hr/> <p><i>Signature</i> <span style="float: right;"><i>Date</i></span></p>	

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**Change Order No. \_\_\_\_\_**  
**(Form C-00 63 63) MA**

Date of Issuance: \_\_\_\_\_ Effective Date: \_\_\_\_\_

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

**The Contract Documents are modified as follows upon execution of this Change Order:**

Description:

**Attachments (list documents supporting change):**

**CHANGE IN CONTRACT PRICE:**

**CHANGE IN CONTRACT TIMES:**

Original Contract Price:

\$ \_\_\_\_\_

[Increase] [Decrease] from previously approved Change Orders No. \_\_\_\_\_ to No. \_\_\_\_\_:

\$ \_\_\_\_\_

Contract Price prior to this Change Order:

\$ \_\_\_\_\_

[Increase] [Decrease] of this Change Order:

\$ \_\_\_\_\_

Contract Price incorporating this Change Order:

\$ \_\_\_\_\_

Original Contract Times:  Working days  Calendar days

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

[Increase] [Decrease] from previously approved Change Orders No. \_\_\_\_\_ to No. \_\_\_\_\_:

Substantial completion (days): \_\_\_\_\_

Ready for final payment (days): \_\_\_\_\_

Contract Times prior to this Change Order:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

[Increase] [Decrease] of this Change Order:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

Contract Times with all approved Change Orders:

Substantial completion (days or date): \_\_\_\_\_

Ready for final payment (days or date): \_\_\_\_\_

**RECOMMENDED:**

By: \_\_\_\_\_  
 Engineer (Authorized Signature)

Date: \_\_\_\_\_

Approved by Funding Agency (if applicable): \_\_\_\_\_

Date: \_\_\_\_\_

**ACCEPTED:**

By: \_\_\_\_\_  
 Owner (Authorized Signature)

Date: \_\_\_\_\_

Approved by Funding Agency (if applicable): \_\_\_\_\_

Date: \_\_\_\_\_

**ACCEPTED:**

By: \_\_\_\_\_  
 Contractor (Authorized Signature)

Date: \_\_\_\_\_

Approved by Funding Agency (if applicable): \_\_\_\_\_

Date: \_\_\_\_\_

Pursuant to MGL c.44, s31C, I certify that appropriated funds are available for the total amount of this Change Order.

\_\_\_\_\_  
Owner's Auditor/Accountant (Name) Date: \_\_\_\_\_

Pursuant to MGL c.30, s39I, reasons for deviation are as stated above or attached. The specified deviation(s) does not materially injure the Project as a whole, the Work is of the same cost and quality or an equitable adjustment has been agreed upon, and the deviation is in the best interest of the Owner.

\_\_\_\_\_  
Owner Date: \_\_\_\_\_

Last Modified: 04/10/2024 at 4:04PM EDT

### A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

### B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.

This page intentionally left blank

# Notice of Substantial Completion (C-00 65 15)

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		

**This NOTICE of Substantial Completion applies to:**

The following Systems, Equipment or specified portions       : All Work under the Contract Documents

:

---

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---

\_\_\_\_\_ Date of Substantial Completion for above

The following documents are attached to and made part of this Notice.

---

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---

\_\_\_\_\_  
Submitted by Contractor

\_\_\_\_\_  
Date

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# Certificate of Substantial Completion (Form C-00 65 16)

Project:

Owner:

Owner's Contract No.:

Contract:

Engineer's Project No.:

**This [tentative] [definitive] Certificate of Substantial Completion applies to:**

- All Work under the Contract Documents:       The following specified portions of the Work:

---

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---

\_\_\_\_\_  
Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [definitive] list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

**The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:**

- Amended Responsibilities                       Not Amended

Owner's Amended Responsibilities:

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Contractor's Amended Responsibilities:

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# Notice of Completion (Form C-00 65 18)

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		

**This NOTICE of Completion applies to:**

- All Work under the Contract Documents:  The following specified portions:

---

---

---

---

\_\_\_\_\_  
Date of final Completion

The Work to which this Notice applies is ready for inspection by authorized representatives of Engineer and Owner. Contractor has completed all corrections, delivered all required documentation, and the Project, or portion designated above, is complete. The Date of Completion of the Project or portion thereof designated above is hereby declared by the Contractor.

The following documents are attached to and made part of this Certificate:

Final Punchlist

Final Application for Payment

Only the **making and acceptance of final payment** will constitute:

1. A waiver of all claims by Owner against Contractor, except claims arising from any unsettled liens, from Defective Construction appearing after final inspection; from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
2. A waiver of all claims by Contractor against Owner other than those previously timely made in writing and still unsettled.

\_\_\_\_\_  
Submitted by Contractor

\_\_\_\_\_  
Date

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This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

**SECTION 00 72 05**  
**STANDARD GENERAL CONDITIONS  
OF THE CONSTRUCTION CONTRACT**

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly by

**ACEC**

AMERICAN COUNCIL OF ENGINEERING COMPANIES



**ASCE** American Society  
of Civil Engineers

**P/E** National Society of  
Professional Engineers  
Professional Engineers in Private Practice

AMERICAN COUNCIL OF ENGINEERING COMPANIES

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*A Practice Division of the*  
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
  3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
  5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  6. *Bidder*—The individual or entity who submits a Bid directly to Owner.
  7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
  8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
  9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
  10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
  11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer’s written recommendation of final payment.
15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.
16. *Cost of the Work*—See Paragraph 11.01 for definition.
17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. *Engineer*—The individual or entity named as such in the Agreement.
20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. *General Requirements*—Sections of Division 1 of the Specifications.
22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. *PCBs*—Polychlorinated biphenyls.
31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.

40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.
47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. *Unit Price Work*—Work to be paid for on the basis of unit prices.
50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

## 1.02 Terminology

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
  - a. does not conform to the Contract Documents; or
  - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
  - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*



1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
  2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
  3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
  4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## **ARTICLE 2 – PRELIMINARY MATTERS**

### **2.01 *Delivery of Bonds and Evidence of Insurance***

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

### **2.02 *Copies of Documents***

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

### **2.03 *Commencement of Contract Times; Notice to Proceed***

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.



## 2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

## 2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
  - 1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
  - 2. a preliminary Schedule of Submittals; and
  - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

## 2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

## 2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
  - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of

the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

### **ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

#### **3.01 *Intent***

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

#### **3.02 *Reference Standards***

- A. Standards, Specifications, Codes, Laws, and Regulations
  1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
  2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

#### **3.03 *Reporting and Resolving Discrepancies***

- A. *Reporting Discrepancies:*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
  - a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
  1. A Field Order;
  2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

3. Engineer's written interpretation or clarification.

### 3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
  1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
  2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

### 3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

## **ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

### 4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

#### 4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

- 1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
- 2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

- 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
- 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
- 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

#### 4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

- 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
- 2. is of such a nature as to require a change in the Contract Documents; or
- 3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

- B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
  - a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
  - b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
  - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
  - b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
  - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.



#### 4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
  - a. reviewing and checking all such information and data;
  - b. locating all Underground Facilities shown or indicated in the Contract Documents;
  - c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
  - d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

#### 4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
  - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
  - 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
  - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to



permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## ARTICLE 5 – BONDS AND INSURANCE

### 5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

### 5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

### 5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
  - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
  - 3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
  - 4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
    - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
    - b. by any other person for any other reason;
  - 5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
  - 6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
  - 1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners,

employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. include completed operations coverage:
  - a. Such insurance shall remain in effect for two years after final payment.
  - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

#### 5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

#### 5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
  1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of

them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.
  3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
  4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
  5. allow for partial utilization of the Work by Owner;
  6. include testing and startup; and
  7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

#### 5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
  2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.



## 5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

## 5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

## 5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

## ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

### 6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

### 6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

### 6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.



## 6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
  2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

## 6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
1. "*Or-Equal*" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
    - a. in the exercise of reasonable judgment Engineer determines that:
      - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
      - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
      - 3) it has a proven record of performance and availability of responsive service.
    - b. Contractor certifies that, if approved and incorporated into the Work:
      - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
      - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

## 2. *Substitute Items:*

- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
- b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
- c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
- d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
  - 1) shall certify that the proposed substitute item will:
    - a) perform adequately the functions and achieve the results called for by the general design,
    - b) be similar in substance to that specified, and
    - c) be suited to the same use as that specified;
  - 2) will state:
    - a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
    - b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
    - c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
  - 3) will identify:
    - a) all variations of the proposed substitute item from that specified, and
    - b) available engineering, sales, maintenance, repair, and replacement services; and
  - 4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

- B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.
- D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. *Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

#### 6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or

entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:
1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
  2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

## 6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its

use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

#### 6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

#### 6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.
- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner

and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

## 6.10 Taxes

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

## 6.11 Use of Site and Other Areas

### A. Limitation on Use of Site and Other Areas:

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

- C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

- D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.



## 6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

## 6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
  1. all persons on the Site or who may be affected by the Work;
  2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts

any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

#### 6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

#### 6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

#### 6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

##### 1. *Shop Drawings:*

- a. Submit number of copies specified in the General Requirements.
- b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

##### 2. *Samples:*

- a. Submit number of Samples specified in the Specifications.



- b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:
  - a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
  - b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
  - c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
  - d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the

Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
  1. observations by Engineer;
  2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
4. use or occupancy of the Work or any part thereof by Owner;
5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.

## 6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:
  1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

## 6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

## **ARTICLE 7 – OTHER WORK AT THE SITE**

### 7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
  - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
  - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe

access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

## 7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
  - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
  - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
  - 3. the extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

## 7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

## ARTICLE 8 – OWNER’S RESPONSIBILITIES

### 8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### 8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

### 8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

### 8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

### 8.05 *Lands and Easements; Reports and Tests*

- A. Owner’s duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner’s identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

### 8.06 *Insurance*

- A. Owner’s responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

### 8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

### 8.08 *Inspections, Tests, and Approvals*

- A. Owner’s responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

### 8.09 *Limitations on Owner’s Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws

and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

**ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION**

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.



### 9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

### 9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

### 9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

### 9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

### 9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations



on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of,

and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

#### 9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

### **ARTICLE 10 – CHANGES IN THE WORK; CLAIMS**

#### 10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

#### 10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

#### 10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
  1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
  2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
  3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of

executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

#### 10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

#### 10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
  - 1. deny the Claim in whole or in part;
  - 2. approve the Claim; or
  - 3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

### 11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
  - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
  - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
  - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
  - d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
  - e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
  - f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
  - g. The cost of utilities, fuel, and sanitary facilities at the Site.
  - h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
  - i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
  2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
  3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
  4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
  5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

## 11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. *Cash Allowances:*
1. Contractor agrees that:
    - a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
    - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in



the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
  1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
  2. there is no corresponding adjustment with respect to any other item of Work; and
  3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

**ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES**

12.01 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
  2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
  3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. *Contractor's Fee*: The Contractor's fee for overhead and profit shall be determined as follows:
1. a mutually acceptable fixed fee; or
  2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
    - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
    - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
    - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
    - d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;
    - e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
    - f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.



## 12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

## 12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.
- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

## ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

### 13.01 *Notice of Defects*

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

### 13.02 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

### 13.03 *Tests and Inspections*

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
  - 1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
  - 2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
  - 3. as otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

#### 13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

#### 13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers,

architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

### 13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
1. repair such defective land or areas; or
  2. correct such defective Work; or
  3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
  4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
- C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
- D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

### 13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

### 13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

## ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

### 14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

### 14.02 *Progress Payments*

#### A. *Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

#### B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's



review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

- a. the Work has progressed to the point indicated;
  - b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and
  - c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
- a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
  - b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
- a. to supervise, direct, or control the Work, or
  - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
  - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
  - d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
  - e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:
  - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
  - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
  - c. there are other items entitling Owner to a set-off against the amount recommended; or
  - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.
3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

### 14.03 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.



#### 14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.
- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

#### 14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

#### 14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

#### 14.07 *Final Payment*

##### A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
  - b. consent of the surety, if any, to final payment;
  - c. a list of all Claims against Owner that Contractor believes are unsettled; and

- d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

*B. Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

*C. Payment Becomes Due:*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

**14.08** *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

## 14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
  2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

## **ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION**

### 15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

### 15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
  2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
  3. Contractor's repeated disregard of the authority of Engineer; or
  4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and
  3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

### 15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
  3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other

dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

#### 15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

### ARTICLE 16 – DISPUTE RESOLUTION

#### 16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or



2. agrees with the other party to submit the Claim to another dispute resolution process; or
3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

## ARTICLE 17 – MISCELLANEOUS

### 17.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
  1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
  2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

### 17.02 *Computation of Times*

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

### 17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

### 17.04 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

### 17.05 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

### 17.06 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

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**SECTION 00 73 10  
GENERAL SUPPLEMENTARY CONDITIONS**

**AMENDING THE STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION  
CONTRACT PREPARED BY ENGINEERS JOINT CONTRACT DOCUMENTS  
COMMITTEE  
(EJCDC NO. C-700, 2007 EDITION)**

(Sub) Paragraph

No.

2.01.B Delete this paragraph and substitute the following:

Before any Work at the Site is started, Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which Owner or any additional insured may reasonably request) which Contractor is required to purchase and maintain in accordance with Article 5.

2.03.A Delete the last sentence.

3.02.A.1 Delete the phrase starting “shall mean” through the end of this sentence and substitute the following:

shall mean the standard, specification, manual, code, or Laws or Regulations in effect and applicable at the time in question, except as may be otherwise specifically stated in the Contract Documents.

3.02.A.3 Delete this paragraph and replace with the following:

Contractor shall be liable to Owner or Engineer for failure to report any such conflict, error, ambiguity or discrepancy if Contractor knew or reasonably should have known thereof.

4.01.A Delete the last sentence.

4.01.B Delete this subparagraph in its entirety.

4.03.C.3 Delete this subparagraph in its entirety.

4.04.B.2 Delete the phrase “or not shown or indicated with reasonable accuracy” following the word “indicated.” Delete the last sentence.

- 4.06.C Add the following to the first sentence: “unless Contractor caused or contributed to such Hazardous Environmental Condition.”
- 4.06.D Delete the last sentence.
- 4.06.E Delete the last sentence.
- 4.06.F Delete the second sentence.
- 4.06.G Delete this subparagraph in its entirety.
- 4.06.H Delete the last sentence.
- 5.03.B Delete this subparagraph in its entirety.
- 5.04.B.7 Insert the following new subparagraph:
7. “all coverage shall be written on an occurrence basis.
- 5.06.A Delete the first sentence of this subparagraph in its entirety and substitute the following:
- Owner may, in its discretion, purchase and maintain property insurance upon the Work at the Site.
- 5.06.B Delete this subparagraph in its entirety.
- 5.06.D Delete this subparagraph in its entirety and substitute the following:
- The risk of loss within any identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser’s own expense.
- 5.07.A Delete all text after the first sentence.’
- 5.07.B Delete this subparagraph in its entirety.
- 5.07.C Delete this subparagraph in its entirety.
- 5.08 Delete this paragraph in its entirety and insert “Not Used” after heading.
- 5.09 Delete this paragraph in its entirety and insert “Not Used” after heading.

- 5.10.A Delete this paragraph in its entirety and substitute the following:  
Owner may occupy or use a portion of the Work prior to Substantial Completion.
- 6.05.A Add the following to the second sentence “, and in accordance with MGL c.30, §39M.”
- 6.06.F Insert the following at the beginning of this subparagraph:  
“Except as required by and indicated in the Specifications and Contract Documents pursuant to G.L. c.149, §44F,”
- 6.07.A Delete the second sentence.
- 6.07.B Delete this paragraph in its entirety.
- 6.09.C Delete the last sentence.
- 6.13.E Delete the text in parentheses at the end of the first sentence.
- 6.20.A Delete the parenthetical phrase “(other than the Work itself).” Change the phrase “negligent act or omission” to “negligent or wrongful act or omission.”
- 7.01.A.2 Delete this subparagraph in its entirety.
- 7.01.B Delete the last sentence.
- 7.02 Delete this paragraph in its entirety and insert “Not Used” after heading.
- 8.02.A Delete the phrase “to whom Contractor makes no reasonable objection.”
- 8.07.A Delete this paragraph in its entirety and insert “Not Used” after heading.
- 8.09.A Insert the following after the first sentence: “However, the Owner shall have the right to direct the Contractor to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto.”
- 9.02.B Insert the following at the end of this subparagraph:  
“However, the Engineer shall have the right to direct the Contractor to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto.”

- 9.03.A Delete the last sentence.
- 9.04.A Delete the last sentence.
- 9.08.C Delete the final phrase “subject to the provisions of paragraph 10.05.”
- 9.09.B Insert the following after the first sentence:  
  
“However, the Engineer shall have the right to direct the Contractor to perform the Work according to any sequence schedule set forth in the Contract Documents or established pursuant thereto.”
- 10.03.A.3 Delete this subparagraph in its entirety.
- 11.01.A.5 Delete subparagraphs a, b, d, e, f, g, and h.
- 11.02 Delete this paragraph in its entirety and insert “Not Used” after heading.
- 12.01.B.3 Delete the last phrase “(determined as provided in paragraph 12.01.C).”
- 12.01.C.2 Delete this subparagraph in its entirety.
- 12.03.B Delete this subparagraph in its entirety.
- 12.03.F Insert the following new subparagraph:  
  
3. Delays caused by or within the control of the Owner. In such event, the Contractor’s sole remedy shall be an extension of the Contract Time. Notwithstanding anything to the contrary in the Contract Documents, Contractor shall not be eligible for any increase in the Contract Price/Sum on account of any delay in the work, no matter by whom such delay is caused, and Contractor shall make no claim for such an increase, whether such claim is styled as a claim for delay damages, acceleration of work, loss of production, or otherwise.
- 12.04 Insert the following new Paragraph 12.04 after Paragraph 12.03:  
  
12.04 *Liquidated Damages*  
  
A. If the Contractor neglects, fails or refuses to complete the Work within the time herein specified, or any proper extension thereof granted by the Owner, then the Contractor hereby agrees as a part consideration for the awarding of this Contract, to pay to the Owner the amount specified in the Contract, not as a penalty, but as liquidated damages for such breach of the Contract as hereinafter set forth, for each and

every calendar day that the Contract shall be in default after the times stipulated in the Agreement for completing the Work. Such damages may be retained from time to time by the Owner from progress payments or any amounts owing to the Contractor, or otherwise collected.

- B. The said amount is fixed and agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain, said amount is agreed to be the amount of damages which the Owner would sustain, and said amount shall be retained from time to time by the Owner from current periodic estimates.
- C. Notwithstanding the provisions of this Section 12.04, the retention or payment of Liquidated Damages shall not excuse the Contractor from any obligation under the Contract Documents or liability for any breach thereof.

- 13.01.A Delete the word “Prompt” at the beginning of the subparagraph.
- 13.03.F Delete the balance of this subparagraph after the words “Contractor’s expense.”
- 13.04.D Delete this subparagraph in its entirety.
- 13.08.A Delete the fourth sentence.
- 13.09.C Delete the second sentence.
- 14.02.A.1 Delete the first phrase prior to the words, “Contractor shall” and substitute in place thereof the following: “On a monthly basis and in accordance with M.G.L c.30, §39G,”.
- 14.02.A.3 Delete this subparagraph and substitute the following: “Retainage shall be in accordance with M.G.L. c.30, §39G.”
- 14.02.C Delete this subparagraph and substitute the following: :”Payment shall be made in accordance with G.L. c.30, §39G.”
- 14.02.D.2 Delete the words “immediate” and “promptly”.
- 14.02.D.3 Delete this subparagraph in its entirety.

- 14.04.C Delete the third sentence and substitute the following:  
  
“Owner shall review the tentative certificate and make written objection to Engineer as to any provisions of the certificate or attached list.”  
  
Delete the phrase “within 14 days after submission of the tentative certificate to Owner” in the fourth sentence. Delete the phrase “within said 14 days” in the fifth sentence.
- 14.05.A Delete the phrase “subject to the following conditions” at the end of the first sentence and delete subparagraphs 1 and 2 in their entirety, and insert “not used” after 1 and 2.
- 14.07.B.1 Delete the phrase “within ten days after receipt of the final Application for Payment,” in the first sentence.
- 14.07.C Delete this subparagraph in its entirety and substitute the following:  
  
Final payment shall be made in accordance with G.L. c.30, §39G.
- 14.09.A.1 Delete this subparagraph in its entirety.
- 15.01.A Delete this subparagraph in its entirety and substitute the following:  
  
Owner may suspend the work or any portion thereof in accordance with G.L. c.30, §39O.
- 15.03.A Delete from subparagraph 1 the phrase “including fair and reasonable sums for overhead and profit on such Work;” and from subparagraph 2 the phrase “plus fair and reasonable sums for overhead and profit on such expenses”; and delete subparagraphs 3 and 4 in their entirety.
- 15.04.B Delete the last sentence.

**END OF SECTION**

## SECTION 00 73 15

### PROJECT SPECIFIC SUPPLEMENTARY CONDITIONS

*These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2007 Edition) included in Section 00 72 05. All provisions that are not so amended or supplemented remain in full force and effect unless amended or supplemented in another Section. The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in this Section have the meanings stated below, if any, which are applicable to both the singular and plural thereof. The address system used herein is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.*

*This Section may include certain provisions required by Laws and Regulations but does not represent or reflect all applicable provisions and policies or Laws and Regulations and may only include excerpts and portions thereof. Other required provisions and policies, and Laws and Regulations, shall be deemed to be so included and incorporated herein. Contractor is solely responsible to determine, obtain, review and interpret the full text of applicable provisions and policies, Regulations, and Laws.*

#### **SC-2.05 Before Starting Construction**

Pursuant to subparagraph 2.05.A.1 regarding Progress Schedule, there shall be no work on weekends (Saturdays and Sundays) unless there is an impending severe storm, or the contractor is facing liquidated damages of not completing the project within the allotted time. If weekend work is necessary to cleanup/stabilize the site and prevent environmental damage from a storm, the contractor shall give as much advance notice to the Town as possible so that the property owner(s) can be notified.

Add the following immediately after Paragraph 2.05.B.

- C. Additionally, within 10 days after the Effective Date of the Agreement, Contractor shall submit a Construction Operations Plan incorporating the schedules submitted pursuant to Paragraph 2.05.A and covering the following.
  - 1. Construction methods and sequence of operations
  - 2. Proposed Site access and laydown area
  - 3. Proposed erosion control measures and proposed measures to minimize impacts to existing vegetation and impacts to water quality in compliance with the General Requirements.
  - 4. Proposed measure to protect the Work and areas around the Work from flooding in case of unanticipated storm events during construction.
  - 5. Schedule of independent and field testing

6. Statement and description of overall quality control program

### **SC-2.07 Initial Acceptance of Schedules**

Add the following immediately after subparagraph 2.07.A.4.

5. Contractor's Construction Operations Plan submitted pursuant to Paragraph 2.05.C. will be acceptable to Engineer if it accurately and reasonably addresses all aspects of the Work.

### **SC 4.01 Availability of Lands**

Pursuant to Paragraph 4.01.A, easements and rights-of-way exist for the Project. Documentation is included in 00 31 00.

Add the following immediately after Paragraph 4.01.C.

1. The Contractor shall not enter or occupy private land outside of easements, except by written permission of the property owner. Furnish Owner copies of all agreements the Contractor has with property owners to enter or occupy private lands.

### **SC-4.02 Subsurface and Physical Conditions**

Pursuant to Paragraph 4.02.A,

1. the following reports of explorations and tests of subsurface conditions at or contiguous to the Site are known to Owner:
  - a. Report dated January 7, 2021 prepared by GZA GeoEnvironmental, Inc, entitled "Geotechnical Engineering Memorandum Old Sudbury Road Culverts #110 and #149 Sudbury, Massachusetts" consisting of 23 pages  
  
The "technical data" contained in such report upon which Contractor may rely is contained in the report.  
  
The "technical data" shall be limited to facts, measurements, field observations, boring logs, soil type and similar data. "Technical data" shall not include opinions regarding suitability of material, dewatering methodologies, soil stability, slope stabilization methods and other opinions or professional judgments.
2. The following drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) are known to Owner:
  - a. Drawings dated 1/19/2021 prepared by Chappell Engineering Associates, for Town of Sudbury, "Existing Conditions Survey



Culvert #110 Old Sudbury Road, Sudbury, Massachusetts” consisting of 1 (one) sheet.

- b. Drawings dated 1/19/2021 prepared by Chappell Engineering Associates, for Town of Sudbury, “Existing Conditions Survey Culvert #149 Old Sudbury Road, Sudbury, Massachusetts” consisting of 1 (one) sheet.

None of the contents in such drawings is "technical data" on which Contractor may rely.

3. The reports and drawings identified above are not part of the Contract Documents, but the “technical data” contained therein upon which Contractor may rely, as expressly identified and established above, are incorporated in the Contract Documents by reference and may be reflected in the Drawings. Contractor is not entitled to rely upon any other information and data known to or identified by Owner or Engineer.
4. Copies of reports and drawings identified above are included as specified in 00 31 00.

#### ***SC-4.05 Reference Points***

Pursuant to Paragraph 4.05.A, surveys exist for the Project and are reflected on the Drawings.

#### ***SC-4.06 Hazardous Environmental Conditions at Site***

Pursuant to Paragraph 4.06.A,

1. the following reports regarding Hazardous Environmental Conditions at the Site are known to Owner:
  - a. NONE
2. The following drawings regarding Hazardous Environmental Conditions at the Site are known to Owner:
  - a. NONE

#### ***SC-5.04 Contractor’s Insurance***

Pursuant to Paragraph 5.04.A, in addition to the individuals and entities specified in subparagraph 5.04.B.1 (Owner and Engineer), include the following as loss payees.

None.

Add the following new Paragraph immediately after subparagraph 5.04.B.6.b.

C. The limits of liability for the insurance required by Paragraph 5.04 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

- Workers' Compensation and related coverage: under subparagraph 5.04.A.1 of the General Conditions

Minimum limit of liability	Statutory
Applicable Federal (e.g., Longshoreman's) Employer's Liability	Statutory \$1,000,000

- Contractor's General Liability under subparagraph 5.04.A.2-5 of the General Conditions:

\$1,000,000 per occurrence; \$3,000,000 general aggregate; including:

- Broad Form Property Damage Liability including coverage for acts of terrorism
- Completed Operations and Product Liability – maintain up to 3 years after completion
- Contractual Liability
- Independent Contractors
- Explosion, Collapse & Underground Hazards
- Personal Injury Coverage, Exclusion Deleted
- Damage to Rented Premises
- Medical Expenses

Pollution Liability (covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from the Contractor's operations and completed operations maintained for no less than three years after final completion): \$1,000,000

Excess or Umbrella Liability: \$5,000,000 per occurrence; \$5,000,000 general aggregate

- Automobile Liability under subparagraph 5.04.A.6 of the General Conditions: combined Single Limit of \$1,000,000 for bodily injury & property damage per accident covering Contractor and any vehicles owned, hired and non-owned by the Contractor
- Professional Liability (E&O for engineers, architects or surveyors): \$1,000,000 for each claim with an annual aggregate of at least \$2,000,000 if professional services are required under the Specifications

D. Any self-insured retention (not allowed for Worker's Compensation) and/or deductibles must be identified and cannot exceed \$100,000 per occurrence without the prior approval of the Owner. Contractor must provide either an audited financial statement to confirm solvency or a letter of credit guaranteeing the

\$100,000 in case of loss for the duration of the Project and for the Correction Period.

### **SC-6.02 Labor; Working Hours**

Add the following immediately after Paragraph 6.02.B.

1. Regular working hours for this Project are 7:00 a.m. to 5:00 p.m., Monday through Friday.
2. The Contractor shall plan the Work so as to avoid working beyond these hours. However, if despite the Contractor's diligent efforts, the Contractor believes that overtime work is necessary in order for the Contractor to complete the Work, the Contractor may apply to the Engineer and to the Owner for approval to perform overtime Work, which approval may be withheld in their sole discretion. No additional compensation or time extension shall be due to the Contractor whether approval is granted or denied.
3. If the Contractor believes that overtime work is necessary, it shall obtain prior approval from the Engineer and the Owner. The Contractor shall file a request for such approval in writing and shall include the specific reasons therefor and when the work is expected to be concluded. Overtime work shall normally be limited to evening hours (5:00 p.m. to 8:00 p.m.) Monday through Friday and daytime hours (7:00 a.m. to 5:00 p.m.) on Saturdays except in special circumstances approved by the Engineer and the Owner.

### **SC-6.04 Progress Schedule**

Add the following immediately following subparagraph 6.04.A.2.

- B. Progress of Work: The Contractor shall furnish sufficient work force staffing and equipment to be efficient, appropriate and large enough to secure a satisfactory quality of work and a rate of progress which shall ensure the completion of the Work within the Contract Times. If, at any time, such work force staffing appears to the Engineer to be inefficient, inappropriate or insufficient for securing the quality of Work required or for producing the rate of progress aforesaid, the Engineer may order the Contractor to increase the efficiency, change the character or increase the work force staffing and equipment, and the Contractor shall conform to such order and no additional compensation shall be due the Contractor. Failure of the Engineer to give such order shall in no way relieve the Contractor of its obligations to secure the quality of the Work and rate of progress required.

### **SC-6.08 Permits**

Add the following immediately after Paragraph 6.08.A.

- B. Contractor shall comply with the following licenses and permits Owner has obtained for the Project included in Section 00 31 00.
  - Order of Conditions, executed 4/27/2021 – DEP File #301-1327. This Order is applicable to specific areas of the Work Site and contains special conditions pursuant to the Massachusetts Wetland Protection Act, M.G.L c.131, Section 40.
- C. Contractor shall obtain a Street Opening and Trench Permit from the Town of Sudbury. There will be no charge for this permit.

### ***SC-6.09 Laws and Regulations***

Add the following immediately after Paragraph 6.09.A.

1. The Contractor shall comply with the following.
  - Applicable portions of Town Bylaws and Zoning Bylaws available at <https://sudbury.ma.us/clerk/town-bylaws-current/>

### ***SC-6.13 Safety and Protection***

Add the following immediately after Paragraph 6.13.B.

1. Contractor shall comply with the following minimum requirements and is solely responsible to determine, obtain, review and interpret the full text of applicable Laws and Regulations.
  - Hazard Communication Standard 1910.1200 regulated by OSHA, including providing and maintaining Safety Data Sheets, labeling of hazardous substances, and providing required protective equipment and training and instruction to personnel on the Site including Owner and Engineer's personnel
  - Code of Federal Regulations, Chapter XVII-Occupational Safety and Health Administration (OSHA), Department of Labor, Title 29, Part 1926, Safety and Health Regulations for Construction
    - 1926 Subpart AA Confined Spaces in Construction
  - ANSI/ASSE A10 series of safety construction standards including the "Manual of Accident Prevention In Construction" published by The Associated General Contractors of America
  - AASHTO Guide on Occupational Safety on Highway Construction Projects, Subpart N, 1926.550, relating to protection of personnel and equipment under electric lines and construction equipment

clearances at overhead electric lines especially during operations using large vehicles

2. Pursuant to MGL Chapter 30, Section 39S, all employees to be employed at the Work Site will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins Work, and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee. Any employee found on a Work Site subject to this section without documentation of successful completion of a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration shall be subject to immediate removal.
3. This Project is also subject to the following.
  - MGL Chapter 82, The Laying Out, Alteration, Relocation and Discontinuance Of Public Ways, And Specific Repairs Thereon, Section 40
    - Section 40 Definitions*
    - Section 40A Excavations; notice*
    - Section 40B Designation of location of underground facilities*
    - Section 40C Excavator's responsibility to maintain designation markings; damage caused by excavator*
    - Section 40D Local laws requiring excavation permits; public ways*
  - MGL Chapter 82A, Excavation and Trench Safety
    - Section 1 Unattended open trenches; safety hazards; rules and regulations; fines*
    - Section 2 Trench excavating permits; permits issued by board or officer; certificate of insurance; fees*
    - Section 3 Form of trench excavation permits; required statements*
    - Section 4 Definitions*
    - Section 5 Additional requirements*
  - MGL Chapter 149
    - Section 6C Health and safety of general public and asbestos workers; rules and regulations*
    - Section 129A Shoring Trenches for local governments*
  - Massachusetts Department of Labor and Industries, Division of Occupational Safety (Chapter 454 CMR 10.00 et seq.)
  - Massachusetts Department of Public Safety "Excavation and Trench Safety" (Chapter 520 CMR 14.00 et seq.)

### **SC-7.01 Related Work at Site**

Pursuant to Paragraph 7.01, Owner has not and does not intend to separately contract for other work on the Project at the Site.

Other work will be performed at or near the Site although not by Owner nor under Owner's direction for temporary relocation of utilities. It is anticipated that portions of the Work under this Contract will require coordination with overhead power and communications companies.

### SC-9.03 *Project Representative*

Add the following new Paragraph.

- B. The Resident Project Representative (RPR) will be Engineer's employee or agent at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions. RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall be through or with the full knowledge and approval of Contractor. The RPR shall:
1. *Schedules:* Review the Progress Schedule, schedule of Shop Drawing and Samples submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.
  2. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences and other Project-related meetings, and prepare and circulate copies of minutes thereof.
  3. *Liaison:*
    - a. Serve as Engineer's liaison with Contractor, working principally through Contractor's authorized representative, to assist in providing information regarding the intent of the Contract Documents.
    - b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
    - c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
  4. *Interpretation of Contract Documents:* Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
  5. *Shop Drawings and Samples:*
    - a. Record date of receipt of Samples and approved Shop Drawings.
    - b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.
  6. *Modifications:*

- a. Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, to Engineer.
  - b. Transmit to Contractor in writing, decisions as issued by Engineer.
7. *Review of Work and Rejection of Defective Work:*
- a. Conduct on-Site observations of Contractor's Work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
  - b. Report to Engineer whenever RPR believes that any part of Contractor's Work in progress will not produce a completed Project that conforms generally to the Contract Documents or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of Work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
8. *Inspections, Tests, and System Startups:*
- a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
  - b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.
9. *Records:*
- a. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of Contractor, Subcontractors, and major Suppliers.
  - b. Maintain records for use in preparing Project documentation.
10. *Reports:*
- a. Furnish periodic reports to Engineer as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.
  - b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
  - c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work,

damage to property by fire or other causes, or the discovery of any Hazardous Environmental Condition or conditions that may impede the compliant operation of existing facilities on Site.

11. *Payment Requests:* Review Applications for Payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.
12. *Certificates, Operation and Maintenance Manuals:* During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Specifications to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.
13. *Completion:*
  - a. Participate in a Substantial Completion inspection, assist in the determination of Substantial Completion and the preparation of the Punch List (lists of items to be completed or corrected).
  - b. Participate in a final inspection in the company of Engineer, Owner, and Contractor and prepare a final Punch List (list of items to be completed and deficiencies to be remedied).
  - c. Observe whether all items on the final Punch List have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the Notice of Acceptability of the Work.

D. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment, including “or-equal” items.
2. Exceed limitations of Engineer’s authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Contractor, Subcontractors, Suppliers, or Contractor’s superintendent.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor’s Work unless such advice or directions are specifically required by the Contract Documents.



5. Advise on, issue directions regarding, or assume control over safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-Site by others except as specifically authorized by Engineer.
7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
8. Authorize Owner to occupy the Project in whole or in part or determine operational protocol that may affect the compliant operation of existing facilities.

### SC-12.01 *Change of Contract Price*

Add the following new subparagraphs immediately after subparagraph 12.01.B.3. as required by MGL Chapter 30, Section 38A *Price adjustment clause in contracts for road, bridge, water and sewer projects awarded.*

4. ***Monthly Price Adjustments for Certain Materials:*** As required by Massachusetts Chapter 150 of the Acts of 2013, the following price adjustment clauses for fuel (both diesel and gasoline), liquid asphalt and Portland cement contained in cast-in-place concrete shall be applicable to the Project. The following Base Prices are established for the Project, based on period prices shown below as published by the Massachusetts Department of Transportation - Highway Division at

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

Liquid Asphalt - \$637.50 per TON (March 2024)  
Diesel - \$3.279 per GALLON (February 2024)  
Gasoline - \$2.582 per GALLON (February 2024)  
Portland Cement - \$425.53 per TON (March 2024)

- a. **Monthly Price Adjustment for Hot Mix Asphalt (HMA) Mixtures:** This adjustment will provide for either additional compensation to the Contractor or repayment to the Owner, depending on an increase or decrease in the Period Price of Liquid Asphalt.
  - 1) **Base Price:** The Base Price of liquid asphalt listed above is the fixed price determined at the time of Bid by the Owner by using the same method as for the determination of the Period Price detailed below.
  - 2) **Price Adjustment:** The Price Adjustment will be based on the variance in price for the liquid asphalt component only

from the Base Price to the Period Price. It shall not include transportation or other charges. This Price Adjustment will occur on a monthly basis.

- 3) Period Price: The Period Price for this Contract shall be the Liquid Asphalt Period Price, per Ton.
- 4) Applicability: The Price Adjustment applies only to the actual virgin liquid asphalt content in the mixture placed on the Project in accordance with the Contract Documents.
- 5) Payment/Credit of Price Adjustment: The Contract Price of the hot mix asphalt mixture will be paid under the respective items 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 will be a separate payment item and processed by Change Order. It will be determined by multiplying the number of tons of hot mix asphalt mixtures placed within pay limits during each monthly period as shown on submitted certified weigh slips times the liquid asphalt content percentage times the variance in price between Base Price and Period Price of liquid asphalt. This Price Adjustment will be paid or credited if the variance from the Base Price is 5 percent or more for a monthly period. No further Price Adjustments will be processed after the Contract is finally complete, unless an extension of Contract Time is approved by the Owner.

b. **Monthly Price Adjustment for Diesel Fuel and Gasoline**: This adjustment will provide for either additional compensation to the Contractor or repayment to the Owner, depending on an increase or decrease in the Period Price of Diesel Fuel or Gasoline.

- 1) Base Price: The Base Price of Diesel Fuel and Gasoline listed above is the fixed price determined at the time of Bid by the Owner by using the same method as for the determination of the Period Price detailed below.
- 2) Price Adjustment: The Price Adjustment will be based on fuel usage factors for various items of Work included. These factors will be multiplied by the quantities of Work completed in each item during each monthly period and further multiplied by the variance in price from the Base Price to the Period Price.

- 3) Period Price: The Period Price for this Contract shall be the current Diesel Period Price and Gasoline Period Price per Gallon.
- 4) Applicability: The fuel Price Adjustment will apply only to the actual fuel used on the Project in accordance with the Contract Documents.
- 5) Payment/Credit of Price Adjustment: The Price Adjustment will be a separate payment item and processed by Change Order. 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. This Price Adjustment will be paid or credited if the variance from the Base Price is 5 percent or more for a monthly period. No further Price Adjustments will be processed after the Contract is finally complete, unless an extension of Contract Time is approved by the Owner.

c. **Monthly Price Adjustment for Portland Cement Concrete Mixes:** This adjustment will provide for either additional compensation to the Contractor or repayment to the Owner, depending on an increase or decrease in the Period Price of Portland cement.

- 1) Base Price: The Base Price of Portland cement listed above is the fixed price determined at the time of Bid by the Owner by using the same method as for the determination of the Period Price detailed below.
- 2) Price Adjustment: 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. This Price Adjustment will occur on a monthly basis.
- 3) Period Price: The Period Price for this Contract shall be the current Portland cement Period Price per Ton.
- 4) Applicability: The price adjustment applies only to the actual Portland cement content in the mix placed on the Project in accordance with the Contract Documents.
- 5) Payment/Credit of Price Adjustment: The Contract Price of the Portland cement content in the mix will be paid under the respective items 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 will be a separate payment item and processed by Change Order. 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 or credited if the variance from the Base Price is 5 percent or more for a monthly period. No further Price Adjustments will be processed after the Contract is finally complete, unless an extension of Contract Time is approved by the Owner.

### ***SC-13.07 Correction Period***

Add the following immediately after subparagraph 13.07.A.4.

5. Maintain trench width pavement during the 1-year Warranty Period. Refill areas that have settled or are unsatisfactory for traffic.

### ***SC-14.02 Progress Payments***

Add the following language at the end of subparagraph 14.02.C.1.

For the purposes of this Paragraph, “Owner” shall mean “Owner’s approving authorities”.

### ***SC-14.07 Final Payment***

Add the following language at the end of subparagraph 14.07.C.1.

For the purposes of this Paragraph, “Owner” shall mean “Owner’s approving authorities”.

**END OF SECTION**

## SECTION 00 73 43

### PREVAILING WAGE RATE REQUIREMENTS

*These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2007 Edition) included in Section 00 72 05. All provisions that are not so amended or supplemented remain in full force and effect unless amended or supplemented in another Section. The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated within the Sections listed below, if any, which are applicable to both the singular and plural thereof.*

*The content of this Section does not represent or reflect all applicable Laws and Regulations and may only include excerpts and portions of certain Laws and Regulations. Other provisions and policies, and Laws and Regulations, shall be deemed to be so included and incorporated herein. Contractor is solely responsible to determine, obtain, review and interpret the full text of applicable Laws and Regulations.*

The Project is subject to prevailing wage rates as issued by the Director of the Executive Office of Labor and Workforce Development (EOLWD), Department of Labor Standards (DLS) and the requirements of MGL Chapter 149, Sections 26, 27 and 27A to 27H. Pursuant to MGL Chapter 149, Section 34B, wages paid to reserve police officers shall be the same prevailing rate of wage paid to regular police officers at the location of the Project.

Comply with requirements available on the Executive Office of Labor and Workforce Development website at

<https://www.mass.gov/prevailing-wage-program>

Submit required records and statements of compliance in accordance with MGL Chapter 149, Section 27B using the latest Weekly Payroll and Compliance forms available on the EOLWD website. Copies included in this section are for information only.

**Wage determination schedules are included at the end of this section. In case of discrepancy between state wage rates and Federal wage rates, if any, the higher wage rates shall apply.**

### ATTACHMENTS

- A. Massachusetts Prevailing Wage Law guidance and forms
- B. Wage Determination Schedules

**END OF SECTION**

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# Massachusetts Prevailing Wage Law for Contractors

Prevailing Wage Law for public works projects

## Massachusetts Prevailing Wage Law for contractors

[Massachusetts Prevailing Wage Guide for contractors](#)

[\(/files/2017-07/dls-pw-bro-for-contractors-6-12.pdf\)](/files/2017-07/dls-pw-bro-for-contractors-6-12.pdf)

### What is the Prevailing Wage Law?

The Massachusetts Prevailing Wage Law for public works projects G.L. c. 149, §§ 26 - 27 ("The Prevailing Wage Law") establishes minimum wage rates for workers on public construction projects. The Massachusetts Executive Office of Labor and Workforce Development, Department of

Labor Standards (DLS) is the agency responsible for issuing prevailing wage rate sheets and administering the Prevailing Wage Law. The Massachusetts Attorney General's Fair Labor Division is responsible for enforcing the law. If contractors fail to comply with any provision of the Prevailing Wage Law or if you believe a contractor is not paying prevailing wages, you should contact the Attorney General's Fair Labor Division at (617) 727-3465. [\(\)](#)

Before soliciting bids for any public construction project an awarding authority must obtain a prevailing wage rate sheet from DLS. Each prevailing wage rate sheet applies only to the public construction project for which it is issued. The prevailing wage rates for each construction project are in effect for 90 days from the date of issue. Projects not bid within 90 days of the issued rates will require the awarding authority to request new prevailing wage rates. Once a project has been awarded, the prevailing wage rate schedule will apply for the duration of any contracts which result from that bid, except in the case of multi-year projects. For projects lasting more than one year, the awarding authority must request annual updates to the wage schedules (see FAQs below for more information on annual updates). All wage increases listed on the schedule, if any, must be paid on the dates indicated.

During the project, it is the contractor's responsibility to submit certified weekly payroll records to the awarding authority by first class mail or by electronic mail. Weekly payroll report forms and required statements of compliance are available on DLS' website. All information set forth on the form must be provided. **Failure to submit certified weekly payroll records**



and statements of compliance may result in fines of up to \$10,000 per occurrence.

**Q. How can I determine the Prevailing Wage rates for bidding on a project?**

A. Under the law, the awarding authority is required to include the rate sheet in the bid documents. In addition, for bidding purposes, you may request an "Example Rate Sheet" by accessing the DLS website. If you have questions or problems obtaining an Example Rate Sheet, you may call (617) 626-6953. **Notwithstanding information contained on an Example Rate sheet, the wage rates which a contractor must pay to its workers if awarded the contract are those contained on the official rate sheet obtained by the awarding authority.**

**Q. Which benefits are included in the Prevailing Wage rate?**

A. Payments by employers to health and welfare plans, pension plans and supplemental unemployment benefit plans under collective bargaining agreements or understandings between organized labor and employers are included in the wage rates. G.L. c. 149, §§ 26 and 27. Only those amounts contributed by an employer to a bonafide health and welfare, pension or supplemental unemployment plan may be deducted from the wage rate.

**Q. Why does the Rate Sheet contain both percentages and dollar figures for the apprentice rates?**

A . Effective March 18, 2010, DLS began to publish on the prevailing wage rate sheets, the actual apprentice wage rates including the enumerated benefits described above. To the extent that the employer actually contributes, on behalf of the employee, to a health and welfare, pension or supplementary unemployment plan, the employer may deduct the amount contributed from the apprentice wage rate published on the rate sheet, just as they may for journeyman. Although for a period of time the percentages may still appear on the rate sheets, for projects that include wage schedules issued from this date forward, contractors should no longer calculate the apprentice rate based upon the percentage, but instead shall pay no less than the wage rate listed on the rate sheet.

**Q. What if I have a question about a classification on the Rate Sheet?**

A. The DLS website contains a Topical Index that contains details regarding classifications, among other information. In addition, the website contains DLS Opinion Letters from 2000 onward which contain detailed information about many of the classifications. If you cannot find an answer or have further questions, you must call the DLS at (617) 626-6952.

