PROJECT MANUAL

Raised Pedestrian Crossing (UDrive West)

100 William T. Morrissey Boulevard, Dorchester, MA 02125

Project No. UMBOS-2025-0907

PREPARED FOR

Awarding Authority
University of Massachusetts Boston
100 William T. Morrissey Boulevard
Dorchester, MA 02125

Prime Designer
LKB Engineering
1 Aerial Way
Syosset, NY 11791

DATE: June 1, 2025

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PROJECT:
University of Massachusetts Boston
Raised Pedestrian Crossing (UDrive West)
Project No. UMBOS-2025-0907

Table of Contents

Specification:

Drawings:

END OF TABLE OF CONTENTS

CONTRACT #:UMBOS-2025-0907

THE COMMONWEALTH OF MASSACHUSETTS

UNIVERSITY OF MASSACHUSETTS BOSTON

CONTRACT FOR UMB-Raised Pedestrian Crossing (UDrive West)

Note to all bidders. Please read the instructions that follow this cover page to assist you in submitting your bid.

SPECIAL ATTENTION TO BIDDERS

Bids must be made on this form

Fill in all applicable blank spaces on all pages of this form

Part # 1 - Bid Instructions & Bid Form

PART # 1

INSTRUCTIONS TO BIDDERS & BID FORM

This Bid Request is for:

Contract No. UMBOS-2025-0907

Title: UMB Raised Pedestrian Crossing (UDrive West)

Deadline for filing General Bids is 7/10/25 -2:00 PM

The minimum wage rate requirements for this Contract are located in Attachment A as found in Part # 1 – Bid Instructions & Bid Form.

Bid forms for this Contract are located in Part # 1 Bid Instructions & Bid Form, Attachment B, located near the front of bid document. Return these pages along with a 5% Bid Bond.

The time for completion of the Work is 39. Estimated construction cost is $200,000.00

A pre-bidders conference is to be held on 06/25/25 11:00 AM at 100 William T Morrissey Blvd Boston, MA 02125- Meet in S&S Parking Lot- Park in West Garage

BIDDER CHECKLIST

This Checklist is provided for your convenience to help ensure that your bids are acceptable and are not rejected due to errors or omissions.

□ 1. Have you used the correct bid form provided for this project?

□ 2. Have you properly identified the project, architect, etc., on your bid form?

□ 3. Are your bid amounts, as expressed in figures and words, consistent?
The amount expressed in words will control.

□ 4. Have you acknowledged all addenda issued, and followed the instructions contained in each one?

□ 5. Have you responded to every alternate – IF there are any?

□ 6. Have you added any information not called for, acknowledged an addendum that does not exist or provided a price for an alternate not identified as part of the work which can result in rejection of your bid?

□ 7. Is your Bid Form **SIGNED** and dated?

8. Bid Deposits

□ a. Is your bid deposit, if in the form of a bid bond, issued from a bonding company licensed to do business in the Commonwealth of Massachusetts? **Is it signed by the contractor and the bonding company?** Passbooks or Letters of Credit from a bank are not acceptable as a bid deposit.

□ b. Is your bid deposit made payable to the Commonwealth of Massachusetts or the University of Massachusetts Boston? **Bid deposits made payable to any other entity may cause the bid to be rejected.**

9. **Have you uploaded your Bid Form and Deposit in the "Supplier Attachments" Section ?**

This checklist is provided to help bidders avoid technical mistakes that could result in rejection of a bid. This in no way changes, effects, or supersedes the provisions set-forth in M.G.L. c.30 §39M or any other sections or provisions contained in the contract documents. This checklist is not part of the CONTRACT DOCUMENTS. It is not required to submit this checklist with your bid submission. If a bidder submits this checklist with bid submission, bid will not be rejected for this reason.

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

ARTICLE 1 - BIDDER'S REPRESENTATION

1.1 Each Bidder by making a 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 has to 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. Neither the UMB nor the Designer will be responsible for errors, omissions and/or charges for extra work arising from Bidder's failure to familiarize itself with the Contract Documents or existing conditions.

ARTICLE 2 - REQUESTS FOR INTERPRETATION

2.1 Bidders shall promptly notify the University Of Massachusetts Boston of any ambiguity, inconsistency, or error which they may discover upon examination of the Contract Documents, the site, and local conditions. Such notification must be received by the University of Boston at least five (5) business days before the date bids are due in order to provide sufficient time for the University of Massachusetts Boston to review the notification and respond before the date bids are due if the University of Massachusetts Boston deems it appropriate. **Questions must be submitted in Bid Docs.**

2.2 Bidders requiring clarification or interpretation of the Contract Documents shall make such request to the University of Massachusetts Boston in the time frame set forth in 2.1 above.