**Q. Is preventative maintenance work covered by the Prevailing Wage Law?**

A. Maintenance or repair which involve any "additions or alterations" to a public work is covered under the prevailing wage law.

**Q. What is an annual update?**

A. On August 8, 2008, the prevailing wage law was amended to require annual updates to prevailing wage rate sheets for all public construction projects lasting longer than one year. This law applies to all public construction contracts bid on or after August 8, 2008. This law does not affect contracts bid prior to August 8, 2008.

**Q. What if the Awarding Authority estimates that the project will last less than one year, but the work extends into a second contract year?**

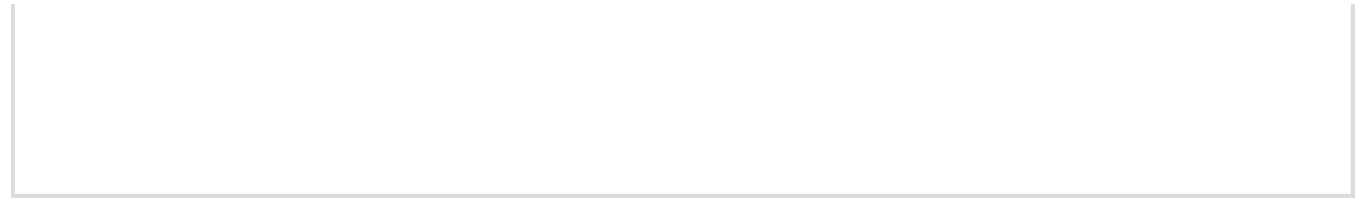
A. The awarding authority must request an annual update, and the contractor must obtain and pay those rates.

**Q. What are my obligations as a contractor for annual updates?**

A. General Contractors must obtain these updated schedules from awarding authorities, and general and sub-contractors must pay no less than these rates to covered workers. Updated schedules must also be posted in a conspicuous place at the worksite during the life of the contract. Failure to comply with the prevailing wage law may result in civil or criminal penalties and/or sanctions under M.G.L. c. 149, §27C.

Did you find what you were looking for on this webpage? \*

Yes  No



Last Modified: 04/10/2024 at 4:04PM EDT

## WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form is available from the Department of Labor Standards (DLS) at [www.mass.gov/dols/pw](http://www.mass.gov/dols/pw) and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

On a weekly basis, every contractor and subcontractor is required to submit a certified copy of their weekly payroll records to the awarding authority; this includes the payroll forms and the Statement of Compliance form. The certified payroll records must be submitted either by regular mail or by e-mail to the awarding authority. Once collected, the awarding authority is required to preserve those records for three years from the date of completion of the project.

Each such contractor and subcontractor shall furnish weekly **and** within 15 days after completion of its portion of the work, to the awarding authority directly by first-class mail or e-mail, a statement, executed by the contractor, subcontractor or by any authorized officer thereof who supervised the payment of wages, this form, accompanied by their payroll:

### STATEMENT OF COMPLIANCE

\_\_\_\_\_, 20\_\_\_\_\_

I, \_\_\_\_\_, \_\_\_\_\_  
(Name of signatory party) (Title)

do hereby state:

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

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

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

Signature \_\_\_\_\_

Title \_\_\_\_\_





MAURA HEALEY  
Governor

KIM DRISCOLL  
Lt. Governor

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

Prevailing Wage Rates

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:** Town of Sudbury, MA Department of Public Works  
**Contract Number:** 2024-OSRC-1 **City/Town:** SUDBURY  
**Description of Work:** The Project is generally described as replacement of box/pipe culverts and headwall structures as well as construction of large segmented block retaining walls on Old Sudbury Road.  
**Job Location:** Old Sudbury Road

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

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

Last Modified: 04/10/2024 at 4:04PM EDT

Last Modified: 04/10/2024 at 4:04PM EDT

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
<b>Construction</b>						
(2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	01/01/2024	\$38.95	\$15.07	\$18.67	\$0.00	\$72.69
	06/01/2024	\$39.95	\$15.07	\$18.67	\$0.00	\$73.69
	12/01/2024	\$39.95	\$15.07	\$20.17	\$0.00	\$75.19
	01/01/2025	\$39.95	\$15.57	\$20.17	\$0.00	\$75.69
	06/01/2025	\$40.95	\$15.57	\$20.17	\$0.00	\$76.69
	12/01/2025	\$40.95	\$15.57	\$21.78	\$0.00	\$78.30
	01/01/2026	\$40.95	\$16.17	\$21.78	\$0.00	\$78.90
	06/01/2026	\$41.95	\$16.17	\$21.78	\$0.00	\$79.90
	12/01/2026	\$41.95	\$16.17	\$23.52	\$0.00	\$81.64
	01/01/2027	\$41.95	\$16.77	\$23.52	\$0.00	\$82.24
(3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	01/01/2024	\$39.02	\$15.07	\$18.67	\$0.00	\$72.76
	06/01/2024	\$40.02	\$15.07	\$18.67	\$0.00	\$73.76
	12/01/2024	\$40.02	\$15.07	\$20.17	\$0.00	\$75.26
	01/01/2025	\$40.02	\$15.57	\$20.17	\$0.00	\$75.76
	06/01/2025	\$41.02	\$15.57	\$20.17	\$0.00	\$76.76
	12/01/2025	\$41.02	\$15.57	\$21.78	\$0.00	\$78.37
	01/01/2026	\$41.02	\$16.17	\$21.78	\$0.00	\$78.97
	06/01/2026	\$42.02	\$16.17	\$21.78	\$0.00	\$79.97
	12/01/2026	\$42.02	\$16.17	\$23.52	\$0.00	\$81.71
	01/01/2027	\$42.02	\$16.77	\$23.52	\$0.00	\$82.31
(4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	01/01/2024	\$39.14	\$15.07	\$18.67	\$0.00	\$72.88
	06/01/2024	\$40.14	\$15.07	\$18.67	\$0.00	\$73.88
	12/01/2024	\$40.14	\$15.07	\$20.17	\$0.00	\$75.38
	01/01/2025	\$40.14	\$15.57	\$20.17	\$0.00	\$75.88
	06/01/2025	\$41.14	\$15.57	\$20.17	\$0.00	\$76.88
	12/01/2025	\$41.14	\$15.57	\$21.78	\$0.00	\$78.49
	01/01/2026	\$41.14	\$16.17	\$21.78	\$0.00	\$79.09
	06/01/2026	\$42.14	\$16.17	\$21.78	\$0.00	\$80.09
	12/01/2026	\$42.14	\$16.17	\$23.52	\$0.00	\$81.83
	01/01/2027	\$42.14	\$16.77	\$23.52	\$0.00	\$82.43
ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
AIR TRACK OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
For apprentice rates see "Apprentice- LABORER"						
AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
	06/01/2024	\$39.94	\$9.65	\$17.14	\$0.00	\$66.73
	12/01/2024	\$41.27	\$9.65	\$17.14	\$0.00	\$68.06
	06/01/2025	\$42.66	\$9.65	\$17.14	\$0.00	\$69.45
	12/01/2025	\$44.04	\$9.65	\$17.14	\$0.00	\$70.83
	06/01/2026	\$45.48	\$9.65	\$17.14	\$0.00	\$72.27
	12/01/2026	\$46.92	\$9.65	\$17.14	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						



Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT &amp; FROST INSULATORS LOCAL 6 (BOSTON)</i>	12/01/2023	\$40.80	\$14.50	\$11.05	\$0.00	\$66.35
	06/01/2024	\$41.80	\$14.50	\$11.05	\$0.00	\$67.35
	12/01/2024	\$42.80	\$14.50	\$11.05	\$0.00	\$68.35
	06/01/2025	\$43.80	\$14.50	\$11.05	\$0.00	\$69.35
	12/01/2025	\$44.80	\$14.50	\$11.05	\$0.00	\$70.35
ASPHALT RAKER <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
	06/01/2024	\$39.94	\$9.65	\$17.14	\$0.00	\$66.73
	12/01/2024	\$41.27	\$9.65	\$17.14	\$0.00	\$68.06
	06/01/2025	\$42.66	\$9.65	\$17.14	\$0.00	\$69.45
	12/01/2025	\$44.04	\$9.65	\$17.14	\$0.00	\$70.83
	06/01/2026	\$45.48	\$9.65	\$17.14	\$0.00	\$72.27
	12/01/2026	\$46.92	\$9.65	\$17.14	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
BOILER MAKER <i>BOILERMAKERS LOCAL 29</i>	01/01/2024	\$48.12	\$7.07	\$20.60	\$0.00	\$75.79

Last Modified: 04/10/2024 at 4:04PM EDT

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - BOILERMAKER - Local 29**

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	\$31.28	\$7.07	\$13.22	\$0.00	\$51.57
2	65	\$31.28	\$7.07	\$13.22	\$0.00	\$51.57
3	70	\$33.68	\$7.07	\$14.23	\$0.00	\$54.98
4	75	\$36.09	\$7.07	\$15.24	\$0.00	\$58.40
5	80	\$38.50	\$7.07	\$16.25	\$0.00	\$61.82
6	85	\$40.90	\$7.07	\$17.28	\$0.00	\$65.25
7	90	\$43.31	\$7.07	\$18.28	\$0.00	\$68.66
8	95	\$45.71	\$7.07	\$19.32	\$0.00	\$72.10

**Notes:**

**Apprentice to Journeyworker Ratio:1:4**

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	02/01/2024	\$62.40	\$11.49	\$23.59	\$0.00	\$97.48
BRICKLAYERS LOCAL 3 (WALTHAM)	08/01/2024	\$64.50	\$11.49	\$23.59	\$0.00	\$99.58
	02/01/2025	\$65.80	\$11.49	\$23.59	\$0.00	\$100.88
	08/01/2025	\$67.95	\$11.49	\$23.59	\$0.00	\$103.03
	02/01/2026	\$69.30	\$11.49	\$23.59	\$0.00	\$104.38
	08/01/2026	\$71.50	\$11.49	\$23.59	\$0.00	\$106.58
	02/01/2027	\$72.90	\$11.49	\$23.59	\$0.00	\$107.98

Last Modified: 04/10/2024 at 4:04PM EDT

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Waltham**

**Effective Date - 02/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.20	\$11.49	\$23.59	\$0.00	\$66.28
2	60	\$37.44	\$11.49	\$23.59	\$0.00	\$72.52
3	70	\$43.68	\$11.49	\$23.59	\$0.00	\$78.76
4	80	\$49.92	\$11.49	\$23.59	\$0.00	\$85.00
5	90	\$56.16	\$11.49	\$23.59	\$0.00	\$91.24

**Effective Date - 08/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.25	\$11.49	\$23.59	\$0.00	\$67.33
2	60	\$38.70	\$11.49	\$23.59	\$0.00	\$73.78
3	70	\$45.15	\$11.49	\$23.59	\$0.00	\$80.23
4	80	\$51.60	\$11.49	\$23.59	\$0.00	\$86.68
5	90	\$58.05	\$11.49	\$23.59	\$0.00	\$93.13

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

<b>BULLDOZER/GRADER/SCRAPER</b> <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

<b>CAISSON &amp; UNDERPINNING BOTTOM MAN</b> <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2023	\$45.48	\$9.65	\$18.22	\$0.00	\$73.35
	06/01/2024	\$46.96	\$9.65	\$18.22	\$0.00	\$74.83
	12/01/2024	\$48.43	\$9.65	\$18.22	\$0.00	\$76.30
	06/01/2025	\$49.93	\$9.65	\$18.22	\$0.00	\$77.80
	12/01/2025	\$51.43	\$9.65	\$18.22	\$0.00	\$79.30
	06/01/2026	\$52.98	\$9.65	\$18.22	\$0.00	\$80.85
	12/01/2026	\$54.48	\$9.65	\$18.22	\$0.00	\$82.35

For apprentice rates see "Apprentice- LABORER"

<b>CAISSON &amp; UNDERPINNING LABORER</b> <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2023	\$44.33	\$9.65	\$18.22	\$0.00	\$72.20
	06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
	12/01/2024	\$47.28	\$9.65	\$18.22	\$0.00	\$75.15
	06/01/2025	\$48.78	\$9.65	\$18.22	\$0.00	\$76.65
	12/01/2025	\$50.28	\$9.65	\$18.22	\$0.00	\$78.15
	06/01/2026	\$51.83	\$9.65	\$18.22	\$0.00	\$79.70
	12/01/2026	\$53.33	\$9.65	\$18.22	\$0.00	\$81.20

For apprentice rates see "Apprentice- LABORER"

Last Modified: 04/10/2024 at 4:04PM EDT

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2023	\$44.33	\$9.65	\$18.22	\$0.00	\$72.20
	06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
	12/01/2024	\$47.28	\$9.65	\$18.22	\$0.00	\$75.15
	06/01/2025	\$48.78	\$9.65	\$18.22	\$0.00	\$76.65
	12/01/2025	\$50.28	\$9.65	\$18.22	\$0.00	\$78.15
	06/01/2026	\$51.83	\$9.65	\$18.22	\$0.00	\$79.70
	12/01/2026	\$53.33	\$9.65	\$18.22	\$0.00	\$81.20
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i>	03/01/2024	\$47.12	\$9.83	\$19.97	\$0.00	\$76.92
	09/01/2024	\$48.37	\$9.83	\$19.97	\$0.00	\$78.17
	03/01/2025	\$49.62	\$9.83	\$19.97	\$0.00	\$79.42
	09/01/2025	\$50.87	\$9.83	\$19.97	\$0.00	\$80.67
	03/01/2026	\$52.12	\$9.83	\$19.97	\$0.00	\$81.92
	09/01/2026	\$53.37	\$9.83	\$19.97	\$0.00	\$83.17
	03/01/2027	\$54.62	\$9.83	\$19.97	\$0.00	\$84.42

**Apprentice - CARPENTER - Zone 2 Eastern MA**

**Effective Date - 03/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$21.20	\$9.83	\$1.73	\$0.00	\$32.76
2	45	\$21.20	\$9.83	\$1.73	\$0.00	\$32.76
3	55	\$25.92	\$9.83	\$3.40	\$0.00	\$39.15
4	55	\$25.92	\$9.83	\$3.40	\$0.00	\$39.15
5	70	\$32.98	\$9.83	\$16.51	\$0.00	\$59.32
6	70	\$32.98	\$9.83	\$16.51	\$0.00	\$59.32
7	80	\$37.70	\$9.83	\$18.24	\$0.00	\$65.77
8	80	\$37.70	\$9.83	\$18.24	\$0.00	\$65.77

**Effective Date - 09/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$21.77	\$9.83	\$1.73	\$0.00	\$33.33
2	45	\$21.77	\$9.83	\$1.73	\$0.00	\$33.33
3	55	\$26.60	\$9.83	\$3.40	\$0.00	\$39.83
4	55	\$26.60	\$9.83	\$3.40	\$0.00	\$39.83
5	70	\$33.86	\$9.83	\$16.51	\$0.00	\$60.20
6	70	\$33.86	\$9.83	\$16.51	\$0.00	\$60.20
7	80	\$38.70	\$9.83	\$18.24	\$0.00	\$66.77
8	80	\$38.70	\$9.83	\$18.24	\$0.00	\$66.77

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CARPENTER WOOD FRAME	10/01/2023	\$25.55	\$7.02	\$4.80	\$0.00	\$37.37
<i>CARPENTERS-ZONE 3 (Wood Frame)</i>	10/01/2024	\$26.65	\$7.02	\$4.80	\$0.00	\$38.47
	10/01/2025	\$27.75	\$7.02	\$4.80	\$0.00	\$39.57
	10/01/2026	\$28.85	\$7.02	\$4.80	\$0.00	\$40.67

All Aspects of New Wood Frame Work

**Apprentice - CARPENTER (Wood Frame) - Zone 3**

**Effective Date - 10/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$15.33	\$7.02	\$0.00	\$0.00	\$22.35
2	60	\$15.33	\$7.02	\$0.00	\$0.00	\$22.35
3	65	\$16.61	\$7.02	\$1.00	\$0.00	\$24.63
4	70	\$17.89	\$7.02	\$1.00	\$0.00	\$25.91
5	75	\$19.16	\$7.02	\$4.80	\$0.00	\$30.98
6	80	\$20.44	\$7.02	\$4.80	\$0.00	\$32.26
7	85	\$21.72	\$7.02	\$4.80	\$0.00	\$33.54
8	90	\$23.00	\$7.02	\$4.80	\$0.00	\$34.82

**Effective Date - 10/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$15.99	\$7.02	\$0.00	\$0.00	\$23.01
2	60	\$15.99	\$7.02	\$0.00	\$0.00	\$23.01
3	65	\$17.32	\$7.02	\$1.00	\$0.00	\$25.34
4	70	\$18.66	\$7.02	\$1.00	\$0.00	\$26.68
5	75	\$19.99	\$7.02	\$4.80	\$0.00	\$31.81
6	80	\$21.32	\$7.02	\$4.80	\$0.00	\$33.14
7	85	\$22.65	\$7.02	\$4.80	\$0.00	\$34.47
8	90	\$23.99	\$7.02	\$4.80	\$0.00	\$35.81

**Notes:**

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80  
 Step 1&2 \$18.52/ 3&4 \$21.07/ 5&6 \$28.70/ 7&8 \$31.26

**Apprentice to Journeyworker Ratio:1:5**

CEMENT MASONRY/PLASTERING	01/01/2024	\$49.33	\$13.00	\$23.57	\$1.30	\$87.20
<i>BRICKLAYERS LOCAL 3 (WALTHAM)</i>						

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Waltham)**

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.67	\$13.00	\$15.93	\$0.00	\$53.60
2	60	\$29.60	\$13.00	\$18.57	\$1.30	\$62.47
3	65	\$32.06	\$13.00	\$19.57	\$1.30	\$65.93
4	70	\$34.53	\$13.00	\$20.57	\$1.30	\$69.40
5	75	\$37.00	\$13.00	\$21.57	\$1.30	\$72.87
6	80	\$39.46	\$13.00	\$22.57	\$1.30	\$76.33
7	90	\$44.40	\$13.00	\$23.57	\$1.30	\$82.27

**Notes:**  
Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

**Apprentice to Journeyworker Ratio:1:3**

<b>CHAIN SAW OPERATOR</b> <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
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For apprentice rates see "Apprentice- LABORER"

<b>CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES</b> <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$56.13	\$15.00	\$16.40	\$0.00	\$87.53
	06/01/2024	\$57.45	\$15.00	\$16.40	\$0.00	\$88.85
	12/01/2024	\$58.93	\$15.00	\$16.40	\$0.00	\$90.33
	06/01/2025	\$60.26	\$15.00	\$16.40	\$0.00	\$91.66
	12/01/2025	\$61.73	\$15.00	\$16.40	\$0.00	\$93.13
	06/01/2026	\$63.06	\$15.00	\$16.40	\$0.00	\$94.46
	12/01/2026	\$64.54	\$15.00	\$16.40	\$0.00	\$95.94

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

<b>COMPRESSOR OPERATOR</b> <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$35.62	\$15.00	\$16.40	\$0.00	\$67.02
	06/01/2024	\$36.47	\$15.00	\$16.40	\$0.00	\$67.87
	12/01/2024	\$37.42	\$15.00	\$16.40	\$0.00	\$68.82
	06/01/2025	\$38.27	\$15.00	\$16.40	\$0.00	\$69.67
	12/01/2025	\$39.22	\$15.00	\$16.40	\$0.00	\$70.62
	06/01/2026	\$40.08	\$15.00	\$16.40	\$0.00	\$71.48
	12/01/2026	\$41.03	\$15.00	\$16.40	\$0.00	\$72.43

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

<b>DELEADER (BRIDGE)</b> <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2024	\$56.06	\$9.95	\$23.95	\$0.00	\$89.96
	07/01/2024	\$57.26	\$9.95	\$23.95	\$0.00	\$91.16
	01/01/2025	\$58.46	\$9.95	\$23.95	\$0.00	\$92.36

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$68.70	\$9.40	\$23.12	\$0.00	\$101.22
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$73.60	\$9.40	\$23.12	\$0.00	\$106.12
For apprentice rates see "Apprentice- PILE DRIVER"						
DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$103.05	\$9.40	\$23.12	\$0.00	\$135.57
For apprentice rates see "Apprentice- PILE DRIVER"						
DRAWBRIDGE OPERATOR (Construction) <i>DRAWBRIDGE - SEIU LOCAL 888</i>	07/01/2020	\$26.77	\$6.67	\$3.93	\$0.16	\$37.53
ELECTRICIAN <i>ELECTRICIANS LOCAL 103</i>	03/01/2024	\$61.86	\$13.00	\$22.21	\$0.00	\$97.07
	09/01/2024	\$63.78	\$13.00	\$22.26	\$0.00	\$99.04
	03/01/2025	\$64.98	\$13.00	\$22.30	\$0.00	\$100.28
	09/01/2025	\$66.89	\$13.00	\$22.36	\$0.00	\$102.25
	03/01/2026	\$68.09	\$13.00	\$22.39	\$0.00	\$103.48
	09/01/2026	\$70.00	\$13.00	\$22.45	\$0.00	\$105.45
	03/01/2027	\$71.19	\$13.00	\$22.49	\$0.00	\$106.68
	09/01/2027	\$73.11	\$13.00	\$22.54	\$0.00	\$108.65
03/01/2028	\$74.31	\$13.00	\$22.58	\$0.00	\$109.89	

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**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - ELECTRICIAN - Local 103**

**Effective Date - 03/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$24.74	\$13.00	\$0.74	\$0.00	\$38.48
2	40	\$24.74	\$13.00	\$0.74	\$0.00	\$38.48
3	45	\$27.84	\$13.00	\$16.67	\$0.00	\$57.51
4	45	\$27.84	\$13.00	\$16.67	\$0.00	\$57.51
5	50	\$30.93	\$13.00	\$17.17	\$0.00	\$61.10
6	55	\$34.02	\$13.00	\$17.67	\$0.00	\$64.69
7	60	\$37.12	\$13.00	\$18.17	\$0.00	\$68.29
8	65	\$40.21	\$13.00	\$18.68	\$0.00	\$71.89
9	70	\$43.30	\$13.00	\$19.18	\$0.00	\$75.48
10	75	\$46.40	\$13.00	\$19.69	\$0.00	\$79.09

**Effective Date - 09/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$25.51	\$13.00	\$0.77	\$0.00	\$39.28
2	40	\$25.51	\$13.00	\$0.77	\$0.00	\$39.28
3	45	\$28.70	\$13.00	\$16.69	\$0.00	\$58.39
4	45	\$28.70	\$13.00	\$16.69	\$0.00	\$58.39
5	50	\$31.89	\$13.00	\$17.20	\$0.00	\$62.09
6	55	\$35.08	\$13.00	\$17.70	\$0.00	\$65.78
7	60	\$38.27	\$13.00	\$18.21	\$0.00	\$69.48
8	65	\$41.46	\$13.00	\$18.71	\$0.00	\$73.17
9	70	\$44.65	\$13.00	\$19.22	\$0.00	\$76.87
10	75	\$47.84	\$13.00	\$19.74	\$0.00	\$80.58

**Notes :**  
 App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

**Apprentice to Journeyworker Ratio:2:3\*\*\***

ELEVATOR CONSTRUCTOR	01/01/2022	\$65.62	\$16.03	\$20.21	\$0.00	\$101.86
ELEVATOR CONSTRUCTORS LOCAL 4						

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**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - ELEVATOR CONSTRUCTOR - Local 4**

**Effective Date - 01/01/2022**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.81	\$16.03	\$0.00	\$0.00	\$48.84
2	55	\$36.09	\$16.03	\$20.21	\$0.00	\$72.33
3	65	\$42.65	\$16.03	\$20.21	\$0.00	\$78.89
4	70	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
5	80	\$52.50	\$16.03	\$20.21	\$0.00	\$88.74

**Notes:**  
Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

**Apprentice to Journeyworker Ratio:1:1**

ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 4</i>	01/01/2022	\$45.93	\$16.03	\$20.21	\$0.00	\$82.17
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For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21

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

FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2023	\$50.30	\$14.50	\$16.15	\$0.00	\$80.95
	05/01/2024	\$51.54	\$14.50	\$16.15	\$0.00	\$82.19
	11/01/2024	\$52.83	\$14.50	\$16.15	\$0.00	\$83.48
	05/01/2025	\$54.27	\$14.50	\$16.15	\$0.00	\$84.92
	11/01/2025	\$55.56	\$14.50	\$16.15	\$0.00	\$86.21
	05/01/2026	\$57.00	\$14.50	\$16.15	\$0.00	\$87.65
	11/01/2026	\$58.29	\$14.50	\$16.15	\$0.00	\$88.94
	05/01/2027	\$59.72	\$14.50	\$16.15	\$0.00	\$90.37

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2023	\$51.87	\$14.50	\$16.15	\$0.00	\$82.52
	05/01/2024	\$53.12	\$14.50	\$16.15	\$0.00	\$83.77
	11/01/2024	\$54.42	\$14.50	\$16.15	\$0.00	\$85.07
	05/01/2025	\$55.87	\$14.50	\$16.15	\$0.00	\$86.52
	11/01/2025	\$57.17	\$14.50	\$16.15	\$0.00	\$87.82
	05/01/2026	\$58.62	\$14.50	\$16.15	\$0.00	\$89.27
	11/01/2026	\$59.92	\$14.50	\$16.15	\$0.00	\$90.57
	05/01/2027	\$61.37	\$14.50	\$16.15	\$0.00	\$92.02

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i>	11/01/2023	\$24.93	\$14.50	\$16.15	\$0.00	\$55.58
	05/01/2024	\$25.66	\$14.50	\$16.15	\$0.00	\$56.31
	11/01/2024	\$26.42	\$14.50	\$16.15	\$0.00	\$57.07
	05/01/2025	\$27.27	\$14.50	\$16.15	\$0.00	\$57.92
	11/01/2025	\$28.03	\$14.50	\$16.15	\$0.00	\$58.68
	05/01/2026	\$28.88	\$14.50	\$16.15	\$0.00	\$59.53
	11/01/2026	\$29.64	\$14.50	\$16.15	\$0.00	\$60.29
	05/01/2027	\$30.49	\$14.50	\$16.15	\$0.00	\$61.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i>	03/01/2024	\$61.86	\$13.00	\$22.21	\$0.00	\$97.07
	09/01/2024	\$63.78	\$13.00	\$22.26	\$0.00	\$99.04
	03/01/2025	\$64.98	\$13.00	\$22.30	\$0.00	\$100.28
	09/01/2025	\$66.89	\$13.00	\$22.36	\$0.00	\$102.25
	03/01/2026	\$68.09	\$13.00	\$22.39	\$0.00	\$103.48
	09/01/2026	\$70.00	\$13.00	\$22.45	\$0.00	\$105.45
	03/01/2027	\$71.19	\$13.00	\$22.49	\$0.00	\$106.68
	09/01/2027	\$73.11	\$13.00	\$22.54	\$0.00	\$108.65
	03/01/2028	\$74.31	\$13.00	\$22.58	\$0.00	\$109.89
	For apprentice rates see "Apprentice- ELECTRICIAN"					
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS LOCAL 103</i>	03/01/2024	\$49.49	\$13.00	\$20.19	\$0.00	\$82.68
	09/01/2024	\$51.02	\$13.00	\$20.24	\$0.00	\$84.26
	03/01/2025	\$51.98	\$13.00	\$20.27	\$0.00	\$85.25
	09/01/2025	\$53.51	\$13.00	\$20.32	\$0.00	\$86.83
	03/01/2026	\$54.47	\$13.00	\$20.34	\$0.00	\$87.81
	09/01/2026	\$56.00	\$13.00	\$20.39	\$0.00	\$89.39
	03/01/2027	\$56.95	\$13.00	\$20.42	\$0.00	\$90.37
	09/01/2027	\$58.49	\$13.00	\$20.46	\$0.00	\$91.95
	03/01/2028	\$59.45	\$13.00	\$20.49	\$0.00	\$92.94
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$44.47	\$15.00	\$16.40	\$0.00	\$75.87
	06/01/2024	\$45.53	\$15.00	\$16.40	\$0.00	\$76.93
	12/01/2024	\$46.71	\$15.00	\$16.40	\$0.00	\$78.11
	06/01/2025	\$47.77	\$15.00	\$16.40	\$0.00	\$79.17
	12/01/2025	\$48.94	\$15.00	\$16.40	\$0.00	\$80.34
	06/01/2026	\$50.00	\$15.00	\$16.40	\$0.00	\$81.40
	12/01/2026	\$51.18	\$15.00	\$16.40	\$0.00	\$82.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$25.48	\$9.65	\$17.14	\$0.00	\$52.27
	06/01/2024	\$26.51	\$9.65	\$17.14	\$0.00	\$53.30
	12/01/2024	\$26.51	\$9.65	\$17.14	\$0.00	\$53.30
	06/01/2025	\$27.59	\$9.65	\$17.14	\$0.00	\$54.38
	12/01/2025	\$27.59	\$9.65	\$17.14	\$0.00	\$54.38
	06/01/2026	\$28.71	\$9.65	\$17.14	\$0.00	\$55.50
	12/01/2026	\$28.71	\$9.65	\$17.14	\$0.00	\$55.50
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FLOORCOVERER FLOORCOVERERS LOCAL 2168 ZONE I	03/01/2024	\$54.73	\$8.83	\$20.27	\$0.00	\$83.83
	09/01/2024	\$56.23	\$8.83	\$20.27	\$0.00	\$85.33
	03/01/2025	\$57.73	\$8.83	\$20.27	\$0.00	\$86.83
	09/01/2025	\$59.23	\$8.83	\$20.27	\$0.00	\$88.33
	03/01/2026	\$60.73	\$8.83	\$20.27	\$0.00	\$89.83
	09/01/2026	\$62.23	\$8.83	\$20.27	\$0.00	\$91.33
	03/01/2027	\$63.73	\$8.83	\$20.27	\$0.00	\$92.83

**Apprentice - FLOORCOVERER - Local 2168 Zone I**

**Effective Date - 03/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$24.63	\$8.83	\$1.76	\$0.00	\$35.22
2	45	\$24.63	\$8.83	\$1.76	\$0.00	\$35.22
3	55	\$30.10	\$8.83	\$3.52	\$0.00	\$42.45
4	55	\$30.10	\$8.83	\$3.52	\$0.00	\$42.45
5	70	\$38.31	\$8.83	\$16.75	\$0.00	\$63.89
6	70	\$38.31	\$8.83	\$16.75	\$0.00	\$63.89
7	80	\$43.78	\$8.83	\$18.51	\$0.00	\$71.12
8	80	\$43.78	\$8.83	\$18.51	\$0.00	\$71.12

**Effective Date - 09/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	45	\$25.30	\$8.83	\$1.76	\$0.00	\$35.89
2	45	\$25.30	\$8.83	\$1.76	\$0.00	\$35.89
3	55	\$30.93	\$8.83	\$3.52	\$0.00	\$43.28
4	55	\$30.93	\$8.83	\$3.52	\$0.00	\$43.28
5	70	\$39.36	\$8.83	\$16.75	\$0.00	\$64.94
6	70	\$39.36	\$8.83	\$16.75	\$0.00	\$64.94
7	80	\$44.98	\$8.83	\$18.51	\$0.00	\$72.32
8	80	\$44.98	\$8.83	\$18.51	\$0.00	\$72.32

**Notes:** Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

FORK LIFT/CHERRY PICKER OPERATING ENGINEERS LOCAL 4	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$35.62	\$15.00	\$16.40	\$0.00	\$67.02
	06/01/2024	\$36.47	\$15.00	\$16.40	\$0.00	\$67.87
	12/01/2024	\$37.42	\$15.00	\$16.40	\$0.00	\$68.82
	06/01/2025	\$38.27	\$15.00	\$16.40	\$0.00	\$69.67
	12/01/2025	\$39.22	\$15.00	\$16.40	\$0.00	\$70.62
	06/01/2026	\$40.08	\$15.00	\$16.40	\$0.00	\$71.48
	12/01/2026	\$41.03	\$15.00	\$16.40	\$0.00	\$72.43

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 2)</i>	01/01/2024	\$45.56	\$9.95	\$23.95	\$0.00	\$79.46
	07/01/2024	\$46.76	\$9.95	\$23.95	\$0.00	\$80.66
	01/01/2025	\$47.96	\$9.95	\$23.95	\$0.00	\$81.86

**Apprentice - GLAZIER - Local 35 Zone 2**

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.78	\$9.95	\$0.00	\$0.00	\$32.73
2	55	\$25.06	\$9.95	\$6.66	\$0.00	\$41.67
3	60	\$27.34	\$9.95	\$7.26	\$0.00	\$44.55
4	65	\$29.61	\$9.95	\$7.87	\$0.00	\$47.43
5	70	\$31.89	\$9.95	\$20.32	\$0.00	\$62.16
6	75	\$34.17	\$9.95	\$20.93	\$0.00	\$65.05
7	80	\$36.45	\$9.95	\$21.53	\$0.00	\$67.93
8	90	\$41.00	\$9.95	\$22.74	\$0.00	\$73.69

**Effective Date - 07/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$9.95	\$0.00	\$0.00	\$33.33
2	55	\$25.72	\$9.95	\$6.66	\$0.00	\$42.33
3	60	\$28.06	\$9.95	\$7.26	\$0.00	\$45.27
4	65	\$30.39	\$9.95	\$7.87	\$0.00	\$48.21
5	70	\$32.73	\$9.95	\$20.32	\$0.00	\$63.00
6	75	\$35.07	\$9.95	\$20.93	\$0.00	\$65.95
7	80	\$37.41	\$9.95	\$21.53	\$0.00	\$68.89
8	90	\$42.08	\$9.95	\$22.74	\$0.00	\$74.77

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

HOISTING ENGINEER/CRANES/GRADALLS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - OPERATING ENGINEERS - Local 4**

**Effective Date - 12/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$30.27	\$15.00	\$0.00	\$0.00	\$45.27
2	60	\$33.02	\$15.00	\$16.40	\$0.00	\$64.42
3	65	\$35.77	\$15.00	\$16.40	\$0.00	\$67.17
4	70	\$38.52	\$15.00	\$16.40	\$0.00	\$69.92
5	75	\$41.27	\$15.00	\$16.40	\$0.00	\$72.67
6	80	\$44.02	\$15.00	\$16.40	\$0.00	\$75.42
7	85	\$46.78	\$15.00	\$16.40	\$0.00	\$78.18
8	90	\$49.53	\$15.00	\$16.40	\$0.00	\$80.93

**Effective Date - 06/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$30.98	\$15.00	\$0.00	\$0.00	\$45.98
2	60	\$33.80	\$15.00	\$16.40	\$0.00	\$65.20
3	65	\$36.61	\$15.00	\$16.40	\$0.00	\$68.01
4	70	\$39.43	\$15.00	\$16.40	\$0.00	\$70.83
5	75	\$42.25	\$15.00	\$16.40	\$0.00	\$73.65
6	80	\$45.06	\$15.00	\$16.40	\$0.00	\$76.46
7	85	\$47.88	\$15.00	\$16.40	\$0.00	\$79.28
8	90	\$50.70	\$15.00	\$16.40	\$0.00	\$82.10

**Notes:**

**Apprentice to Journeyworker Ratio:1:6**

HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 - A	02/01/2024	\$57.22	\$14.59	\$27.50	\$2.98	\$102.29
	08/01/2024	\$58.97	\$14.59	\$27.50	\$2.98	\$104.04
	02/01/2025	\$60.72	\$14.59	\$27.50	\$2.98	\$105.79
	08/01/2025	\$62.57	\$14.59	\$27.50	\$2.98	\$107.64
	02/01/2026	\$64.52	\$14.59	\$27.50	\$2.98	\$109.59

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 103	03/01/2024	\$61.86	\$13.00	\$22.21	\$0.00	\$97.07
	09/01/2024	\$63.78	\$13.00	\$22.26	\$0.00	\$99.04
	03/01/2025	\$64.98	\$13.00	\$22.30	\$0.00	\$100.28
	09/01/2025	\$66.89	\$13.00	\$22.36	\$0.00	\$102.25
	03/01/2026	\$68.09	\$13.00	\$22.39	\$0.00	\$103.48
	09/01/2026	\$70.00	\$13.00	\$22.45	\$0.00	\$105.45
	03/01/2027	\$71.19	\$13.00	\$22.49	\$0.00	\$106.68
	09/01/2027	\$73.11	\$13.00	\$22.54	\$0.00	\$108.65
	03/01/2028	\$74.31	\$13.00	\$22.58	\$0.00	\$109.89

For apprentice rates see "Apprentice- ELECTRICIAN"

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 17 - A</i>	02/01/2024	\$57.22	\$14.59	\$27.50	\$2.98	\$102.29
	08/01/2024	\$58.97	\$14.59	\$27.50	\$2.98	\$104.04
	02/01/2025	\$60.72	\$14.59	\$27.50	\$2.98	\$105.79
	08/01/2025	\$62.57	\$14.59	\$27.50	\$2.98	\$107.64
	02/01/2026	\$64.52	\$14.59	\$27.50	\$2.98	\$109.59
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) <i>PIPEFITTERS LOCAL 537</i>	03/01/2024	\$65.28	\$12.70	\$21.80	\$0.00	\$99.78
	09/01/2024	\$67.08	\$12.70	\$21.80	\$0.00	\$101.58
	03/01/2025	\$68.88	\$12.70	\$21.80	\$0.00	\$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC <i>PIPEFITTERS LOCAL 537</i>	03/01/2024	\$65.28	\$12.70	\$21.80	\$0.00	\$99.78
	09/01/2024	\$67.08	\$12.70	\$21.80	\$0.00	\$101.58
	03/01/2025	\$68.88	\$12.70	\$21.80	\$0.00	\$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
For apprentice rates see "Apprentice- LABORER"						
HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$38.61	\$9.65	\$17.14	\$0.00	\$65.40
	06/01/2024	\$39.94	\$9.65	\$17.14	\$0.00	\$66.73
	12/01/2024	\$41.27	\$9.65	\$17.14	\$0.00	\$68.06
	06/01/2025	\$42.66	\$9.65	\$17.14	\$0.00	\$69.45
	12/01/2025	\$44.04	\$9.65	\$17.14	\$0.00	\$70.83
	06/01/2026	\$45.48	\$9.65	\$17.14	\$0.00	\$72.27
	12/01/2026	\$46.92	\$9.65	\$17.14	\$0.00	\$73.71
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
INSULATOR (PIPES & TANKS) <i>HEAT &amp; FROST INSULATORS LOCAL 6 (BOSTON)</i>	09/01/2023	\$53.50	\$14.75	\$19.61	\$0.00	\$87.86
	09/01/2024	\$56.92	\$14.75	\$19.61	\$0.00	\$91.28
	09/01/2025	\$60.34	\$14.75	\$19.61	\$0.00	\$94.70
	09/01/2026	\$63.76	\$14.75	\$19.61	\$0.00	\$98.12

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**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston**

**Effective Date - 09/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$26.75	\$14.75	\$14.32	\$0.00	\$55.82
2	60	\$32.10	\$14.75	\$15.37	\$0.00	\$62.22
3	70	\$37.45	\$14.75	\$16.43	\$0.00	\$68.63
4	80	\$42.80	\$14.75	\$17.49	\$0.00	\$75.04

**Effective Date - 09/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.46	\$14.75	\$14.32	\$0.00	\$57.53
2	60	\$34.15	\$14.75	\$15.37	\$0.00	\$64.27
3	70	\$39.84	\$14.75	\$16.43	\$0.00	\$71.02
4	80	\$45.54	\$14.75	\$17.49	\$0.00	\$77.78

**Notes:**

Steps are 1 year

**Apprentice to Journeyworker Ratio:1:4**

<b>IRONWORKER/WELDER</b> <i>IRONWORKERS LOCAL 7 (BOSTON AREA)</i>	03/16/2024	\$53.97	\$8.35	\$26.70	\$0.00	\$89.02
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**Apprentice - IRONWORKER - Local 7 Boston**

**Effective Date - 03/16/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$32.38	\$8.35	\$26.70	\$0.00	\$67.43
2	70	\$37.78	\$8.35	\$26.70	\$0.00	\$72.83
3	75	\$40.48	\$8.35	\$26.70	\$0.00	\$75.53
4	80	\$43.18	\$8.35	\$26.70	\$0.00	\$78.23
5	85	\$45.87	\$8.35	\$26.70	\$0.00	\$80.92
6	90	\$48.57	\$8.35	\$26.70	\$0.00	\$83.62

**Notes:**

**Apprentice to Journeyworker Ratio:1:4**

<b>JACKHAMMER &amp; PAVING BREAKER OPERATOR</b> <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
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For apprentice rates see "Apprentice- LABORER"

<b>LABORER</b> <i>LABORERS - ZONE 2</i>	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
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**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - LABORER - Zone 2**

**Effective Date - 12/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$22.72	\$9.65	\$16.89	\$0.00	\$49.26
2	70	\$26.50	\$9.65	\$16.89	\$0.00	\$53.04
3	80	\$30.29	\$9.65	\$16.89	\$0.00	\$56.83
4	90	\$34.07	\$9.65	\$16.89	\$0.00	\$60.61

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

LABORER (HEAVY & HIGHWAY)	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
LABORERS - ZONE 2 (HEAVY & HIGHWAY)	06/01/2024	\$39.19	\$9.65	\$17.14	\$0.00	\$65.98
	12/01/2024	\$40.52	\$9.65	\$17.14	\$0.00	\$67.31
	06/01/2025	\$41.91	\$9.65	\$17.14	\$0.00	\$68.70
	12/01/2025	\$43.29	\$9.65	\$17.14	\$0.00	\$70.08
	06/01/2026	\$44.73	\$9.65	\$17.14	\$0.00	\$71.52
	12/01/2026	\$46.17	\$9.65	\$17.14	\$0.00	\$72.96

**Apprentice - LABORER (Heavy & Highway) - Zone 2**

**Effective Date - 12/01/2023**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$22.72	\$9.65	\$17.14	\$0.00	\$49.51
2	70	\$26.50	\$9.65	\$17.14	\$0.00	\$53.29
3	80	\$30.29	\$9.65	\$17.14	\$0.00	\$57.08
4	90	\$34.07	\$9.65	\$17.14	\$0.00	\$60.86

**Effective Date - 06/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	\$23.51	\$9.00	\$16.89	\$0.00	\$49.40
2	70	\$27.43	\$9.00	\$16.89	\$0.00	\$53.32
3	80	\$31.35	\$9.00	\$16.89	\$0.00	\$57.24
4	90	\$35.27	\$9.00	\$16.89	\$0.00	\$61.16

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

LABORER: CARPENTER TENDER	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
LABORERS - ZONE 2						

For apprentice rates see "Apprentice- LABORER"

LABORER: CEMENT FINISHER TENDER	12/01/2023	\$38.36	\$9.40	\$16.89	\$0.00	\$64.65
LABORERS - ZONE 2						

For apprentice rates see "Apprentice- LABORER"

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER <i>LABORERS - ZONE 2</i>	12/01/2023	\$37.95	\$9.65	\$17.20	\$0.00	\$64.80
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 2</i>	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER <i>LABORERS - ZONE 2</i>	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
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 <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE &amp; TILE</i>	02/01/2024	\$47.89	\$11.49	\$21.37	\$0.00	\$80.75
	08/01/2024	\$49.57	\$11.49	\$21.37	\$0.00	\$82.43
	02/01/2025	\$50.61	\$11.49	\$21.37	\$0.00	\$83.47
	08/01/2025	\$52.33	\$11.49	\$21.37	\$0.00	\$85.19
	02/01/2026	\$53.41	\$11.49	\$21.37	\$0.00	\$86.27
	08/01/2026	\$55.17	\$11.49	\$21.37	\$0.00	\$88.03
	02/01/2027	\$56.29	\$11.49	\$21.37	\$0.00	\$89.15

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**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - MARBLE & TILE FINISHER - Local 3 Marble & Tile**

**Effective Date - 02/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.95	\$11.49	\$21.37	\$0.00	\$56.81
2	60	\$28.73	\$11.49	\$21.37	\$0.00	\$61.59
3	70	\$33.52	\$11.49	\$21.37	\$0.00	\$66.38
4	80	\$38.31	\$11.49	\$21.37	\$0.00	\$71.17
5	90	\$43.10	\$11.49	\$21.37	\$0.00	\$75.96

**Effective Date - 08/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.79	\$11.49	\$21.37	\$0.00	\$57.65
2	60	\$29.74	\$11.49	\$21.37	\$0.00	\$62.60
3	70	\$34.70	\$11.49	\$21.37	\$0.00	\$67.56
4	80	\$39.66	\$11.49	\$21.37	\$0.00	\$72.52
5	90	\$44.61	\$11.49	\$21.37	\$0.00	\$77.47

**Notes:**

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**Apprentice to Journeyworker Ratio:1:3**

MARBLE MASONS, TILELAYERS & TERRAZZO MECH	02/01/2024	\$62.42	\$11.49	\$23.56	\$0.00	\$97.47
BRICKLAYERS LOCAL 3 - MARBLE & TILE	08/01/2024	\$64.52	\$11.49	\$23.56	\$0.00	\$99.57
	02/01/2025	\$65.82	\$11.49	\$23.56	\$0.00	\$100.87
	08/01/2025	\$67.97	\$11.49	\$23.56	\$0.00	\$103.02
	02/01/2026	\$69.32	\$11.49	\$23.56	\$0.00	\$104.37
	08/01/2026	\$71.52	\$11.49	\$23.56	\$0.00	\$106.57
	02/01/2027	\$72.92	\$11.49	\$23.56	\$0.00	\$107.97

Last Modified: 04/10/2024 at 4:04PM EDT

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile**

**Effective Date - 02/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.21	\$11.49	\$23.56	\$0.00	\$66.26
2	60	\$37.45	\$11.49	\$23.56	\$0.00	\$72.50
3	70	\$43.69	\$11.49	\$23.56	\$0.00	\$78.74
4	80	\$49.94	\$11.49	\$23.56	\$0.00	\$84.99
5	90	\$56.18	\$11.49	\$23.56	\$0.00	\$91.23

**Effective Date - 08/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$32.26	\$11.49	\$23.56	\$0.00	\$67.31
2	60	\$38.71	\$11.49	\$23.56	\$0.00	\$73.76
3	70	\$45.16	\$11.49	\$23.56	\$0.00	\$80.21
4	80	\$51.62	\$11.49	\$23.56	\$0.00	\$86.67
5	90	\$58.07	\$11.49	\$23.56	\$0.00	\$93.12

**Notes:**

**Apprentice to Journeyworker Ratio:1:5**

MECH. SWEEPER OPERATOR (ON CONST. SITES) OPERATING ENGINEERS LOCAL 4	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MECHANICS MAINTENANCE OPERATING ENGINEERS LOCAL 4	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

MILLWRIGHT (Zone 2) MILLWRIGHTS LOCAL 1121 - Zone 2	01/01/2024	\$42.76	\$10.08	\$21.47	\$0.00	\$74.31
	01/06/2025	\$45.09	\$10.08	\$21.47	\$0.00	\$76.64
	01/05/2026	\$47.42	\$10.08	\$21.47	\$0.00	\$78.97

Last Modified: 04/10/2024 at 4:04PM EDT

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - MILLWRIGHT - Local 1121 Zone 2**

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$23.52	\$10.08	\$5.50	\$0.00	\$39.10
2	65	\$27.79	\$10.08	\$6.50	\$0.00	\$44.37
3	75	\$32.07	\$10.08	\$18.97	\$0.00	\$61.12
4	85	\$36.35	\$10.08	\$19.97	\$0.00	\$66.40

**Effective Date - 01/06/2025**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	\$24.80	\$10.08	\$5.50	\$0.00	\$40.38
2	65	\$29.31	\$10.08	\$6.50	\$0.00	\$45.89
3	75	\$33.82	\$10.08	\$18.97	\$0.00	\$62.87
4	85	\$38.33	\$10.08	\$19.97	\$0.00	\$68.38

**Notes:** Step 1&2 Appr. indentured after 1/6/2020 receive no pension, but do receive annuity. (Step 1 \$5.72, Step 2 \$6.66)  
Steps are 2,000 hours

**Apprentice to Journeyworker Ratio:1:4**

<b>MORTAR MIXER</b> <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
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For apprentice rates see "Apprentice- LABORER"

<b>OILER (OTHER THAN TRUCK CRANES,GRADALLS)</b> <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$24.41	\$15.00	\$16.40	\$0.00	\$55.81
	06/01/2024	\$25.01	\$15.00	\$16.40	\$0.00	\$56.41
	12/01/2024	\$25.67	\$15.00	\$16.40	\$0.00	\$57.07
	06/01/2025	\$26.27	\$15.00	\$16.40	\$0.00	\$57.67
	12/01/2025	\$26.93	\$15.00	\$16.40	\$0.00	\$58.33
	06/01/2026	\$27.52	\$15.00	\$16.40	\$0.00	\$58.92
	12/01/2026	\$28.19	\$15.00	\$16.40	\$0.00	\$59.59

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

<b>OILER (TRUCK CRANES, GRADALLS)</b> <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$29.86	\$15.00	\$16.40	\$0.00	\$61.26
	06/01/2024	\$30.58	\$15.00	\$16.40	\$0.00	\$61.98
	12/01/2024	\$31.38	\$15.00	\$16.40	\$0.00	\$62.78
	06/01/2025	\$32.10	\$15.00	\$16.40	\$0.00	\$63.50
	12/01/2025	\$32.90	\$15.00	\$16.40	\$0.00	\$64.30
	06/01/2026	\$33.62	\$15.00	\$16.40	\$0.00	\$65.02
	12/01/2026	\$34.42	\$15.00	\$16.40	\$0.00	\$65.82

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

<b>OTHER POWER DRIVEN EQUIPMENT - CLASS II</b> <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Last Modified: 04/10/2024 at 4:04PM EDT

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 2</i>	01/01/2024	\$56.06	\$9.95	\$23.95	\$0.00	\$89.96
	07/01/2024	\$57.26	\$9.95	\$23.95	\$0.00	\$91.16
	01/01/2025	\$58.46	\$9.95	\$23.95	\$0.00	\$92.36

**Apprentice - PAINTER Local 35 - BRIDGES/TANKS**

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.03	\$9.95	\$0.00	\$0.00	\$37.98
2	55	\$30.83	\$9.95	\$6.66	\$0.00	\$47.44
3	60	\$33.64	\$9.95	\$7.26	\$0.00	\$50.85
4	65	\$36.44	\$9.95	\$7.87	\$0.00	\$54.26
5	70	\$39.24	\$9.95	\$20.32	\$0.00	\$69.51
6	75	\$42.05	\$9.95	\$20.93	\$0.00	\$72.93
7	80	\$44.85	\$9.95	\$21.53	\$0.00	\$76.33
8	90	\$50.45	\$9.95	\$22.74	\$0.00	\$83.14

**Effective Date - 07/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$28.63	\$9.95	\$0.00	\$0.00	\$38.58
2	55	\$31.49	\$9.95	\$6.66	\$0.00	\$48.10
3	60	\$34.36	\$9.95	\$7.26	\$0.00	\$51.57
4	65	\$37.22	\$9.95	\$7.87	\$0.00	\$55.04
5	70	\$40.08	\$9.95	\$20.32	\$0.00	\$70.35
6	75	\$42.95	\$9.95	\$20.93	\$0.00	\$73.83
7	80	\$45.81	\$9.95	\$21.53	\$0.00	\$77.29
8	90	\$51.53	\$9.95	\$22.74	\$0.00	\$84.22

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, NEW) *	01/01/2024	\$46.96	\$9.95	\$23.95	\$0.00	\$80.86
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. <i>PAINTERS LOCAL 35 - ZONE 2</i>	07/01/2024	\$48.16	\$9.95	\$23.95	\$0.00	\$82.06
	01/01/2025	\$49.36	\$9.95	\$23.95	\$0.00	\$83.26

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - New**

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.48	\$9.95	\$0.00	\$0.00	\$33.43
2	55	\$25.83	\$9.95	\$6.66	\$0.00	\$42.44
3	60	\$28.18	\$9.95	\$7.26	\$0.00	\$45.39
4	65	\$30.52	\$9.95	\$7.87	\$0.00	\$48.34
5	70	\$32.87	\$9.95	\$20.32	\$0.00	\$63.14
6	75	\$35.22	\$9.95	\$20.93	\$0.00	\$66.10
7	80	\$37.57	\$9.95	\$21.53	\$0.00	\$69.05
8	90	\$42.26	\$9.95	\$22.74	\$0.00	\$74.95

**Effective Date - 07/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.08	\$9.95	\$0.00	\$0.00	\$34.03
2	55	\$26.49	\$9.95	\$6.66	\$0.00	\$43.10
3	60	\$28.90	\$9.95	\$7.26	\$0.00	\$46.11
4	65	\$31.30	\$9.95	\$7.87	\$0.00	\$49.12
5	70	\$33.71	\$9.95	\$20.32	\$0.00	\$63.98
6	75	\$36.12	\$9.95	\$20.93	\$0.00	\$67.00
7	80	\$38.53	\$9.95	\$21.53	\$0.00	\$70.01
8	90	\$43.34	\$9.95	\$22.74	\$0.00	\$76.03

**Notes:**

Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER (SPRAY OR SANDBLAST, REPAINT)	01/01/2024	\$45.02	\$9.95	\$23.95	\$0.00	\$78.92
PAINTERS LOCAL 35 - ZONE 2	07/01/2024	\$46.22	\$9.95	\$23.95	\$0.00	\$80.12
	01/01/2025	\$47.42	\$9.95	\$23.95	\$0.00	\$81.32

Last Modified: 04/10/2024 at 4:04PM EDT

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint**

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.51	\$9.95	\$0.00	\$0.00	\$32.46
2	55	\$24.76	\$9.95	\$6.66	\$0.00	\$41.37
3	60	\$27.01	\$9.95	\$7.26	\$0.00	\$44.22
4	65	\$29.26	\$9.95	\$7.87	\$0.00	\$47.08
5	70	\$31.51	\$9.95	\$20.32	\$0.00	\$61.78
6	75	\$33.77	\$9.95	\$20.93	\$0.00	\$64.65
7	80	\$36.02	\$9.95	\$21.53	\$0.00	\$67.50
8	90	\$40.52	\$9.95	\$22.74	\$0.00	\$73.21

**Effective Date - 07/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.11	\$9.95	\$0.00	\$0.00	\$33.06
2	55	\$25.42	\$9.95	\$6.66	\$0.00	\$42.03
3	60	\$27.73	\$9.95	\$7.26	\$0.00	\$44.94
4	65	\$30.04	\$9.95	\$7.87	\$0.00	\$47.86
5	70	\$32.35	\$9.95	\$20.32	\$0.00	\$62.62
6	75	\$34.67	\$9.95	\$20.93	\$0.00	\$65.55
7	80	\$36.98	\$9.95	\$21.53	\$0.00	\$68.46
8	90	\$41.60	\$9.95	\$22.74	\$0.00	\$74.29

**Notes:**  
Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER / TAPER (BRUSH, NEW) *	01/01/2024	\$45.56	\$9.95	\$23.95	\$0.00	\$79.46
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2	07/01/2024	\$46.76	\$9.95	\$23.95	\$0.00	\$80.66
	01/01/2025	\$47.96	\$9.95	\$23.95	\$0.00	\$81.86

Last Modified: 04/10/2024 at 4:04PM EDT



**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW**

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.78	\$9.95	\$0.00	\$0.00	\$32.73
2	55	\$25.06	\$9.95	\$6.66	\$0.00	\$41.67
3	60	\$27.34	\$9.95	\$7.26	\$0.00	\$44.55
4	65	\$29.61	\$9.95	\$7.87	\$0.00	\$47.43
5	70	\$31.89	\$9.95	\$20.32	\$0.00	\$62.16
6	75	\$34.17	\$9.95	\$20.93	\$0.00	\$65.05
7	80	\$36.45	\$9.95	\$21.53	\$0.00	\$67.93
8	90	\$41.00	\$9.95	\$22.74	\$0.00	\$73.69

**Effective Date - 07/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$23.38	\$9.95	\$0.00	\$0.00	\$33.33
2	55	\$25.72	\$9.95	\$6.66	\$0.00	\$42.33
3	60	\$28.06	\$9.95	\$7.26	\$0.00	\$45.27
4	65	\$30.39	\$9.95	\$7.87	\$0.00	\$48.21
5	70	\$32.73	\$9.95	\$20.32	\$0.00	\$63.00
6	75	\$35.07	\$9.95	\$20.93	\$0.00	\$65.95
7	80	\$37.41	\$9.95	\$21.53	\$0.00	\$68.89
8	90	\$42.08	\$9.95	\$22.74	\$0.00	\$74.77

**Notes:**  
Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

PAINTER / TAPER (BRUSH, REPAINT)	01/01/2024	\$43.62	\$9.95	\$23.95	\$0.00	\$77.52
PAINTERS LOCAL 35 - ZONE 2	07/01/2024	\$44.82	\$9.95	\$23.95	\$0.00	\$78.72
	01/01/2025	\$46.02	\$9.95	\$23.95	\$0.00	\$79.92

Last Modified: 04/10/2024 at 4:04PM EDT

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT**

**Effective Date - 01/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$21.81	\$9.95	\$0.00	\$0.00	\$31.76
2	55	\$23.99	\$9.95	\$6.66	\$0.00	\$40.60
3	60	\$26.17	\$9.95	\$7.26	\$0.00	\$43.38
4	65	\$28.35	\$9.95	\$7.87	\$0.00	\$46.17
5	70	\$30.53	\$9.95	\$20.32	\$0.00	\$60.80
6	75	\$32.72	\$9.95	\$20.93	\$0.00	\$63.60
7	80	\$34.90	\$9.95	\$21.53	\$0.00	\$66.38
8	90	\$39.26	\$9.95	\$22.74	\$0.00	\$71.95

**Effective Date - 07/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$22.41	\$9.95	\$0.00	\$0.00	\$32.36
2	55	\$24.65	\$9.95	\$6.66	\$0.00	\$41.26
3	60	\$26.89	\$9.95	\$7.26	\$0.00	\$44.10
4	65	\$29.13	\$9.95	\$7.87	\$0.00	\$46.95
5	70	\$31.37	\$9.95	\$20.32	\$0.00	\$61.64
6	75	\$33.62	\$9.95	\$20.93	\$0.00	\$64.50
7	80	\$35.86	\$9.95	\$21.53	\$0.00	\$67.34
8	90	\$40.34	\$9.95	\$22.74	\$0.00	\$73.03

**Notes:**  
Steps are 750 hrs.

**Apprentice to Journeyworker Ratio:1:1**

<b>PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)</b>	12/01/2023	\$37.86	\$9.65	\$17.14	\$0.00	\$64.65
<b>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</b>	06/01/2024	\$39.19	\$9.65	\$17.14	\$0.00	\$65.98
	12/01/2024	\$40.52	\$9.65	\$17.14	\$0.00	\$67.31
	06/01/2025	\$41.91	\$9.65	\$17.14	\$0.00	\$68.70
	12/01/2025	\$43.29	\$9.65	\$17.14	\$0.00	\$70.08
	06/01/2026	\$44.73	\$9.65	\$17.14	\$0.00	\$71.52
	12/01/2026	\$46.17	\$9.65	\$17.14	\$0.00	\$72.96

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

<b>PANEL &amp; PICKUP TRUCKS DRIVER</b>	01/01/2024	\$38.78	\$15.07	\$18.67	\$0.00	\$72.52
<b>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</b>	06/01/2024	\$39.78	\$15.07	\$18.67	\$0.00	\$73.52
	12/01/2024	\$39.78	\$15.07	\$20.17	\$0.00	\$75.02
	01/01/2025	\$39.78	\$15.57	\$20.17	\$0.00	\$75.52
	06/01/2025	\$40.78	\$15.57	\$20.17	\$0.00	\$76.52
	12/01/2025	\$40.78	\$15.57	\$21.78	\$0.00	\$78.13
	01/01/2026	\$40.78	\$16.17	\$21.78	\$0.00	\$78.73
	06/01/2026	\$41.78	\$16.17	\$21.78	\$0.00	\$79.73
	12/01/2026	\$41.78	\$16.17	\$23.52	\$0.00	\$81.47
	01/01/2027	\$41.78	\$16.77	\$23.52	\$0.00	\$82.07

Last Modified: 04/10/2024 at 4:04PM EDT

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i> For apprentice rates see "Apprentice- PILE DRIVER"	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59
PILE DRIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i>	08/01/2020	\$49.07	\$9.40	\$23.12	\$0.00	\$81.59

**Apprentice - PILE DRIVER - Local 56 Zone 1**

**Effective Date - 08/01/2020**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$24.54	\$9.40	\$23.12	\$0.00	\$57.06
2	60	\$29.44	\$9.40	\$23.12	\$0.00	\$61.96
3	70	\$34.35	\$9.40	\$23.12	\$0.00	\$66.87
4	75	\$36.80	\$9.40	\$23.12	\$0.00	\$69.32
5	80	\$39.26	\$9.40	\$23.12	\$0.00	\$71.78
6	80	\$39.26	\$9.40	\$23.12	\$0.00	\$71.78
7	90	\$44.16	\$9.40	\$23.12	\$0.00	\$76.68
8	90	\$44.16	\$9.40	\$23.12	\$0.00	\$76.68

**Notes:**

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80  
Step 1&2 \$34.01/ 3&4 \$41.46/ 5&6 \$62.80/ 7&8 \$69.25

**Apprentice to Journeyworker Ratio:1:5**

PIPEFITTER & STEAMFITTER <i>PIPEFITTERS LOCAL 537</i>	03/01/2024	\$65.28	\$12.70	\$21.80	\$0.00	\$99.78
	09/01/2024	\$67.08	\$12.70	\$21.80	\$0.00	\$101.58
	03/01/2025	\$68.88	\$12.70	\$21.80	\$0.00	\$103.38

Last Modified: 04/10/2024 at 4:04PM EDT

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PIPEFITTER - Local 537**

**Effective Date - 03/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$26.11	\$12.70	\$9.05	\$0.00	\$47.86
2	45	\$29.38	\$12.70	\$21.80	\$0.00	\$63.88
3	60	\$39.17	\$12.70	\$21.80	\$0.00	\$73.67
4	70	\$45.70	\$12.70	\$21.80	\$0.00	\$80.20
5	80	\$52.22	\$12.70	\$21.80	\$0.00	\$86.72

**Effective Date - 09/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	\$26.83	\$12.70	\$9.05	\$0.00	\$48.58
2	45	\$30.19	\$12.70	\$21.80	\$0.00	\$64.69
3	60	\$40.25	\$12.70	\$21.80	\$0.00	\$74.75
4	70	\$46.96	\$12.70	\$21.80	\$0.00	\$81.46
5	80	\$53.66	\$12.70	\$21.80	\$0.00	\$88.16

**Notes:**  
 \*\* 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.  
 Refrig/AC Mechanic \*\*1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

**Apprentice to Journeyworker Ratio:\*\***

PIPELAYER LABORERS - ZONE 2	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
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For apprentice rates see "Apprentice- LABORER"

PIPELAYER (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21

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

PLUMBERS & GASFITTERS PLUMBERS & GASFITTERS LOCAL 12	03/03/2024	\$67.74	\$14.32	\$19.11	\$0.00	\$101.17
	09/01/2024	\$69.54	\$14.32	\$19.11	\$0.00	\$102.97
	03/02/2025	\$71.34	\$14.32	\$19.11	\$0.00	\$104.77

Last Modified: 04/10/2024 at 4:04PM EDT

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - PLUMBER/GASFITTER - Local 12**

**Effective Date - 03/03/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$23.71	\$14.32	\$6.88	\$0.00	\$44.91
2	40	\$27.10	\$14.32	\$7.82	\$0.00	\$49.24
3	55	\$37.26	\$14.32	\$10.65	\$0.00	\$62.23
4	65	\$44.03	\$14.32	\$12.53	\$0.00	\$70.88
5	75	\$50.81	\$14.32	\$14.41	\$0.00	\$79.54

**Effective Date - 09/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$24.34	\$14.32	\$6.88	\$0.00	\$45.54
2	40	\$27.82	\$14.32	\$7.82	\$0.00	\$49.96
3	55	\$38.25	\$14.32	\$10.65	\$0.00	\$63.22
4	65	\$45.20	\$14.32	\$12.53	\$0.00	\$72.05
5	75	\$52.16	\$14.32	\$14.41	\$0.00	\$80.89

**Notes:**

\*\* 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr  
Step4 with lic\$69.00, Step5 with lic\$76.87

**Apprentice to Journeyworker Ratio:\*\***

PNEUMATIC CONTROLS (TEMP.) PIPEFITTERS LOCAL 537	03/01/2024	\$65.28	\$12.70	\$21.80	\$0.00	\$99.78
	09/01/2024	\$67.08	\$12.70	\$21.80	\$0.00	\$101.58
	03/01/2025	\$68.88	\$12.70	\$21.80	\$0.00	\$103.38

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

PNEUMATIC DRILL/TOOL OPERATOR LABORERS - ZONE 2	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
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For apprentice rates see "Apprentice- LABORER"

PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21

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

POWDERMAN & BLASTER LABORERS - ZONE 2	12/01/2023	\$38.86	\$9.65	\$17.14	\$0.00	\$65.65
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For apprentice rates see "Apprentice- LABORER"

POWDERMAN & BLASTER (HEAVY & HIGHWAY) LABORERS - ZONE 2 (HEAVY & HIGHWAY)	12/01/2023	\$39.36	\$9.40	\$16.89	\$0.00	\$65.65
	06/01/2024	\$40.69	\$9.40	\$16.89	\$0.00	\$66.98
	12/01/2024	\$42.02	\$9.40	\$16.89	\$0.00	\$68.31
	06/01/2025	\$43.41	\$9.40	\$16.89	\$0.00	\$69.70
	12/01/2025	\$44.79	\$9.40	\$16.89	\$0.00	\$71.08
	06/01/2026	\$46.23	\$9.40	\$16.89	\$0.00	\$72.52
	12/01/2026	\$47.67	\$9.40	\$16.89	\$0.00	\$73.96

Last Modified: 04/10/2024 at 4:04PM EDT

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)						
POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$35.62	\$15.00	\$16.40	\$0.00	\$67.02
	06/01/2024	\$36.47	\$15.00	\$16.40	\$0.00	\$67.87
	12/01/2024	\$37.42	\$15.00	\$16.40	\$0.00	\$68.82
	06/01/2025	\$38.27	\$15.00	\$16.40	\$0.00	\$69.67
	12/01/2025	\$39.22	\$15.00	\$16.40	\$0.00	\$70.62
	06/01/2026	\$40.08	\$15.00	\$16.40	\$0.00	\$71.48
	12/01/2026	\$41.03	\$15.00	\$16.40	\$0.00	\$72.43
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/12 (Drivers Hired After 4/30/2012) <i>TEAMSTERS 25 (Suburban) - Aggregate</i>	08/01/2022	\$30.40	\$11.91	\$15.25	\$0.00	\$57.56
READY-MIX CONCRETE DRIVER <i>TEAMSTERS 25 (Suburban) - Aggregate</i>	08/01/2022	\$30.50	\$11.91	\$15.25	\$0.00	\$57.66
RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
For apprentice rates see "Apprentice- LABORER"						
ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99	

Last Modified: 04/10/2024 at 4:04PM EDT

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
ROOFER (Inc.Roofing Waterproofing &Roofing Damproofg) ROOFERS LOCAL 33	02/01/2024	\$50.03	\$12.78	\$21.45	\$0.00	\$84.26
	08/01/2024	\$51.53	\$12.78	\$21.45	\$0.00	\$85.76
	02/01/2025	\$52.78	\$12.78	\$21.45	\$0.00	\$87.01
	08/01/2025	\$54.28	\$12.78	\$21.45	\$0.00	\$88.51
	02/01/2026	\$55.53	\$12.78	\$21.45	\$0.00	\$89.76

**Apprentice - ROOFER - Local 33**

**Effective Date - 02/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.02	\$12.78	\$6.21	\$0.00	\$44.01
2	60	\$30.02	\$12.78	\$21.45	\$0.00	\$64.25
3	65	\$32.52	\$12.78	\$21.45	\$0.00	\$66.75
4	75	\$37.52	\$12.78	\$21.45	\$0.00	\$71.75
5	85	\$42.53	\$12.78	\$21.45	\$0.00	\$76.76

**Effective Date - 08/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$25.77	\$12.78	\$6.21	\$0.00	\$44.76
2	60	\$30.92	\$12.78	\$21.45	\$0.00	\$65.15
3	65	\$33.49	\$12.78	\$21.45	\$0.00	\$67.72
4	75	\$38.65	\$12.78	\$21.45	\$0.00	\$72.88
5	85	\$43.80	\$12.78	\$21.45	\$0.00	\$78.03

**Notes:** \*\* 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1  
 Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.  
 (Hot Pitch Mechanics' receive \$1.00 hr. above ROOFER)

**Apprentice to Journeyworker Ratio:\*\***

ROOFER SLATE / TILE / PRECAST CONCRETE ROOFERS LOCAL 33	02/01/2024	\$50.28	\$12.78	\$21.45	\$0.00	\$84.51
	08/01/2024	\$51.78	\$12.78	\$21.45	\$0.00	\$86.01
	02/01/2025	\$53.03	\$12.78	\$21.45	\$0.00	\$87.26
	08/01/2025	\$54.53	\$12.78	\$21.45	\$0.00	\$88.76
	02/01/2026	\$55.78	\$12.78	\$21.45	\$0.00	\$90.01

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER SHEETMETAL WORKERS LOCAL 17 - A	02/01/2024	\$57.22	\$14.59	\$27.50	\$2.98	\$102.29
	08/01/2024	\$58.97	\$14.59	\$27.50	\$2.98	\$104.04
	02/01/2025	\$60.72	\$14.59	\$27.50	\$2.98	\$105.79
	08/01/2025	\$62.57	\$14.59	\$27.50	\$2.98	\$107.64
	02/01/2026	\$64.52	\$14.59	\$27.50	\$2.98	\$109.59

**Classification**

**Effective Date   Base Wage   Health   Pension   Supplemental Unemployment   Total Rate**

**Apprentice - SHEET METAL WORKER - Local 17-A**

**Effective Date - 02/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$24.03	\$14.59	\$6.13	\$0.00	\$44.75
2	42	\$24.03	\$14.59	\$6.13	\$0.00	\$44.75
3	47	\$26.89	\$14.59	\$12.11	\$1.61	\$55.20
4	47	\$26.89	\$14.59	\$12.11	\$1.61	\$55.20
5	52	\$29.75	\$14.59	\$13.09	\$1.72	\$59.15
6	52	\$29.75	\$14.59	\$13.34	\$1.73	\$59.41
7	60	\$34.33	\$14.59	\$14.75	\$1.91	\$65.58
8	65	\$37.19	\$14.59	\$15.73	\$2.03	\$69.54
9	75	\$42.92	\$14.59	\$17.69	\$2.26	\$77.46
10	85	\$48.64	\$14.59	\$19.15	\$2.47	\$84.85

**Effective Date - 08/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	42	\$24.77	\$14.59	\$6.13	\$0.00	\$45.49
2	42	\$24.77	\$14.59	\$6.13	\$0.00	\$45.49
3	47	\$27.72	\$14.59	\$12.11	\$1.63	\$56.05
4	47	\$27.72	\$14.59	\$12.11	\$1.63	\$56.05
5	52	\$30.66	\$14.59	\$13.09	\$1.75	\$60.09
6	52	\$30.66	\$14.59	\$13.34	\$1.76	\$60.35
7	60	\$35.38	\$14.59	\$14.75	\$1.94	\$66.66
8	65	\$38.33	\$14.59	\$15.73	\$2.06	\$70.71
9	75	\$44.23	\$14.59	\$17.69	\$2.30	\$78.81
10	85	\$50.12	\$14.59	\$19.15	\$2.52	\$86.38

**Notes:**  
Steps are 6 mos.

**Apprentice to Journeyworker Ratio:1:4**

SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 ZONE B	01/01/2024	\$39.24	\$15.07	\$18.67	\$0.00	\$72.98
	06/01/2024	\$40.24	\$15.07	\$18.67	\$0.00	\$73.98
	12/01/2024	\$40.24	\$15.07	\$20.17	\$0.00	\$75.48
	01/01/2025	\$40.24	\$15.57	\$20.17	\$0.00	\$75.98
	06/01/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$76.98
	12/01/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$78.59
	01/01/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$79.19
	06/01/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$80.19
	12/01/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$81.93
	01/01/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$82.53

Last Modified: 04/10/2024 at 4:04PM EDT



Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	01/01/2024	\$39.53	\$15.07	\$18.67	\$0.00	\$73.27
	06/01/2024	\$40.53	\$15.07	\$18.67	\$0.00	\$74.27
	12/01/2024	\$40.53	\$15.07	\$20.17	\$0.00	\$75.77
	01/01/2025	\$40.53	\$15.57	\$20.17	\$0.00	\$76.27
	06/01/2025	\$41.53	\$15.57	\$20.17	\$0.00	\$77.27
	12/01/2025	\$41.53	\$15.57	\$21.78	\$0.00	\$78.88
	01/01/2026	\$41.53	\$16.17	\$21.78	\$0.00	\$79.48
	06/01/2026	\$42.53	\$16.17	\$21.78	\$0.00	\$80.48
	12/01/2026	\$42.53	\$16.17	\$23.52	\$0.00	\$82.22
	01/01/2027	\$42.53	\$16.77	\$23.52	\$0.00	\$82.82
SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i>	03/01/2024	\$69.75	\$10.90	\$23.20	\$0.00	\$103.85
	10/01/2024	\$71.55	\$10.90	\$23.20	\$0.00	\$105.65
	03/01/2025	\$73.35	\$10.90	\$23.20	\$0.00	\$107.45

**Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1**

**Effective Date - 03/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$24.41	\$10.90	\$12.80	\$0.00	\$48.11
2	40	\$27.90	\$10.90	\$13.60	\$0.00	\$52.40
3	45	\$31.39	\$10.90	\$14.40	\$0.00	\$56.69
4	50	\$34.88	\$10.90	\$15.20	\$0.00	\$60.98
5	55	\$38.36	\$10.90	\$16.00	\$0.00	\$65.26
6	60	\$41.85	\$10.90	\$16.80	\$0.00	\$69.55
7	65	\$45.34	\$10.90	\$17.60	\$0.00	\$73.84
8	70	\$48.83	\$10.90	\$18.40	\$0.00	\$78.13
9	75	\$52.31	\$10.90	\$19.20	\$0.00	\$82.41
10	80	\$55.80	\$10.90	\$20.00	\$0.00	\$86.70

**Effective Date - 10/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	\$25.04	\$10.90	\$12.80	\$0.00	\$48.74
2	40	\$28.62	\$10.90	\$13.60	\$0.00	\$53.12
3	45	\$32.20	\$10.90	\$14.40	\$0.00	\$57.50
4	50	\$35.78	\$10.90	\$15.20	\$0.00	\$61.88
5	55	\$39.35	\$10.90	\$16.00	\$0.00	\$66.25
6	60	\$42.93	\$10.90	\$16.80	\$0.00	\$70.63
7	65	\$46.51	\$10.90	\$17.60	\$0.00	\$75.01
8	70	\$50.09	\$10.90	\$18.40	\$0.00	\$79.39
9	75	\$53.66	\$10.90	\$19.20	\$0.00	\$83.76
10	80	\$57.24	\$10.90	\$20.00	\$0.00	\$88.14

**Notes:** Apprentice entered prior 9/30/10:  
40/45/50/55/60/65/70/75/80/85  
Steps are 850 hours

**Apprentice to Journeyworker Ratio:1:3**

Last Modified: 04/10/2024 at 4:04PM EDT

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
STEAM BOILER OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 103</i>	03/01/2024	\$49.49	\$13.00	\$20.19	\$0.00	\$82.68
	09/01/2024	\$51.02	\$13.00	\$20.24	\$0.00	\$84.26
	03/01/2025	\$51.98	\$13.00	\$20.27	\$0.00	\$85.25
	09/01/2025	\$53.51	\$13.00	\$20.32	\$0.00	\$86.83
	03/01/2026	\$54.47	\$13.00	\$20.34	\$0.00	\$87.81
	09/01/2026	\$56.00	\$13.00	\$20.39	\$0.00	\$89.39
	03/01/2027	\$56.95	\$13.00	\$20.42	\$0.00	\$90.37
	09/01/2027	\$58.49	\$13.00	\$20.46	\$0.00	\$91.95
	03/01/2028	\$59.45	\$13.00	\$20.49	\$0.00	\$92.94

Last Modified: 04/10/2024 at 4:04PM EDT

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 03/01/2024

Table with 7 columns: Step, percent, Apprentice Base Wage, Health, Pension, Supplemental Unemployment, Total Rate. Rows 1-10 showing wage progression from \$22.27 to \$39.59.

Effective Date - 09/01/2024

Table with 7 columns: Step, percent, Apprentice Base Wage, Health, Pension, Supplemental Unemployment, Total Rate. Rows 1-10 showing wage progression from \$22.96 to \$40.82.

Notes:

Apprentice to Journeyworker Ratio:1:1

Summary table for TERRAZZO FINISHERS BRICKLAYERS LOCAL 3 - MARBLE & TILE with columns for Effective Date, Base Wage, Health, Pension, Supplemental Unemployment, and Total Rate for dates from 02/01/2024 to 02/01/2027.

Last Modified: 04/10/2024 at 4:04PM EDT

**Classification**

**Effective Date    Base Wage    Health    Pension    Supplemental Unemployment    Total Rate**

**Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile**

**Effective Date - 02/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$30.67	\$11.49	\$23.59	\$0.00	\$65.75
2	60	\$36.80	\$11.49	\$23.59	\$0.00	\$71.88
3	70	\$42.94	\$11.49	\$23.59	\$0.00	\$78.02
4	80	\$49.07	\$11.49	\$23.59	\$0.00	\$84.15
5	90	\$55.21	\$11.49	\$23.59	\$0.00	\$90.29

**Effective Date - 08/01/2024**

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	\$31.72	\$11.49	\$23.59	\$0.00	\$66.80
2	60	\$38.06	\$11.49	\$23.59	\$0.00	\$73.14
3	70	\$44.41	\$11.49	\$23.59	\$0.00	\$79.49
4	80	\$50.75	\$11.49	\$23.59	\$0.00	\$85.83
5	90	\$57.10	\$11.49	\$23.59	\$0.00	\$92.18

**Notes:**

**Apprentice to Journeyworker Ratio:1:3**

<b>TEST BORING DRILLER</b> <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2023	\$48.33	\$9.65	\$18.22	\$0.00	\$76.20
	06/01/2024	\$49.81	\$9.65	\$18.22	\$0.00	\$77.68
	12/01/2024	\$51.28	\$9.65	\$18.22	\$0.00	\$79.15
	06/01/2025	\$52.78	\$9.65	\$18.22	\$0.00	\$80.65
	12/01/2025	\$54.28	\$9.65	\$18.22	\$0.00	\$82.15
	06/01/2026	\$55.83	\$9.65	\$18.22	\$0.00	\$83.70
	12/01/2026	\$57.33	\$9.65	\$18.22	\$0.00	\$85.20

For apprentice rates see "Apprentice- LABORER"

<b>TEST BORING DRILLER HELPER</b> <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2023	\$44.45	\$9.65	\$18.22	\$0.00	\$72.32
	06/01/2024	\$45.93	\$9.65	\$18.22	\$0.00	\$73.80
	12/01/2024	\$47.40	\$9.65	\$18.22	\$0.00	\$75.27
	06/01/2025	\$48.90	\$9.65	\$18.22	\$0.00	\$76.77
	12/01/2025	\$50.40	\$9.65	\$18.22	\$0.00	\$78.27
	06/01/2026	\$51.95	\$9.65	\$18.22	\$0.00	\$79.82
	12/01/2026	\$53.45	\$9.65	\$18.22	\$0.00	\$81.32

For apprentice rates see "Apprentice- LABORER"

<b>TEST BORING LABORER</b> <i>LABORERS - FOUNDATION AND MARINE</i>	12/01/2023	\$44.33	\$9.65	\$18.22	\$0.00	\$72.20
	06/01/2024	\$45.81	\$9.65	\$18.22	\$0.00	\$73.68
	12/01/2024	\$47.28	\$9.65	\$18.22	\$0.00	\$75.15
	06/01/2025	\$48.78	\$9.65	\$18.22	\$0.00	\$76.65
	12/01/2025	\$50.28	\$9.65	\$18.22	\$0.00	\$78.15
	06/01/2026	\$51.83	\$9.65	\$18.22	\$0.00	\$79.70
	12/01/2026	\$53.33	\$9.65	\$18.22	\$0.00	\$81.20

For apprentice rates see "Apprentice- LABORER"

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$54.43	\$15.00	\$16.40	\$0.00	\$85.83
	06/01/2024	\$55.71	\$15.00	\$16.40	\$0.00	\$87.11
	12/01/2024	\$57.15	\$15.00	\$16.40	\$0.00	\$88.55
	06/01/2025	\$58.43	\$15.00	\$16.40	\$0.00	\$89.83
	12/01/2025	\$59.87	\$15.00	\$16.40	\$0.00	\$91.27
	06/01/2026	\$61.15	\$15.00	\$16.40	\$0.00	\$92.55
	12/01/2026	\$62.59	\$15.00	\$16.40	\$0.00	\$93.99
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	01/01/2024	\$39.82	\$15.07	\$18.67	\$0.00	\$73.56
	06/01/2024	\$40.82	\$15.07	\$18.67	\$0.00	\$74.56
	12/01/2024	\$40.82	\$15.07	\$20.17	\$0.00	\$76.06
	01/01/2025	\$40.82	\$15.57	\$20.17	\$0.00	\$76.56
	06/01/2025	\$41.82	\$15.57	\$20.17	\$0.00	\$77.56
	12/01/2025	\$41.82	\$15.57	\$21.78	\$0.00	\$79.17
	01/01/2026	\$41.82	\$16.17	\$21.78	\$0.00	\$79.77
	06/01/2026	\$42.82	\$16.17	\$21.78	\$0.00	\$80.77
	12/01/2026	\$42.82	\$16.17	\$23.52	\$0.00	\$82.51
	01/01/2027	\$42.82	\$16.77	\$23.52	\$0.00	\$83.11
TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i>	12/01/2023	\$56.56	\$9.65	\$18.67	\$0.00	\$84.88
	06/01/2024	\$58.04	\$9.65	\$18.67	\$0.00	\$86.36
	12/01/2024	\$59.51	\$9.65	\$18.67	\$0.00	\$87.83
	06/01/2025	\$61.01	\$9.65	\$18.67	\$0.00	\$89.33
	12/01/2025	\$62.51	\$9.65	\$18.67	\$0.00	\$90.83
	06/01/2026	\$64.06	\$9.65	\$18.67	\$0.00	\$92.38
	12/01/2026	\$65.56	\$9.65	\$18.67	\$0.00	\$93.88
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i>	12/01/2023	\$58.56	\$9.65	\$18.67	\$0.00	\$86.88
	06/01/2024	\$60.04	\$9.65	\$18.67	\$0.00	\$88.36
	12/01/2024	\$61.51	\$9.65	\$18.67	\$0.00	\$89.83
	06/01/2025	\$63.01	\$9.65	\$18.67	\$0.00	\$91.33
	12/01/2025	\$64.51	\$9.65	\$18.67	\$0.00	\$92.83
	06/01/2026	\$66.06	\$9.65	\$18.67	\$0.00	\$94.38
	12/01/2026	\$67.56	\$9.65	\$18.67	\$0.00	\$95.88
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2023	\$48.63	\$9.65	\$18.67	\$0.00	\$76.95
	06/01/2024	\$50.11	\$9.65	\$18.67	\$0.00	\$78.43
	12/01/2024	\$51.58	\$9.65	\$18.67	\$0.00	\$79.90
	06/01/2025	\$53.08	\$9.65	\$18.67	\$0.00	\$81.40
	12/01/2025	\$54.58	\$9.65	\$18.67	\$0.00	\$82.90
	06/01/2026	\$56.13	\$9.65	\$18.67	\$0.00	\$84.45
	12/01/2026	\$57.63	\$9.65	\$18.67	\$0.00	\$85.95
For apprentice rates see "Apprentice- LABORER"						

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Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i>	12/01/2023	\$50.63	\$9.65	\$18.67	\$0.00	\$78.95
	06/01/2024	\$52.11	\$9.65	\$18.67	\$0.00	\$80.43
	12/01/2024	\$53.58	\$9.65	\$18.67	\$0.00	\$81.90
	06/01/2025	\$55.08	\$9.65	\$18.67	\$0.00	\$83.40
	12/01/2025	\$56.58	\$9.65	\$18.67	\$0.00	\$84.90
	06/01/2026	\$58.13	\$9.65	\$18.67	\$0.00	\$86.45
	12/01/2026	\$59.63	\$9.65	\$18.67	\$0.00	\$87.95
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i>	01/01/2024	\$39.24	\$15.07	\$18.67	\$0.00	\$72.98
	06/01/2024	\$40.24	\$15.07	\$18.67	\$0.00	\$73.98
	12/01/2024	\$40.24	\$15.07	\$20.17	\$0.00	\$75.48
	01/01/2025	\$40.24	\$15.57	\$20.17	\$0.00	\$75.98
	06/01/2025	\$41.24	\$15.57	\$20.17	\$0.00	\$76.98
	12/01/2025	\$41.24	\$15.57	\$21.78	\$0.00	\$78.59
	01/01/2026	\$41.24	\$16.17	\$21.78	\$0.00	\$79.19
	06/01/2026	\$42.24	\$16.17	\$21.78	\$0.00	\$80.19
	12/01/2026	\$42.24	\$16.17	\$23.52	\$0.00	\$81.93
	01/01/2027	\$42.24	\$16.77	\$23.52	\$0.00	\$82.53
WAGON DRILL OPERATOR <i>LABORERS - ZONE 2</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
	For apprentice rates see "Apprentice- LABORER"					
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 2 (HEAVY &amp; HIGHWAY)</i>	12/01/2023	\$38.11	\$9.65	\$17.14	\$0.00	\$64.90
	06/01/2024	\$39.44	\$9.65	\$17.14	\$0.00	\$66.23
	12/01/2024	\$40.77	\$9.65	\$17.14	\$0.00	\$67.56
	06/01/2025	\$42.16	\$9.65	\$17.14	\$0.00	\$68.95
	12/01/2025	\$43.54	\$9.65	\$17.14	\$0.00	\$70.33
	06/01/2026	\$44.98	\$9.65	\$17.14	\$0.00	\$71.77
	12/01/2026	\$46.42	\$9.65	\$17.14	\$0.00	\$73.21
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"						
WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i>	12/01/2023	\$55.03	\$15.00	\$16.40	\$0.00	\$86.43
	06/01/2024	\$56.33	\$15.00	\$16.40	\$0.00	\$87.73
	12/01/2024	\$57.78	\$15.00	\$16.40	\$0.00	\$89.18
	06/01/2025	\$59.08	\$15.00	\$16.40	\$0.00	\$90.48
	12/01/2025	\$60.53	\$15.00	\$16.40	\$0.00	\$91.93
	06/01/2026	\$61.83	\$15.00	\$16.40	\$0.00	\$93.23
	12/01/2026	\$63.28	\$15.00	\$16.40	\$0.00	\$94.68
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER <i>PLUMBERS &amp; GASFITTERS LOCAL 12</i>	03/03/2024	\$67.74	\$14.32	\$19.11	\$0.00	\$101.17
	09/01/2024	\$69.54	\$14.32	\$19.11	\$0.00	\$102.97
	03/02/2025	\$71.34	\$14.32	\$19.11	\$0.00	\$104.77
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

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Additional Apprentices Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentices ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

\*\* Multiple ratios are listed in the comment field.

\*\*\* APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

\*\*\*\* APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

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**SECTION 00 73 73**

**INCORPORATION OF APPLICABLE PROVISIONS OF THE  
MASSACHUSETTS GENERAL LAWS**

Certain provisions of the Massachusetts General Laws are applicable to construction contracts including, but not limited to, those contained in Chapter 30 and Chapter 149. All applicable provisions of the Massachusetts General Laws are incorporated into the Contract Documents as if fully set forth herein and shall prevail over any conflicting provisions of the General Conditions or General and Project Specific Supplementary Conditions.

**END OF SECTION**

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## SECTION 01 11 00

### SUMMARY OF WORK

#### PART 1 – GENERAL

##### 1.01 SECTION INCLUDES

- A. Project Description
- B. Description of the Work
- C. Work Sequence and Coordination
- D. Special Requirements

##### 1.02 PROJECT DESCRIPTION

- A. The Project is generally described as replacement of box culvert/pipe culvert and headwall structures; construction of large segmented block retaining walls; removal and reconstruction of stone walls; removal and reconstruction of guardrails; reconstruction of the roadway, road subbase; grading of side slopes; erosion and sedimentation control; other surficial improvements as shown on the plans; development and execution of a water control management plan as necessary during construction; protection and support of existing utilities; and all materials and equipment, services, and construction inherent to the Work.

##### 1.03 DESCRIPTION OF THE WORK

- A. The Work includes labor, material and equipment, services required for construction, testing, and commissioning of the Project in accordance with the Contract Documents and as more specifically described in the Specifications and Drawings and includes, but is not limited to, the following principal features.
  - 1. The development and execution of a water control management plan as necessary during construction.
  - 2. Excavation and disposal of existing material including roadway segments, existing pipe culvert at Culvert 110, and existing concrete box culvert at Culvert 149.
  - 3. Design and furnish all necessary material and labor required for the excavation, bracing, backfill, and grading to complete the installation of the new 8" diameter DI pipe culvert and stacked stone walls at Culvert 110, and the new 7'x5' precast concrete box culvert and segmental block retaining walls at Culvert 149, as shown on the plans and as directed by the Engineer.

4. Reconstruction of the roadway including road base and subbase gravels, grade and stabilize of side slopes, install and maintain erosion and sedimentation control measures, removal and reconstruction of guardrail and other surficial improvements as shown on the plans, and all materials, equipment, services and construction inherent to the Work.
- B. Work Site locations: generally as shown on the Drawings.
- C. Existing conditions and Site data: per the Drawings and Section 00 31 00.

#### **1.04 WORK SEQUENCE AND COORDINATION**

- A. Sequence
  1. Sequence Work to minimize shutdowns and reflect sequencing in the construction schedule.
- B. Coordination
  1. Contractor is responsible for coordinating with the Town regarding traffic management and partial closure of Old Sudbury Road prior to the start of construction. Contractor is responsible for providing and maintaining detour signage as required and to the satisfaction of the Town and maintaining access to adjacent residences during construction.

#### **1.05 SPECIAL REQUIREMENTS**

- A. Portions of the Work are subject to the jurisdiction of the Conservation Commission. Comply with the special requirements of the Order of Conditions included in Section 00 31 00.

#### **PART 2 PRODUCTS - NOT USED**

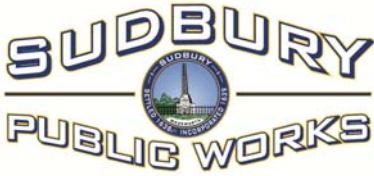
#### **PART 3 EXECUTION - NOT USED**

**END OF SECTION**

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**TOWN OF SUDBURY**  
**PUBLIC WORKS DEPARTMENT**  
 275 Old Lancaster Road, Sudbury, MA 01776  
 T:(978) 440-5421 F:(978) 440-5404

Permit #: \_\_\_\_\_  
 Permit Fee: \$50.00  
 Fee Paid:  Cash:   
 Check #: \_\_\_\_\_  
 Received by: \_\_\_\_\_

**STREET OPENING / ROADWAY ACCESS /  
 ROAD CLOSURE PERMIT APPLICATION**

This application must be submitted not less than five (5) business days prior to any construction within a public way.

**A \$50.00 non-refundable permit fee must accompany the application request.**

**No permits are valid from November 1 – April 1 of each permit year unless granted in writing by Director.**

**A** Date: \_\_\_\_\_ | Dig-Safe Number: \_\_\_\_\_ | Valid thru: \_\_\_\_\_

**B** Project Location: \_\_\_\_\_ | Map/Parcel: \_\_\_\_\_  
*Street number (or range) and Street Name*

**C** Start Date: \_\_\_\_\_ | Estimated Completion Date: \_\_\_\_\_

**D Proposed Work: (Check all that apply)**

New     Repair     Replace     Remove     Emergency

Utility     Main     Service     Other

Water     Sewer     Drain     Electric     Gas

Telecom     Driveway     Sidewalk     Curbing     Well/Boring/Pole

Road Closure

Describe Work: \_\_\_\_\_

Surface Impacted  Paved Road     Shoulder     Sidewalk     Other

**E** Length of Cut (feet): \_\_\_\_\_ | Width of Cut (feet): \_\_\_\_\_ | Depth of Cut (feet): \_\_\_\_\_

**F Affidavit** (Please print clearly):

I, \_\_\_\_\_, \_\_\_\_\_ of  
 (Name) (Title)

\_\_\_\_\_  
 (Company Name and Address)

\_\_\_\_\_  
 (Phone)

do hereby certify that I have read and agree to the Town of Sudbury Specifications for Regulating Construction within Public Ways, dated February 2020 as amended. I have provided the required bond with the Town of Sudbury and I understand the Town of Sudbury may deduct from this amount the cost of any repairs to the roadway surface, shoulders, curbs, walks, walls, or any other features within the right-of-way including replacing bounds if not completed to the satisfaction of the Public Works Director or his agent in accordance with said Specifications. I also certify that I am familiar with the requirements, bylaws, statutes of the Commonwealth of Massachusetts and other laws, regulations and specifications of the Town of Sudbury; and I hereby agree to exercise the permit herein approved in compliance with those requirements.

\_\_\_\_\_  
 (Signature)

\_\_\_\_\_  
 (Date)

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**F****Sketch of Proposed Work:**

Provide a sketch or furnish a detailed drawing/plan showing the proposed work. The sketch shall indicate the relationship to existing and proposed utilities and/or structures including, but not limited to, utility poles, hydrants, trees, buildings/houses, stone walls, walks, etc. The sketch shall illustrate the location and full extents of the proposed work.

**FOR OFFICE USE ONLY**

- Special Conditions:  Match existing HMA depths  Notify Public Works before work commences  
 Grind/inlay patch by: \_\_\_\_\_  Inspection by Public Works required before backfill  
 24 Hour Advance Notice of Construction to Director of Public Works.  
 Other: \_\_\_\_\_

Comments/Special Conditions: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

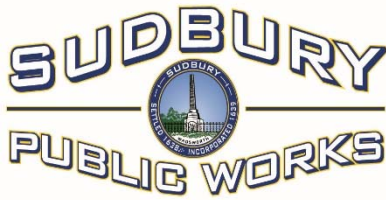
PERMIT:  APPROVED  APPROVED WITH CONDITIONS (SEE ABOVE)  DENIED

Daniel F. Nason, Director: \_\_\_\_\_ Date: \_\_\_\_\_  
 Signature

Bond:  Paper  Cash Amount: \_\_\_\_\_ Bond Deposit Date: \_\_\_\_\_ Bond Return Date: \_\_\_\_\_

Insurance:  Current  Expired





## SPECIFICATIONS FOR REGULATING CONSTRUCTION WITHIN PUBLIC WAYS

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### SECTION I: GENERAL REQUIREMENTS

#### A. Preface

1. Any public or private utility company, private contractor, or any person(s) who intends to perform work of any kind within the limits of a town right-of-way in the Town of Sudbury for any reason must first obtain a permit from the Department of Public Works.
2. The permit is conditional upon compliance with these specifications.
3. Emergency repair work to existing utilities requires immediate notification to the Director of Public Works, Sudbury Police Department and Sudbury Fire Department. Subsequent and/or concurrent to the emergency work all applicable permits are required regardless of the nature of the work.
4. Application forms for a permit hereunder are available from the Town of Sudbury at the Department of Public Works' administrative office and on the Town's website [www.sudbury.ma.us](http://www.sudbury.ma.us).
5. Plans and/or sketches showing the proposed work require the approval of and shall be in the form specified by the Director of Public Works or their agent.
6. The Director of Public Works or their agent will be solely responsible for the interpretation of these specifications and all work hereunder must be completed to their satisfaction.

#### B. Public Safety

1. The permittee, from the time the work commences until the work has been approved in writing by the Director of Public Works or their agent, shall be responsible ensuring the safety of the public.
2. All roadways shall be passable at all times unless special permission is granted for a roadway closure by the Director of Public Works or their agent. Notification of a roadway closure shall be provided to the Sudbury Police Department and the Sudbury

Fire Department.

3. When required by the nature of the work, lights and barricades erected at the expense of the permittee shall be located as directed by the Director of Public Works or their agent.
4. The Sudbury Police Department and its agents may determine whether and how many police officers are necessary for public safety. If a police officer(s) is deemed necessary the permittee shall pay the expense for the police officer(s).
5. Massachusetts General Law (Chapter 82, Section 40A) requires that contractors notify public utility companies in writing at least forty-eight (48) hours before any excavation in a public way. Contractors are required to call "Dig Safe" at 888-DIG-SAFE.

## SECTION II: EXCAVATIONS

### A. General

1. No work shall be performed within the right-of-way **between November 1 and April 1** without prior written approval from the Director of Public Works or their agent.
2. Five (5) year Pavement Moratorium: The cutting of newly resurfaced roadways less than five (5) years old will not be permitted, except if necessitated by utility companies for fuel conversion and for emergency repairs. Violating this moratorium will require a 1-1/2 inch Cold Plane and repaving with bituminous surface course material for 50 feet, 25 feet in either direction of the trench, curb to curb. Exposed joints to be sealed with a RS-1 emulsion and coated with stone dust. A resurfaced roadway includes a full-depth reconstruction or a mill and overlay.
3. Three (3) year Pavement Moratorium: The cutting of newly preserved roadways less than three (3) years old will not be permitted, except if necessitated by utility companies for fuel conversion and for emergency repairs. Violating this moratorium will require 1-1/2 inch Cold Plane and repaving with bituminous surface course material for 50 feet, 25 feet in either direction of the trench, curb to curb. Exposed joints to be sealed with a RS-1 emulsion and coated with stone dust. A preserved roadway includes a sealing treatment or a micro surfacing treatment.
4. All work within the limits of a Town right-of-way will be conducted in a manner which will not damage or disturb such features as stone walls, trees, fences, guardrails, etc. If any of these features is anticipated to be damaged or disturbed the Director of Public Works or their agent shall be notified for evaluation of the matter prior to commencement of work. The Director of Public Works or their agent may impose additional limitations and conditions to safeguard and preserve the integrity of such features.

5. If the work takes place on a Scenic Roadway and requires disturbance of a tree or stone wall additional permitting is necessary through the Town's Planning Department and Planning Board, pursuant to G.L. c.40, §15C and Article VIII.B of the Sudbury Bylaws. A list of the Town's scenic roads may be found on the Town's website [www.sudbury.ma.us](http://www.sudbury.ma.us).
6. If the work requires disturbing a road bound or property bound, the bound will be reset in its original location to the new grade and its new location shall be certified in writing by a professional land surveyor registered in the Commonwealth of Massachusetts.

## B. Materials

1. All materials used within public ways shall be subject to approval by the Director of Public Works or their agent. This will include, but not be limited to, the size, type and quality of pipe, the type of gravel backfill, the quality of the patching material, etc.
2. Gravel Subbase – Gravel subbase shall consist of inert material that is hard durable stone and coarse sand, free from loam and clay, surface coatings and deleterious materials. MADOT Material Standard M1.03.0 Gravel Borrow as specified the Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highway and Bridges, 2020 Edition, as amended.
3. Hot Mix Asphalt Pavements - Pavement mixtures shall be within the composition limits of base courses, binder courses, top courses and surface treatment, in accordance with Section M3.11.03 of the Commonwealth of Massachusetts Department of Transportation Standard Specifications for Highway and Bridges, 2020 Edition, as amended.

## C. Trenches

1. Backfill Materials: Earth backfill will consist of the excavated material if it is declared suitable by the Director of Public Works or their agent. Backfill will be placed in successive layers of not more than six (6) inches of compacted depth. If in the opinion of the Director of Public Works or their agent the excavated material is unsuitable, the rejected material shall be legally disposed of by the permittee at no cost to the Town, and proof thereof shall be provided to the satisfaction of the Director of Public Works or their agent. Suitable fill material consisting of approved gravel or borrow shall be hauled in at no cost to the Town. Suitable earth backfill materials shall be well graded granular material at least 80-percent of which must be sand and gravel. It shall be free from peat, organic matter and debris and shall not contain any clay lumps or stones in excess of three (6) inches in their greatest dimension. Any materials of whatever description which are too uniformly graded or saturated and not readily compactible to 95-percent of maximum

dry density at optimum moisture content shall not be utilized. Excavated rock or boulder material exceeding three (3) inches in diameter shall not be used for backfilling. A minimum of 12-inches of gravel subbase to be installed above the backfill material in preparation for the bituminous pavement.

2. **Compaction of Backfill Materials:** Backfill materials shall be placed in a maximum loose lift thickness of 9-inches. Backfill material shall be maintained with uniform moisture content with no visible wet or dry streaking. Degree of compaction shall be at least 95-percent of the maximum dry density of the material at optimum moisture content. Maximum lift thickness shall be six (6) inches (loose thickness) where hand operated compaction equipment is used. A minimum of 12-inches of gravel subbase to be installed above the backfill material in preparation for the bituminous pavement.
3. **Settlement of Trench:** If settlement of the trench occurs within a 12-month period following construction where the ride-ability of the roadway is affected (as determined by the Director of Public Works or their agent), the Town reserves the right to direct the permittee to excavate and repave the trench to the proper lines and grades. The limits of the repaving are to be determined by the Director of Public Works or their agent.
4. **Defect in Bituminous Pavement –** If the bituminous pavement from the pavement supplier deteriorates excessively within 12-months of installation the permittee will be responsible for replacing the pavement for the limits determined by the Director of Public Works or their agent.
5. **Temporary Bituminous Trench Patch –** The decision to pave trenches in existing pavement on a daily basis will be the decision of the Director of Public Works or their agent. Temporary pavement trench patches are allowed for a minimum of 45 days and a maximum of 12-months. Permit applicants are responsible for the integrity of this trench throughout its duration particularly throughout the winter season. Refer to Temporary Pavement Detail attached.
6. **Permanent Bituminous Trench Patch -** Refer to Pavement Trench Repair Section Detail.
7. **Main Line Utility Installs, Upgrades and/or Replacements:** Permittees performing any of the aforementioned activities to main line utilities will be responsible for the cost of resurfacing the impacted section area with a 1-1/2 inch cold plane and overlay from edge of pavement to centerline of road. The permittee will be responsible for the section of roadway impacted by construction including striping, if impacted. Time line for this work will be coordinated and approved by the Director of Public Works or their agent.
8. **Temporary steel road plates** are allowable only with written consent of the Director of Public Works or their agent. Under no circumstances will road plates be permitted during an anticipated severe weather event.

9. All driveways to homes and places of business shall be open during periods of construction. When this is not possible 48-hour advance written notice of interruption is required to effected homes, businesses, and the Department of Public Works. In addition notification shall be provided each day prior to driveway closure to afford abutters the opportunity to move vehicles from driveways, if possible.

#### D. Shoulders

1. Disturbed road shoulders will be carefully returned to their original or better than original condition.
2. Disturbed lawns will be rebuilt with a minimum of 4-inches of loam, fertilized, rolled and seeded. The permittee will be responsible for a period of 6-months from construction completion for regrading/seeding in case the repair does not become established.

### SECTION III: SURETY

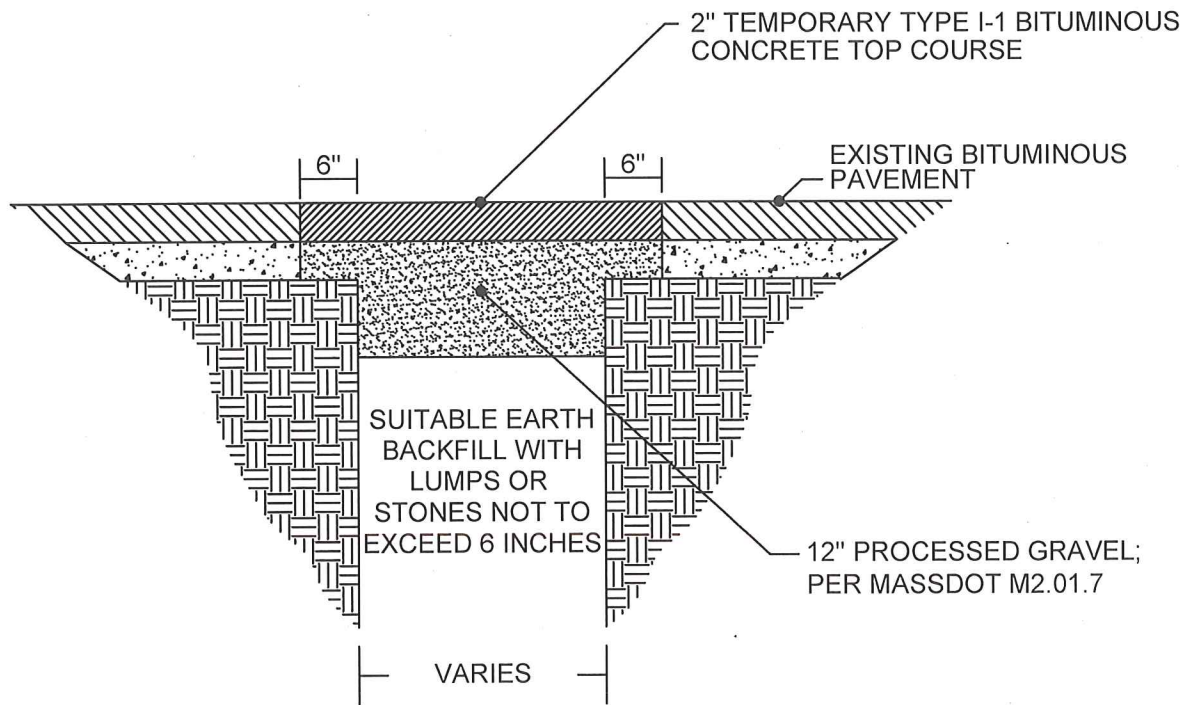
1. All permits issued hereunder shall require a check, made payable to the Town of Sudbury, in an amount to be determined by the Director of Public Works or their agent, to be posted with the Town Treasurer as a guarantee to fulfill this agreement.
2. Street cuts over 10 square feet or significantly larger in scope may be secured by bond, rather than by cash surety in an amount determined by the Director of Public Works or their agent. However, the minimum bond shall be five thousand (\$5,000) dollars. The guarantee and bond requirements stated herein are for each opening, cut or excavation. However, for projects involving multiple openings, cuts or excavations, the Director of Public Works or their agent may permit a single bond to be posted for the entire project in such amount as they shall deem reasonable to protect the interests of the Town.
3. When permanent patching, re-loaming, seeding, and all work required by the permit issued hereunder has been completed and approved in writing by the Director of Public Works or their agent, the Town will return the bond. The Director of Public Works or their agent may extend any time limit in these specifications if weather or other similar conditions have hindered the proper completion of the work. The Town may maintain the surety for a 12-month guarantee period duration, or some portion thereof, after completion of the work.

### SECTION IV: VIOLATIONS

1. If after six (6) months from the date of the permit, the repair to the Town's right-of-way is not completed according to these specifications and to the satisfaction of the

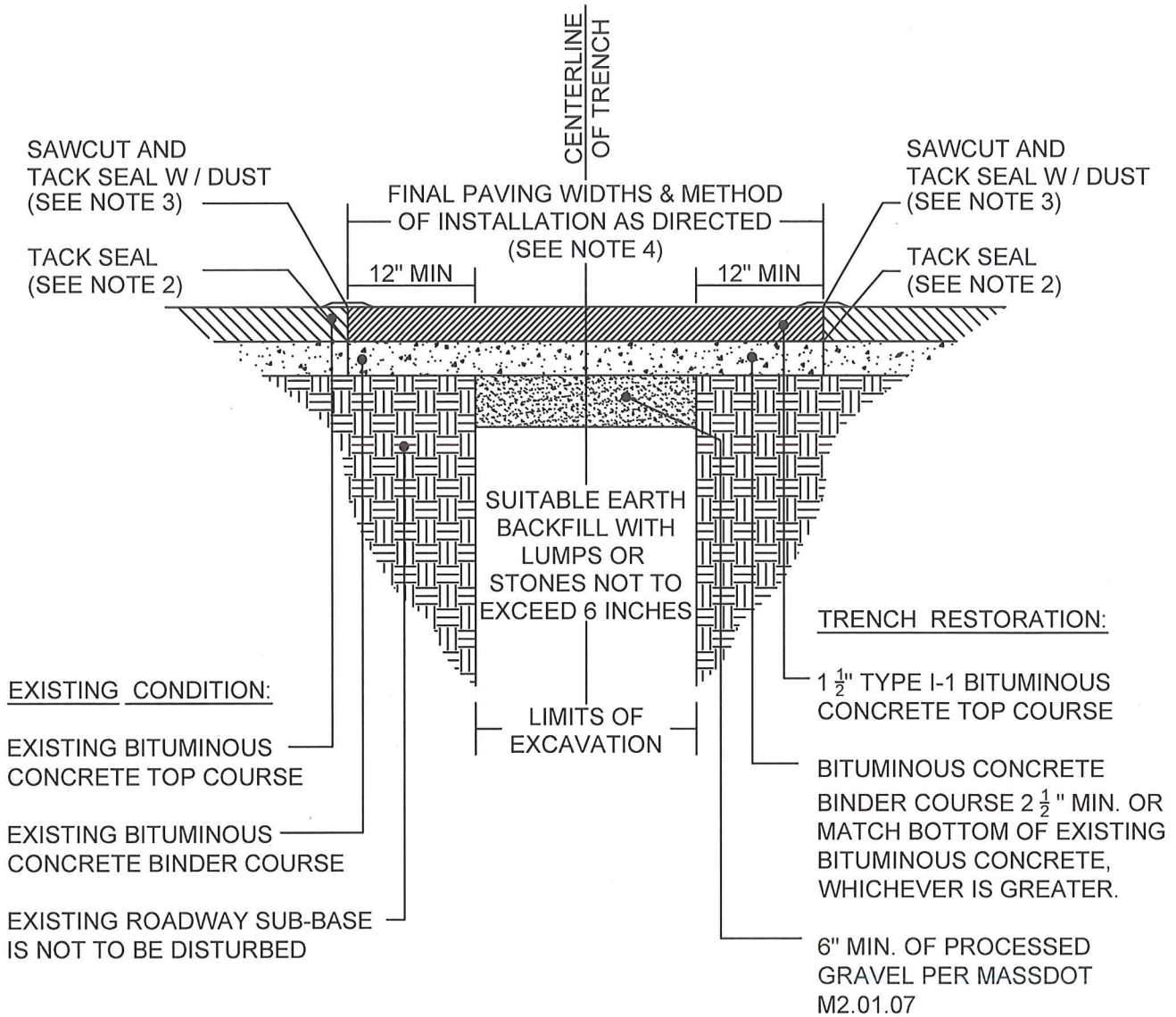
Director of Public Works or their agent, the permittee will be notified in writing by the Director of Public Works or their agent that the permit has expired. The Town of Sudbury reserves the right to complete the necessary work in any manner it may deem appropriate and deduct from the amount of the surety all costs of completing the work.

2. If any time during the life of the permit the permittee allows the construction to exist in a way dangerous to users or the road, the Director of Public Works or their agent may, upon 24 hours written notice to the permittee, make the necessary arrangements to correct the unsatisfactory condition. The permittee will be responsible for any Town incurred costs to correct the unsafe condition.
3. Failure to obtain a permit prior to the start of any construction within a public way shall be subject to a fine of not more than fifty (\$50) dollars per day.
4. Failure to abide by these regulations may result in suspension of any current or future permits in the Town of Sudbury for a duration determined by the Director of Public Works.



TEMPORARY PAVEMENT  
PATCH DETAIL

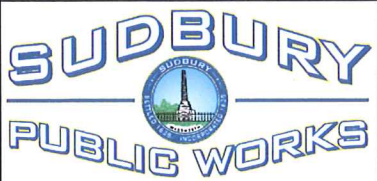
NOT TO SCALE



1. ALL INSTALLATION AND MATERIAL SPECIFICATIONS PER COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGES, 2020 EDITION, AS AMENDED.
2. ALL EXPOSED BITUMINOUS CONCRETE IS TO BE TACKED PER MASSDOT PRIOR TO NEW BITUMINOUS CONCRETE INSTALLATION.
3. ALL EXPOSED JOINTS ARE TO BE SEALED WITH RS-1 EMULSION AND STONE DUST.
4. ANY TOP COURSE APPLIED AT A WIDTH OF 6' WIDE OR GREATER IS TO BE PLACED BY MACHINE/BOX SPREADER WHEN & AS DIRECTED BY THE TOWN OF SUDBURY.

**PERMANENT TRENCH PATCH**  
**SECTION DETAIL**

NOT TO SCALE







# Town of Sudbury

BOARD OF HEALTH

275 Old Lancaster Rd.

Sudbury, Massachusetts 01776

Phone (978) 440-5478

FAX (978) 440-5404

Health@sudbury.ma.us

Permit Number

Date Issued

Exp. Date

## TRENCH PERMIT APPLICATION

Pursuant to G.L. c. 82A §1 and 520 CMR 7.00 et seq.(as amended)

THIS PERMIT MUST BE FULLY COMPLETED PRIOR TO CONSIDERATION

Name of Applicant			Phone	Cell
Street Address				
City/Town	MA	ZIP		
Name of Excavator (if different from applicant)			Phone	Cell
Street Address				
City/Town	MA	ZIP		
Name of Owner(s) of Property Where Trench is dug:			Phone	Cell
Street Address				
City/Town	MA	ZIP		
Other Contact			Permit Fee Received No ( ) Yes ( )	
<b>Description, location and purpose of proposed trench:</b> Please describe the exact location of the proposed trench and its purpose (include a description of what is (or is intended) to be laid in proposed trench (eg; pipes/cable lines etc..) Please use reverse side if additional space is needed.				
Insurance Certificate #:				
Name and Contact Information of Insurer:				
Policy Expiration Date:				
Dig Safe #:				
Name of Competent Person (as defined by 520 CMR 7.02):				

Last Modified: 04/10/2024 at 4:04PM EDT

Massachusetts Hoisting License #	
License Grade:	Expiration Date:

BY SIGNING THIS FORM, THE APPLICANT, OWNER, AND EXCAVATOR ALL ACKNOWLEDGE AND CERTIFY THAT THEY ARE FAMILIAR WITH, OR, BEFORE COMMENCEMENT OF THE WORK, WILL BECOME FAMILIAR WITH, ALL LAWS AND REGULATIONS APPLICABLE TO WORK PROPOSED, INCLUDING OSHA REGULATIONS, G.L. c. 82A, 520 CMR 7.00 et seq., AND ANY APPLICABLE MUNICIPAL ORDINANCES, BY-LAWS AND REGULATIONS AND THEY COVENANT AND AGREE THAT ALL WORK DONE UNDER THE PERMIT ISSUED FOR SUCH WORK WILL COMPLY THEREWITH IN ALL RESPECTS AND WITH THE CONDITIONS SET FORTH BELOW.

THE UNDERSIGNED OWNER AUTHORIZES THE APPLICANT TO APPLY FOR THE PERMIT AND THE EXCAVATOR TO UNDERTAKE SUCH WORK ON THE PROPERTY OF THE OWNER, AND ALSO, FOR THE DURATION OF CONSTRUCTION, AUTHORIZES PERSONS DULY APPOINTED BY THE MUNICIPALITY TO ENTER UPON THE PROPERTY TO MONITOR AND INSPECT THE WORK FOR CONFORMITY WITH THE CONDITIONS ATTACHED HERETO AND THE LAWS AND REGULATIONS GOVERING SUCH WORK.

THE UNDERSIGNED APPLICANT, OWNER AND EXCAVATOR AGREE JOINTLY AND SEVERALLY TO REIMBURSE THE MUNICIPALITY FOR ANY AND ALL COSTS AND EXPENSES INCURRED BY THE MUNICIPALITY IN CONNECTION WITH THIS PERMIT AND THE WORK CONDUCTED THEREUNDER, INCLUDING BUT NOT LIMITED TO ENFORCING THE REQUIREMENTS OF STATE LAW AND CONDITIONS OF THIS PERMIT, INSPECTIONS MADE TO ASSURE COMPLIANCE THEREWITH, AND MEASURES TAKEN BY THE MUNICIPALITY TO PROTECT THE PUBLIC WHERE THE APPLICANT OWNER OR EXCAVATOR HAS FAILED TO COMPLY THEREWITH INCLUDING POLICE DETAILS AND OTHER REMEDIAL MEASURES DEEMED NECESSARY BY THE MUNICIPALITY.

THE UNDERSIGNED APPLICANT, OWNER AND EXCAVATOR AGREE JOINTLY AND SEVERALLY TO DEFEND, INDEMNIFY, AND HOLD HARMLESS THE MUNICIPALITY AND ALL OF ITS AGENTS AND EMPLOYEES FROM ANY AND ALL LIABILITY, CAUSES OR ACTION, COSTS, AND EXPENSES RESULTING FROM OR ARISING OUT OF ANY INJURY, DEATH, LOSS, OR DAMAGE TO ANY PERSON OR PROPERTY DURING THE WORK CONDUCTED UNDER THIS PERMIT.

**APPLICANT SIGNATURE**

\_\_\_\_\_ **DATE** \_\_\_\_\_

**EXCAVATOR SIGNATURE (IF DIFFERENT)**

\_\_\_\_\_ **DATE** \_\_\_\_\_

**OWNER'S SIGNATURE (IF DIFFERENT)**

\_\_\_\_\_ **DATE:** \_\_\_\_\_

<b>For City/Town use -- Do not write in this section</b>	
<b>PERMIT APPROVED BY</b>	\$ _____ <b>Application Fee</b>
<b>PERMITTING AUTHORITY</b>	
<b>Date</b>	
<b>CONDITIONS OF APPROVAL</b>	

**CONDITIONS AND REQUIREMENTS PURSUANT TO G.L.C.82A AND 520 CMR 7.00 et seq. (as amended)**

By signing the application, the applicant understands and agrees to comply with the following:

- i. No trench may be excavated unless the requirements of sections 40 through 40D of chapter 82, and any accompanying regulations, have been met and this permit is invalid unless and until said requirements have been complied with by the excavator applying for the permit including, but not limited to, the establishment of a valid excavation number with the underground plant damage prevention system as said system is defined in section 76D of chapter 164 (DIG SAFE);
- ii. Trenches may pose a significant health and safety hazard. Pursuant to Section 1 of Chapter 82 of the General Laws, an excavator shall not leave any open trench unattended without first making every reasonable effort to eliminate any recognized safety hazard that may exist as a result of leaving said open trench unattended. Excavators should consult regulations promulgated by the Department of Public Safety in order to familiarize themselves with the recognized safety hazards associated with excavations and open trenches and the procedures required or recommended by said department in order to make every reasonable effort to eliminate said safety hazards which may include covering, barricading or otherwise protecting open trenches from accidental entry.
- iii. Persons engaging in any in any trenching operation shall familiarize themselves with the federal safety standards promulgated by the Occupational Safety and Health Administration on excavations: 29 CFR 1926.650 et.seq., entitled Subpart P "Excavations".
- iv. Excavators engaging in any trenching operation who utilize hoisting or other mechanical equipment subject to chapter 146 shall only employ individuals licensed to operate said equipment by the Department of Public Safety pursuant to said chapter and this permit must be presented to said licensed operator before any excavation is commenced;
- v. By applying for, accepting and signing this permit, the applicant hereby attests to the following: (1) that they have read and understands the regulations promulgated by the Department of Public Safety with regard to construction related excavations and trench safety; (2) that he has read and understands the federal safety standards promulgated by the Occupational Safety and Health Administration on excavations: 29 CMR 1926.650 et.seq., entitled Subpart P "Excavations" as well as any other excavation requirements established by this municipality; and (3) that he is aware of and has, with regard to the proposed trench excavation on private property or proposed excavation of a city or town public way that forms the basis of the permit application, complied with the requirements of sections 40-40D of chapter 82A.
- vi. This permit shall be posted in plain view on the site of the trench.

For additional information please visit the Department of Public Safety's website at [www.mass.gov/dps](http://www.mass.gov/dps)

## Summary of Excavation and Trench Safety Regulation (520 CMR 14.00 et seq.)

This summary was prepared by the Massachusetts Department of Public Safety pursuant to G.L.c.82A and does not include all requirements of the 520 CMR 14.00. To view the full regulation and G.L.c.82A, go to [www.mass.gov/dps](http://www.mass.gov/dps). Pursuant to M.G.L. c. 82, § 1, the Department of Public Safety, jointly with the Division of Occupational Safety, drafted regulations relative to trench safety. The regulation is codified in section 14.00 of title 520 of the Code of Massachusetts Regulations. The regulation requires all excavators to obtain a permit prior to the excavation of a trench made for a construction-related purpose on public or private land or rights-of-way. All municipalities must establish a local permitting authority for the purpose of issuing permits for trenches within their municipality. Trenches on land owned or controlled by a public (state) agency requires a permit to be issued by that public agency unless otherwise designated.

In addition to the permitting requirements mandated by statute, the trench safety regulations require that all excavators, whether public or private, take specific precautions to protect the general public and prevent unauthorized access to unattended trenches. Accordingly, unattended trenches must be covered, barricaded or backfilled. Covers must be road plates at least ¾" thick or equivalent; barricades must be fences at least 6' high with no openings greater than 4" between vertical supports; backfilling must be sufficient to eliminate the trench. Alternatively, excavators may choose to attend trenches at all times, for instance by hiring a police detail, security guard or other attendant who will be present during times when the trench will be unattended by the excavator.

The regulations further provide that local permitting authorities, the Department of Public Safety, or the Division of Occupational Safety may order an immediate shutdown of a trench in the event of a death or serious injury; the failure to obtain a permit; or the failure to implement or effectively use adequate protections for the general public. The trench shall remain shutdown until re-inspected and authorized to re-open provided, however, that excavators shall have the right to appeal an immediate shutdown. Permitting authorities are further authorized to suspend or revoke a permit following a hearing. Excavators may also be subject to administrative fines issued by the Department of Public Safety for identified violations.



## Summary of 1926 CFR Subpart P -OSHA Excavation Standard

This is a worker protection standard, and is designed to protect employees who are working inside a trench. This summary was prepared by the Massachusetts Division of Occupational Safety and not OSHA for informational purposes only and does not constitute an official interpretation by OSHA of their regulations, and may not include all aspects of the standard. For further information or a full copy of the standard go to [www.osha.gov](http://www.osha.gov).

- **Trench Definition per the OSHA standard:**
  - An excavation made below the surface of the ground, narrow in relation to its length.
  - In general, the depth is greater than the width, but the width of the trench is not greater than fifteen feet.
- **Protective Systems** to prevent soil wall collapse are always required in trenches deeper than 5', and are also required in trenches less than 5' deep when the competent person determines that a hazard exists. Protection options include:
  - Shoring. Shoring must be used in accordance with the OSHA Excavation standard appendices, the equipment manufacturer's tabulated data, or designed by a registered professional engineer.
  - Shielding (Trench Boxes). Trench boxes must be used in accordance with the equipment manufacturer's tabulated data, or a registered professional engineer.
  - Sloping or Benching. In Type C soils (what is most typically encountered) the excavation must extend horizontally 1 ½ feet for every foot of trench depth on both sides, 1 foot for Type B soils, and ¾ foot for Type A soils.
  - A registered professional engineer must design protective systems for all excavations greater than 20' in depth.
- **Ladders** must be used in trenches deeper than 4'.
  - Ladders must be inside the trench with workers at all times, and located within 25' of unobstructed lateral travel for every worker in the trench.
  - Ladders must extend 3' above the top of the trench so workers can safely get onto and off of the ladder.
- **Inspections** of every trench worksite are required:
  - Prior to the start of each shift, and again when there is a change in conditions such as a rainstorm.
  - Inspections must be conducted by the competent person (see below).
- **Competent Person(s) is:**
  - Capable (i.e., trained and knowledgeable) in identifying existing and predictable hazards in the trench, and other working conditions which may pose a hazard to workers, and
  - Authorized by management to take necessary corrective action to eliminate the hazards. Employees must be removed from hazardous areas until the hazard has been corrected.
- **Underground Utilities** must be:
  - Identified prior to opening the excavation (e.g., contact Digsafe).
  - Located by safe and acceptable means while excavating.
  - Protected, supported, or removed once exposed.
- **Spoils** must be kept back a minimum of 2' from the edge of the trench.
- **Surface Encumbrances** creating a hazard must be removed or supported to safeguard employees. Keep heavy equipment and heavy material as far back from the edge of the trench as possible.
- **Stability of Adjacent Structures:**
  - Where the stability of adjacent structures is endangered by creation of the trench, they must be underpinned, braced, or otherwise supported.
  - Sidewalks, pavements, etc. shall not be undermined unless a support system or other method of protection is provided.
- **Protection from water accumulation hazards:**
  - It is not allowable for employees to work in trenches with accumulated water. If water control such as pumping is used to prevent water accumulation, this must be monitored by the competent person.
  - If the trench interrupts natural drainage of surface water, ditches, dikes or other means must be used to prevent this water from entering the excavation.
- **Additional Requirements:**
  - For mobile equipment operated near the edge of the trench, a warning system such as barricades or stop logs must be used.
  - Employees are not permitted to work underneath loads. Operators may not remain in vehicles being loaded unless vehicles are equipped with adequate protection as per 1926.601(b)(6).
  - Employees must wear high-visibility clothing in traffic work zones.
  - Air monitoring must be conducted in trenches deeper than 4' if the potential for a hazardous atmosphere exists. If a hazardous atmosphere is found to exist (e.g., O<sub>2</sub> <19.5% or >23.5%, 20% LEL, specific chemical hazard), adequate protections shall be taken such as ventilation of the space.
  - Walkways are required where employees must cross over the trench. Walkways with guardrails must be provided for crossing over trenches > 6' deep.
  - Employees must be protected from loose rock or soil through protections such as scaling or protective barricades.

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## SECTION 01 15 30

### PAYMENT AND ADMINISTRATIVE PROCEDURES AND QUALITY REQUIREMENTS

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements relating to payment, the process of contract administration, and the methods of communicating, controlling, and assuring quality. This Section applies to all Specifications and Drawings.
- B. Certain provisions required by Laws and Regulations may be referenced. Contractor is responsible to determine and obtain applicable Laws and Regulations and to review and interpret the full text of such Laws and Regulations.
- C. Section Includes

##### 1.02 PAYMENT PROCEDURES

- Schedule of Values
- Payment Procedures
- Change Procedures
- Measurement and Payment Procedures
- Correlation of Submittals

##### 1.03 ADMINISTRATIVE REQUIREMENTS

- Project Management and Coordination; Meetings
- Documentation of Progress
- Submittal Procedures

##### 1.04 QUALITY REQUIREMENTS

- Reference Standards and Regulatory Requirements

## 1.02 PAYMENT PROCEDURES

- A. Schedule of Values: in accordance with Article 2 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
1. Provide sufficient detail to allow for determination of the value of the Work at any degree of completion.
  2. For each line item, identify number and title of Specification section in accordance with the Table of Contents.
  3. Number of hardcopies: 1
  4. Submit electronically by email in PDF format.
- B. Payment Procedures: in accordance with Article 14 of Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
1. Submit Application for Payment using the form included in the Project Forms section. Utilize latest approved Schedule of Values for listing items in Application for Payment. Provide supporting documentation for items included in the Application for Payment.
    - a. Number of hardcopies: 1
    - b. Submit electronically by email in PDF format.
  2. Payment Period: at intervals stipulated in the Agreement.
  3. Submit an updated Progress Schedule with each Application for Payment.
  4. Submit the following items for the Project.
    - a. Copy of cashed check paid and copy of receipts for Traffic Police Details invoices paid showing: the Project name; the officers' names; location of assignment; date of assignment; hours of assignment; and number of hours being invoiced
- C. Change Procedures: in accordance with Articles 10 and 12 of Standard General Conditions and General and Project Specific Supplementary Conditions, if any, utilizing forms included in Section 00 60 00 Project Forms.
- Number of hardcopies: 1
- Submit electronically by email in PDF format.
1. Field Order: as authorized by Paragraph 9.04 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.



2. Change Request: issued by Engineer, Owner or Contractor to request or authorize minor variations and deviations, amendments or supplements to the Contract Documents. Initiate requests for substitute items per Paragraph 6.05 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, using a Change Request.
  - a. Engineer or Owner to include a detailed description of a proposed change with supplementary or revised Drawings and Specifications, including a change in Contract Times related to the change (with a stipulation for any overtime work required) and the period of time during which the requested price (if any) will be considered valid. Prepare and submit an estimate within 15 days.
  - b. Describe the proposed change and its full effect on the Work. Describe the reason for the change and the effect on the Contract Price and Contract Time with full documentation (and a statement describing the effect on Work by separate or other contractors).
3. Work Change Directive: as defined in subparagraph 1.01.A.51 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
4. Change Order: in accordance with Articles 10 and 12 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
  - a. *Stipulated Price Change Order*: based on Contractor's maximum price quotation or Contractor's request for a Change Order as approved by Engineer or Owner.
  - b. *Unit Price Change Order*: for pre-determined unit prices and quantities and executed on a fixed unit price basis. Execute Work under a Work Change Directive for unit costs or quantities of Work not pre-determined. Changes in Contract Price and Contract Time to be computed as specified for Time and Material Change Order.
  - c. *Time and Material Change Order*: based on itemized account and supporting data after completion of change within time limits indicated in the Standard General Conditions and General and Project Specific Supplementary Conditions, if any. Engineer or Owner and Contractor to determine the change allowable in Contract Price and Contract Time as provided in the Standard General Conditions and General and Project Specific Supplementary Conditions, if any. Maintain detailed records of Work completed on this basis, provide full information for evaluation of proposed changes, and substantiate costs for changes in the Work.

5. “Or Equals” and Substitutes: Request “Or-Equal” and substitute items as a Change Request per subparagraph 1.02.C.2 above, with complete data substantiating compliance with Contract Documents.
  - a. Or-Equal” and substitute items will be processed in accordance with Paragraph 6.05 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, and subparagraph 1.03.C.6 below.

D. Measurement and Payment Procedures

1. Payment includes full compensation for required labor, material and equipment, tools, plant, transportation, services and incidentals; erection, application or installation and construction of an item of the Work; and overhead and profit, unless otherwise indicated.

E. Correlation of Submittals

1. Promptly revise Schedule of Values and Applications for Payment to record each authorized Change Order as a separate line item and adjust the Contract Price.
2. Promptly revise Progress Schedule to reflect any change in Contract Times and revise sub-schedules to adjust time for other items of the Work affected by the change.
3. Promptly enter changes in Project record documents.

### 1.03 ADMINISTRATIVE REQUIREMENTS

A. Project Management and Coordination; Meetings

1. Contact information for Owner and other entities related to the Project and special coordination requirements and contacts during prosecution of the Work will be provided at the Preconstruction Conference and Site Mobilization Meeting.
2. Inform Owner and Engineer of the address for sending official correspondence and the address and telephone number of Contractor's representative who will be project manager and Site superintendent for the Contract.
3. During periods of construction and testing keep Owner and Engineer informed in writing with name, address, and telephone number of Contractor's representative who will be responsible and available outside of normal working hours for emergency repairs and the maintenance of safety devices.

4. Identify the 24 hour, 7 days per week emergency response telephone or cell phone number that is staffed by a person (not a passive answering machine) or provide that a phone call will be returned within one hour.
5. Identify correspondence, submittals, drawings, data and materials, packing slips or other items associated with this Contract as follows.

### Old Sudbury Road Culverts 110 And 149 Replacement

6. Coordinate scheduling, submittals, and Work of the various Specifications to effectuate an efficient and orderly sequence for installing interdependent construction elements, with provisions for accommodating items installed later.
7. Preconstruction Conference and Site Mobilization Meeting
  - a. Owner to schedule an initial preconstruction conference in accordance with Paragraph 2.06 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
  - b. Attendance required by Owner, Contractor, Engineer, Contractor's Superintendent, Project Manager, and Subcontractors as a minimum.
  - c. Sample Agenda
    - Distribute Contract Documents
    - Discuss design concepts
    - Discuss preliminary Progress Schedule, Schedule of Submittals, Schedule of Values and preliminary cash flow projections.
    - Designate personnel representing each party; communication procedures
    - Procedures and processing of submittals, substitutions, applications for payments, Change Orders and Contract closeout procedures
    - Scheduling
    - Use of premises by Owner and Contractor
    - Owner's requirements and partial occupancy
    - Construction facilities and controls provided by Owner
    - Temporary utilities provided by Owner and Contractor
    - Survey and Site Layout
    - Security and housekeeping procedures
    - Schedules
    - Procedures for testing
    - Procedures for maintaining record documents
    - Requirements for start-up
    - Inspection and acceptance of equipment put into service during construction period

- Access, laydown and coordination with others
  - d. Engineer will record minutes and distribute draft copies promptly after meeting to Owner and Contractor for review, then revise as required and distribute thereafter to meeting participants, with copies to Owner and Contractor, and those affected by decisions made.
8. Progress Meetings
- a. Owner to schedule progress meetings beginning no later than 10 days after the Initial Conference and continue thereafter on a biweekly basis throughout progress of the Work.
  - b. Attendance required by Contractor, Contractor's Superintendent, major Subcontractors and Suppliers, Owner and Engineer as appropriate to agenda topics for each meeting.
  - c. Sample Agenda
    - Review minutes of previous meetings – unresolved issues
    - Overall project status
    - Work Completed
    - Anticipated Work
    - Schedule
    - Pay Applications
    - Change Orders
    - Submittals
    - Observations, problems, and decisions
    - General Discussion/Comments
    - Action Items
    - Date and time for next meeting
  - d. Engineer will record minutes and distribute draft copies promptly after meeting to Owner and Contractor for review, then revise as required and distribute thereafter to meeting participants, with copies to Owner and Contractor, and those affected by decisions made.
9. Pre-installation Conference and Coordination Meetings
- a. When required, convene a pre-installation conference at Site before commencing certain Work that requires coordination or has special requirements or approval.
  - b. Convene coordination meetings as may be generally required.
  - c. Attendance required by parties directly affecting, or affected by, Work of the specific Specification section.
    - 1) For pre-installation conference, notify Owner and Engineer 5 days in advance.

- 2) For coordination meetings, party requesting coordination meeting to notify other party(s).
- d. Review conditions, preparation and procedures, and coordination with related Work.

B. Documentation of Progress

1. Submit preliminary and final Progress Schedules as specified in Paragraphs 2.05 and 2.07 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, or as established in Notice to Proceed.

Number of hardcopies: 1

Submit electronically by email in PDF format.

- a. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, and duration.
- b. Indicate estimated percentage of completion for each item of Work at each submission.
- c. Indicate dates for fabrication, factory testing, delivery, shipping and field testing, and material and equipment delivery dates, including those furnished by Owner. Coordinate with Schedule of Submittals.
2. Submit revised Progress Schedule on monthly basis and with each Application for Payment, identifying changes since previous version. Coordinate content with Schedule of Values, if any.
3. Documentation of Pre-Construction Conditions, Construction Progress, and Final Conditions
  - a. Documentation of Pre-Construction Conditions
    - 1) Submit photographs prior to starting construction to record Site conditions. Ensure existing conditions that might be affected by the Work are clearly recorded. Identify photographs with date, time, orientation and Project identification. Re-take any photograph furnished which, in the opinion of the Engineer, is of poor quality or incomplete at no additional cost to Owner.
    - 2) Format: PDF or JPG format, minimum 300 dpi quality and a minimum resolution of 6.0 megapixels. Identify photographs with date, time, orientation and Project identification.

- a) Number of hardcopies: 1
  - b) Submit electronically by email in PDF format.
- b. Documentation of Construction Progress
- 1) Submit photographs of with Payment Application monthly during progress of Work. Identify photographs with date, time, orientation and Project identification. Re-take any photograph furnished which, in the opinion of the Engineer, is of poor quality or incomplete at no additional cost to Owner.
  - 2) Format: PDF or JPG format, minimum 300 dpi quality and a minimum resolution of 6.0 megapixels.
  - 3) Number of hardcopies: 1
  - 4) Submit electronically by email in PDF format.
- c. Documentation of Final Conditions
- 1) Submit photographs with Application for Final Payment to record final conditions. Identify photographs with date, time, orientation and Project identification. Re-take any photograph furnished which, in the opinion of the Engineer, is of poor quality or incomplete at no additional cost to Owner.
  - 2) Format: PDF or JPG format, minimum 300 dpi quality and a minimum resolution of 6.0 megapixels. Identify photographs with date, time, orientation and Project identification.
  - 3) Number of hardcopies: 1
  - 4) Submit electronically by email in PDF format.
4. Reports
- a. Submit weekly Safety Reports signed by the Safety Representative.
    - 1) Updates to the Construction Operations Plan approved pursuant to SC 2.07 of Section 00 73 10 when it is modified
- Number of hardcopies: 1
- Submit electronically by email in PDF format.

C. Submittal Procedures

1. Schedule submittals to expedite the Project and coordinate with schedules required by Paragraph 1.03.B above. Deliver each submittal in the quantity and electronic form indicated to Engineer (with copy to Owner where required) at the addresses specified at the Preconstruction Conference and Site Mobilization Meeting. Coordinate submission of related items.
2. Present submittals in a clear and thorough manner, in English and using English units. Provide space for Contractor, Engineer, and Owner's review stamps. Use sheet size of not less than 8 1/2 by 11 inches and not more than 24 by 36 inches.
3. Revise and resubmit documents as required. Identify all changes made since previous submittal. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions. Submittals not requested on the submittal schedule may not be recognized or processed.
4. Submit preliminary and final Schedule of Submittals as specified in Article 2 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, or as established in Notice to Proceed. Include all submittals specified in the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, General Requirements, and other Specification sections.

Number of hardcopies: 0

Submit electronically by email in PDF format.

- a. Include description of each submittal, date by which each submittal will be delivered to Engineer and Owner date by which each submittal must be approved to maintain project schedule, and relevant section reference.
  - b. Allow 10-15 days from receipt of submittal/resubmittal for Engineer review of submittals and possible resubmittal.
5. Shop Drawings and Samples: Submit in accordance with Paragraph 6.17 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, and as follows, and coordinate with the Schedule of Submittals required in subparagraph 4 above.

Number of hardcopies: 0

Submit electronically by email in PDF format.

- a. Complete a Submittal Transmittal (Form 00 62 11) as is indicated, numbering each submittal consecutively. Assign resubmittals the same Transmittal number as the original with a suffix of a sequential letter to indicate the resubmittal (e.g. the first resubmittal of submittal 25 would be number 25A.) Include only those documents previously issued under original Submittal Transmittal number in resubmittals. Do not combine new submittals with resubmittals.
  - b. Attach a Submittal Transmittal to each group of Shop Drawings, manufacturer's literature, equipment data and Samples submitted. Use a sufficient number of Submittal Transmittal forms so that: items on a single Submittal Transmittal form pertain to the same equipment item, Specification section or element of Work; items on a single Submittal Transmittal form are either original submittals or the same number resubmittal; and each Sample is listed on a separate Submittal Transmittal form.
  - c. Submittals which do not have a fully completed Submittal Transmittal form will be returned along with unreviewed attachments. Returned submittals, even though incomplete, will be counted as a submittal.
  - d. Submission of any Shop Drawing or Sample bearing Contractor's and Engineer's approval shall constitute a representation to Owner that the requirements of Paragraph 6.17 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, have been fulfilled.
  - e. Engineer to complete review in accordance with Paragraph 6.17.D. of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
6. Variations: Identify variations from Contract Documents and material and equipment or system limitations which may be detrimental to successful performance of the completed Work and identify reasons therefor in accordance with subparagraph 6.17.C.3 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
- a. Clearly identify requests for "Or-Equal" and substitute items and submit per Paragraph 6.05 of Standard General Conditions and General and Project Specific Supplementary Conditions, if any, and subparagraph 1.02.C.5 above. Substitute items will not be considered when indicated or implied on Shop Drawing or material and equipment data submittals without separate written request, or when acceptance will require revision to the Contract Documents.



7. Manufacturers' Installation Instructions and Certificates: Submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing.

Number of hardcopies: 0

Submit electronically by email in PDF format.

- a. Indicate special procedures, perimeter conditions requiring special attention and special environmental criteria required for application or installation.
- b. Submit manufacturers' certificates for recent or previous test results on material or equipment, but they must be acceptable to Engineer and Owner. Indicate material or equipment conforms to or exceeds specified requirements and provide supporting reference date, affidavits, and certifications as appropriate.
- c. Submit test results, data, and reports and certifications to Engineer based on tests performed. Submit test reports and certifications for independent testing services specified.

8. Record Documents and Closeout Submittals: submit in accordance with Paragraph 6.12 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, and Paragraph 1.03.D below.

- a. *As-Builts for Material and Equipment*

Number of prints: 1

Electronic format: PDF

Submit electronically by email.

Indicate "As-Supplied" in revision block and sign. Show all changes and revisions to Final Completion per execution and closeout requirements. Include with subparagraph d. Operation and Maintenance Data per Part 2 below

- b. *Drawings Conformed by Contractor to Construction Records*: Submit the following.

Number of prints: 1

Electronic format: PDF

Submit electronically by email.

Indicate "Conformed by Contractor to Construction Records" in revision block and sign. Show all changes and revisions to Final Completion per execution and closeout requirements.

- c. *Warranties and Guarantees*: Submit duplicate notarized copies of warranty documents which are executed and transferable from

Subcontractors, Suppliers, and manufacturers. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of Warranty Period.

- 1) Submit in searchable PDF format by email.
- 2) Submit 1 copy in ring binders with durable plastic covers and table of contents.

## 1.04 QUALITY REQUIREMENTS

### A. Reference Standards and Regulatory Requirements

1. Reference to standards, specifications, manuals or codes of any technical society, organization or association, or Laws or Regulations of any governmental authority are used in accordance with Paragraph 3.02 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
2. Acronyms and abbreviations used are defined in the applicable versions of the Encyclopedia of Associations published by Gale (part of Cengage Learning) generally available in large libraries and on the internet.
3. Comply with the Massachusetts Department of Transportation - Highway Division's (referred to as "MassDOT") Standard Specifications (but not including Compensation sections), Construction Details (including Standard Drawings), and Design Guides as incorporated into the Specifications and Drawings, and as may be modified therein or superseded by the Owner's requirements through the direction of the Engineer. Specific sections of the MassDOT documents are referenced in the Specifications and Drawings. References to "Department" in the MassDOT documents shall mean Owner or Resident Project Representative for this Project. See MassDOT Highway Division website for latest documents.

<https://www.mass.gov/massdot-highway-division-manuals-and-publications>

4. Specific requirements applicable to the Project include the following.
  - a. Order of Conditions dated 4/27/2021 included in Section 00 31 00.

**END OF SECTION**

SECTION 01 23 00  
ALTERNATES

1.01 SCOPE

- A. This Section lists the Alternates which appear in the Contract Documents. Consult the individual sections of the detailed requirements of each Alternate.
- B. Bid prices for each Alternate shall include overhead, profit, and all other expenses incidental to the Work under each Alternate.
- C. The Contractor and Subcontractors shall be responsible for examining the scope of each Alternate generally defined herein and for recognizing modifications to the Work caused by the Alternates and including the cost thereof in the bid price.
- D. The Contractor's alternate amount shall include the net change in cost to perform all of the work described in the Alternate.

1.02 LIST OF ALTERNATES

**ALTERNATE NO. 1:** Culvert 149

**Description:** All work for Removal and Replacement of Culvert 149 as specified

**Performance Period:** Unchanged

**ALTERNATE NO. 2:** Culvert 110

**Description:** All work for Removal and Replacement of Culvert 110 as specified

**Performance Period:** Unchanged

END OF SECTION

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## SECTION 01 43 05

### QUALIFICATION REQUIREMENTS

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. Meet or provide capability to meet the criteria specified below and in individual Specification sections in connection with various portions of the Work of the Contract Documents.

1. See qualification requirements in the following sections.

Section 01 51 42 – Temporary Stormwater Drainage Bypass

##### 1.02 GENERAL REQUIREMENTS

- A. Contractor shall have been regularly and actively engaged in similar Work as described in the Contract Documents, operating under the same business name and business organization structure, for the last 5 years on at least 5 projects.

- B. Contractor shall have successfully completed at least 3 projects involving construction of similar facilities in the same state as the Project covered by the Contract Documents within the last 5 years. “Similar facilities” means similar in type, character, physical size, and complexity to that required by the Contract Documents.

1. Contractor shall have regularly engaged experienced engineers/design professionals and land surveyors licensed in the state the Project is located performing work similar to that specified.

- C. Contractor shall have:

1. a full-time on-Site project manager in responsible charge of the Work with at least 5 years’ experience as project manager on comparable projects.

##### 1.03 SPECIAL REQUIREMENTS

- A. Contractor shall be prequalified by the Massachusetts Department of Transportation, Highway Division in –Highway-Construction category in accordance with 720 CMR 5.00.

##### 1.04 STATUTORY

- A. Any Work involving the removal, containment, or encapsulation of Asbestos or material containing Asbestos may only be performed by a licensed contractor in accordance with the provisions of MGL Chapter 149, Sections 6A-6E, applicable

Laws and Regulations, and requirements as may be included in the Specifications and Drawings.

- B. Sheet metal work must be performed by a contractor licensed in accordance with 271 CMR 1.00, et seq. governing licensing, permitting, and sheet metal work in Massachusetts.

**END OF SECTION**

## SECTION 01 50 00

### TEMPORARY FACILITIES AND CONTROLS

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. This Section specifies temporary facilities and controls for execution of the Work put into place for use only during the period of construction, that will be removed when no longer required for construction operations. This Section applies to all Specifications and Drawings and provisions of this Section may be supplemented in other sections of Division 01.
- B. Certain provisions required by Laws and Regulations may be referenced. Contractor is responsible to determine and obtain applicable Laws and Regulations and to review and interpret the full text of such Laws and Regulations.
- C. Section Includes

##### 1.02 TEMPORARY CONSTRUCTION FACILITIES

- Barriers
- Protection of Work
- Security
- Safety Facilities
- Access Roads
- Parking
- Field Offices
- Staging Area
- Project Identification
- Progress Cleaning and Waste Removal

##### 1.03 TEMPORARY UTILITIES

##### 1.04 TEMPORARY CONTROLS

- Pest Control
- Dust Control
- Bypass Pumping
- Water Control and Dewatering
- Erosion and Sediment Control
- Noise Control
- Pollution Control
- Traffic Regulation

##### 1.05 REMOVAL OF TEMPORARY UTILITIES, FACILITIES, AND CONTROLS

## 1.02 TEMPORARY CONSTRUCTION FACILITIES

### A. Barriers

1. Comply with the requirements of Paragraph 6.11. of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
2. Furnish barriers to prevent unauthorized entry to and clear delineation of construction areas, to allow for Owner's use of Site, and to protect existing facilities and adjacent properties from damage from construction operations as recommended by OSHA and as otherwise required for the protection of life and property during construction.
3. Construct barricades and protective facilities in accordance with local and state regulations. Furnish and install signs, lights, reflectors, and such protection facilities as may be required.
4. Furnish barricades required by governing authorities for public rights of way.
5. Provide protection for plant life designated to remain. Replace damaged plant life.
6. Protect non owned vehicular traffic, stored materials, Site and structures from damage.
7. If required, furnish commercial grade, minimum 8 foot high chain link fence around construction Site. Equip with vehicular gates with locks.

### B. Protection of Work

1. Protect Work during working and non-working hours.
2. Provide special protection where specified in Specifications or Drawings and in accordance with manufacturer recommendations.
3. Furnish temporary and removable protection for installed equipment and material. Control activity in immediate Work area to minimize damage.
4. Protect exterior areas of Work from damage. Prohibit traffic from landscaped areas.



5. Buildings and Enclosures
    - a. Furnish protective coverings at walls, projections, jambs, sills, and soffits of openings and protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
    - b. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
  6. Whenever gale or high winds are forecast, take measures to secure loose material, equipment or other items that could be blown and be damaged or cause damage. Do not leave such loose items unsecured at end of a working day. Particular attention shall be taken with scaffolding and items placed or stored on roofs or within a structure prior to being enclosed.
  7. Provide for removal of snow and ice which may impede Work, damage the finishes or materials, be detrimental to workers, or impede trucking, delivery, or moving of materials at the Site, or prevent adequate drainage of the Site or adjoining areas.
- C. Security
1. Provide protection to stored items, the Work and Owner's operations from unauthorized entry, vandalism, or theft, and against fire, storms and other losses during working and non-working hours.
  2. Coordinate with Owner's security program.
- D. Safety Facilities
1. Provide first aid and other safety facilities required by Laws and Regulations during working and non-working hours.
- E. Access Roads
1. Construct and maintain temporary roads accessing public thoroughfares to serve construction area. Control dust and water.
  2. Extend and relocate as Work progress requires. Provide detours necessary for unimpeded traffic flow.
  3. Provide for emergency access and maintain throughout the Work Site.

- F. Parking: as designated by the Owner prior to construction.
- G. Field Offices: Not required for the Project.
- H. Staging Area: Owner is not providing a location for staging area. Contractor to determine and secure a location for staging area.
- I. Project Identification
  - 1. Minimum requirements for signs: exterior type plywood of sizes and thickness indicated. Provide exterior-grade acrylic-latex-base enamel for painting sign panels and applying required graphics.
  - 2. Provide necessary signage in accordance with all applicable standards and regulations. Signage shall include but is not limited to:
    - a. DEP Permit File number sign
    - b. Pedestrian warning / traffic control signs
- J. Progress Cleaning and Waste Removal
  - 1. Comply with the requirements of Paragraph 6.11. B and C of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
  - 2. Maintain areas free of waste materials, debris, and rubbish and maintain the Site in a clean and orderly condition.
  - 3. Remove debris and rubbish from spaces and other closed or remote spaces before enclosing the space.
  - 4. Collect and remove waste materials, debris, and rubbish from Site at least weekly and legally dispose off-Site.

### 1.03 TEMPORARY UTILITIES

- A. Power service: Not required for the Project.
- B. Telephone service and internet access to field offices: Not required for the Project.
- C. Water service: may be required for paving operations - as specified below.
  - 1. Arrange for, pay for and maintain suitable quality water service as required for duration of Project.
    - a. Water shall not be pumped directly from any watercourse or water body without the express written consent of the Owner.

- b. Obtain the express approval of the Sudbury Water District before water is used. Waste of water by the Contractor shall be sufficient cause for withdrawing the privilege of unrestricted use. Hydrants shall only be operated under supervision of the Sudbury Water District personnel.

Sudbury Water District  
199 Raymond Road  
Sudbury, MA 01776  
978.443.6602

- c. Pay costs associated with furnishing, cleaning, installing, maintaining, operating, and removing of water-related equipment.

- D. Furnish and maintain required sanitary facilities and enclosures. Do not use existing facilities.
- E. Furnish lighting for construction operations. Furnish lighting for exterior staging and storage areas and for security purposes. Maintain lighting and provide routine repairs.
- F. Furnish heat devices and heat and cooling devices as required to maintain specified conditions for construction operations.
- G. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- H. Fire Protection
  - 1. Provide temporary fire protection equipment and services during construction per NFPA and local fire code and regulations, and fire marshal's requirements.
  - 2. Use Work procedures that minimize fire hazards to the extent practicable and materials that are fire resistant where possible. Collect and remove combustible debris and waste materials from the Site each day. Store fuels, solvents, and other volatile or flammable materials away from the construction and storage areas in well-marked, safe containers in accordance with Laws and Regulations.

#### 1.04 TEMPORARY CONTROLS

- A. Pest Control: Provide methods, means, and facilities to control and prevent spread of pests during construction operations. If required, provide for extermination of pests in accordance with Laws and Regulations. For extensive infestations, obtain the services of a licensed exterminator and coordinate plan with Owner and Engineer.

- B. Dust Control: Execute Work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere. Utilize the application of sprinkled water to reduce the emission of air-borne soil particulates from the Project Site.
- C. Bypass Pumping: in accordance with Section 01 51 42.
- D. Water Control and Dewatering: as specified below.
  - 1. Comply with requirements shown on the Drawings, specified in the Geotechnical Report included in Section 00 31 00, and with the Order of Conditions included in Section 00 31 00.
  - 2. Contractor shall note that the crossings of Old Sudbury Road Culverts 110 and 149 shall be performed “in the wet,” and the water table in the excavation shall be allowed to reach equilibrium with the surrounding water table.
  - 3. Maintain excavations free of water. Furnish, operate and maintain pumping equipment.
  - 4. Dewater excavations and legally dispose of water in a manner that will not cause injury to public and private property.
  - 5. Protect Site from puddling, ponding or running water.
  - 6. Obtain necessary regulatory approvals for the disposal of dewatering flows, including, among others, approval by the Environmental Protection Agency under the National Pollutant Discharge Elimination System (NPDES) program for construction dewatering activities. Submit the completed and approved construction dewatering permit to the Engineer immediately upon receipt.
  - 7. Design, furnish, install, maintain, operate and remove temporary dewatering systems as required to lower and control water levels and hydrostatic pressures in excavations during construction; legally dispose of pumped water; construct, maintain, observe and, except where indicated or required to remain in place, remove dewatering equipment and system at the completion of construction.
    - a. Dewatering may include: lowering the water table, intercepting and collecting seepage which may penetrate the support of excavation, slopes or bottom of the excavation; increasing the stability of excavated slopes; preventing loss of material from beneath the slopes or bottom of the excavation; reducing lateral loads on sheeting and bracing; limiting horizontal displacements and stresses in support of excavation to tolerable and allowable levels; preventing

displacements of existing structures, utilities, pavements, and sidewalks; improving the excavation and hauling characteristics of sandy soil; preventing rupture or heaving of the bottom of any excavation; and disposing of pumped water.

8. Grade Site to drain away from excavations to approved drainage collection facilities. Ensure collected surface drainage water meets permitted criteria for sediment content prior to discharge.
  9. Prepare a Construction Flood Contingency Plan detailing Contractor's means and methods for stabilizing the Work area and emergency notification procedures if the Work area becomes subject to flooding as a result of a storm event or water removal system failure.
- E. Erosion and Sediment Control: as specified below.
1. Comply with:
    - a. Order of Conditions included in Section 00 31 00
    - b. U.S. Army Corps of Engineers General Permits for the Commonwealth of Massachusetts included in Section 00 31 00
    - c. MassDEP requirements
    - d. MassDOT requirements within State rights of way
    - e. Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas, prepared by the MassDEP
  2. Plan and execute construction using methods to control surface drainage from cuts and fills, from borrow and waste disposal areas and prevent erosion and sedimentation.
  3. Submit the following to the Engineer in accordance with Division 01 General Requirements:
    - a. Product Data
      - 1) Silt Sock Sedimentation Barrier
      - 2) Catch Basin Silt Sacks
    - b. Erosion and sediment control plan prior to the start of construction
    - c. Closeout and Maintenance Material Submittals: per Division 01 General Requirements
  4. Products - Materials
    - a. Silt Sock Sedimentation Barrier
      - 1) Diameter: 12"

- 2) Fill material: Compostable
- b. Catch Basin Silt Sacks
  - 1) Style: Silt Sack Regular Flow.
  - 2) Test Method: ASTM D-4884 165.0 lbs./inch.
  - 3) Silt sack seams: certified average wide width strength.
  - 4) Meet the following ASTM D-4884 standards. Properties are Minimum Average Roll Values (MARV).

Property	Test Method	Units	Test Results
Grab Tensile	ASTM D-4632	lbs.	315x300
Grab Elongation	ASTM D-4632	%	15x15
Puncture	ASTM D-4833	lbs.	125
Mullen Burst	ASTM D-3786	psi	650
Trapezoid Tear	ASTM D-4533	lbs	120x150
UV Resistance	ASTM D-4355	%	90
Apparent Opening	ASTM D-4751	US Sieve	40
Flow Rate	ASTM D-4491	gal/min/ft <sup>2</sup>	40
Permittivity	ASTM D-4491	sec -1	0.55

- 5. Install erosion and sediment controls as shown on the Drawings and as required by Laws and Regulations. Install additional erosion and sedimentation control measures as necessary to stabilize the Site. Coordinate temporary erosion controls with permanent erosion controls to the extent practical. Provide and maintain devices to control erosion, siltation, and sedimentation that occur during construction operations. Undertake reasonable precautions and measures to avoid erosion of soil and to prevent silting of drainage ditches, storm sewers, rivers, streams, and lakes.
- 6. Employ pollution prevention measures, erosion and sedimentation control before, during, and after soils are exposed. Implement measures prior to soil disturbance or soil storage to the extent possible to ensure that such measures are in place before activity occurs and employ additional measures as the Work progresses. Implement and maintain as necessary until the Site is permanently stabilized.
- 7. Perform inspections of disturbed soil areas, material storage areas exposed to precipitation, and erosion control measures with Engineer a minimum of once every 14 days and also within 24 hours after any storm event greater than 0.5 inches of rainfall. Immediately correct deficiencies in the erosion control measures identified or indicated by failures or erosion by implementing additional measures or different techniques to correct and prevent subsequent erosion at no additional cost to Owner.

8. In the event that silt or debris breaches erosion control, immediately remove and clean silt or debris from drainage ditches and storm sewers and revise erosion control measures as required by the Conservation Commission or the Engineer. Should silt or debris breach erosion controls and reach rivers, streams or lakes, immediately notify local, state or Federal representatives as required and implement required remediation methods at no additional cost to Owner.
9. Limit duration of the exposure of soils on embankments, excavations, and graded areas to a minimum.
10. Provide temporary measures such as berms, dikes and drains to prevent water flow. Install erosion control measures in any ditch, swale or channel before water is allowed to flow in the waterway. Handle water pumped from trenches to minimize discharge of silty water to the maximum extent practicable.
11. Stabilize storm drain outfalls before the discharge points become operational. Install inlet protection immediately upon construction of culverts.
12. Stabilize disturbed areas with temporary and permanent erosion control practices as soon as practicable, but no more than 14 days after construction activity on a particular portion of the Site has temporarily or permanently ceased. Exceptions to this time requirement include: a) where construction activities will resume on the particular portion of the Site within 21 days; and b) where snow cover delays initiation of stabilization measures.
13. Place stockpiled topsoil on the Site away from natural drainages, in piles with side slopes of 50 percent to 70 percent. Install siltation fence around the base of the pile to prevent eroding soil from washing into drainages. Cover topsoil piles which are to remain for a period of 21 days or more with temporary seed and mulch immediately following stockpiling.
14. Conduct pavement sweeping to remove sediment and soil debris accumulation on pavement resulting from construction activity.

F. Noise Control

1. Provide methods, means, and facilities to minimize noise from construction operations.
2. Provide noise attenuation systems capable of meeting the federal and state Department of Environmental Protection Air Quality Control Regulations.
3. Construct sound enclosures or utilize other noise reduction techniques if the equipment does not meet the noise level requirements.'

4. Submit a Noise Control plan for:
  - a. Night work: 7 p.m. – 7 a.m.
  - b. Pumping operations and Work which extend beyond regular working hours.
  - c. Any other Work as determined by the Engineer which warrants special noise prevention measures.
  
- G. Pollution Control: as specified below.
  1. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations.
    - a. Water Pollution Control
      - 1) Ensure that sediment, debris, petroleums, chemicals, or other contaminants will not enter existing drainage facilities and channels. Use construction methods that will prevent entrance of pollutants and wastes into existing streams, rivers, lakes, and flowing and dry watercourses.
      - 2) Obtain legal disposal sites and dispose of pollutants and wastes in a legal manner.
      - 3) Respond immediately to emergencies as directed when water quality of existing streams, rivers, lakes and flowing and dry watercourses is threatened. Take corrective action to remove or contain pollutants until a permanent solution is determined.
      - 4) Submit a plan and employ additional protective measures to prevent harm to wetland resource areas as specified in the Order of Conditions included in Section 00 31 00.
    - b. Air Pollution Control
      - 1) Equipment and vehicles that exhibit excessive exhausts emissions due to poor engine adjustments or inefficient operation will not be permitted to operate until corrective repairs or adjustments are made.
      - 2) Burning of materials from clearing or grubbing operations, combustible construction materials, and rubbish will not be allowed.
  
- H. Traffic Regulation: as specified below.



1. Submit traffic control plans and coordinate with Owner and local agencies. Submit plan for traffic control to Owner for review 14 days in advance of any Work within public right-of-way, street closure or detour.
2. Provide and maintain traffic control and maintenance devices in accordance with Part 6, Temporary Traffic Control, of the "Manual on Uniform Traffic Control Devices for Streets and Highways", published by the U.S. Department of Transportation, Federal Highway Administration and other applicable codes and standards as specified. Operate devices 24 hours per day as required.
  - a. Comply with applicable portions of the "Massachusetts Amendments to the 2009 Manual on Uniform Traffic Control Devices and the Standard Municipal Traffic Code" published by the Massachusetts Department of Transportation Highway Division.
  - b. Comply with relevant provisions of Section 7.00 of the MassDOT Standard Specifications and Supplements, and the following.
    - 1) The intent of posting police details is to ensure public safety and protection of property through appropriate traffic control. Police personnel are not to be employed as watchmen to protect the Contractor's equipment and materials.
    - 2) All uniformed traffic police personnel required for traffic control for construction shall be authorized by Owner's Safety Officer and/or the Engineer.
    - 3) Payment will be made by Owner for uniformed traffic police only.
    - 4) Submit a forecast weekly traffic police detail schedule, at least 72 hours prior to the start of the Work describing: the nature and location of the Work, the number of police personnel, the estimated number of police hours required for each location, and justification for each uniformed officer being requested. Payment to the police for work under this Contract shall be in accordance with the Massachusetts General Laws, Chapter 149, Section 34B.
    - 5) If uniformed police have been arranged to work, and weather or some other situation prohibits the Work, notify the Police Department Detail before 5:30 a.m. on the day of intended Work to cancel the work order. Unless the work order is canceled in time, the Contractor shall be charged at the rate of minimum four hours for each officer included in the detail

and shall be fully responsible for payment of all charges thus incurred.

3. Provide for access by emergency vehicles, such as police, fire, and disaster units at all times. Contractor shall be liable for damages resulting from failure to provide such access.
4. During construction hours, traffic flow must be controlled by uniformed traffic police officers or other traffic controllers allowed by Laws and Regulations. The services of traffic controllers shall in no way relieve the Contractor of its responsibilities under the Contract.
5. Maintain minimum of one moving lane on roadways at all times except as expressly permitted by owner or engineer in writing.
  - a. Where detours are permitted, provide necessary barricades, flashers, flashing arrows and signs in accordance with referenced Manuals and Laws and Regulations.
  - b. Provide gravel borrow and bituminous concrete to maintain temporary passable travel lane ramps, temporary bridging, steel plates, temporary pavement, wood-framed walkways, caution, safety and other necessary signs directing the pedestrian and vehicular traffic towards unblocked and safe areas.
  - c. Except when road closure and road blockage permits are obtained, maintain two lanes of traffic (one in each direction) throughout construction and during non-working hours to the maximum extent possible.
6. Provide safe access/egress to businesses and abutting property owners within the Project area.
  - a. Certain construction operations such as utility work and roadway/sidewalk reconstruction may restrict access/egress on some roads and to businesses and abutting property owners. Under these circumstances, schedule operations during off-peak hours or late evenings with Owner approval so that a particular work activity can be completed in the shortest possible time.
  - b. Provide 48 hours notice to businesses and abutting property owners when access/egress will not be available or restrictions will exist.
7. Exercise particular care to establish and maintain such methods and procedures that will not create hazards.
  - a. Remove or properly cover traffic control, safety devices and/or signs having messages that are irrelevant to normal traffic conditions at

- the end of each Work period. Keep signs clean at all times and provide that legends are distinctive and unmarred.
- b. Place excavated material and construction equipment so that vehicular and pedestrian traffic is maintained at all times unless road closure permit is obtained. If the Contractor's operations cause traffic hazards, implement appropriate safety measures immediately.
  - c. In areas of high pedestrian and vehicular traffic volume, the remove waste materials and construction equipment from the Work Site on a daily basis. Do not park construction equipment overnight on the Site or the adjacent roads unless permitted by Owner.
  - d. Provide night watchmen where special hazards exist.
8. Post signage clearly stating that any vehicle impeding the progress of construction will be towed at the vehicle owner's expense. Towing charges incurred by Owner for Contractor's failure to post such signs will be borne by the Contractor.

#### **1.05 REMOVAL OF TEMPORARY UTILITIES, FACILITIES, AND CONTROLS**

- A. Remove temporary utilities, equipment, and facilities before Final Application for Payment inspection.
- B. Remove temporary underground installations and grade Site as indicated. Clean and repair damage caused by installation or use of temporary utilities, facilities, and controls.
- C. Restore existing facilities and areas used during construction to original condition. Restore permanent facilities used during construction to specified condition.

**END OF SECTION**

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## SECTION 01 51 42

### TEMPORARY STORMWATER DRAINAGE BYPASS

#### PART 1 – GENERAL

##### 1.01 DESCRIPTION OF WORK

- A. Furnish, install and maintain temporary measures for Old Sudbury Road Culvert 149 flow bypass, including but not limited to, temporary bypass piping, and pumping.
- B. Flow bypass not required for Culvert 110. Contractor shall protect the work from flow throughout the duration of construction.

##### 1.02 ADMINISTRATIVE REQUIREMENTS

- A. Coordination, Sequencing, and Scheduling: in accordance with Division 01 General Requirements.

##### 1.03 SUBMITTALS

- A. Submit in accordance with the Division 01 General Requirements.
- B. Bypass Pumping Plan for **each** bypass location to Engineer and Owner 2 weeks prior to bypassing stamped by a Professional Engineer registered in the state in which the Project is located.
- C. Bypass Pumping Plan must contain at a minimum:
  - 1. Standard Operating Procedure: Describe the normal sequence of events to be followed while setting up, pumping, and breaking down pumping equipment. Plan must address strategies and safeguards to ensure that public safety and environmental health is constantly maintained, the possibility of property damage and wetlands impacts, and overall level of inconvenience is minimized. Note that bypass pipe crossing Old Sudbury Road shall be buried.
  - 2. A bypass routing diagram including pump location for **each** Work zone,
  - 3. Calculations: Estimates of anticipated peak flows, pump rates, pump curves, and other relevant design. The two-year storm event will require a bypass pumping rate of 5,700 gallons per minute (gpm) for the Old Sudbury Road Culvert 149 crossing. It is anticipated that during dry weather the required bypass rate may fall to zero; however, the Bypass Pumping Plan must also provide low-flow capabilities to maintain a minimum pumping

rate of 50 gpm. Contractor shall determine bypass pumping capacity for individual pipe section replacement.

4. Contractor is responsible for providing the design and maintenance of the coffer dam. Cofferdam design should be submitted as part of the dewatering plan.
5. List of the equipment that will be used during normal pumping operation.
6. Emergency Response Plan: Describe the intended means of handling the following situations, include both response and clean-up measures. List equipment to be used and where it will be stored in case of emergency:
  - a. Break or failure of bypass line (pipe)
  - b. Failure of bypass pump
  - c. Overflow
  - d. Back up into dwelling or onto private property
  - e. Failure of bypass pumping system to accommodate flow.

D. Shop Drawings for equipment and materials including, but not limited to:

1. Pumps
2. Pipe or hose
3. Joints/couplings
4. Plugs and/or bladders

## 1.04 SITE CONDITIONS

A. Existing Conditions: per Division 01 General Requirements.

## PART 2 – PRODUCTS

### 2.01 PUMPS, PIPES & FITTINGS

- A. Pump: suitable for usage with storm drainage and capable of conveying the volume of flow anticipated with a sufficient margin of safety. Provide for 100 percent redundancy (two pumps shall be provided at the Site for every one pump required) if flow cannot be returned to the storm drain at any time if pumping system failure occurs. Redundant pump: include suction and discharge piping and quick connect couplings to facilitate change out of pumps.
- B. Pipe and fittings: constructed of carbon steel, Aluminum, or fused high-density polyethylene pipe or approved equal. Fittings shall be quick-disconnect type.

- C. Lay flat hose: extra heavy duty, highly abrasion resistant and fitted with gasketed couplings. Hose shall be rated for 150 percent of working pressure.
- D. Provide a temporary enclosure for the bypass pumping system for sound attenuation operating outside of regular working hours meeting state and local Laws and Regulations for noise requirements.

## **PART 3 – EXECUTION**

### **3.01 GENERAL**

- A. Adequately bypass flow around the affected section of the Work, even instantaneous peak flows, without damage or overflow. Be aware of potential large instantaneous flow contributors connected to the storm drain under repair.
- B. Allow for passage of traffic. Protect bypass piping at driveway and street crossings. Temporary bury piping that crosses Old Sudbury Road.
- C. Maintain roadway drainage system during precipitation events to prevent flooding of public right-of-way and adjacent properties.
  - 1. Protect against surcharging of the existing system upstream during dry weather and wet weather flows.
  - 2. Protect Site from flooding. Provide measures to adequately isolate the Site from backflow of adjacent.
- D. Continuously monitor bypass operations regardless of duration or timing of bypassing.
- E. Coordinate bypassing with low-flow times, to the extent feasible. Ensure no overflows or backups occur.
- F. Temporary damming of waterways is not allowed except as shown on Drawings.
- G. If it is determined that bypass pumping is not required at a location due to lack of flow or that a Work item does not require bypass pumping to be performed, and the decision is agreed upon by the Engineer, provide protection of flows from any construction debris and ensure that no debris enters the storm drain system.
- H. Bypass Pumping
  - 1. Bypass storm drain pumping: a typical manhole to manhole, catch basin to manhole, coffer dam to coffer dam, or coffer dam to downstream location bypass pumping setup.
  - 2. Submit a bypass plan to Engineer prior to implementation of such Work and prior to the start of construction.

- I. Restore normal service to entire system at the end of normal working hours every day or post an attendant on Site.
- J. Repair any damage that occurs to existing pipes and structures to the satisfaction of the Engineer.

### **3.02 FLOW DATA**

- A. Flows and flow data are variable depending on location and weather conditions. Visiting areas of the Site prior to Work to visually inspect flow conditions is encouraged. Maintain flows as specified under all flow conditions.
- B. Portions of the Project area are subject to groundwater inflow. Account for groundwater infiltration in the planning and conducting the Work.
- C. Refer to Section 1.04.C.3 for bypass pumping requirements for the Old Sudbury Road crossing.

### **3.03 TEMPORARY POWER**

- A. Provide fuel and/or power to run pumps associated with the bypass at no additional cost to the Owner. Include emergency backup power or backup fuel storage as part of the Bypass Pumping Plan.

### **3.04 PIPING**

- A. Lay temporary piping along the general lines of the street in a manner that causes the minimum amount of disruption and is least likely to be damaged. Make provisions at driveways, provisions to permit property owners to drive over the temporary pipe by use of temporary bituminous pavement, cold patch, or other approved material to form a ramp on each side of the pipe to the satisfaction of the Engineer or by depressing the pipe as directed by the Engineer. The bypass piping at Old Sudbury Road shall be buried.

### **3.05 OPERATION AND MAINTENANCE**

- A. Constantly attend the bypass system. Provide an attendant if bypass pumping must continue beyond working hours.

**END OF SECTION**



## SECTION 01 60 00

### PRODUCT REQUIREMENTS

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. This Section specifies general requirements for products, materials and equipment. This Section applies to all Specifications and Drawings and provisions of this Section may be supplemented in other sections of Division 01.
- B. Certain provisions required by Laws and Regulations may be referenced. Contractor is responsible to determine and obtain applicable Laws and Regulations and to review and interpret the full text of such Laws and Regulations.
- C. Section Includes

##### 1.02 SOURCE QUALITY CONTROL

- General
- Independent Testing Agency Certification
- Factory Testing

##### 1.03 PRODUCT REQUIREMENTS

- General
- Transportation and Handling
- Storage and Protection

##### 1.04 WARRANTIES

##### 1.02 SOURCE QUALITY CONTROL

- A. General
  - 1. Subject material and equipment furnished under the Contract Documents to a complete factory testing program as specified.
  - 2. Shop Drawings and submittals: reviewed by Engineer before initiating testing program.
  - 3. Perform checks and tests in accordance with manufacturer's recommendations and referenced standards.

4. Evaluate test results and advise Owner immediately of any discrepancy between test results and test limits or the failure of any device or system under test. Include test limits for acceptability applicable to each test on the certified test records.
5. Record test information, including the evaluation of testing results, on forms approved by Owner and Engineer.

B. Independent Testing Agency Certification

1. If specified, furnish certificates from an independent testing agency.
2. Independent testing agency to certify that material and equipment components have been examined and tested and are in conformance with the requirements specified in the Contract Documents.
3. Take Samples in accordance with the requirements specified in the Contract Documents, as selected by Owner or independent testing agency. Furnish and ship at no additional cost to Owner.

C. Factory Testing

1. Provide 14 days prior written notice of factory inspections and tests to Owner and Engineer.
2. If failure to give proper written notice results in material and equipment being assembled or covered before a factory inspection or test, make material and equipment ready for inspection or test and reassemble or recover at no additional cost to Owner.
3. Owner may inspect any portion of material and equipment furnished at any reasonable time during manufacture and may witness testing of any portion of material and equipment wherever located. Owner and Engineer to witness tests only.
4. Furnish, set up and operate test equipment and facilities.
5. If facilities for conducting required tests are unavailable to the manufacturer, conduct tests elsewhere or have them performed by an independent agency approved by Owner.
6. Protect material and equipment after testing and checking to provide that subsequent testing of other equipment or systems does not disturb, damage or otherwise interfere with functional capability of material and equipment.
7. Assume responsibility for protection of material and equipment and safety of all personnel during factory testing program.

8. Grounds for rejection: failure to withstand tests; failure to meet ratings; failure to meet applicable standards.
9. In the event of failure
  - a. Submit revisions of documents requiring approval for changes required for rectification.
  - b. Obtain Owner's and Engineer's approval before making such changes.
  - c. Provide written details of any changes to be made not requiring approval.
  - d. Notify Owner and Engineer in writing before retesting.
  - e. Furnish new material and equipment which meets requirements of the Specifications if rejected material and equipment cannot be rectified to satisfaction of Owner and Engineer.
  - f. Retest after rectification in presence of Owner or Engineer.
10. Assume responsibility for all costs, including, but not limited to: loss or damage to materials and equipment resulting from testing; retesting; rectification; new material and equipment to replace damaged or non-rectifiable material and equipment; removal, furnishing, transportation, unloading, and installation of replacement material and equipment; and witness of testing by Owner and Engineer including travel, lodging, meals, and payroll.
11. Submit certified test reports which define tests, list results, and are signed by Contractor's representative, and copies of raw data collected during tests. Submission of certified test reports does not relieve Contractor of responsibility for material and equipment meeting requirements of the Contract Documents after installation.

### 1.03 PRODUCT REQUIREMENTS

#### A. General

1. Products include new material and equipment incorporated into the Work and may also include existing material and equipment required for reuse. This does not include machinery and equipment used for preparation, fabrication, conveying, installation and erection of the Work.
2. Do not use materials and equipment removed from existing Work Site, except as specifically permitted.
3. Provide complete with accessories, trim, finished, safety guards, and other devices and details need for a complete installation and for the intended use or effect.

4. Provide standard products which have been produced and used successfully on other similar projects for similar applications. Provide products which are likely to be available to Owner in the future for items required for maintenance and repair or replacement Work.
5. Furnish interchangeable components of the same manufacturer, for similar components.

B. Transportation and Handling

1. Transport and handle material and equipment in accordance with manufacturer's instructions.
2. Notify Engineer and Owner in writing upon acceptance of a shipment.
3. Promptly inspect shipments to assure that material and equipment comply with requirements, quantities are correct, and material and equipment are undamaged.
4. Furnish equipment and personnel to handle material and equipment by methods to prevent soiling, disfigurement, or damage.
5. Uncrate equipment and dispose of packing material properly.

C. Storage and Protection

1. Store and protect material and equipment in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive material and equipment in weather tight, climate controlled enclosures.
2. For exterior storage of fabricated material and equipment, place on sloped supports, above ground.
3. Provide for bonded off Site storage and protection when Site does not permit on Site storage or protection.
4. Cover material and equipment subject to deterioration with impervious sheet covering. Furnish ventilation to avoid condensation or potential degradation of material and equipment.
5. Store loose granular materials on solid flat surfaces in a well-drained area. Avoid mixing with foreign matter.
6. Furnish equipment and personnel to store material and equipment by methods to prevent soiling, disfigurement, or damage.

7. Arrange storage of material and equipment to permit access for inspection. Periodically inspect to assure material and equipment are undamaged and are maintained in acceptable conditions.
8. After receipt of material and equipment, assume responsibility for loss and damage including but not limited to breakage, corrosion, weather damage, and distortion.

#### 1.04 WARRANTIES

- A. Provide warranties for equipment and material in accordance with Paragraphs 6.19 and 14.03 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
- B. Provide extended or special warranties as indicated in individual Specification sections.

**END OF SECTION**

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## SECTION 01 70 00

### EXECUTION AND CLOSEOUT REQUIREMENTS

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. This Section specifies general execution requirements and startup/commissioning and performance testing for closeout of the Work. This Section applies to all Specifications and Drawings and provisions of this Section may be supplemented in other sections of Division 01.
- B. Certain provisions required by Laws and Regulations may be referenced. Contractor is responsible to determine and obtain applicable Laws and Regulations and to review and interpret the full text of such Laws and Regulations.
- C. Section Includes

##### 1.02 OVERALL EXECUTION REQUIREMENTS

- Coordination
- Existing Conditions
- Field Engineering
- Record Documents
- Cutting and Patching
- Electrolytic Corrosion Prevention
- Quality Assurance and Control of Installation
- Manufacturers' Field Services
- Independent Testing

##### 1.03 TESTING

Not Used

##### 1.04 CLOSEOUT REQUIREMENTS

## 1.02 OVERALL EXECUTION REQUIREMENTS

### A. Coordination

1. Conduct preconstruction and pre-installation meetings before commencing certain Work that requires coordination or has special requirements or approvals.
2. Comply with the required Work sequence and coordination as may be specified in Summary of Work and reflect in the Project scheduling.
3. Coordinate Work such that Work is completed with minimum disruption to residents and businesses.
4. Coordinate space requirements and installation of Work. Utilize spaces efficiently to maximize accessibility for other installations, maintenance, and repairs.
  - a. This project will require complete shut down or partial blocking of the streets during construction. Coordinate with the Fire Department and Police Department.
5. Coordinate Work of the various Specifications with interdependent responsibilities for installing, connecting to, and placing in service, operating equipment.
6. Coordinate related Work at the Site in accordance with Article 7 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
7. Coordinate completion and cleanup of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy.
8. After Owner occupancy of premises, coordinate access to Site for correction of defective Work and/or incomplete Work to minimize disruption of Owner's activities.
9. Specific requirements applicable to the Project include the following.
  - a. Coordinate with utility company for relocation of utility pole.
  - b. Coordinate with the Conservation Commission prior to start of Work per the Order of Conditions included as in Section 00 31 00.

### B. Existing Conditions



1. Paragraph 4.01 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, covers Availability of Lands.
2. Paragraph 4.02 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, covers Subsurface and Physical Conditions.
3. Pursuant to Paragraph 4.04 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, existence and location of Underground Facilities and other utilities and construction indicated as existing are not guaranteed. Before beginning Work investigate and verify the existence and location of Underground Facilities and other utilities and construction.
  - a. Engage a professional subsurface utility locator to verify the existence and location of underground utilities prior to starting Work.
  - b. Contact DIGSAFE ([www.digsafe.com](http://www.digsafe.com)) by dialing 811 prior to disturbing existing ground in any way.
4. Paragraph 4.05 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, covers Reference Points.
5. Paragraph 4.06 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, covers Hazardous Environmental Conditions at Site.

C. Field Engineering: as specified below.

1. Prior to initiating construction, engage an independent professional land surveyor registered in the state where the Project is located to provide surveys and permanent reference points for all bounds and property markers along the line of the Work that may be disturbed during construction. Submit copies of all ties to the bounds and property markers to the Engineer prior to excavation at the Site(s).
2. Maintain surveyor's log of control and other survey work. Keep log available for reference.
3. Verify layout information shown on the Drawings in relation to existing benchmarks before lay out of the Work. Locate and protect existing benchmarks and control points. Preserve permanent reference points during construction.
4. Promptly report lost or destroyed reference points, benchmarks, or control points. Promptly report requirements relocate reference and control points

due to changes in grades. Promptly replace lost or destroyed bounds or markers and control points based on the original survey control points utilizing the services of a professional land surveyor registered in the state where the Project is located. The cost of replacing markers disturbed by the Contractor's operations shall be at the Contractor's expense.

D. Record Documents

1. Provide record documents in accordance with Paragraph 6.12 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, and in accordance with Section 01 15 30.
2. Store record documents separate from documents used for construction. Record information concurrent with construction progress.
3. Legibly mark each item to record description of actual equipment and material installed and actual construction on the Drawings and approved submittals, including the following.
  - a. Manufacturer's name and equipment and material model and number
  - b. Material and equipment substitutions or alternates utilized
  - c. Approved changes
  - d. Measured depths of foundations
  - e. Measured horizontal and vertical locations of Underground Facilities and appurtenances, referenced to permanent surface improvements
  - f. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work
  - g. Field changes of dimension and detail
  - h. Details not on original Contract Documents or Shop Drawings

E. Cutting and Patching

1. Employ skilled and experienced personnel to perform cutting and patching.
2. Submit written request in advance of cutting or alteration which affects:
  - a. structural integrity of any element of Project;
  - b. integrity of weather exposed or moisture resistant elements;
  - c. efficiency, maintenance, or safety element;

- d. safety, traffic, or hazard barriers;
  - e. visual qualities of sight exposed elements; and
  - f. work of Owner or separate contractor.
3. Execute cutting, fitting, and patching including excavation and fill to complete Work and to:
    - a. fit materials together, to integrate with other work;
    - b. uncover Work to install ill-timed Work;
    - c. remove and replace defective or non-conforming Work;
    - d. remove Samples of installed Work for testing when requested; and
    - e. provide openings in element of Work for penetration of mechanical and electrical work.
  4. Execute Work by methods to avoid damage to other work and which will provide appropriate surfaces to receive patching and finishing.
  5. Provide adequate temporary support for Work to be cut.
  6. Restore Work with new materials in accordance with requirements of Contract Documents. Use materials identical with original materials where recognized that satisfactory results can be produced.
  7. Provide protection from elements for areas which may be exposed by uncovering work.
  8. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit. Restore exposed finishes of patched areas; and, where necessary extend finish restoration onto retained adjoining Work in a manner, which will eliminate evidence of patching.
  9. Identify any Hazardous Waste, Hazardous Environmental Condition, or hazardous substance exposed during the Work to Owner for decision or remedy in accordance with Paragraph 4.06 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
  10. Cut work by methods least likely to damage Work to be retained and work adjoining. Cut Work with sawing and grinding tools, not with hammering, chopping, or burning tools. Cut masonry and concrete materials with masonry saw or core drill. Do not use pneumatic tools without prior approval. Core drill openings through concrete Work. Adhere to mandatory cutback requirements when saw cutting concrete and roadway openings.

11. Do not cut and patch structural Work in a manner resulting in reduction of load-carrying capacity or load/ deflection ratio.
12. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. Maintain supports to ensure structural integrity of the Work. Provide devices and methods to protect other portions of Project from damage and seal voids. For interior work at penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire resistant material, to full thickness of the penetrated element.
13. Do not cut and patch operational or safety-related components that reduce capacities to perform in manner intended. Do not cut and patch Work that reduces visual qualities. Remove and replace unsatisfactory cutting patching as directed by Engineer or Owner.

F. Electrolytic Corrosion Prevention

1. Prevent galvanic action, bimetallic corrosion, anodic or cathodic action, and electrolysis at all electrical grounds and for all galvanic scale (electromotive series or table of oxidation potentials). Do not allow contact of dissimilar metals further apart than 0.35 on the galvanic scale (electromotive series or table of oxidation potentials). The electrode potential of common metals is listed below.

	<b>Electrode Potential Volts (Relative to Hydrogen)</b>
Magnesium	+2.37
Aluminum	+1.70
Zinc+	+0.76
Chromium	+0.56
Iron and Steel	+0.44
Cadmium	+0.40
Nickel	+0.25
Tin	+0.14
Lead	+0.13
Copper	-0.34

2. Unless otherwise indicated, provide dielectric insulators between ferrous and nonferrous pipe and equipment.

G. Quality Assurance and Control of Installation

1. Monitor quality control of Subcontractors, Suppliers, manufacturers, material, equipment, services, Site conditions, and workmanship, to produce Work of specified quality. Conduct field quality control and testing specified.

2. Comply fully with manufacturers' installation instructions, including each step in sequence. If manufacturers' instructions conflict with Contract Documents, request clarification from Engineer before proceeding.
3. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
4. Perform Work using persons qualified to produce workmanship of specified quality.
5. Install field Samples and mockups at the Site as required in Specifications for review. Acceptable Samples and mockups represent a quality level for the Work. Where field Sample or mockup is specified to be removed, clear area after field Sample or mockup has been accepted by Engineer or after Work is complete when mockup is to serve as a control reference.
6. Protect adjacent construction in accordance with Paragraph 6.13 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.

H. Manufacturers' Field Services

1. If required in the Specifications, arrange and pay for material or equipment Suppliers or manufacturers to provide qualified staff personnel (field representative) to perform the following services and services specified. Submit reports of activities, actions taken and test results to Engineer within 10 days of completion.
  - a. Observe Site conditions, conditions of surfaces and installation, quality of workmanship.
  - b. Report observations and Site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
  - c. Assist with field assembly as required.
  - d. Furnish, setup, and operate required test equipment and facilities.
  - e. Perform and record results of manufacturer recommended inspections and tests, and tests specified for material and equipment.
  - f. Be responsible for protection of material and equipment and safety of all personnel during testing.
  - g. Perform any other services normally provided by field representative's company.
  - h. Instruct operating personnel in proper use of material and equipment.

- i. Instruct and supervise field repairs before acceptance by Owner.

I. Independent Testing

1. Employ and pay for specified services of an independent firm in accordance with Paragraph 13.03 of the Standard General Conditions and General and Project Specific Supplementary Conditions to perform inspection and testing as may be specified except where responsibility for a specific inspection or test is expressly allocated to Owner in the Specifications or by Laws and Regulations.
2. Reports will be submitted by the independent firm to Owner, in duplicate indicating observations and results of tests and indicating compliance or noncompliance with Contract Documents.
3. Inspection, testing, and source quality control may occur on or off the Project Site.
4. Cooperate with independent firm. Furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
5. Notify Owner and independent firm 24 hours before expected time for operations requiring services.
6. Make arrangements with independent firm and pay for additional Samples and tests required for Contractor's use.
7. Retesting required because of nonconformance to specified requirements will be performed by the same independent firm if instructed by Owner. Payment for retesting will be charged to Contractor by deducting inspection or testing charges from the Contract Price.
8. Testing or inspecting does not relieve Contractor from performing Work in accordance with requirements of the Contract Documents.

**1.03 TESTING**

- A. NOT USED

**1.04 CLOSEOUT REQUIREMENTS**

- A. Substantial Completion shall have been achieved when the following has been completed and the requirements of Paragraph 14.04 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, have been met.
  1. Work is complete, systems are successfully operating, and final testing has been successfully completed.

2. A full inventory of the spare parts and special tools purchased by the Owner are replenished and in the custody of the Owner.
  3. The Site has been restored to the satisfaction of the Owner.
  4. An inspection of the Work has been completed by the Engineer and the Owner.
  5. An updated Punch List is provided.
  6. The Contractor's written warranty and guarantee has been submitted as required by Paragraph 6.19.D. of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
  7. A Certificate of Substantial Completion has been provided in accordance with Paragraph 14.04.C. of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.
- B. The Contractor shall have sole care, custody, and control of the Work until achievement of Substantial Completion. During the period between Substantial Completion and the date for Final Completion, Contractor shall be given access to correct items on the Punch List and achieve Final Completion.
- C. The date of achieving Substantial Completion is the date set forth in the Certificate of Substantial Completion that is accepted and signed by the Owner.
- D. Final Completion shall have been achieved when the Work is complete, the requirements of Paragraphs 14.06 and 14.07 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, have been met, and when the following is complete.
1. Substantial Completion has been achieved and liquidated damages for failure to meet Substantial Completion Date have been paid.
  2. All Work including Punch List Items has been completed.
  3. Final cleaning has been conducted and Contractor equipment and supplies including waste materials have been removed from the Site and legally disposed of.
  4. A full set of record documents have been submitted as specified in subparagraph 1.02.D above and Contractor's written warranty and guarantee has been resubmitted if adjusted.
  5. Inspections required by Laws and Regulations are complete. Certificates and permits to occupy and operate have been issued if required.

6. Spare parts, maintenance and extra materials have been delivered in quantities specified to Project Site and stored as directed.
7. A request for final inspection in accordance with Paragraph 14.06 of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any, has been submitted to the Engineer and the inspection has been completed and the results accepted by the Owner.
8. A Final Application for Payment has been submitted to the Engineer identifying total adjusted Contract Price, previous payments, and balance due along with required documentation in accordance with Paragraph 14.07.A. of the Standard General Conditions and General and Project Specific Supplementary Conditions, if any.

**END OF SECTION**



## SECTION 02 41 14

### SELECTIVE SITE DEMOLITION AND RESTORATION

#### PART 1 – GENERAL

##### 1.01 SUMMARY

A. Section Includes

1. Provide Site demolition including clearing, stripping or ordinary excavation of existing bituminous or cement concrete pavements, soils, signage, fencing, wood post and rails, stumps and roots, foundations, granite or bituminous or cement concrete curbs, bituminous or cement concrete sidewalks, grassed areas, existing culverts and drainage pipes and structures, demolition, dismantling, replacement and restoration Work, stacking of reusable and disposal of waste and surplus materials and tree protection and removal in accordance with this Section and applicable reference standards listed in Article 1.03.

B. Related Requirements

1. Section 31 00 00 – Earthwork
2. Section 31 14 13 – Soil Stockpiling
3. Section 32 12 16 – Asphalt Paving

##### 1.02 PRICE AND PAYMENT PROCEDURES

- A. Measurement and payment requirements: per Division 01 General Requirements.

##### 1.03 REFERENCES

A. Reference Standards

1. MassDOT Standard Specifications and Supplements, except for Compensation sections
2. MassDOT Construction Details
3. MUTCD and Mass Amendments
4. Applicable portions of Town of Sudbury Ordinances and Zoning Ordinances

#### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination, sequencing, and scheduling: per Division 01 General Requirements.

#### **1.05 SUBMITTALS**

- A. Submit in accordance with Division 01 General Requirements.
- B. Closeout and maintenance material submittals: per Division 01 General Requirements.

#### **1.06 QUALITY ASSURANCE**

- A. Provide in accordance with Division 01 General Requirements.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Provide in accordance with Division 01 General Requirements.

#### **1.08 SITE CONDITIONS**

- A. Existing Conditions: per Division 01 General Requirements.

### **PART 2 – PRODUCTS (NOT USED)**

### **PART 3 – EXECUTION**

#### **3.01 GENERAL**

- A. Perform selective Site demolition in accordance with MassDOT Section 100.
- B. Comply with General Requirements for temporary construction controls, protections, and waste disposal.
  - 1. Ensure against damage or injury to buildings, occupants, and adjacent property from falling debris or other causes. Avoid damage to adjacent areas, facilities, and appurtenances.
  - 2. Maintain free and safe passage to and from Site.
  - 3. Legally dispose of waste, surplus and unsatisfactory materials including bituminous or cement concrete, debris, rails and ties, common excavation, immediately as it accumulates during clearing, grubbing, stripping, demolition, and other Site preparation. Burying is not allowed.

### 3.02 SITE DEMOLITION

- A. Clear Site of construction debris and waste materials, including grass, bushes, trees, broken concrete, fencing, pipes, lumber and steel pieces, rags and plastics, within limits of Work as shown on Contract Documents or as directed.
- B. Strip, mill and/or excavate existing bituminous or cement concrete pavements, soils, foundations, granite or bituminous or cement concrete curbs, bituminous or cement concrete sidewalks, and grassed areas, within limits of Work as shown on Contract Documents or as directed.
- C. Remove and stack fencing, granite curb, regulatory signage, lamp posts, letter boxes, signs, guardrails, bike racks, poles and other usable materials to be reinstalled or salvaged by the Town.
- D. Demolish and remove existing bituminous pavement, bituminous and concrete walkways and curbing, grass borders and landscaping, bushes, shrubs, trees and vegetation as necessary to construct the site improvements. Remove existing obstructions and debris, cut trees, bushes, root stumps, waste stones, wood, lumber, metal, plastic, and other unsuitable materials above, at or below grade that may interfere with or obstruct the new Work, whether or not shown on the Contract Documents.
- E. Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level. Comply with governing Regulations, permits, Laws, ordinances, pertaining to environmental protection.
- F. Remove and stockpile top-soil, vertical granite curbs and curb stones, utility castings and other materials for reuse as shown or directed by Engineer.
- G. Stockpile recovered materials acceptable to Engineer to be reused on Project and protect against damage or deterioration.
- H. Do not cut, remove, destroy, or trim trees and shrubs unless specifically marked or permitted. Do not remove tree branches using excavating equipment. Provide that required trimming is performed by an arborist licensed in the state where the Project is located. Protect trees or vegetation outside limits of Work area.
- I. Protect integrity of remaining structures, appurtenances and equipment during demolition, removal and alteration to existing structures, appurtenances, utility pipes, castings, fences, walkways, posts, stairs and other physical features.
- J. Maintain slopes longitudinally and laterally to ensure proper and continuous drainage. Field adjust sidewalk and roadway gutter grades at driveways and side street intersections to be consistent with existing drainage pattern and provide for an appropriate transition between new and existing side streets and driveway pavement surfaces at intersections.

- K. Remove and stack cobblestones.
  - 1. Transport and stack cobblestones in good condition at the Town DPW yard.
- L. Leave abandoned underground piping in place, plug or cap and fill with flowable control density fill. Remove or cut abandoned underground piping castings a minimum 12 inches below finished surface and area backfilled.
- M. Cut sections of piping to be removed to nearest solid support or provide appropriate new supports and cap remaining ends before backfilling, unless noted on Contract Documents or directed by Engineer.
- N. Cut openings in existing masonry Work to provide for a suitable bond. Clean, square and plumb openings for installation of new Work. Thoroughly clean cut surfaces of loosened materials.

### **3.03 SAWCUTS IN EXISTING PAVEMENTS AND SIDEWALKS**

- A. Neatly saw cut edges of excavations in existing pavements and sidewalks along either a straight line or design curved line as shown in Contract Documents. Ragged, uneven edges are not acceptable.
- B. Saw cut existing pavement through its full depth or to elevation of abutting pavement subgrade, whichever is less, at joints between existing and proposed pavements, and at utility trenches through existing remaining pavement. Provide a uniform, vertical surface for pavement joint with existing pavement.
- C. Neatly saw cut edges that become broken, ragged or undermined with minimum disturbance to remaining pavements or sidewalks, prior to placement of abutting pavement.
- D. In areas where existing concrete sidewalk abuts a building, wall or storefront, and sidewalk is to be reconstructed or removed, saw cut existing sidewalk a minimum of 6 inches from building wall or storefront, unless otherwise directed by Engineer.
- E. Spray or paint saw cut surfaces with a uniform thin coat of Bitumen for Tack Prime Coat, in accordance with Section 32 12 16 Asphalt Paving, immediately before placement of hot mix asphalt material against surface.

### **3.04 REPAIR, REPLACEMENT AND RESTORATION**

- A. Match materials of repair or restoration to existing adjacent surfaces in finish and texture as closely as possible. Make joints between new and existing Work inconspicuous.

- B. Replace or restore items damaged, dislocated or dismantled such as field stone masonry walls, fences, lamp posts, letter boxes, masonry boundary walls, Town signs, poles, bollards, curb stones, markers, trees, bushes, grassed areas, walkways, stairs, steps, benches, outside lighting and other amenities and physical features designated to remain, to original condition.

### **3.05 DISPOSAL OF DEMOLISHED MATERIALS**

- A. Remove from Project Site, debris, rubbish, and other materials resulting from demolition operations. Do not remove from Project Site without prior permission by Owner or Engineer. Store all demolished materials that Owner wishes to retain at location designated by Owner or Engineer.
- B. Burning of removed materials from demolished structures will not be permitted on Site.
- C. Dispose of demolition debris in a lawful manner.
- D. In the event that unanticipated hazardous materials are discovered or suspected, Contractor shall carry out suitable measures to minimize hazards and immediately report conditions to Engineer.

### **3.06 FIELD QUALITY CONTROL**

- A. Provide in accordance with Division 01 General Requirements.

### **3.07 CLOSEOUT ACTIVITIES**

- A. Provide in accordance with Division 01 General Requirements.

**END OF SECTION**

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## SECTION 03 41 26

### PRECAST CONCRETE STRUCTURES

#### PART 1 – GENERAL

##### 1.01 SUMMARY

A. Section Includes

1. Provide all materials, tools, equipment, and labor necessary to manufacture install and test precast concrete and precast concrete structures in accordance with this Section and the applicable reference standards listed in Article 1.03 and as shown on the Drawings.
2. All dimensions shall be field verified prior to fabrication.

##### 1.02 PRICE AND PAYMENT PROCEDURES

- A. Measurement and payment requirements: per Division 01 General Requirements.

##### 1.03 REFERENCES

A. Reference Standards

1. American Association of State Highway and Transportation Officials (AASHTO)
  - a. AASHTO HB-17 Standard Specifications for Highway Bridges
  - b. AASHTO T 111 Standard Method of Test for Mineral Matter or Ash in Asphalt Materials
2. ASTM International (ASTM)
  - a. ASTM A48/A48M Standard Specification for Gray Iron Castings
  - b. ASTM A615/A615M Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
  - c. ASTM A1064/1064M Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
  - d. ASTM C32 Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale)
  - e. ASTM C33/C33M Standard Specification for Concrete Aggregates
  - f. ASTM C144 Standard Specification for Aggregate for Masonry Mortar
  - g. ASTM C150/C150M Standard Specification for Portland Cement

- h. ASTM C207 Standard Specification for Hydrated Lime for Masonry Purposes
  - i. ASTM C260/C260M Standard Specification for Air-Entraining Admixtures for Concrete
  - j. ASTM C478 Standard Specification for Precast Reinforced Concrete Manhole Sections
  - k. ASTM C494/C494M Standard Specification for Chemical Admixtures for Concrete
  - l. ASTM C857 Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures
  - m. ASTM C890 Standard Practice for Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures
  - n. ASTM C990 Standard Specification for Joints for Concrete Pipe, Manholes and Precast Box Sections Using Preformed Flexible Joint Sealants
  - o. ASTM D113 Standard Test Method for Ductility of Bituminous Materials
  - p. ASTM D1227 Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing
  - q. ASTM D217 Standard Test Methods for Cone Penetration of Lubricating Grease
  - r. ASTM D4 Standard Test Method for Bitumen Content
  - s. ASTM D6/D6M Loss on Heating of Oil and Asphaltic Compounds
  - t. ASTM D71 Standard Test Method for Relative Density of Solid Pitch and Asphalt (Displacement Method)
3. Federal Specifications (FED)
- a. FED SS-S-210A Sealing Compound, Preformed Plastic, for Expansion Joints and Pipe Joints

#### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

#### 1.05 SUBMITTALS

- A. Submit in accordance with the Division 01 General Requirements.
- B. Shop Drawings



1. Precast Concrete Structures, including construction details, dimensions, reinforcement, rebar placement, openings, wing walls/head walls, anchoring, etc. Drawings shall show critical field dimensions identified by the Manufacturer and obtained by Contractor. All drawings shall show locations and sizes of penetrations and related appurtenances.
- C. Product Data
1. Provide Manufacturer's descriptive data, technical literature, and catalog cuts. Product data shall also include catalog cut sheets and dimensional data for all precast structures and accessories. Include product data on joint sealants, anchorage hardware and related appurtenances.
  2. Joint Sealant
  3. Any other appurtenant data.
- D. Design Data
1. Structural design calculations sealed by a Professional Engineer registered in the state of the project location, and submitted a minimum of 2 weeks prior to scheduled manufacture. These will be reviewed for consistency with Project intent. The Engineer who seals the calculations and Shop Drawings shall be responsible for the design. Design calculations shall include anti-flotation calculations. Structures shall have a minimum anti-flotation factor of safety of 1.15.
  2. Bouyancy calculations sealed by a licenses engineer in the state where the Project is located, and submitted a minimum of 2 weeks prior to scheduled manufacture. These will be reviewed for consistency with Project intent.
- E. Closeout and Maintenance Material Submittals: per Division 01 General Requirements.

## 1.06 QUALITY ASSURANCE

- A. Provide in accordance with Division 01 General Requirements.
- B. The materials covered by this Specification are intended to be standard materials of proven ability as manufactured by reputable concerns. Materials shall be designed and constructed in accordance with Industry Practice, and shall be installed in accordance with the manufacturer's recommendations. The Specifications call attention to certain features, but do not purport to cover all details entering into the construction of the materials.

## 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Provide in accordance with Division 01 General Requirements.

- B. Products shall be shipped, stored, and handled in a manner consistent with the written recommendations of the manufacturer so as not to degrade quality, serviceability, and/or appearance. Any unit found to be defective, either before or after installation, shall be removed from the Project Site and replaced with a sound unit.

## 1.08 SITE CONDITIONS

- A. Existing Conditions: per Division 01 General Requirements.

## PART 2 – PRODUCTS

### 2.01 PRECAST CONCRETE STRUCTURES

#### A. General

1. All precast structures shall have exterior dimensions as shown on the Drawings.
2. The quality of materials, the process of manufacture and the finished sections shall be subject to inspection by the Engineer.
3. Where required, preformed joint filler shall be glued to the concrete surface by means of an adhesive in accordance with the manufacturer's recommendations. The adhesive shall be in accordance with AASHTO-M220.
4. All areas indicated in the drawings to be grouted shall be made with a non-shrinking, nonmetallic grout. The concrete surface shall be cleaned and roughened; and then shall be kept continuously moist for 24 hours immediately prior to the application of grout to prevent flash setting. Grout shall be kept moist for a period of seven days.

#### B. Precast Concrete

1. Concrete compressive strength shall be 5,000 psi (minimum) after 28 days.
2. Minimum concrete thickness shall be 6 inches.
3. Portland cement shall be Type II conforming to ASTM C150/C150M.
4. Fine aggregate shall consist of natural sand conforming to ASTM C33/C33M.
5. Coarse aggregate shall consist of 1/2-inch maximum, well-graded crushed stone conforming to ASTM C33/C33M.
6. Air entrainment admixture shall conform to ASTM C260/C260M. The air-entrained content shall be not less than 4 percent or greater than 7 percent.

7. A super plasticizer shall be used and shall conform to ASTM C494/C494M Type F. Concrete shall be placed at a slump of between 5 and 8 inches.

C. Reinforcement

1. Wire fabric shall conform to the requirements of ASTM A1064/1064M.
2. Reinforcing bars shall be new billet steel, deformed, conforming to the requirements of ASTM A615/A615M, Grade 60.
3. Minimum clear concrete cover to reinforcement shall be 1-1/2 inches.

D. Design Loads

1. Vehicle Loads
  - a. Except as otherwise specified, the design shall meet the requirements of AASHTO HB-17, including a HL-93 vehicle load.
  - b. A lateral vehicle surcharge load of 125 psf shall be applied.
2. Lateral Pressure
  - a. The equivalent lateral fluid pressure shall be 100 psf/lf below flood or design groundwater elevation, and 60 psf/lf above such elevation. The specified lateral vehicle surcharge load shall be added to this
3. Utility Structures Design Load
  - a. Except where higher loads are specified, utility structures shall be designed for the loads prescribed in ASTM C857.

E. Joints

1. Concrete sections shall be provided with bell and spigot, or tongue-in-groove ends to ensure proper connection of the joints.
2. Each joint shall be sealed with a minimum of two rows of butyl rubber sealant. A compatible primer shall be applied as recommended by the manufacturer. Sealant shall be Conseal CS-102 (CS-202 when the temperature during installation is less than 30 degrees F) by Concrete Sealants, Inc., Kent Seal #2 by Hamilton Kent, Pro-Stik by Press-Seal Gasket Corporation, or approved equal, and shall be applied in accordance with the manufacturer's recommendations. Sealant properties shall be as follows
  - a. Hydrocarbon Blend Content: 50% (Minimum), per ASTM D4
  - b. Inert Mineral Filler: 30% (Minimum) by weight, per AASHTO T 111
  - c. Volatile Matter: 2% (Maximum) by weight, per ASTM D6

- d. Specific Gravity: 1.15-1.50, per ASTM D71
  - e. Ductility: 5.0 (Minimum), per ASTM D 113
  - f. Penetration Cone: 50-100 mm, per ASTM D 217 at 77 °F, 150 gm. 5 Sec.
  - g. FED SS-S-210A: No deterioration, no cracking and no swelling after 30 days immersion in 5% solutions of HCl, H<sub>2</sub>SO<sub>4</sub>, NaOH, KOH, and H<sub>2</sub>S
- F. Finish
- 1. Where noted on the drawings, exposed vertical faces of precast concrete walls shall be finished with an architectural surface treatment reviewed and approved by the Owner.

## 2.02 DAMPPROOFING

- A. Provide a two-coat bituminous damp-proofing (water sealing) system for all precast structures. All exterior coatings shall conform to ASTM D 1227 and ASTM D 1187 standards. Concrete sealants shall be designed for use both above and below grade. Dampproofing shall be Hydrocide 700 Mastic as made by Sonneborn, Karnak 920 Anti Hydro Mastic Emulsion, or approved equal, conforming to ASTM D 1227.

## 2.03 PIPE CONNECTIONS

- A. Pre-molded elastomeric sealed joints shall be used at the joints between the pipe and precast sections. Pre-molded elastomeric sealed joints shall be A-Lok, Res-Seal, Press-Wedge II, Lock Joints Flexible Manhole Sleeve, Kor-N-Seal Joint Sleeve, or equal.

## 2.04 MORTAR

- A. Mortar shall be composed of one part portland cement and 2 parts sand with 20 percent hydrated lime.
- B. Portland cement shall conform to ASTM C150/C150M. Sand shall conform to ASTM C144/C144M. Hydrated lime shall conform to ASTM C207/C207M.

## 2.05 ANCHORAGE HARDWARE

- A. Hardware for fastening the precast structure to fasten precast segments together for buoyancy shall be stainless steel.

## 2.06 SOURCE QUALITY CONTROL

- A. Provide in accordance with Division 01 General Requirements.

## PART 3 – EXECUTION

### 3.01 PRECAST STRUCTURES

1. Precast structures shall be installed as shown on the Drawings. Precast sections shall be installed so that the entire structure is vertically plumb and aligned, and when not so, shall be removed and reset. All erection holes and/or lift pin holds shall be filled solid with non-shrink grout. The Contractor shall furnish and use suitable slings, hooks, and cables for the proper handling of the sections. All anchoring and fastening devices shall be provided by the Manufacturer for the proper and satisfactory installation of the units.
2. The manufacturer shall supply all specific lifting devices for each piece to the successful installation contractor if needed on a temporary basis. The specific lifting devices shall be returned with the manufacturer representative that oversees the installation work for compliance.
3. No cracked, warped, or broken units, or units which, in the opinion of the Owner or Engineer, show defects that might adversely affect the serviceability of the units, shall be used in the work. Defective units shall be removed from the site and shall be replaced by the Manufacturer with new and sound units at no additional expense to the Owner. Any additional costs associated with replacement of units as described in this section shall be the manufacturers responsibility to pay all costs associated with replacement of said units.
4. Joints between precast sections and units shall be made in an approved manner to guarantee a leak-proof, watertight joint. Joint designs incorporating O-rings and cement grout will not be accepted. Joint filler shall be provided as required and joint sealant shall be installed on both the interior and exterior sides of the joints. The joints between all units shall be covered with a preformed sheet membrane, in accordance with Section M9.08.0 of the MHD Standard Specifications.
5. Where patching is permitted by the Owner and Engineer, the patches shall be made using the same material as used in the unit being patched and using a 2-part epoxy compound of a type to produce a proper bonding of the patch to the units.
6. Patching required due to damage during offloading staging or installation shall be responsibility of the Contractor.
7. Patching of imperfections at the plant by the Manufacturer shall require the Owner's and Engineer's approval before the unit is shipped from the manufacturer's plant.
8. The engineer reserves the right to reject any precast sections and the rejected units shall be tagged and removed from the site immediately. The engineer may also require testing of concrete.
9. Packing, Shipping, Handling, and Unloading
  - 1) Provide that each shipment of precast concrete structures includes manufacturers' Certificate of Conformance.

- 2) Inspect upon delivery and reject pipe immediately that does not conform to the specified requirements or has been damaged beyond repair and immediately remove from Site.
10. The manufacturer shall furnish at no additional expense to the Owner, the services of the respective manufacturer's representatives of the precast concrete units, for such lengths of time as may be necessary to properly instruct the Contractor's personnel in the proper handling, installation, and jointing of the precast concrete units in accordance with the printed recommendations of the manufacturer. The manufacturer shall witness the complete installation of the structures and certify they have been installed in accordance with the manufacturer's recommendations for the supplied products and ancillary items.
11. All precast concrete units shall be stored, handled, protected and delivered by the manufacturer to be installed and unloaded by the Contractor. The manufacturer shall be present to verify that all supplied units are installed in accordance with the printed recommendations of the manufacturer and in a manner to prevent overstressing, marring or damaging of the units. The manufacturer shall provide a written affidavit that they witnessed and approved the installation means and methods according to the manufacturer's recommendations.
12. The Contractor shall be responsible for any damage to the existing utilities and properties adjacent to the proposed structures. Such damages shall be repaired by the Contractor to the satisfaction of the Engineer at no additional cost.
13. The precast concrete structures sections shall be shipped, handled, and installed in accordance with the manufacturer's recommendations. Unless otherwise directed by the Engineer, all precast concrete sections shall be installed in bedding material in accordance with the details as shown in the plans and in conformance with these specifications.

### 3.02 APPLICATION OF DAMPPROOFING

- A. Application of dampproofing shall be in accordance with the manufacturer's recommendations.
- B. Application shall not be permitted in spaces exposed to inclement weather or when air temperatures are below 40 degrees F, or are expected to go below 40 degrees F within 24 hours after application. Damp proofing can be applied to "green" or slightly damp surfaces only if permitted by the Manufacturer.
- C. Apply dampproofing at a rate of 4 to 6 gallons per 100 square feet. If applying 2 coats, each coat shall be 2 to 3 gallons per 100 square feet. First coat must be allowed to dry prior to the application of the second coat. Coating must be continuous and free from breaks and pinholes. The coating shall provide a water tight sealing surface.

### 3.03 FIELD QUALITY CONTROL

- A. Provide in accordance with Division 01 General Requirements.

### 3.04 CLOSEOUT ACTIVITIES

- A. Provide in accordance with Division 01 General Requirements.

**END OF SECTION**

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## SECTION 31 00 00

### EARTHWORK

#### PART 1 – GENERAL

##### 1.01 SUMMARY

###### A. Section Includes

1. Excavating, filling, backfilling, stockpiling, bedding, compacting, grading, hauling, disposal of on-Site soils, processing of on-Site soils for reuse, testing of soils, engaging an independent Geotechnical Testing Agency to perform required quality assurance/quality control inspection and testing, protection and other Work necessary for construction of roadways, driveways, sidewalks, curbs, pipelines, utility structures, pavements and appurtenant Work in accordance with this Section and applicable reference standards listed in Article 1.03.

###### B. Related Requirements

1. Section 02 41 14 – Selective Site Demolition and Restoration
2. Section 31 14 13 – Soil Stockpiling
3. Section 31 50 00 – Excavation Support and Protection
4. Section 32 12 16 – Asphalt Paving

##### 1.02 PRICE AND PAYMENT PROCEDURES

- A. Measurement and payment requirements: per Division 01 General Requirements.

##### 1.03 REFERENCES

###### A. Reference Standards

1. MassDOT Standard Specifications and Supplements, except for Compensation sections
2. MassDOT Construction Details
3. ASTM International (ASTM)
  - a. ASTM D698: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft<sup>3</sup> (600 kN-m/m<sup>3</sup>))

- b. ASTM D1556: Density and Unit Weight of Soil in Place by the Sand-Cone Method
  - c. ASTM D1557: Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
  - d. ASTM D6938 Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
  - e. ASTM D2922: Density of Soil and Soil Aggregate in Place by Nuclear Methods (Shallow Depth)
  - f. ASTM D3017 – Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
  - g. ASTM D3740 – Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
  - h. ASTM D6938 – Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
  - i. ASTM D422 – Standard Test Method for Particle-Size Analysis of Soils
  - j. ASTM E329 - Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection
- 4. American Association of State Highway and Transportation Officials (AASHTO)
    - a. AASHTO T11: Standard Specification for Materials Finer Than 75-Micrometer (No. 200) Sieve in Mineral Aggregates by Washing
    - b. AASHTO T 27: Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates
  - 5. Applicable portions of Town of Sudbury Ordinances and Zoning Ordinances.

#### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

#### 1.05 PREINSTALLATION MEETINGS

- A. Review methods and procedures related to earthmoving including, but not limited to, the following:
  - 1. Work hours.

2. Personnel and equipment needed to maintain the proposed construction schedule and avoid delays.
3. Work procedures.
4. Establishing and maintaining Site access.
5. Coordination of Work with utility locator service.
6. Stockpiling area and temporary access points.
7. Site logistics for hauling and stockpiling.
8. Coordination of Work and equipment movement with support of excavation systems installation
9. Construction phasing anticipated daily and weekly progress and conformance to proposed construction schedule.
10. Methodology for field quality control.

## 1.06 SUBMITTALS

- A. Submit in accordance with Division 01 General Requirements.
  1. Product Data.
- B. Qualifications:
  1. For Testing Agency qualified according to ASTM E329 and ASTM D3740 for testing indicated.
- C. Sample Test Reports and Evaluations:
  1. Provide samples of each type of soil or aggregate proposed for use on the project.
    - a. Materials gradations sieve analysis.
    - b. Backfill moisture-density relationships.
    - c. Field compaction testing.
  2. The Engineer will be responsible for the approval or rejection of the suitability of all materials.
- D. Provide copies of material testing reports for each on-site and borrow soil material proposed for fill and backfill as follows:
  1. Classification according to ASTM D 2487.

2. Laboratory compaction curve according to the Modified Proctor Test (ASTM D 1557).
  3. Submit additional material samples every 500 cubic yards or more frequently, throughout the course of the Work, if requested by the Engineer, to evaluate the consistency of the source or process, at no additional cost to the Owner.
  4. Material gradations.
- E. Material Data Documentation: For each on-site and borrow soil material or aggregate as follows:
1. Submit the name of each material supplier and specific type and source of each material. Any change in source throughout the project requires approval of the Owner and Engineer.
  2. Certification stating that the materials are virgin materials from a commercial or non-commercial source.
  3. Bills of Lading to document the source(s) of the materials, including the name of the supplier and relationship to the source, the location where the materials were obtained, including the street, town, lot and block, country and state. Also include present and past usage of the source site.
  4. A statement that to the best of the supplier's knowledge and belief, the material is not contaminated pursuant to any applicable remediation standards and is free of extraneous or solid waste, and a description of the steps taken to confirm such.
  5. Product Weight Shipping Tickets (Certified by Supplier).
- F. Submit daily field reports from the geotechnical testing laboratory documenting all earthwork activity and field-testing for each day. The field reports shall include as a minimum the following:
1. A description of the day's activities.
  2. The results of in-place density testing including in-place dry density, moisture content, percent compaction, elevation of test and a description of the soil.
  3. A sketch indicating the extent of each day's work and the location of testing.
- G. Contractor is to provide daily records of Over-excavated volumes including:
1. Beginning and End Station of Over-Excavation.

2. Proposed elevation of subgrade.
3. Actual elevation of subgrade.
4. Calculated volume of Additional Excavation in Bank Cubic Yards (BCY).

## 1.07 QUALITY ASSURANCE

- A. Provide in accordance with Division 01 General Requirements.
- B. The Contractor shall retain and pay for the services of an independent testing and inspection agency and/or Geotechnical Consultant to perform on-site observation and testing during the various phases of the construction operations. The scope of services shall align to the requirements identified by the contract and the independent testing and inspection agency and/or Geotechnical Consultant and will be approved by the Owner or their representative. The services of an independent testing and inspection agency and/or Geotechnical Consultant may include, but not necessarily be limited to, the following:
  1. Observation during excavation and dewatering of areas and controlled fill areas.
  2. Laboratory testing and analysis of fill materials as specified herein and proposed by the Contractor for incorporation into the Work.
  3. Observation of construction and performance of water content, gradation and compaction tests at a frequency and locations that the independent testing and inspection agency and/or Geotechnical Consultant may require.
    - a. The results of these tests will be submitted to the Owner, Engineer, and Contractor on a timely basis so that action can be taken to remedy indicated deficiencies.
    - b. During the course of construction, the independent testing and inspection agency and/or Geotechnical Consultant will advise the Owner in writing, if at any time in their opinion, the Work hereunder is of unacceptable quality. Failure of the independent testing and inspection agency and/or Geotechnical Consultant to give notice, shall not excuse the Contractor from latent defects discovered in his work.
- C. The Contractor shall make provisions for allowing observations and testing of Contractor's work by the independent testing and inspection agency and/or Geotechnical Consultant.
  1. The presence of the independent testing and inspection agency and/or Geotechnical Consultant does not include supervision or direction of the actual work of the Contractor, and his employees or agents. Neither the

presence of the independent testing and inspection agency and/or Geotechnical Consultant, nor any observations and testing performed by them, nor failure to give notice of defects shall excuse the Contractor from defects discovered in his work.

- D. Costs related to retesting due to unacceptable qualities of work and failures discovered by testing shall be paid for by the Contractor at no additional expense to Owner.
- E. The geotechnical testing agency chosen to monitor the earthwork should be qualified according to ASTM E 329 and ASTM D 3740 for testing indicated.
- F. Prior to start of earthwork the Contractor shall arrange an on-site meeting with the Engineer, the Owner's Representative, the independent testing firm, and/or the Geotechnical Consultant for the purpose of establishing the Contractor's schedule of operations and scheduling observation and testing procedures and requirements.
- G. As construction proceeds, the Contractor shall be responsible for notifying the Owner, Engineer, independent testing and inspection agency and/or Geotechnical Consultant prior to the start of earthwork operations requiring observation and/or testing.

## 1.08 DELIVERY, STORAGE, AND HANDLING

- A. Provide in accordance with Division 01 General Requirements.
- B. Waste Management and Disposal
  - 1. Legally dispose of excess or unsuitable material at no additional cost to Owner.

## 1.09 SITE CONDITIONS

- A. Existing Conditions: per Division 01 General Requirements.
- B. Before bidding the Work, the Contractor shall perform a site visit to assess the site, equipment access conditions, potential interferences with intended equipment, and location of existing structures and materials.
- C. The Contractor shall notify the Engineer of unexpected subsurface conditions and discontinue Work in area until notified by Engineer.
- D. The Contractor shall verify that subsurface utilities have been marked prior to performing excavation or earthwork and shall provide sufficient notification to the local Dig Safe agency.

## PART 2 – PRODUCTS

### 2.01 MATERIALS

#### A. General

1. Suitable materials: As shown on the Contract Documents, as directed by the Engineer, or as specified below.
2. Unsuitable materials: Very soft or soft clay or silt, organic clays or silts, peats, debris, concrete, pavement, stones or boulders over 6 inches in greatest dimension, wet or frozen material, and material, which in the opinion of the Owner or Engineer, will not provide a suitable foundation or structural support for the pipe and associated structures, and is unsuitable for use in backfill.
3. On-Site Material: Any suitable material from on-site preparation/excavation. Supply additional material as required to completely backfill trenches and other areas as shown on the Drawing, the Contract Documents, or as directed by the Engineer. Utilize existing onsite material with the matching gradation for site work as shown on the drawings, the Contract Documents, or as directed by the Engineer.
4. Owner reserves the right to inspect off Site sources of materials and order tests of these materials to verify compliance with these Specifications. The Contractor shall provide the location of off Site sources and access to off Site sources whenever requested by Owner.

- B. Crushed Stone (Pipe and Structure Bedding/ Surface Treatment): 3/4 inch sized; durable, clean angular rock fragments obtained by breaking and crushing rock material meeting MassDOT M2.01.4 criteria, free of ice, snow, sand, silt, clay, loam, shale, or other deleterious matter. Where required by Engineer, sand shall be used in lieu of crushed stone for pipe bedding. Sieve analysis by weight:

Sieve Size	Percent Passing by Weight
1-inch	100
3/4-inch	90-100
1/2-inch	10- 50
3/8-inch	0- 20

- C. Crushed Stone: 1 1/4 inch sized; durable, clean angular rock fragments obtained by breaking and crushing rock material meeting MassDOT M2.01. criteria, free of ice, snow, sand, silt, clay, loam, shale, or other deleterious matter. Where required by Engineer, sand shall be used in lieu of crushed stone for pipe bedding. Sieve analysis by weight:

Sieve Size	Percent Passing by Weight
1 1/2-inch	100
1 1/4-inch	85-100
3/4-inch	10-40
1/2-inch	0-8

- D. Sand: clean inert, hard, durable grains of quartz or other hard durable rock, free from loam or clay, surface coatings and deleterious materials. Sieve analysis by weight:

Sieve Size	Percent Passing by Weight
3/8-inch	100
#4	95-100
#16	50-85
#50	10-30
#100	2-10
#200	0-3

- E. Suitable Backfill: well-graded granular material. Retain at least 25 percent by weight on #4 sieve and contain less than 10 percent finer than a #200 sieve by weight, predominantly free from organic matter, man-made materials, ice, snow or other deleterious material and have characteristics so it can be readily placed and compacted. Stones maximum 3 inches in diameter. Place 6 inches above the crown of the pipe and around structures 6 inches above the crown of the highest pipe and up to the underside of the pavement section. Excavated material from on-Site sources meeting these Specifications may be used for suitable backfill.



- F. Gravel Borrow (Trench Backfill): Consisting of inert material that is hard, durable stone and coarse sand, free from loam and clay, surface coatings, deleterious material and conforming to Division III, subsection M1.03.0, Type b of MassDOT Standard Specifications for Highways and Bridges and Supplements. Gradation requirements shall be determined by AASHTO-T11 and T27. Sieve analysis by weight:

Sieve Size	Percent Passing by Weight
1/2 inch	50-85
#4	40-75
#50	8-28
#200	0-10

Type a: maximum stone size = 6-inches in largest dimension  
 Type b: maximum stone size = 3-inches in largest dimension

- G. Process Gravel for Sub-base: processed gravel for backfill per MassDOT section M1.03.1, consisting of hard, durable stone and coarse sand inert material, free from loam and clay, surface coatings and deleterious materials. Coarse aggregate percentage of wear: maximum 50 by ASTM C131 and AASHTO T 96. Sieve analysis by weight:

Sieve Size	Percent Passing by Weight
3 inch	100
1-1/2 inch	70-100
3/4 inch	50-85
#4	30-60
#200	0-10

- H. Dense Graded Crushed Stone: crusher-run coarse aggregates of crushed stone and fine aggregates of natural sand or stone screenings uniformly pre-mixed with a predetermined quantity of water per MassDOT M2.01.7. Sieve analysis by weight:

Sieve Size	Percent Passing by Weight
2 inch	100
1 1/2 inch	70-100
3/4 inch	50-85
#4	30-55
#50	8-24
#200	3-10

- I. Compacted Structural Fill: suitable bank run sand and gravel, free of clay, organic material, snow, ice, or other unsuitable materials, well-graded. Sieve analysis by weight:

Sieve Designation	Percent Passing by Weight
3 inch	100
#4	30-90
#40	10-50
#200	0-8

- J. Unsuitable Material Refill Material: Use 1 ¼-inch crushed stone for refilling excavation below grade or rock excavation unless otherwise directed by the Engineer.

- K. Common Fill: friable material and no objects greater than 6 inches in diameter, no more than 10 percent by weight finer than No. 200 sieve, and free from ice and snow, roots, sod, rubbish and other deleterious or organic matter. Excavated material from on-site sources which meet these Specifications may be used for Common Fill.

- L. Controlled Density Fill (CDF) (Flowable Fill): excavatable and used to limit settlement, lateral movement, undermining, washout and other hazards created by earthwork operation as shown on the Drawings and when excavating around structures, utilities, sidewalks, pavements, and other facilities. Batch CDF at concrete plant.

1. Portland Cement: AASHTO M85.
2. Fly Ash: AASHTO M4.05.02.
3. Sand: M4.02.02 of MassDOT Standard Specifications and Supplements.
4. Water: M4.02.04 of MassDOT Standard Specifications and Supplements.
5. Air Entraining Admixture: M4.02.05 of MassDOT Standard Specifications and Supplements.
6. Compressive Strength: 28 day = 30-80 psi, 90 day = 100 psi
7. Slump: 10 - 12 inches

- M. Angular stone: sound, durable rock that will not disintegrate due to exposure to water or weather, angular in shape such as rough, unhewn quarry stone or fragments obtained by blasting, breaking or crushing natural rock. Do not use rounded boulders or cobbles; flat, platy stones; shale or slate rock with its largest length dimension 3 times greater than its shortest dimension.

- N. Angular stone gradation: stone size corresponding to inch dimension indicated on Drawings. D<sub>50</sub> stone size represents 50 percent of stone passing D<sub>50</sub> dimension sieve screen. D<sub>20</sub> stone size, 20 percent passing: 1/2 D<sub>50</sub> dimension. Maximum size limit: D<sub>100</sub>: twice the D<sub>50</sub> stone size dimension.
- O. Embedment Material:
  - 1. Furnish a mixture of soil, gravel, and cobble to simulate a natural streambed. The cobbles should be hard, durable rock that is resistant to weathering and water action, free of organic or other unsuitable material, similar in color to those in the area.

Sieve Size	Stream Bed Material Percent Passing by Weight
12 inch	90-100
6 inch	79-89
3 inch	45-55
2 inch	29-39
#4	4-14

## 2.02 SHORING AND BRACING MATERIALS

- A. Provide suitable shoring and bracing materials to support loads imposed. Materials may be used and in serviceable condition and are subject to inspection and approval of the Engineer once delivered to the Site.

## 2.03 SOURCE QUALITY CONTROL

- A. Provide in accordance with Division 01 General Requirements.

## PART 3 – EXECUTION

### 3.01 EXAMINATION

- A. Verification of Conditions
  - 1. Check and verify governing dimensions and elevations before starting Work. Survey condition of adjoining properties with Engineer. Take digital video recording of any prior settlement or cracking of structures, pavements and other improvements. Provide list of damages, verified and signed by Contractor and Engineer.
  - 2. Coordinate survey. Establish exact elevations at fixed points to act as benchmarks. Identify benchmarks and record existing elevations. Locate

datum level used to establish benchmark elevations so it will not be affected by excavation operations.

### 3.02 FIELD QUALITY CONTROL

- A. Provide in accordance with Division 01 General Requirements.
- B. Owner may engage a qualified special inspector to perform the following special inspections in addition to the Contractor's independent testing.
  - 1. Confirm specified fill and backfill are used.
  - 2. Confirm preparation of Site.
  - 3. Observe removal of existing unsuitable foundation materials from footing and slab areas and confirm character of material encountered at bearing levels.
  - 4. Confirm compliance of fill material and maximum lift thickness.
  - 5. Confirm compliance of in-place density of compacted fill with required frequency.
  - 6. Observe preparation of footing bearing surfaces.
  - 7. Confirm suitability of excavated soils for reuse as fill, including reuse of on-Site soils as common fill.
- C. Perform at least 1 test of each soil stratum at foundation subgrades to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on visual comparison of subgrade with tested subgrade when approved.
- D. Engage an independent testing agency to test compaction of soils in place in accordance with ASTM D1556, ASTM D2167, ASTM D2922, and ASTM D2937.
  - 1. Tests
    - a. Paved and structure areas: at subgrade and each compacted fill and backfill layer, at least 1 test for every 2000 square feet or less of paved area or concrete slab, with minimum 3 tests.
    - b. Foundation walls backfill: at each compacted backfill layer, at least 1 test for every 100 feet or less of wall length, with minimum 2 tests.

- c. Trench backfill: at each compacted initial and final backfill layer, at least 1 test for every 150 feet less of trench length, with minimum 2 tests.
2. Scarify and moisten or aerate, or remove and replace soil materials to depth required when testing agency reports subgrades, fills, or backfills have not achieved degree of compaction specified. Re-compact and re-test until specified compaction is obtained.
3. Determine actual in-place densities using field tests as directed.
4. Perform additional Work to obtain proper compaction if in-place densities do not meet specified densities. Retest if directed by Engineer.
5. Tests for Pipe Backfill
  - a. Suitable backfill: compact backfill in maximum loose lifts per table above. Conduct 1 field density test every 50 linear feet for each lift for utility lines.
  - b. Pavement sub-base: minimum 1 field density test of sub base for every 50 linear feet of paved area.

### **3.03 PROTECTION**

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth moving operations.

### **3.04 EROSION CONTROL**

- A. Provide in accordance with Division 01 General Requirements.

### **3.05 SHORING AND BRACING**

- A. Provide shoring and bracing in accordance with Section 31 50 00 Excavation Support and Protection.

### **3.06 DEWATERING**

- B. Provide in accordance with Division 01 General Requirements.

### **3.07 SUBGRADE PREPARATION**

- A. Insulate subgrades from freezing temperatures and frost. Remove temporary protection before placing subsequent materials. Provide protective insulating

materials to protect subgrades and foundation soils against freezing temperatures or frost.

- B. Prevent surface water and groundwater from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- C. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
  - 1. Prevent or control surface water flow into excavations, or water accumulation in excavations, to ensure that the bottoms and sides of excavations remain firm and stable throughout construction operations.
  - 2. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
  - 3. Water from excavations shall be recharged on site in such manner as will not cause injury to public health, public and private property, existing work, work to be completed or in progress, roads, walks, and streets, or cause any interference with use of same by public. Concrete or fill shall not be placed in excavations containing free water.
  - 4. Construction will require excavation below water level in soil. The Contractor shall complete this work in-the-dry to maintain the undisturbed condition of the bearing soil.
  - 5. Care shall be taken to avoid disturbance to subgrades.
  - 6. Provide a firm, smooth, stable, undisturbed subgrade as judged by the Engineer. Loose, disturbed soil shall be removed by hand shovel.
  - 7. Subgrades consisting of cohesive soils shall not be back bladed or compacted to prepare a smooth surface.
  - 8. Subgrades consisting of granular soils shall be re-compacted with at least four passes of hand-guided vibratory plate or vibratory roller compaction equipment.
  - 9. Movement of construction equipment directly over exposed final subgrades, except for compaction equipment, is not permitted.
  - 10. The exposed subgrade will be examined in the field by the Engineer to observe the strength and bearing capacity of the soils. Disturbed, soft, or unstable soils, as judged by the Engineer, shall be excavated and replaced with lean concrete, granular fill, or other acceptable materials at no additional cost to the Owner.

11. Prevent soil subgrades from freezing and frost. Soil subgrades that freeze prior to concrete or backfill placement shall be thawed and re-compacted, or removed and replaced with non-frozen backfill, lean concrete or other acceptable material as directed by the Engineer.
12. Excavations shall not undermine existing foundations, streets, sidewalks, or structures.

### 3.08 EXCAVATION

- A. Remove materials encountered to the limits shown on the Drawings, designated in the Specifications or as required by the Owner.
  1. Do not perform excavation below normal grade to remove and replace unsuitable materials until approved by the Engineer.
  2. Do not perform excavation of rock, boulder or unsuitable materials until material to be excavated has been cross-sectioned and classified by Engineer.
- B. Earth Excavation: removal and disposal of pavements, curbing and other obstructions visible on ground surface, underground structures and utilities indicated to be demolished and removed, and other materials encountered that are not classified as rock excavation or unauthorized excavation. Legally dispose of surplus materials resulting from excavation and not needed for use on the Project, as determined by the Engineer. Obtain necessary permits for legal disposal of surplus material.
- C. Unauthorized Excavation: removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Engineer. Unauthorized excavation, as well as remedial work directed by Engineer including refilling, is at no additional cost to Owner.
  1. Refilling Unauthorized Excavation
    - a. Trenches: Use 3/4-inch crushed stone and stabilization fabric as a separator material, if necessary, as directed by Engineer.
    - b. Elsewhere: Backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Engineer.
- D. Excavation Below Normal Grade: When excavation has reached required subgrade elevations, notify Engineer who will make an inspection of conditions. If unsuitable bearing materials, as defined in Paragraph 2.01 above, are encountered at required subgrade elevations, carry excavations deeper as directed by Engineer and replace excavated material with crushed stone or as directed by the Engineer.

- E. Excavation Above Normal Grade: If unsuitable materials, as defined in Paragraph 2.01 above, are encountered above normal grade, remove the unsuitable material and dispose of and do not use as backfill on any portion of the Project, unless otherwise approved by the Engineer. Use suitable stockpiled material approved by the Engineer, to replace the unsuitable material to backfill the trench to the dimensions for pipe and structure bedding and backfill as shown on the Drawings, the Contract Documents, or as directed by the Engineer. If suitable stockpile material is not sufficient to backfill the trench to required dimensions, use gravel borrow to complete the trench backfill to the elevation shown for pipe and structure backfill. Furnish and install stockpiled material and gravel borrow at no additional cost to Owner.
- F. Site Clearing
  - 1. Provide site clearing in accordance with Section 31 10 00 Site Clearing.
- G. Material Storage
  - 1. Provide material storage in accordance with Section 31 14 13.16 Soil Stockpiling.
- H. Contractor is to obtain any required trench or excavation permits as applicable.

### **3.09 EXCAVATION IN ASPHALT PAVEMENT AREAS**

- A. Saw cut or mill to full depth through existing pavement prior to any excavation for pipe or structure placement. Minimize disturbance of remaining pavement. Cut and remove the minimum amount of pavement required to do the Work.
- B. Use shoring and bracing where sides of excavation will not stand without undermining pavement.
- C. Keep material and soil stockpiles a minimum 10 feet back from the edge of excavation, or in accordance with the approved support of excavation design, to avoid overloading of the sides of excavation and prevent slides or cave-ins.
- D. Remove and legally dispose of existing pavements in the course of the Work. Take care to avoid mixing existing pavement material with excavation material to be used for backfill.

### **3.10 EXCAVATION FOR TRENCHES**

- A. Excavate to widths shown on the Drawings, the Contract Documents, or as directed by the Engineer.
- B. Produce an evenly graded flat trench bottom at the subgrade elevation required for installation of pipe and bedding material.



- C. Load excavated material directly into trucks unless otherwise permitted by the Engineer.
- D. Place backfill material directly into trench or excavation. Do not stockpile material to be used as backfill in traffic areas.

### 3.11 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
  - 1. Excavations for Footings, Foundations, and Underground Tanks: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
  - 2. Excavation to final subgrade level shall not take place until the geotextile and Compacted Structural Fill and/or crushed stone layer can be placed immediately following with no undue delay that might result in softening or deterioration of the formation. Where this is not the case, a minimum depth of 3 feet overlying the final subgrade level shall be left in place.
  - 3. No trafficking on the final subgrade or upper surface of the crushed stone layer shall be permitted without prior placement of a sacrificial haulage layer (details to be agreed with the Engineer).
- B. Approval of Subgrade:
  - 1. Notify Engineer when excavations have reached required subgrade. Unless otherwise agreed with the Engineer, remove the last 6" just before inspection.
  - 2. Clear subgrade of all soft, spongy or other material unsuitable for founding. If independent inspection and testing agency and/or Geotechnical Consultant determines that unsatisfactory soil is present, continue excavation and replace with Compacted Structural Fill as directed.
  - 3. The finished subgrade shall be within the following tolerance: +0 / -1" (25mm)
  - 4. The subgrade shall be sealed and protected from degradation that might result from frost, rainfall and/or trafficking.
  - 5. Following excavation to foundation bearing levels in the natural soils, the exposed surfaces should be recompacted prior to placing Compacted

Structural Fill or constructing foundations with a minimum of four passes with a double-drum vibratory roller compactor such as a Bomag BW-60S or other equipment approved by the geotechnical engineer. If, in the opinion of the geotechnical engineer, re-compaction will be detrimental to the integrity of the subgrade soils, the requirement should be waived. Do not proof-roll wet or saturated subgrades.

6. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities where these affect the final subgrade.
  7. Unless otherwise instructed seal formations within 4 hours of inspection with specified geotextile and Compacted Structural Fill and/or crushed stone fill.
  8. Install geotextiles in accordance with Section 31 32 19.16.
  9. Measures shall be taken by the Contractor to protect formations from loosening either by trafficking or resulting from the high groundwater table.
- C. Monitoring of geotechnical instrumentation against predefined target performance values is a key component of the construction methodology and the Contractor must make due allowance for working with and responding to the results of the construction monitoring.

### **3.12 PROCESSING OF ON-SITE URBAN FILL USED FOR BACKFILL**

- A. Excavation: Excavate Urban Fill where encountered in the Work indicated in the Contract Documents to designated depths and stockpile until processed.
- B. Screening: Pass on-site cohesionless soils excavated from trench through a mechanical screen to remove all particles larger than 3 in.
- C. Processed Urban Fill to be reused to contain a maximum of 5% by dry weight of roots, plants, sod, clay lumps, or other cohesive soils.

### **3.13 ROCK REMOVAL**

- A. General
  1. Notify Engineer immediately of change in classification. Should bedrock be encountered above the trench bottom grade or above the subgrade elevation, expose the bedrock surface to allow the Engineer to perform the necessary elevation survey and take cross-sectional measurements.
  2. Perform Rock Excavation by mechanical methods only. Do not blast.

3. Remove or partially remove boulders exposed on the sides of or in the bottom of excavations as directed by the Engineer. Remove boulders to not less than 2 feet outside structure walls, not less than 12 inches outside footings, not less than 6 inches below underslab subgrade, not less than the lateral trench width payment lines indicated, and not less than 12 inches below the underside of pipes. CONFIRM THIS DOES NOT CONFLICT WITH 3.04.D.1 Depressions resulting from the removal of boulders and rock shall be refilled with approved compacted bedding.
4. Remove and dispose of unused rock and boulders off-site.
5. Remove, transport and legally dispose of all residual solids encountered to the limits shown on the Drawings, or designated in the Specifications, or as needed to complete the project, in a method approved by Local, State and Federal regulatory agencies.

### 3.14 BACKFILL AND FILL

#### A. General

1. The contractor shall exercise care when operating equipment adjacent to existing structures so as not to cause damage or displacement. If the contractor's placement and compaction operations result in damage to the structures or track, the contractor shall be required to repair all damage at no additional cost to the Owner.
2. Contractor operations shall be suspended whenever weather conditions are unsatisfactory for placing backfill, or otherwise determined by the Engineer.
3. After occurrence of precipitation, do not operate equipment on previously placed material or an approved excavation until material has dried sufficiently.
4. When excavations or previously placed material have been softened or eroded, all soft and yielding material or other unsuitable or damaged areas shall be removed and replaced with compacted backfill as specified, at no additional cost to the owner.
5. Do not backfill excavations and trenches until new utilities and structures have been inspected and, if required, tested satisfactorily for conformance with the Drawings and Specifications unless directed otherwise by the Engineer. Place acceptable soil material in layers to required elevations as shown on the Drawings or as specified or as directed by the Engineer. Fill, backfill, and compact in accordance with this Section to produce minimum subsequent settlement of the material and provide adequate support for the surface treatment or structure to be placed on the material. Place material in approximately horizontal layers beginning at lowest area

to be filled. Do not impair drainage. Replace fill that becomes frozen or saturated in stockpiles with suitable off-site fill at no additional cost to Owner.

- B. Any excess excavated on-site soils shall not be suitable for reuse as Compacted Structural Fill below foundations.
- C. Ground Surface Preparation
  - 1. Remove asphalt and concrete pavements, granular base course, existing sandy and gravelly fills, existing organic silty/clay soils, organic peat, vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface to excavation subgrade prior to placement of fills.
  - 2. When existing ground surface has a density less than that specified under Article 3.08 Compaction, for particular area classification, break up ground surface, pulverize, moisture-condition to optimum moisture content, and compact to required depth and percentage of maximum density.
- D. Placement
  - 1. Place backfill and fill materials in layers not more than 6 inches in loose depth for material compacted by heavy compaction equipment or hand-operated tampers. Do not place backfill or fill material on surfaces that are muddy, frozen, or contain frost or ice.
  - 2. Place backfill and fill materials evenly adjacent to structures, to required elevations. Take care to prevent wedging action of backfill against structures by carrying material uniformly around structure to approximately same elevation in each lift.
  - 3. Do not allow heavy machinery within 5 feet of structure during backfilling and compacting.
- E. Backfilling Excavations
  - 1. Backfill excavations promptly as Work permits, but not until completion of the following:
    - a. Inspection and recording locations of underground utilities and structures
    - b. Removal of concrete formwork
    - c. Removal of shoring and bracing, and backfilling of voids with satisfactory materials
    - d. Removal of trash and debris

2. Use care in backfilling to avoid damage or displacement of underground structures and pipe.
3. Backfill under existing utility pipes crossed by new utility pipes with CDF. The CDF will extend continuously from the bedding of the new pipe to the utility pipe crossed, including a 6-inch-thick envelope of CDF around the existing utility pipes.
4. Backfill with CDF when clearance between proposed structure and existing structure is 18 inches or less and sufficient clearance is not provided to obtain suitable compaction, in the opinion of the Engineer.
5. Backfill with CDF for trenches within impervious surfaces with pipes containing less than 3 feet of cover.
6. Provide that 3/4 inch crushed stone backfill stands at its own angle of repose. "Haunching" or "forming" with common fill is not allowed.

F. Backfilling Trenches

1. See Trench Detail on the Drawings.
2. Place pipe and structure bedding and gravel bedding to the extent and dimensions shown on the Drawings, the Contract Documents, or as directed by the Engineer so that the pipes and structures have complete and uniform bearing.
3. Grade, compact and shape pipe and structure bedding so that the full length of pipe barrel has complete and uniform bearing. Dig bell holes and depressions for joints after the bedding has been graded and compacted, at proper clearance for jointing the pipes.
4. Following inspection and approval of pipe installation by Engineer, carefully hand place and properly compact additional approved bedding to the limits shown on the Drawings, the Contract Documents, or as directed by the Engineer. Hand or mechanical tamping on the sides of the pipe.
5. Place 6 inches of suitable backfill not frozen and without stones larger than 3 inches in the greatest dimension in trenches above the crown of pipe as approved. Spread in layers not exceeding 6 inches in loose thickness and compact each layer by at least 4 passes with an approved vibratory compactor. See Article 3.08 Compaction for compaction types and standards. Carefully place trench backfilling to avoid disturbance of new Work and of existing structures. Adjust moisture content of backfill to allow for proper compaction.
6. Bed pipe in pipe and structure bedding, 3/4-inch crushed stone except where otherwise indicated. Limits of bedding and requirements for

remaining trench backfill are shown on the Drawings, the Contract Documents, or as directed by the Engineer.

7. Trenches in cross-country runs: Restore surface to that existing prior to construction, as shown on the Drawings, or required by the Engineer. Mound trench 6 inches above existing grade or as required by the Engineer.

G. Earthen Embankment Fill

1. Strip all organic topsoil, trees, shrubs, roots of other vegetation from along the length and breadth of all areas which are to have fill material placed on top. Fill depressions left by grubbing and stripping with material of the same type and compacted to a density at least equal to that of the surrounding foundation material.
2. If independent inspection and testing agency and/or Engineer determines that unsuitable soil is present, continue excavation and replace with compacted fill material as directed.
3. Proof roll all subgrades as directed by the Engineer prior to placement of fill. Excavate soft areas and replace with appropriate compacted fill.
4. Do not place embankment over porous, wet, frozen, or spongy subgrade or previous embankment surfaces. In the event these conditions occur, excavate and remove the unsuitable material prior to placing more fill.
5. Dewater to maintain groundwater levels a minimum of 1 foot below bottom of excavations and/or subgrades. Place all fill "in-the-dry."
6. Bench all existing slopes prior to placing horizontal fill layers on existing slopes of greater than 6H to 1V.
7. Place materials in continuous horizontal layers not exceeding 8 inch loose lift thickness.
8. Compact all soil materials to a minimum 95 percent of the maximum dry density as determined by ASTM Test D-1557, with a water content plus/minus 2 percent) of optimum moisture content. If wet fill cannot be adequately compacted, remove and replace with drier fill.
9. Dice, harrow or otherwise dry any fill that is too wet for proper compaction to a proper moisture content for compaction to the required density. Remove and replace fill material that cannot be dried within 48 hours of placement with drier fill.
10. Uniformly water fill that is too dry for proper compaction with sufficient water to allow compaction to the required density.

11. Compact to meet the above stated density criteria, but at minimum make four passes with an approved compactor. Make additional passes as necessary to achieve a degree of compaction of at least 95 percent.
12. Compact impervious and semi pervious materials (more than 15 percent passing the #200 sieve) with a tamping (sheep-foot) roller or a rubber-tired roller. In the event that compaction results in a smooth surface on top of the lift, that surface is to be scarified before the placement of the next lift.
13. Compact pervious materials (sands, gravels, and stone materials) by means of self-propelled vibratory rollers. In confined areas, use hand-guided equipment such as a large vibratory plate compactor. Do not exceed lift thickness of 6 inches.
14. Remove and replace fill which becomes disturbed after compaction as a result of the Contractor's operations and re-compact to the specified degree of compaction at the Contractor's expense.
15. Place and compact soil material on the embankment in a direction parallel the top of the embankment.

### 3.15 COMPACTION

- A. Use methods which produce the required degree of compaction throughout the entire depth of material placed without damage to new or existing facilities and which are approved by the Engineer. Adjust moisture content of soil as required. Remove and replace material which is too wet to compact to required density. Compact each layer as Work progresses.
- B. Compacted Structural Fill for support of footings and foundations, and against below grade walls shall be placed in loose lift thicknesses not exceeding 10 inches and should be compacted to a dry density of at least 95 percent of the maximum dry density as determined in accordance with ASTM Test Designation D1557.
- C. Compaction equipment in open areas for backfill placed shall consist of self-propelled vibratory rollers. In confined areas, hand-guided equipment such as a large vibratory plate compactor shall be used and the loose lift thicknesses shall not exceed 6 inches.
- D. A minimum of four (4) systematic passes of the specified compaction equipment shall be used to compact each lift.
- E. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

Compaction Method	Maximum Stone Size	Maximum Loose Lift Thickness		Minimum Number of Passes	
		Below Pavement	Less Critical Areas	Below Pavement	Less Critical Areas
Hand-operated vibratory plate or light roller in confined areas	4 inches	6 inches	8	4	4
Hand-operated vibratory drum rollers weighing at least 1,000 lbs. in confined areas	6 inches	10 inches	12 inches	4	4
Light vibratory drum roller min. weight at drum 5,000 lbs., min. dynapac force 10,000 lbs.	8 inches	6 inches	18 inches	4	4
Medium vibratory drum roller min. weight at drum 10,000 lbs., min. dynapac force 20,000 lbs.	8 inches	6 inches	24 inches	6	6

F. Degree of Compaction (minimum densities):

Fill and Backfill Location	Density
Top 3 feet under pavement grade	95% of max.
Below slabs and foundations	95% of max.
Below top 3 feet under pavement grade	92% of max.
Pipe Bedding	92% of max.
Beside structure foundation walls	95% of max.
Maximum density:	ASTM D698, modified
Field density tests	ASTM D1556 (sand cone) or ASTM D6938 (nuclear methods)

Note: Fill that is too wet for proper compaction shall be disked, harrowed, or otherwise dried to proper moisture content for compaction to the required density. If the fill material cannot be dried within 48 hours of placement, remove and replace with drier fill.

G. Field Quality Control

1. Provide in accordance with Division 01 General Requirements.
2. Special Inspections: The contractor will engage a qualified special inspector to perform the following special inspections:



- a. Confirm that soils used as fill and backfill are in accordance with the contract requirements.
  - b. Determine prior to placement of fill that site has been prepared in compliance with requirements.
  - c. Observe removal of existing unsuitable foundation materials from footing and slab areas and confirm the character of the material encountered at the bearing levels.
  - d. Determine that fill material and maximum lift thickness comply with requirements.
  - e. Determine, at the required frequency, that in-place density of compacted fill complies with requirements.
  - f. Observe preparation of footing bearing surfaces.
  - g. Make judgments on the suitability of excavated soils for reuse as fill, especially the reuse of onsite soils as Common Fill.
3. Foundation Subgrade: At foundation subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.
  4. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
    - a. Paved Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. (186 sq. m) or less of paved area, but in no case fewer than three tests.
    - b. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 150 feet (46 m) less of trench length, but no fewer than two tests.
  5. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.
  6. Testing
    - a. Determine actual in place densities using field tests as directed by the Engineer and in accordance with Division 01 General Requirements.

- b. Perform additional Work to obtain proper compaction if in-place densities do not meet the specified densities. Retesting may be required by the Engineer.
- 7. Minimum Number of Tests for Pipe Backfill
  - a. Suitable Backfill: Compact backfill in maximum loose lifts per table above. For each lift make one field density test every 50 linear feet for utility lines.
  - b. Pavement Sub base: Make at least one field density test of sub base for every 50 linear feet of paved area.

### 3.16 GRADING

- A. Uniformly grade areas within limits of grading under this section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.
- B. Grade areas adjacent to structure lines to drain away from structures and to prevent ponding.
- C. Finish surfaces: free from irregular surface changes and as follows.
  - 1. Lawn or Other Unpaved Areas: Finish areas to receive topsoil to within not more than 0.10 feet above or below required subgrade elevations.
  - 2. Pavements: Shape surface of areas under pavement to line, grade and cross-section, with finish surface not more than plus or minus 1 inch above or below required subgrade elevation.
- D. Compaction: After grading, compact subgrade surfaces to the percentage of maximum density for each area classification.

### 3.17 RIP RAP (not used)

### 3.18 MAINTENANCE

- A. Protect newly graded areas from traffic and erosion. Keep free of trash and debris. Repair and re-establish grades in settled, eroded, and rutted areas to specified tolerances.
- B. Where completed compacted areas are disturbed by subsequent construction operations or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction. Immediately repair any subsequent settling and provide such maintenance for the remainder of the Contract at no additional expense to the Owner.
- C. Prior to paving upon the sub-grade, remove soft or unsuitable material and replace

with suitable backfill material. Bring low sections, holes, or depressions to the required grade with approved material. Shape entire sub-grade to line, grade, and cross section and thoroughly compact.

- D. Provide erosion control measures in accordance with Laws and Regulations and in accordance with Division 01. Keep roads free of debris. Use suitable watertight vehicles for hauling wet materials over roads and streets. Clean up materials dropped from or spread by vehicles promptly or when directed by the Engineer.

### **3.19 DISPOSAL OF EXCESS MATERIALS**

- A. Legally dispose of excess or unsuitable material at no additional cost to Owner.

### **3.20 CLOSEOUT ACTIVITIES**

- A. Provide in accordance with Division 01 General Requirements.

**END OF SECTION**

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## SECTION 31 14 13

### SOIL STOCKPILING

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. Section Includes
  - 1. Provide labor, equipment and materials associated with soil stockpiling in accordance with this Section.
- B. Related Requirements
  - 1. Section 31 00 00 – Earthwork
  - 2. Section 31 50 00 – Excavation Support and Protection

##### 1.02 PRICE AND PAYMENT PROCEDURES

- A. Measurement and payment requirements: per Division 01 General Requirements.

##### 1.03 ADMINISTRATIVE REQUIREMENTS

- A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

##### 1.04 SUBMITTALS

- A. Submit in accordance with Division 01 General Requirements.
- B. Closeout and Maintenance Material Submittals: per Division 01 General Requirements.

##### 1.05 QUALITY ASSURANCE

- A. Provide in accordance with Division 01 General Requirements.

##### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Provide in accordance with Division 01 General Requirements.

##### 1.07 SITE CONDITIONS

- A. Existing Conditions: per Division 01 General Requirements.

## **PART 2 – PRODUCTS**

### **2.01 MATERIALS**

- A. Provide in accordance with Division 01 General Requirements.

### **2.02 SOURCE QUALITY CONTROL**

- A. Provide in accordance with Division 01 General Requirements.

## **PART 3 – EXECUTION**

### **3.01 SOIL STOCKPILING**

- A. Locate and retain soil stockpiles at least 10 feet away from edge of excavations or as approved by Engineer.
- B. Transport soils from generation area to stockpile areas along designated transport roadways approved by Engineer, preventing soil spillage, mud and soil tracking, and release of other materials to transport roadway throughout construction.
- C. Arrange location, clearing, removal and salvage of overburden soils, and other Site preparation for temporary stockpiles. Location: approved by Engineer.
- D. Keep stockpiles in neat and well drained condition.
- E. Identify stockpiles, including classification of soil or other excavated spoils. Maintain an updated inventory of all stockpiled material.
- F. Stockpile and maintain suitable surplus excavated materials for re-use as backfill anywhere within the Project limits as directed by the Engineer. Place, grade, and shape stockpiles for proper drainage. Cover stockpiles when unused to limit infiltration by precipitation.
- G. Provide erosion and sediment controls around stockpile areas as required by the local Conservation Agent and/or the Engineer at no additional cost to Owner.

### **3.02 SOIL REUSE**

- A. Utilize on-Site soils for backfill before use of imported soil, as directed by Engineer and in accordance with Section 31 00 00 Earthwork.
- B. Transportation and legal disposal of surplus native soils is allowed.

### **3.03 FIELD QUALITY CONTROL**

- A. Provide in accordance with Division 01 General Requirements.

### 3.04 CLOSEOUT ACTIVITIES

- A. Provide in accordance with Division 01 General Requirements.

### 3.05 PROTECTION

- A. Protect structures, utilities, facilities and pavements from damage caused by settlement, lateral movement, washout, and other hazards created by stockpiling of soil.

**END OF SECTION**

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**SECTION 31 50 00**

**EXCAVATION SUPPORT AND PROTECTION**

**PART 1 – SUMMARY**

- A. Section Includes
  - 1. Provide excavation support and protection in accordance with this Section and applicable reference standards listed in Article 1.03, including shoring and bracing necessary to protect existing buildings, sidewalks and streets, utilities, all existing improvements, and excavation against movement due to caving, to meet OSHA safety requirements of shoring and bracing. Refer to the attached Geotechnical Report for additional information and requirements.
    - a. Installation of shoring and bracing
    - b. Maintenance of shoring and bracing
    - c. Removal of shoring and bracing, as required
  - 2. Shoring and bracing systems include permanent and temporary measures.
- B. Steel sheet piling: Piling Provide steel sheet piling, to be removed following completion of Work, where shown on the Drawings, where directed by the Engineer, or where otherwise required.
- C. Movable box: Provide where a shoring system is required but sheet piling is not called for. Cost of movable box system is incidental to other Work items.
- D. Related Requirements
  - 1. Section 31 00 00 – Earthwork.

**1.02 PRICE AND PAYMENT PROCEDURES**

- A. Measurement and Payment Requirements: per Division 01 General Requirements.

**1.03 REFERENCES**

- A. Reference Standards
  - 1. American Institute of Steel Construction (AISC)
    - a. Steel Construction Manual
  - 2. ASTM International (ASTM)
    - a. ASTM A36 Standard Specification for Carbon Structural Steel

- b. ASTM A307 Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60000 PSI Tensile Strength
  - c. ASTM A328 Standard Specification for Steel Sheet Piling
  - d. ASTM A572 Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel
  - e. ASTM A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
  - f. ASTM A690 Standard Specification for High-Strength Low-Alloy Nickel, Copper, Phosphorus Steel H-Piles and Sheet Piling with Atmospheric Corrosion Resistance for Use in Marine Environments
  - g. ASTM A992 Standard Specification for Structural Steel Shapes
3. American Welding Society (AWS)
- a. D1.1 - Structural Welding Code, Steel

#### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.
- B. Pre-installation Conference.
  - 1. Review geotechnical report, existing utilities and subsurface conditions.
  - 2. Review coordination for interruption, shutoff, capping, and continuation of utility services.
  - 3. Review instrumentation and monitoring program, and dewatering program. Confirm coordination with instrumentation and monitoring, and dewatering activities.
  - 4. Review proposed excavations and equipment, monitoring of excavation support and protection system and abandonment or removal of excavation support and protection system.

#### 1.05 SUBMITTALS

- A. Submit in accordance with Division 01 General Requirements.
  - 1. Do not begin excavation requiring support until submittals are approved.
- B. Product Data
  - 1. Include construction details, material descriptions, performance properties, dimensions of individual components and profiles, and calculations for excavation support and protection system for each type of product.
- C. Shop Drawings

1. Plans, elevations, sections, and details for excavation support and protection system, by professional engineer licensed in the state where Project is located.
  2. Arrangement, locations, and details of soldier piles, sheet piling, lagging, tiebacks, bracing, and other components of excavation support and protection system.
  3. Written plan for excavation support and protection, including sequence of construction of support and protection coordinated with progress of excavation.
- D. Calculations and analysis data for excavation support and protection system by professional engineer licensed in the state where Project is located.
- E. Closeout and Maintenance Material Submittals: per Division 01 General Requirements.
1. Identify locations and depths of capped utilities, abandoned-in-place support and protection systems, and other subsurface structural, electrical, or mechanical conditions on record documents.

## 1.06 QUALITY ASSURANCE

- A. Provide in accordance with Division 01 General Requirements.
- B. Qualifications: per Division 01 General Requirements for Installer and professional engineer.

## 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Provide in accordance with Division 01 General Requirements.

## 1.08 SITE CONDITIONS

- A. Existing Conditions: per Division 01 General Requirements.
- B. Review geotechnical report and determine need to perform additional test borings and conduct other exploratory operations necessary for excavation support and protection.
- C. Verify dimensions and elevations before starting Work. Survey condition of adjoining properties with Engineer. Take photographs, recording any prior settlement or cracking of structures, pavements, and other improvements. Prepare list of existing damages, verified by dated photographs, signed by Contractor, Engineer and others conducting the investigation.

- D. Survey adjacent structures and improvements, establishing exact elevations at fixed points to act as benchmarks. Identify benchmarks and record existing elevations. Locate datum level where it will not be affected by excavation operations.
- E. During excavation, re-survey benchmarks weekly. Maintain log of surveyed elevations for comparison with original elevations. Notify Engineer if changes in elevations occur, or if cracks, sags, or other damage is evident.
- F. Interruption of Existing Utilities
  - 1. Do not interrupt any utility serving facilities without Owner's written permission. Provide temporary utility if required.
  - 2. Provide minimum 5 days' advance notice of proposed interruption of utility.

## **PART 2 – PRODUCTS**

### **2.01 MATERIALS**

- A. Provide shoring and bracing materials, in serviceable condition and adequate for intended purpose.
- B. Steel sheet piling and shapes: continuous interlocking type; section modulus, type of section specified, in accordance with ASTM A328, ASTM A572, and ASTM A690, with continuous interlocks.
- C. Provide movable box where shoring system is required, and where sheet piling is not specified.
- D. Bracing members: wood timbers or steel members in accordance with ASTM A36.
- E. Provide bolts in accordance with ASTM A307.
- F. Provide structural steel in accordance with ASTM A36, ASTM A690, and ASTM A992.
- G. Wood lagging: lumber, mixed hardwood, pressure-treated.
- H. Provide reinforcing bars in accordance with ASTM A 615, Grade 60, deformed.

### **2.02 DESIGN CRITERIA**

- A. Provide services by professional engineer licensed in the state where Project is located, including preparation of Shop Drawings.
- B. Design excavation support system in accordance with earth pressures and other criteria indicated, for construction of permanent structures without excessive movement or settlement of adjacent buildings, roadways, structures, or utilities, as shown on Drawings and as specified. Include analysis by professional engineer licensed in the state where Project is located.

- C. Earth support design: coordinated dewatering design incorporating lowest anticipated excavation depths and full differential water head during dewatering.
- D. Consult official records of both surface and subsurface existing utilities and connections to verify existing conditions and limitations as they apply to this Work and its relation to other construction work. Proceed with caution in areas of utility facilities. Excavate by hand, or other methods acceptable to utility owner. Protect existing utilities to remain within and adjacent to Work area in accordance with requirements of authorities having jurisdiction.

## 2.03 SOURCE QUALITY CONTROL

- A. Provide in accordance with Division 01 General Requirements.

## PART 3 – EXECUTION

### 3.01 GENERAL

- A. Anchor and brace system to resist earth and hydrostatic pressures, including surcharges from surface loads. Support excavation to prevent undermining or disturbance to foundations of existing structures and utilities, or of ongoing or previously completed Work. Shore, support, and protect utilities encountered.
- B. Install excavation support and protection systems to ensure minimum interference with roads, streets, walks, and adjacent occupied and used facilities.
  - 1. Do not close or obstruct streets, walks, or adjacent occupied or used facilities without approval. Provide alternate routes around closed or obstructed traffic ways if required.
- C. Maintain shoring and bracing while excavation is open.
- D. Check base stability.
- E. Prevent surface water from entering excavations.

### 3.02 STEEL SHEET PILING

- A. Install 1-piece sheet piling lengths and interlock vertical edges to form a continuous barrier before starting excavation.
- B. Place piling using templates and guide frame unless otherwise specified by sheet piling manufacturer. Limit vertical offset of adjacent sheet piling to 60 inches. Align exposed faces of sheet piling to vary not more than 2 inches from a horizontal line, and not more than 1:120 out of vertical alignment.
- C. Cut off sheet piling to be left in place at least 5 feet below finish grade. Indicate location of sheet piling cut off and left in place on record documents.

- D. Remove steel sheet piling following completion of Work where shown on Drawings or directed by Engineer. Obtain approval for steel sheet piling to be left in place.

### 3.03 BRACING

- A. Locate bracing to clear columns, floor framing construction, and other permanent Work. Install new bracing before removing original brace if moved. Do not place bracing where it will be cast into permanent concrete Work unless approved by Engineer.
- B. Install internal bracing if required to prevent spreading or distortion of braced frames.
- C. Maintain bracing until structural elements are supported by other bracing, or until permanent construction is able to withstand lateral earth and hydrostatic pressures.

### 3.04 REPAIR/RESTORATION

- A. Remove excavation support and protection systems in stages to avoid disturbing underlying soils and rock, or damaging structures, pavements, facilities, and utilities.
- B. Fill voids immediately with approved backfill compacted to density specified in accordance with Section 31 00 00.
- C. Repair or replace adjacent Work damaged or displaced by removing excavation support and protection systems.

### 3.05 FIELD QUALITY CONTROL

- A. Provide in accordance with Division 01 General Requirements.
- B. Resurvey benchmarks twice weekly during installation of excavation support and protection systems, excavation progress, and for as long as excavation remains open. Maintain an accurate log of surveyed elevations and positions for comparison with original elevations and positions. Promptly notify Owner if changes in elevations or positions occur, or if cracks, sags, or other damage is evident in adjacent construction.
- C. Promptly correct detected bulges, breakage, or other evidence of movement to ensure that excavation support and protection system remains stable.
- D. Promptly repair damages to adjacent facilities caused by installation or faulty performance of excavation support and protection systems.

### 3.06 CLOSEOUT ACTIVITIES

- A. Provide in accordance with Division 01 General Requirements.

## SECTION 32 12 16

### ASPHALT PAVING

#### PART 1 – GENERAL

##### 1.01 SUMMARY

A. Section Includes

1. Furnish and install tack prime coat, hot mix asphalt pavement base and surface courses, temporary trench paving, permanent trench paving, milling, structure protection and adjustments, sidewalks, driveways, hot mix asphalt berm and curb, and miscellaneous patching in accordance with this Section and applicable reference standards listed in Article 1.03.

B. Related Requirements

1. Section 32 17 23 – Pavement Markings

##### 1.02 PRICE AND PAYMENT PROCEDURES

- A. Measurement and payment requirements: per Division 01 General Requirements.

##### 1.03 REFERENCES

A. Reference Standards

1. American Association of State Highway and Transportation Officials (AASHTO)
  - a. AASHTO M320 Standard Specifications for Performance-Graded Asphalt Binder
  - b. AASHTO T166 Standard Method of Test for Bulk Specific Gravity (Gmb) of Compacted Hot Mix Asphalt (HMA) Using Saturated Surface-Dry Specimens
  - c. AASHTO T209 Standard Method of Test for Theoretical Maximum Specific Gravity (Gmm) and Density of Hot Mix Asphalt (HMA)
  - d. AASHTO TP 68 Standard Method of Test for Density of In-Place Hot-Mix Asphalt (HMA) Pavement by Electronic Surface Contact Devices
2. MassDOT
  - a. Standard Specifications and Supplements, except for Compensation sections, and Construction Standard Details

#### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination, sequencing, and scheduling: per Division 01 General Requirements.

#### **1.05 SUBMITTALS**

- A. Submit in accordance with Division 01 General Requirements.
- B. Certificates: manufacturer's certificate verifying conformance.
- C. Mix design: for each grade of pavement used, at least 20 days prior to start of paving.
- D. Source and field quality control submittals
  - 1. Certified weigh slips for each truck load of bituminous material.
- E. Closeout and maintenance material submittals: per Division 01 General Requirements.

#### **1.06 QUALITY ASSURANCE**

- A. Provide in accordance with Division 01 General Requirements.
- B. Comply with road opening permits.
- C. Establish and control pavement (aggregate or asphalt base course and asphalt surface course) alignments, grades, elevations, and cross sections to match existing and prevent ponding.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Provide in accordance with Division 01 General Requirements.

#### **1.08 SITE CONDITIONS**

- A. Existing conditions: per Division 01 General Requirements.



## **PART 2 – PRODUCTS**

### **2.01 BITUMEN FOR TACK/PRIME COAT**

- A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 450, M3.03.0 and MassDOT Construction Details.

### **2.02 HOT POURED RUBBERIZED ASPHALT SEALANT**

- A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 450 and MassDOT Construction Details.

### **2.03 HOT MIX ASPHALT SURFACE COURSE - STANDARD TOP**

- A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 450, M3.06.0 and MassDOT Construction Details.

### **2.04 HOT MIX ASPHALT BASE COURSE - BINDER**

- A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 450, M3.06.0 and MassDOT Construction Details.

### **2.05 BITUMINOUS CONCRETE BERM**

- A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 470, M3.07.0 and MassDOT Construction Details.
- B. Provide in accordance with MassDOT Standard Specifications and Supplements Section 501, M3.07.0 and MassDOT Construction Details.
- C. Type: Type 2 as shown on MassDOT Construction Standard Details drawing number E 106.2.0 dated October 2017.

### **2.06 HOT MIX ASPHALT FOR MISCELLANEOUS WORK**

- A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 472 and MassDOT Construction Details.

### **2.07 SOURCE QUALITY CONTROL**

- A. Provide in accordance with Division 01 General Requirements.

## **PART 3 – EXECUTION**

### **3.01 GENERAL**

- A. Minimize area of pavement removed to suitable width for installation of Work. Legally dispose of existing pavements.

- B. Place hot mix asphalt between April 1 and November 15, unless otherwise specified by Owner.
- C. Do not place hot mix asphalt mixture unless breakdown and intermediate rolling can be completed by time material has cooled to 175 degrees F, and provided density of completed pavement attains at least 92.5 percent of maximum theoretical density as determined by AASHTO T209.
- D. Do not place mix on wet or damp surfaces, or when ambient temperature is 40 degrees F and falling, unless otherwise specified by Owner.
- E. When air temperature falls below 50 degrees F, take extra precaution drying aggregates, controlling temperatures of materials, placing, and compacting mixtures.
- F. Use straightedge to check compacted surfaces and obtain Engineer's approval.
- G. Utilize approved dial type thermometer and infrared pistol thermometer for each paving machine. Retain thermometer upon completion of Project.
  - 1. Fahrenheit or Celsius selectable
  - 2. Portable and battery operated
  - 3. Repeatability: plus or minus 5 degrees F.
  - 4. LCD display: to nearest 1 degree.
  - 5. Accuracy: plus or minus 2 percent.
  - 6. Emissivity: present at 0.95.
  - 7. Temperature operation range: 0 degrees F to 750 degrees F.

### 3.02 INSTALLATION

- A. Place hot mix asphalt base and top courses on roadways, sidewalks and other areas to maintain traffic access and egress to properties abutting Work, and for safe passage of pedestrian and vehicular traffic in accordance with MassDOT Section 460 and Construction Standard Details.
  - 1. Provide minimum compacted thickness depth of hot mix asphalt base course indicated on Drawings or as directed by Engineer to achieve necessary base course grade in support of finish grade pavement elevations.
  - 2. Apply bitumen for prime and tack coat at a rate of 0.07 gallons per square yard over milled areas immediately prior to installation of top course, as shown on Drawings or directed by Engineer. Clean surface of sand and foreign matter, and dry before applying prime coat.

3. Apply bitumen for prime and tack coat at a rate of 0.05 gallons per square yard over hot mix asphalt base course immediately prior to installation of top course, as shown on Drawings or directed by Engineer. Clean surface of sand and foreign matter, and dry before applying prime coat.
  4. Provide minimum compacted thickness depth of hot mix asphalt surface course indicated on Drawings or as directed by Engineer to achieve finish grades.
  5. Apply hot poured rubberized asphalt sealant to longitudinal and transverse joints.
  6. Remove and replace defective mix not conforming to specified mix formula within stipulated tolerances on basis of testing. Samples of mixture in use will be taken as many times daily as necessary, and mixtures maintained uniform as specified. Owner may suspend further approval of plant mixtures in related Work if mixtures are not uniformly furnished as specified, until necessary changes have been made so mixtures conform to specified requirements.
  7. Irregularities which may develop before completion of rolling, and while material is still workable, may be remedied by loosening surface mixture and removing or adding material as necessary. If irregularities or surface defects remain after final compaction, defective Work will be corrected by minor surface projections, joints, and minor honeycombed surfaces ironed out smoothly to grade, and as directed.
  8. If any soft, imperfect places or spots develop on surface before final acceptance of Work, remove and replace with new materials and compact until edges of new Work seamlessly connect with old Work.
- B. Install hot poured rubberized asphalt sealer on roadway cracks less than or equal to 1-inch width. Clean and dry crack to minimum depth of twice the crack width with a high-pressure air blast prior to placing sealer. Apply sealer according to manufacturer's recommendations.
- C. Install hot mix asphalt by handwork on roadway surfaces in locations where irregularities, inaccessibility or other unavoidable obstacles prevent mechanical spreading and finishing.
- D. Maintain safe passage of vehicular and pedestrian traffic and access and egress.
- E. Set manhole covers and valve boxes flush with finish grade of top course.
- F. Do not permit vehicular traffic or loads on newly completed pavement until adequate stability has been attained and material has cooled sufficiently to prevent distortion or loss of fines. If climate or other conditions warrant, the time-period for opening to traffic may be extended, at discretion of Owner.

### 3.03 EXCAVATION BY COLD PLANER WITH PAVING

- A. The words Milling, Cold Planing and Grinding shall be considered interchangeable.
- B. Milling and Overlay of paving includes removing the top layer of in-place bituminous pavement to the depth specified, by means of a cold planer, followed by placing standard top surface course in depths specified on Drawings.
- C. Cold planing (milling) will be performed within plus or minus 1/4" of the specified thickness.
  - 1. Areas over milled that exceed the depths specified will be leveled to the predetermined thickness at the contractor's expense and at no cost to the owner.
  - 2. Areas that are under planed that do not meet the depths specified will be re-milled to the predetermined thickness at the contractor's expense and at no cost to the owner.
- D. The cold planer shall be capable of planing both bituminous pavements and cement concrete patches, if the latter should be encountered in bituminous pavements.
  - 1. The cold planer shall be equipped with all necessary safety devices such as flashing lights and backup signal so as to operate in traffic with proper safety precautions.
  - 2. The cold planer shall be equipped with automation (non-contact grade sensors).
- E. Excavated material shall be loaded directly into trucks for removal, and not stockpiled onsite, unless approved for reuse as subbase material elsewhere within the project limits by the Engineer.
- F. The surface shall not be torn, gouged, shoved, broken or excessively grooved. It shall be free of imperfections in workmanship that prevent resurfacing after this operation.
- G. Variable lacing patterns shall be provided to permit a rough grooved or smooth surface as directed. Surface texture shall be as specified by the Engineer and excess material shall be removed so that the surface is acceptable to traffic if required.

### 3.04 TEMPORARY TRENCH PAVEMENT

- A. Comply with the construction method requirements of MassDOT Section 420, MassDOT Section 460 and the Drawings, the Contract Documents, or directives from the Engineer.
- B. Grade gravel base to the depths required for installation of temporary trench pavement and compact gravel base prior to installing pavement.

- C. Install temporary trench pavement over gravel base to the limits and thickness shown on the Drawings, the Contract Documents, or as directed by the Engineer. Compact temporary trench pavement in accordance with MassDOT Section 460.
- D. Unless otherwise directed by Owner, temporary trench pavement shall remain in place for one winter season. Maintain temporary pavement and repair settlement or failures until permanent pavement is installed at no additional cost to the Owner.
- E. No more than 1,000 linear feet of unpaved trenches shall be permitted at any time. The Owner reserves the right to further limit the length of unpaved trenches with no additional compensation to the Contractor.
- F. Provide temporary trench paving for each trench excavated, excluding plated areas, at the end of each workday, unless otherwise approved by Owner. Bring any trench excavated and left unpaved at the end of each workday, excluding plated areas, to uniform grade with gravel borrow or gravel base course. Provide that unpaved trench is level and smooth with surrounding pavement to minimize traffic impacts. Unpaved trenches during holidays or over weekends are not be permitted.

### 3.01 PERMANENT TRENCH PAVEMENT

- A. Comply with the construction method requirements of MassDOT Section 420 and MassDOT Section 460.
- B. Remove temporary trench pavement to the depths and limits shown on the Drawings, the Contract Documents, or as directed by the Engineer. Provide neat, straight cuts and square, vertical edges. Seal seams and joints with rubberized asphalt joint sealant.
- C. Clean sand, dirt, debris and other foreign materials from surfaces before applying tack coat. Apply bituminous tack coat to clean, dry vertical edges and existing paved surfaces to bond existing and new pavement.
- D. Provide necessary protection for roadway castings to prevent damage to castings and vehicles and ensure pedestrian safety.
- E. Install hot mix asphalt base and top courses to the limits and lift depths required on the Drawings, the Contract Documents, or as directed by the Engineer. Compact each lift in accordance with MassDOT Section 460. Match existing grades and install permanent trench pavement to maintain or improve existing drainage patterns.

### 3.02 HOT MIX ASPHALT BERM

- A. Replace existing hot-mix asphalt berms damaged by the Work in kind. Provide foundation for hot-mix asphalt berms in accordance with the Drawings or as directed by Engineer, conforming to requirements for type of berm.

- B. Place mixture and compact with machine approved by Owner for type of berm required.

### **3.03 PAVEMENT MARKINGS**

- A. Provide in accordance with Section 32 17 23.

### **3.04 FIELD QUALITY CONTROL**

- A. Provide in accordance with Division 01 General Requirements.

### **3.05 CLOSEOUT ACTIVITIES**

- A. Provide in accordance with Division 01 General Requirements.

### **3.01 MAINTENANCE**

- A. Maintain trench width pavement during the 1-year Warranty Period. Refill areas that have settled or are unsatisfactory for traffic.

**END OF SECTION**

## SECTION 32 17 23

### PAVEMENT MARKINGS

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. Section Includes
  - 1. Provide pavement markings in accordance with this Section and applicable reference standards listed in Article 1.03.

##### 1.02 PRICE AND PAYMENT PROCEDURES

- A. Measurement and payment requirements: per Division 01 General Requirements.

##### 1.03 REFERENCES

- A. Reference Standards
  - 1. MassDOT Standard Specifications and Supplements, except for Compensation sections, and Construction Details
  - 2. Federal Highway Administration (FHWA)
    - a. Manual on Uniform Traffic Control Devices (MUTCD)
    - b. Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FHWA Standard Specifications)

##### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

##### 1.05 SUBMITTALS

- A. Submit in accordance with the Division 01 General Requirements.
  - 1. Product Data
  - 2. Manufacturer Instructions
  - 3. Certification that material does not exude fumes which are toxic or injurious to persons or property upon heating to application temperature
- B. Closeout and Maintenance Material Submittals: per Division 01 General Requirements.

## 1.06 QUALITY ASSURANCE

- A. Provide in accordance with Division 01 General Requirements.

## 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Provide in accordance with Division 01 General Requirements.

## 1.08 SITE CONDITIONS

- A. Existing Conditions: per Division 01 General Requirements.

## PART 2 – PRODUCTS

### 2.01 THERMOPLASTIC

- A. Provide in accordance with MassDOT Section 860.
- B. Type: thermoplastic reflectorized type conforming to M7.01.03 White and M7.01.04 Yellow.

### 2.02 SOURCE QUALITY CONTROL

- A. Provide in accordance with Division 01 General Requirements.

## PART 3 – EXECUTION

### 3.01 PREPARATION

- A. Sweep or air blast dirty pavements. Remove and dispose of dirt piles. Remove oil, grease, and similar adherent matter by washing with a suitable solvent. Wipe excess solvent from pavement and allow time for evaporation before applying pavement marking material.

### 3.02 INSTALLATION

- A. Apply thermoplastic markings after approval by Engineer and install pavement markings in accordance MassDOT Section 860, the MUTCD and Mass Amendments, and the Drawings, or as directed by the Engineer.
- B. Remove and replace unsatisfactory markings, resulting from the presence of dirt, oil, grease, scale, moisture, or other foreign substances, and pavement markings rejected by Engineer at no additional cost to Owner.

### 3.03 FIELD QUALITY CONTROL

- A. Provide in accordance with Division 01 General Requirements.



### 3.04 CLOSEOUT ACTIVITIES

- A. Provide in accordance with Division 01 General Requirements.

**END OF SECTION**

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## SECTION 32 32 00

### SEGMENTAL BLOCK RETAINING WALLS

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. Provide segmental block retaining walls in accordance with this Section and applicable reference standards listed in Article 1.03.
- B. This section includes furnishing and installing segmental block retaining wall units to the lines and grades designated on the Drawings and as specified herein. The Contractor shall provide all labor, materials, tools, equipment, supervision, and incidentals as shown, specified, and required to furnish and install the modified segmental retaining wall.
- C. The contractor is solely responsible for safety. The Engineer and Owner shall not be responsible for means or methods of construction or for safety of workers or the public.

##### 1.02 PRICE AND PAYMENT PRODECURES

- A. Measurement and payment requirements: per Division 01 General Requirements.

##### 1.03 REFERENCES

- A. Reference Standards
- B. Specification Sections
  - 1. Section 31 00 00 – Earthwork
- C. Reference Standards
  - 1. ASTM INTERNATIONAL (ASTM)
    - a. ASTM C1776 Standard Specification for Wet-Cast Precast Modular Retaining Wall Units
    - b. ASTM D698 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort

##### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

##### 1.05 SUBMITTALS

- A. Submit in accordance with Division 01 General Requirements.

- B. Product Data
1. Complete Shop Drawings, signed and sealed by a Professional Engineer licensed in the Project State, with installation details to include, but not be limited to, excavation limits, wall layout and elevations, leveling pad, and backfill material.
  2. Manufacturer's product data and manufacturer's recommended installation instructions and details.
  3. Manufacturer's standard color and texture Samples. Color of segmental block retaining wall shall match existing stone headwall color.
  4. Geosynthetic Reinforcement (if required).
- C. Design Submittal: The Contractor shall submit detailed design calculations and final retaining wall plans for approval prior to the beginning of wall construction. All calculations and drawings shall be prepared and sealed by a professional Engineer (P.E.) – (Wall Design Engineer) experienced in retaining wall design and licensed in the state where the wall is to be built. Preliminary submittals may be submitted without stamped calculations to allow review comments (if any) to be incorporated prior to final stamping of the calculations.
1. In addition to lateral forces, wall shall be designed for lateral compaction surcharge equal to 200 psf.
- D. Submit grain size test results for aggregates to be used for the wall base and for unit fill.
- E. Submit test results on aggregate material to be used for structural fill including Proctor and grain size or Atterberg limits results.
- F. Closeout and Maintenance Material Submittals: per Division 01 General Requirements.

## 1.06 QUALITY ASSURANCE

- A. Provide in accordance with Division 01 General Requirements.

## 1.07 DELIVERY, STORAGE AND HANDLING

- A. Provide in accordance with Division 01 General Requirements.
- B. Contractor shall deliver, store, and handle products as specified in accordance with Section 01 11 00 Summary of Work.
1. Contractor shall check the materials upon delivery to assure proper material has been received.

2. Contractor shall prevent excessive mud, wet cement, and like materials from coming in contact with the retaining wall units.
3. Contractor shall protect the materials from damage. Damaged materials shall not be incorporated into the Project.
4. Geosynthetic shall be protected from UV exposure and the protective covering on geosynthetic shall remain until immediately before installation and shall be stored at temperatures above -10 degrees F.

## 1.08 SITE CONDITIONS

- A. Existing Conditions: per Division 01 General Requirements.

## PART 2 – PRODUCTS

### 2.01 APPROVED MANUFACTURER

- A. Acceptable level of quality: equivalent to Stone Strong or RediRock.
- B. All retaining wall units and accessories shall be provided by a single manufacturer.

### 2.02 WALL UNITS

- A. Wall units shall conform to ASTM C1776.
- B. Dimension tolerances for precast modular blocks shall be +/- 1/8 inch for height, +/- 1/8 inch for length (along face), and +1/2 to -1/4 inch for width (face to tail). This tolerance does not apply to architectural surfaces, such as split faces.
- C. Concrete for precast modular blocks shall have a minimum 28-day compressive strength of 4,000 psi. Entrained air content shall be between 5 and 7%.
- D. Internal unit reinforcement or unreinforced units shall be provided according to published Manufacturer engineering guidance. Reinforced units shall be marked with the type of reinforcement.
- E. The face pattern shall be selected by the Owner from the manufacturer's standard molds. The color of the units shall be selected by the Engineer and Owner from the manufacturers standard color charts.
- F. Provide finished end blocks at all end of wall.
- G. Block height shall be as shown on the Drawings.

### 2.03 GEOSYNTHETIC REINFORCEMENT (if required by Wall Designer)

- A. Acceptable level or quality: equivalent to Paraweb 2D-50 manufactured by Maccaferri, Inc

- B. Geogrid reinforcement shall be SF55 or SF110 manufactured by Synteen Technical Fabrics, Inc., or engineer approved equal.
- C. Substitution of a different type of geosynthetic shall not be allowed unless approved of the Engineer after submittal of shop drawings and test data.

## 2.04 LEVELING PAD

- A. Provide a leveling pad at the base of each wall as required by the Wall Designer and as shown on the Drawings.

## 2.05 BACKFILL

- A. Backfill shall consist of structural fill as specified in Section 31 00 00 Earthwork, the Geotechnical Report, and per Structural General Note B – Foundations and Backfill Requirements, on Drawing S-001.
- B. Crushed stone shall be as specified in Section 31 00 00 Earthwork and the Geotechnical Report.

## 2.06 DRAINAGE PIPE

- A. Drainage pipe shall be a perforated or slotted PVC or corrugated HDPE pipe as shown on the Drawings.

## 2.07 GEOTEXTILE FILTER

- A. Provide a geotextile filter for separation from backfill at the tails of the blocks. The geotextile shall be a needle punched non-woven fabric with a minimum grab tensile strength of 120 pounds. The geotextile may cover the entire back face of the blocks or may be cut in strips to cover the gaps between tail units with a minimum of 6 inches of overlap over the concrete tail on both sides.

## 2.08 SOURCE QUALITY CONTROL

- A. Provide in accordance with Division 01 General Requirements.

## PART 3 – EXECUTION

### 3.01 INSPECTION

- A. Provide in accordance with Division 01 General Requirements.
- B. The Contractor is responsible for verifying that the materials supplied meet all the requirements of the specification. This includes all submittals for materials and design, qualifications, and proper installation of wall system.
- C. Compaction testing shall be done a minimum of every 1 foot of vertical fill and every 100 linear feet along the wall.

### 3.02 EXCAVATION

- A. Contractor shall excavate to the lines and grades shown on the Civil Drawings. Contractor shall remove unsuitable material at the subgrade as necessary but shall take precautions to minimize over-excavation. Over-excavation shall be filled with compacted Unsuitable Material Refill Material, or as directed by the Wall Design Engineer, at the Contractor's expense.
- B. Contractor shall verify location of existing structures and utilities prior to excavation. Contractor shall ensure all surrounding structures are protected from the effects of wall excavation. Excavation support, if required, is the responsibility of the Contractor.

### 3.03 WALL BASE

- A. Native foundation soil shall be compacted as specified by the Wall Designer prior to placement of the Leveling Pad material.
- B. Construct the wall base to the lines and grades shown on the plans. Place and consolidate concrete, strike, and finish plane and level. Over-excavated areas shall be filled with additional concrete or granular base material. Compact granular base material to provide a hard and level surface to support the wall units. Base material shall be compacted to a minimum of 95 percent of the maximum dry density (ASTM D698, Standard Proctor). Final base elevation shall be within 0.1 feet of plan elevation.
- C. Prepare and smooth the granular material to ensure complete contact of the first course with the base. The base may be dressed with fine aggregate to aid leveling.
- D. Leveling Pad dimensions shall extend beyond the blocks in all directions to a distance and depth as designed by Wall Designer.

### 3.04 WALL UNIT INSTALLATION

- A. Place the first course of units directly on the wall base. Check units for level and alignment. Units shall be within 1/8 inch of level from end to end and from front to back. Adjacent units should be in contact. If possible, begin placing units at the lowest section of the wall.
- B. Fill all voids between and within the blocks with granular unit fill. Additional unit fill is not required behind the units, but may be placed for the convenience of the contractor.
- C. Place backfill behind the units in maximum loose lifts of 8 inches and compact. Compact all backfill to a minimum of 95 percent of the maximum dry density (ASTM D698, Standard Proctor). For cohesive soils, the moisture content at the time of compaction should be adjusted to within -2 and +3 percent of optimum. Place backfill in successive lifts until level with the top of the facing unit.

1. Within 4'-0" of walls, the compaction shall be reduced to 92 percent of the maximum dry density.
- D. Remove all excess aggregate and other materials from the top of the units before laying up the next course.
- E. Place the next course of precast modular block units in running bond with the previous course. Place the web recess over the alignment hoop protruding from the unit below and pull the unit forward to contact the hoop.
- F. Continue placing successive courses to the elevations shown on the plans. Construct wall in level stages, placing the units at each course for the entire length of the wall, if possible. Unit fill and backfill should be placed to the level of the top of the facing unit before placing the next course.
- G. Provide temporary swales to divert runoff away from wall excavation and away from face.
- H. Final grade above and below the retaining wall shall provide for positive drainage and prevent ponding. Protect completed wall from other construction. Do not operate large equipment or store materials above the wall that exceed the design surcharge loads.
- I. All walls shall be installed in accordance with local building codes and requirements.

### **3.05 GEOSYNTHETIC REINFORCEMENT**

- A. As prescribed by the Wall Designer.

### **3.06 FIELD QUALITY CONTROL**

- A. Provide in accordance with Division 01 General Requirements.

### **3.07 CLOSEOUT ACTIVITIES**

- A. Provide in accordance with Division 01 General Requirements.

**END OF SECTION**



## SECTION 32 90 00

### PLANTING AND SEEDING

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. Section Includes
  - 1. Provide loam borrow, topsoil, seeding, and supporting materials in accordance with this Section and applicable reference standards listed in Article 1.03.
- B. Related Requirements
  - 1. Section 31 00 00 – Earthwork

##### 1.02 PRICE AND PAYMENT PROCEDURES

- A. Measurement and payment requirements: per Division 01 General Requirements.

##### 1.03 REFERENCES

- A. Reference Standards
  - 1. MassDOT Standard Specifications and Supplements, except for Compensation sections
  - 2. MassDOT Construction Details
  - 3. ANSI Z60.1 Standard Nursery Stock
  - 4. American Association of Nurserymen (A.A.N.)
  - 5. A.O.A.C.: Association of Official Agricultural Chemists.
  - 6. United States Department of Agriculture (USDA)

##### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination, Sequencing, and Scheduling: per Division 01 General Requirements.

##### 1.05 SUBMITTALS

- A. Submit in accordance with the Division 01 General Requirements.
  - 1. Product Data

2. Manufacturer Instructions
- B. The work of this Section consists of providing all labor, equipment, materials, incidental work, and construction methods necessary to supply and place planting soils as indicated on the Contract Documents and as specified. Supplying and placement of planting soils shall include, but not be limited to:
1. Sampling and testing of loam borrow.
  2. Sampling and testing of existing on-site topsoil.
  3. Modifying, screening, placing, spreading and grading of loam borrow.
  4. Modifying, screening, placing, spreading and grading of existing, on-site topsoil.
  5. Providing all other sampling, testing, supplying, placing, spreading and grading of planting soils as required by this Section.
- C. Certificates
1. Submit manufacturers or vendors certified analysis for soil amendments and fertilizer materials. Submit other data substantiating that materials comply with specified requirements.
  2. Submit seed vendor's certified statement for each grass seed mixture required, stating botanical and common name, percentage by weight, and percentages of purity germination, and weed seed for each grass seed species.
- D. At least 30 days prior to ordering materials, the Contractor shall submit to the Owner's Representative representative samples, certifications, manufacturer's product data and certified test results for materials as specified below for approval in conformance with the requirements of the Division 01 General Requirements. No materials shall be ordered or delivered until the required submittals have been reviewed and approved by the Owner's Representative. Delivered materials shall closely match the approved samples. Approval shall not constitute final acceptance. The Owner's Representative reserves the right to reject, on or after delivery, any material that does not meet these Specifications.
1. Loam Borrow: The Contractor shall provide a one cubic foot representative sample per each 1,000 cubic yard of proposed stockpile of loam borrow for testing. All stockpile sampling shall be per ASTM D 75 and Appendixes for securing samples from stockpiles.
    - a. Additionally, the Contractor shall provide 25, one cubic foot representative samples selected from on-site stockpiles of loam borrow for testing or from loam after it has been spread and

amended. Samples from on-site stockpiles and from spread and amended loam borrow shall be taken from locations as directed by the Owner's Representative and packaged in the presence of the Owner's Representative.

- b. Testing will be at the Contractor's expense. Contractor shall deliver all samples to testing laboratories via overnight courier and shall have the testing report sent directly to the Owner's Representative. Perform all tests for gradation, organic content, soil chemistry and pH by UMASS Soil and Plant Tissue Laboratory, West Experiment Station, North Pleasant Street, University of Massachusetts, Amherst, MA 01003, (413) 545-2311. Testing reports shall include the following tests and recommendations. Contractor shall deliver samples to testing laboratories and shall have the testing report sent directly to the Owner's Representative from the Soil and plant Tissue Laboratory. Testing reports shall include the following tests and recommendations.
  - c. Mechanical gradation (sieve analysis) shall be performed and compared to the USDA Soil Classification System. Sieve analysis shall be by combined hydrometer and wet sieving using sodium hexametaphosphate as a dispersant in compliance with ASTM D 422 after destruction of organic matter by H<sub>2</sub>O<sub>2</sub>. To facilitate review and approval of sieve analysis, provide a computer generated gradation curve from UMASS Soil & Plant Tissue Laboratory.
  - d. Percent of organics shall be determined by the loss on ignition of oven-dried samples. Test samples minus #10 material shall be oven-dried to a constant weight at a temperature of 450 degrees Fahrenheit.
  - e. Chemical analysis shall be undertaken for Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Magnesium, extractable Aluminum, Lead, Zinc, Cadmium, Copper, Soluble Salts, and pH and buffer pH. A Conductivity Meter shall be used to measure Soluble Salts in 1:2 soil/water (v/v). Except where otherwise noted, nutrient tests shall be for available nutrients.
  - ƒ. Soil analysis tests shall show recommendations for soil additives to correct soils deficiencies as necessary, and for additives necessary to accomplish planting work as specified.
3. Peat Moss: Submit a one cubic foot sample and supplier's certification of contents.

4. Limestone: Submit supplier's certification that the limestone being supplied conforms to these Specifications.
5. Acidulant: Submit supplier's certification that the acidulant being supplied conforms to these Specifications.
6. Fertilizer :
  - a. Submit product data of seeding and planting fertilizer and certificates showing composition and analysis. Submit fertilization rates for fertilizer product based upon soil testing, analysis, and recommendations.
  - b. Submit the purchasing receipt showing the total quantity purchased for the project prior to installation.
7. Gypsum: Submit manufacturer's product data and 2 pound sample.
8. All additives needed to amend a specific soil in order to meet these specifications.

#### **1.06 QUALITY ASSURANCE**

- A. Provide in accordance with Division 01 General Requirements.
- B. Analysis and Standards: Package standard products with manufacturers certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agriculture Chemists, wherever applicable.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Provide in accordance with Division 01 General Requirements.
- B. Packing, Shipping, Handling, and Unloading
  1. Do not order or deliver material until submittals are approved.
- C. Package products with manufacturers certified analysis.

#### **1.08 SITE CONDITIONS**

- A. Existing Conditions: per Division 01 General Requirements.
- B. Locate underground utilities. Perform Work in a manner that will avoid damage.
- C. Plant or install materials during normal planting seasons for each type of landscape work required.

## **PART 2 – PRODUCTS**

### **2.01 LOAM BORROW**

- A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 751 and MassDOT Construction Details.
- B. Type: MassDOT Standard Specifications and Supplements Section M1.05.0.
- C. Furnish sufficient loam borrow to complete loaming operations required for Project and as directed by Engineer. Obtain loam borrow from the following sources and meet requirements specified after testing and addition of necessary soil additives.
  - 1. Naturally well-drained areas that have never been stripped before and have a history of satisfactory vegetative growth. Comply with bylaws and Regulations regarding removal of topsoil.
  - 2. Commercial processing facility specializing in manufacturing of loam.

### **2.02 TOPSOIL**

- A. Use topsoil stockpiled for re-use in landscape work, as specified in 02 41 14 Selective Site Demolition and Restoration. Provide additional topsoil required to complete landscape work if quantity of stockpiled topsoil is insufficient.
- B. Furnish new topsoil, which is fertile, friable, natural loam surface soil found at a depth of not less than 4 inches from original ground surface, reasonably free of subsoil, clay lumps, brush, weeds and other litter, and free of roots, stumps, debris, and stones larger than 2 inches in any dimension.
- C. Obtain topsoil from local sources or from areas having similar soil characteristics as Site. Obtain topsoil only from naturally, well-drained Sites where topsoil occurs in a depth of not less than 4 inches. Do not obtain from bogs or marshes.

### **2.03 SEED AND SUPPORTING MATERIAL**

- A. Provide seed, limestone, fertilizers, plant materials, water for irrigation and soil conditioners in accordance with MassDOT Standard Specifications and Supplements Section 765.40 and MassDOT Construction Details, and ANSI Z60.1.

### **2.04 PLANTING TREES, SHRUBS AND GROUNDCOVER**

- A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 771 and MassDOT Construction Details.
- B. Type: per MassDOT Standard Specifications and Supplements Section M6.06.1

## 2.05 SEEDING

- A. Native Upland Seed Mix: New England Conservation/Wildlife Mix, to be installed within the 100-foot Buffer Zone to Bordering Vegetated Wetland as specified in the Order of Conditions included in Section 00 31 00.
1. The New England Conservation/Wildlife Mix provides a permanent cover of grasses, forbs, wildflowers, legumes and grasses to provide both good erosion control and wildlife habitat value. This mix is designed to be a no maintenance seeding, and it is appropriate for cut and fill slopes, detention basins, and disturbed areas adjacent to commercial and residential projects.
  2. Application Rate: 25 LBS/ACRE (1750 SQ. FT./LB)
  3. Species: Big Bluestem (*Andropogon gerardii*), Switchgrass (*Panicum virgatum*), Little Bluestem (*Schizachyrium scoparium*), Canada Wild Rye (*Elymus canadensis*), Fox Sedge (*Carex vulpinoidea*), Partridge Pea (*Chamaecrista fasciculata*), Fringed Bromegrass (*Bromus ciliatus*), Pennsylvania Smartweed (*Polygonum pennsylvanicum*), Common Milkweed (*Asclepias syriaca*), Showy Tick-Trefoil (*Desmodium canadense*), New England Aster (*Aster novae-angliae*), Flat-top Aster (*Aster umbellatus*), Nodding Bur-Marigold (*Bidens cernua*).

## 2.06 FERTILIZER

- A. Bone meal: commercial, raw or steamed, finely ground; minimum of 4 percent nitrogen and 20 percent phosphoric acid.
- B. Superphosphate: commercial, phosphate mixture, soluble; minimum of 20 percent available phosphoric acid.
- C. Fertilizer: commercial grade complete fertilizer of neutral character, consisting of fast and slow release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition.
1. Nitrogen, phosphorous and potassium in amounts recommended in topsoil analysis reports from a qualified soil testing agency.
  2. Minimum 1 pound per 1,000 square feet of actual nitrogen, 4 percent phosphorous and 2 percent potassium by weight.

## 2.07 SOURCE QUALITY CONTROL

- A. Provide in accordance with Division 01 General Requirements.

## **PART 3 – EXECUTION**

### **3.01 GENERAL**

- A. Avoid damage to utilities, buildings and private property.
- B. Do not disturb property markers.
- C. Immediately report damage to Engineer.
- D. Repair all grassed areas disturbed during performance of the Work. Where existing topsoil remains, provide seed to re-establish grass. Where necessary, provide additional topsoil.
- E. Complete landscape work immediately as portions of Site become available, working within seasonal limitations for each kind work. Notify Engineer before planting if conditions detrimental to plant growth are encountered.
- F. Plant or install materials during normal planting seasons for each type of landscape work required.
- G. Use topsoil stockpiled for re-use as specified in Section 02 41 14.

### **3.02 LOAM BORROW**

- A. Place loam borrow at designated locations where plant material is to be installed or re-installed in accordance with MassDOT Section 751 and MassDOT Construction Details and Drawings, or as directed by Engineer.
- B. Protect loam borrow delivered to Site from erosion and spread immediately. Cover material that sits on-Site for more than 24 hours with tarpaulin or other soil erosion system acceptable to Engineer, and surround with silt fence as shown on Drawings or as otherwise required.
- C. Do not handle, plant or use loam borrow if wet or frozen. Use moist loam borrow.

### **3.03 PLANTING TREES, SHRUBS AND GROUNDCOVER**

- A. Provide in accordance with MassDOT Standard Specifications and Supplements Section 771 and MassDOT Construction Details.
- B. Type: per MassDOT Standard Specifications and Supplements Section M6.06.1.
- C. Prune injured roots or branches to make clean-cut ends prior to planting, utilizing clean, sharp tools, removing only injured or diseased branching.
- D. Remove planting containers, baskets, and non-biodegradable materials from root balls during planting. Cut natural fiber burlap from around trunk of trees and folded down against root ball prior to backfilling.

- E. Position trees and shrubs at intended locations shown on Drawings or as directed by Engineer and obtain Engineer's approval prior to excavating pits, making necessary adjustments as directed.
- F. Dig planting pits with level bottoms with width twice the diameter of root ball. Rest root ball on undisturbed grade. Backfill each plant pit in layers with thoroughly mixed, prepared soil; 1-part peat moss; 1-part composted cow manure by volume; 3 parts topsoil by volume.
  - 1. Provide 21-gram planting tablets, acceptable level of quality: equivalent to Agriform.
    - a. 2 tablets per 1-gallon plant
    - b. 3 tablets per 5-gallon plant
    - c. 4 tablets per 15-gallon plant
    - d. Larger plants: 2 tablets per 1/2-inch caliper of trunk
- G. Fill prepared soil around ball of plant halfway, and insert plant tablets. Complete backfill, and water thoroughly.

### 3.04 FINE GRADING

- A. Clean subgrade of stones greater than 2 inches and all debris immediately prior to dumping and spreading loam borrow, and remove from Site. Do not rake to edges and bury. Obtain Engineer's approval of subgrade conditions prior to spreading loam borrow.
- B. Spread and thoroughly incorporate soil additives into layer of loam borrow by harrowing or other approved methods. Incorporate the following soil additives.
  - 1. Ground limestone or acidulants: as required by soil analysis to achieve required pH specified. Spread limestone at rate required by soil analysis up to maximum limit of 200 pounds per 1,000 square feet. Make a surface application of limestone not in excess of 50 pounds per 1,000 square feet to established planting area during the season after Final Acceptance if recommendations of soil analysis require rates of application greater than 200 pounds per 1,000 square feet.
  - 2. Fertilize at rate and analysis recommended by soil analysis.
  - 3. Use biosolid compost, peat moss, sand or other soil amendments as required by soil analysis.
- C. Prepare loam borrow by scarifying, harrowing, or tilling loam to integrate soil additives into top 6 inches of loam after loam borrow and required additives have been spread. Remove large stiff clods, lumps, brush, roots, stumps, litter and other foreign matter. Remove all stones over 1-inch in diameter from top 6 inches of



loam bed from unscreened soils. Remove smaller stones in excessive quantities as directed.

- D. Set sufficient grade stakes for checking finished grades. Set stakes in bottom of swales and at top of slopes. Do not deviate more than one-tenth of foot from indicated elevations. Connect contours and spot elevations with an even slope. Finish grades: smooth and continuous with no abrupt changes at top or bottom of slopes.
- E. Fill depressions caused by settlement or rolling during compaction process with additional loam borrow and regrade surface and roll until finish is smooth and even corresponding to required grades.
- F. Install loam borrow in successive horizontal lifts no thicker than 6 inches in turf areas and 12 inches in plant bed areas to desired compaction as indicated. Install soil at a higher level to anticipate any reduction of loam borrow volume due to compaction, settling, erosion, and decomposition during Warranty Period. Obtain full depths of loam borrow for plant beds by digging holes in loam borrow at same frequency as for compaction testing.
  - 1. Compact loam to specified density.
  - 2. Maximum dry density for topsoil and loam: determined in accordance with ASTM D698. Achieve the following percentages of minimum to maximum dry densities for fill materials or prepared subgrades.
    - a. Fills within plant beds, tree pits and treeways: minimum 80 percent; maximum 85 percent for areas in top 18 inches of finished grade.
  - 3. Scarify surface area of each lift by raking prior to placing next lift.
- G. Compact each lift to reduce settling, but not enough to prevent movement of water and feeder roots through the soil in addition to range cited above. Loam borrow in each lift: firm underfoot and make only slight heel prints. Loam borrow at completion of installation: firm, even resistance when a soil sampling tube is inserted from lift to lift. Perform percolation tests after placement of each lift to determine if soil has been over compacted using the following percolation test procedure.
  - 1. Dig a hole in installed soil minimum of 4 inches in diameter. Holes in 6-inch lift in turf areas: 4 inches deep. Holes in 12-inch lifts in plant beds: 8 inches deep. Do not penetrate through lift being tested.
  - 2. Fill hole with water and let it drain completely. Immediately refill hole with water and measure rate of fall in water level.
  - 3. Till soil to a depth required to break over compaction if water drains at a rate less than 1-inch per hour.

4. Perform a minimum of 1 soil percolation test per 10,000 square feet of turf area, and 2,500 square feet of tree and shrub planting area as directed.
- H. Select equipment and phase installation of loam borrow so wheeled equipment does not travel over subsoil, placed fills or ordinary borrow, or already installed soil. Movement of tracked equipment over these soils will be reviewed and considered by Engineer for approval. If Engineer determines that wheeled equipment must travel over already installed soil, provide a written description of sequencing of Work that ensures compacted soil is loosened and uncompacted as Work progresses, or place 1-inch thick steel plate ballast or approved equivalent over length and width of any travel way to cover loam borrow to protect it from compaction.
- I. Grade disturbed areas outside limit of Work, smooth and spread with minimum 4 inches of loam borrow to finished grade.
- J. Maintain stockpiles of existing on-Site topsoil until final placement of existing on-Site topsoil and loam borrow is approved. Provide survey data plotted on a 20-scale plan of the Site prepared by a registered surveyor or civil engineer, showing volume of stockpiles of existing on-Site topsoil. Remove excess, unused existing on-Site topsoil from Site and legally dispose of upon approval.

### 3.05 SEED AND SUPPORTING MATERIAL

- A. Install and apply seed and supporting materials at the rates of application and in accordance with MassDOT Standard Specifications and Supplements Section 765.40 and the Drawings, or as directed by the Engineer.
- B. Within the 100-foot Buffer Zone to Bordering Vegetated Wetland, install Upland Seed Mix as specified in part 2.05.D above.

### 3.06 HYDROSEEDING NEW AREAS

- A. Mix specified seed and pulverized mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogenous slurry suitable for hydraulic application.
- B. Apply slurry using an approved machine. Seed and suitable corn fiber mulch may be applied in one operation. Mix materials with water in machine and agitate to keep mixture uniformly suspended. Use spraying equipment that will distribute slurry uniformly at required rates.
- C. Immediately following hydroseeding, mulch areas by means of mulch blower at rate of 1,200 pounds per acre on level grades, 2,000 pounds on slopes if mulch is not part of slurry. Use mulch specified in 2.04.A.
- D. Seed only areas that can be mulched on same day.

### 3.07 SEEDING NEW AREAS

- A. Sow seed using a spreader or seeding machine. Do not seed when wind velocity exceeds 5 miles per hour. Distribute seed evenly over entire area by sowing equal quantity in 2 directions at right angles to each other.
- B. Do not sow immediately following rain or when ground is too dry.
- C. Seed application rate: 1 pound per 1,000 square feet.
- D. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.

### 3.08 PROTECTION OF SEEDED SLOPES

- A. Protect seeded slopes against erosion with erosion netting or other acceptable methods.
- B. Spread specified mulch after completion of seeding operations to form a continuous blanket not less than 1-1/2 inches' loose measurement over seeded areas.
- C. Anchor mulch by spraying with asphalt emulsion at rate of 10 to 13 gallons per 1,000 square feet. Prevent damage or staining of construction or other plantings adjacent to mulched areas.
- D. Cover seeded slopes with jute matting where grade is 3:1 or greater. Roll matting down over slopes without stretching or pulling.
- E. Lay matting smoothly on soil surface, burying top end of each section in narrow 6-inch trench. Leave 12-inch overlap from top roll over bottom roll. Leave 4-inch overlap over adjacent section.
- F. Staple outside edges and overlaps at 36-inch intervals.
- G. Lightly dress slopes with topsoil to ensure close contact between matting and soil.
- H. Unroll matting in direction of flow in ditches. Overlap ends of strips 6 inches with upstream section on top.

### 3.09 FIELD QUALITY CONTROL

- A. Provide in accordance with Division 01 General Requirements.
- B. Site/Field Tests and Inspections
  - 1. Landscape work to be inspected and approved prior to completion of the Work.

2. Replace rejected Work, and continue specified maintenance until re-inspected by Engineer and accepted. Remove rejected plants and materials promptly from Site.

### 3.10 CLEANING

- A. Keep pavement, sidewalks, and walkways clean. Maintain protection during installation and maintenance periods.

### 3.11 MAINTENANCE

- A. Provide maintenance of grass seeded areas immediately after planting.
- B. Maintain grass by watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, re-grading, and replanting as required to establish smooth, acceptable lawn areas free of eroded or bare areas.
- C. Maintain grassed areas to establish acceptable lawn areas until final completion, or for a minimum of 180 days after substantial completion, whichever is longer.
- D. Maintain grass by watering, fertilizing, weeding, mowing, trimming, and other operations such as rolling, re-grading, and replanting as required to establish a smooth, acceptable lawn, free of eroded or bare areas.
- E. If seeded in the fall season and full 180 days of maintenance is not provided, or if not considered acceptable at that time, continue maintenance during the following spring season until acceptable lawn areas are established.
- F. Maintain trees and shrubs until in accordance with Item C of this section.

### 3.12 CLOSEOUT ACTIVITIES

- A. Provide in accordance with Division 01 General Requirements.

**END OF SECTION**

## SECTION 33 14 11.01

### CULVERT PIPING - DUCTILE IRON

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. Section Includes
  - 1. Provide ductile iron pipe culvert in accordance with this Section and applicable reference standards listed in Article 1.03.
- B. Related Requirements
  - 1. Section 31 00 00 – Earthwork
  - 2. Section 32 12 16 - Asphalt Paving
  - 3. Section 32 90 00 – Planting & Seeding

##### 1.02 PRICE AND PAYMENT PROCEDURES

- A. Measurement and payment requirements: per Division 01 General Requirements.

##### 1.03 REFERENCES

- A. Reference Standards
  - 1. ASTM International (ASTM)
    - a. ASTM A242 Standard Specification for High-Strength Low-Alloy Structural Steel
    - b. ASTM A283 Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
    - c. ASTM A536 Standard Specification for Ductile Iron Castings
    - d. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
    - e. ASTM D638 Standard Test Method for Tensile Properties of Plastics

- f. ASTM D790 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials`
  - g. ASTM D1248 Standard Specification for Polyethylene Plastics Extrusion Materials for Wire and Cable
  - h. ASTM D1622 Standard Test Method for Apparent Density of Rigid Cellular Plastics
  - i. ASTM D6226 Standard Test Method for Open Cell Content of Rigid Cellular Plastics
  - j. ASTM D3350 Standard Specification for Polyethylene Plastics Pipe and Fittings Materials
2. American Water Works Association (AWWA)
- a. AWWA C104 Cement-Mortar Lining for Ductile-Iron Pipe and Fittings
  - b. AWWA C110 Ductile-Iron and Gray-Iron Fittings
  - c. AWWA C111 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
  - d. AWWA C151 Ductile-Iron Pipe, Centrifugally Cast
  - e. AWWA C153 Ductile-Iron Compact Fittings
  - f. AWWA C219 Bolted Sleeve-Type Couplings for Plain-End Pipe
  - g. AWWA C600 Installation of Ductile-Iron Mains and Their Appurtenances
  - h. AWWA C651 Disinfecting Water Mains
  - i. AWWA M41 Ductile-Iron Pipe and Fittings
3. Ductile Iron Pipe Research Association (DIPRA)
- a. Thrust Restraint Calculator
4. NSF International (NSF)
- a. NSF/ANSI 61 Drinking Water System Components-Health Effects
  - b. NSF/ANSI 372 Drinking Water System Components – Lead Content

5. Underwriters Laboratories (UL)
6. Factory Mutual (FM)

#### **1.04 ADMINISTRATIVE REQUIREMENTS**

- A. Coordination, sequencing, and scheduling: per Division 01 General Requirements.

#### **1.05 SUBMITTALS**

- A. Submit in accordance with Division 01 General Requirements.
- B. Product data: manufacturer's data including dimensions, coatings, and installation instructions for each product.
- C. Manufacturers' certificates verifying conformance
- D. Source and field quality control submittals: inspection and testing logs, and test results.
- E. Closeout and maintenance material submittals: per Division 01 General Requirements.
  1. Record depth for construction records.

#### **1.06 QUALITY ASSURANCE**

- A. Provide in accordance with Division 01 General Requirements.
- B. Regulatory approvals
  1. Comply with state and local plumbing codes. If there are conflicts, apply the more stringent code.

#### **1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Provide in accordance with Division 01 General Requirements.
- B. Handle according to AWWA C600.
- C. Comply with manufacturer's recommendations for loading, unloading and storage.
- D. Packing, shipping, handling, and unloading
  1. Protect flanges and fittings from moisture and dirt by storing inside or package with durable, waterproof wrapping.

2. Unload and string pipe. Lift pipe off truck and place on ground according to manufacturer's recommendations. Do not roll pipe off the truck or drop. Stack pipe maximum 3 layers high with proper blocking between layers.
- E. Acceptance at Site
1. Confirm each shipment of pipe, fittings, and appurtenances includes manufacturers' Certificate of Conformance.
  2. Inspect upon delivery and reject pipe not in conformance with specified requirements or damaged beyond repair. Immediately remove damaged pipe from Site and dispose of legally.

## 1.08 SITE CONDITIONS

- A. Existing conditions: per Division 01 General Requirements.

## PART 2 – PRODUCTS

### 2.01 GENERAL

- A. Pipe, fittings and joint restraints: in accordance with NSF 61 and NSF/ANSI 372 as applicable.
- B. Furnish products manufactured in the United States.

### 2.02 DUCTILE IRON PIPE

- A. Conform to AWWA C151.
- B. Thickness: Class 52.
- C. Diameter: as shown on Drawings.
- D. Joint type: rubber gasketed, push-on conforming to AWWA C111.
- E. Pipe lubricant: suitable for use in potable water supply.
- F. Interior lining: double thickness cement mortar lining and asphaltic seal coat conforming to AWWA C104.
- G. Exterior: asphaltic coating conforming to AWWA C151.
- H. Manufacturers
1. U.S. Pipe
  2. American Cast Iron Pipe Company



3. McWane Ductile
4. Or equal

### **2.03 PRE-INSULATED DUCTILE IRON PIPE**

- A. Not used.

### **2.04 FITTINGS**

- A. Not used.

### **2.05 JOINT RESTRAINT**

- A. Not used.

### **2.06 NUTS AND BOLTS**

- A. Not used.

### **2.07 SOURCE QUALITY CONTROL**

- A. Provide in accordance with Division 01 General Requirements.

## **PART 3 – EXECUTION**

### **3.01 GENERAL**

- A. Coordinate Work with Owner and Engineer.
- B. Perform excavation and backfill according to Section 31 00 00.
- C. Install according to manufacturer's installation instructions, AWWA C600, AWWA C651, as shown on Drawings and as specified.
- D. Comply with the requirements of AWWA C600 and Section 4.8 of AWWA C651 for cleanliness.

### **3.02 INSTALLATION**

- A. Make joints in dry trench according to manufacturer's recommendations and best practices for class of exterior pipe laid. Wipe ends of pipe clean with dry cloth before making joint.
- B. Lay pipe to line and grades shown on Drawings. Line and grade may be adjusted by Engineer to meet field conditions.
- C. Pipe Cutting

1. Cut pipe to provide shorter sections for insertion of valves, fittings or closure pieces, conforming to methods recommended by pipe manufacturer and AWWA C600.
  2. Cut end of pipe square to the axis of the pipe, grind any rough edges smooth, and bevel per manufacturer's recommendations where being used for push-on joints.
- D. Thrust Restraint
1. Provide mechanical joint restraint at all mechanical joints.
  2. Cast concrete against undisturbed earth and place support to not interfere with making joints. Protect bolts with ASTM Type 15 roofing felt or equivalent.
- E. Repair clamps are not considered permanent repairs. Cut out defective sections and replace using solid sleeve couplings.
- F. Lay pipe to point directed where connecting pipe or structures have not yet been installed. Plug or cap end. Identify terminal point with stake extending above ground, marked to indicate size.
- G. Separation of Culvert from Cable TV Lines, Telephone Lines, and Electrical Cables
1. Horizontal separation: minimum 5 feet from outside edge of pipe to outside edge of utility or duct bank.
  2. Crossings: minimum 18 inches of vertical separation above or below utility. Where Site conditions prevent meeting vertical separation requirement and bury depth requirements, insulate water main as specified or provide minimum 6 inches of vertical separation and concrete encase water main a minimum of 5 linear feet on either side of crossing, measuring perpendicular to the crossing and where approved by Owner.

### 3.03 FILLING AND PRELIMINARY FLUSHING

- A. Not used.

### 3.04 FIELD QUALITY CONTROL

- A. Provide in accordance with Division 01 General Requirements.

### 3.05 ABANDONED UTILITIES

- A. Close open ends of abandoned underground utilities not designated for removal. Provide closure to withstand hydrostatic or earth pressure which may result after ends of abandoned utilities have been closed.

- B. Obtain approval of Owner and Engineer prior to backfilling.

### 3.06 REPAIR/RESTORATION

- A. Repair leaks and defective Work by cutting and removing defective section. Replace with new materials meeting specified requirements. Connect replaced sections with solid sleeves. Pressure test, chlorinate and bacteria test repaired section as required by Owner.
- B. Restore disturbed surface areas as follows.
  - 1. Paved areas, including bituminous curbing and bituminous sidewalks: per Section 32 12 16.
  - 2. Roadside and embankment areas upgradient of wetlands: per Section 32 90 00.
- C. Replace materials and items removed for performance of Work and restore disturbed areas and staging areas to original conditions.
- D. Remove temporary erosion controls and loam and seed grass areas damaged by erosion control installation.

### 3.07 CLOSEOUT ACTIVITIES

- A. Provide in accordance with Division 01 General Requirements.

**END OF SECTION**

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## SECTION 34 71 13.20

### REMOVE AND RESET GUARDRAIL

#### PART 1 – GENERAL

##### 1.01 SUMMARY

- A. Section Includes
  - 1. Provide materials, tools, equipment and labor necessary to remove and reinstall existing guardrail as shown on Drawings and in accordance with this Section and applicable reference standards listed in Article 1.03.

##### 1.02 MEASUREMENT AND PAYMENT

- A. Measurement and payment requirements: per Division 01 General Requirements

##### 1.03 REFERENCES

- A. Reference Standards
  - 1. MassDOT
    - a. Standard Specifications and Supplements, and Construction Standard Details

##### 1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordination, sequencing, and scheduling: per Division 01 General Requirements.

##### 1.05 SUBMITTALS

- A. Submit in accordance with Division 01 General Requirements.
- B. Closeout and maintenance material submittals: per Division 01 General Requirements.

##### 1.06 QUALITY ASSURANCE

- A. Provide in accordance with Division 01 General Requirements.

##### 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Provide in accordance with Division 01 General Requirements.

##### 1.08 SITE CONDITIONS

- A. Existing conditions: per Division 01 General Requirements.

## **PART 2 – PRODUCTS**

### **2.01 MATERIALS**

#### **A. General**

1. Replace non-reusable hardware and posts as determined by the Engineer with new materials necessary to complete the installation.
2. Provide new offset blocks for all installations.
3. Replacement hardware: in-kind.

### **2.02 SOURCE QUALITY CONTROL**

- #### **A. Provide in accordance with Division 01 General Requirements.**

## **PART 3 – EXECUTION**

### **3.01 GUARDRAIL REMOVAL**

- #### **A. Minimize damage to posts and rails during removal**

### **3.02 INSTALLATION**

- #### **A. Reset guardrail to lines and grade shown on the Drawings.**
- #### **B. Install posts, guardrail panels, anchors, hardware and reflector elements in accordance with reference standards.**
- #### **C. Replace reusable materials damaged during resetting at no additional cost Owner.**
- #### **D. Reset posts to prevent subsequent settlement after blocks and panels are reattached.**

### **3.03 FIELD QUALITY CONTROL**

- #### **A. Provide in accordance with Division 01 General Requirements.**

### **3.04 CLOSEOUT ACTIVITIES**

- #### **A. Provide in accordance with Division 01 General Requirements.**

**END OF SECTION**