2.3 It is the sole responsibility of the Bidder to ascertain the existence of any addenda issued by the University of Massachusetts Boston, whether or not the same are mailed to, or received by Bidder.

ARTICLE 3 - PREPARATION AND SUBMISSION OF BIDS

3.1 Bids shall be submitted on the "Form for General Bids" as appropriate, furnished at no cost by the University of Massachusetts Boston.

3.2 All entries on the Bid Form shall be made by typewriter or in ink.

3.3 Where so indicated on the Bid Form, sums shall be expressed in both words and figures. Where there is a discrepancy between the bid sum expressed in words and the bid sum expressed in figures, the words shall control.

3.4 Each bid must be accompanied by a Bid Deposit. Bid Deposits shall be five (5%) percent. Bid Deposits shall be made payable to the University of Massachusetts Boston or the Commonwealth of Massachusetts and shall be either in the form of cash, certified check, treasurer's or cashier's check issued by a responsible bank or trust company, or a bid bond issued by a surety licensed to do business in the University of Massachusetts Boston; and shall be conditioned upon the faithful performance by the principal of the agreements contained in the bid.

Bid deposits of the three (3) lowest responsible and eligible Bidders shall be retained until the execution and delivery of the Owner-Contractor Agreement.

3.5 Deadline for filing General Bids is 07/10/25 02:00 PM. Any bid not received by the applicable deadline will not be accepted.

3.6 Timely delivery of a bid at the location designated shall be the full responsibility of the Bidders.

3.7 The Contractor shall have successfully completed at least three (3) projects of similar size, scope and complexity within the last five (5) years, which shall be documented by providing references

3.8 Inclement, Severe Weather: In the event of inclement, severe weather, as determined by the Purchasing Department of the Awarding Authority, the Purchasing Department may decide to extend the Bid Due date for Bid Submission. This may be done without the issuance of an Addendum.

ARTICLE 4 – ALTERNATES

4.1 Each general Bidder shall acknowledge all required alternates (if there are any for a bid) in Section C on the Form for General Bid by entering the dollar amount of addition or subtraction necessitated by the alternate. General Bidders shall enter on the Form for General Bid a single amount for each alternate.

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

ARTICLE 5 - WITHDRAWAL OF BIDS

5.1 Before Opening Bids

5.1.1 Any bid may be withdrawn prior to the specified deadline for the receipt of bids provided that the withdrawal shall be made by a written request signed by a person having the authority to bind the

5.1.2 Withdrawn bids may be resubmitted up to the time designated for the receipt of bids.

5.2 After Opening Bids

A Bidder may withdraw its bid without penalty at any time up to the time of Award only upon demonstrating to the satisfaction of the University of Massachusetts Boston that a death or disability has occurred or a bona fide clerical or mechanical error of a substantial nature was made during the preparation of the bid. Failure to demonstrate conclusively that a bona fide clerical or mechanical error of a substantial nature was made may result in forfeiture of the Bid Deposit.

The applicable goals, for minority and women workforce utilization established for this Contract are as follows:15.3% for minorities and 6.9% for women

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

The **UNIVERSITY OF MASSACHUSETTS BOSTON**, the Awarding Authority, invites sealed bids from Contractors for the Raised Pedestrian Crossing (UDrive West) at in Dorchester, Massachusetts, in accordance with the documents prepared by **LKB ENGINEERING**.

The Project consists of but not limited to:
Construction and modification to UDrive West to provide traffic mitigation, add bus drop off and raised pedestrian crosswalk.

The work is estimated to cost **$200,000.00**.

All bidding Requests for Information (RFIs) shall be submitted online by 06/27/2025 at 5:00PM EDT for general bids.
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 and received no later than the date and time specified.

General Bids will be received until **10 July 2025** at **2:00PM 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 **UNIVERSITY OF MASSACHUSETTS BOSTON**. 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 (may be viewed and downloaded electronically at no cost).

PRE-BID CONFERENCE / SITE VISIT: Scheduled
Date and Time: 06/25/2025 at 11:00AM EDT
Address: 100 Morrissey Blvd., Dorchester, MA 02125
Instructions: Prospective bidders should park in the West Garage or one of the Campus Open Lots and meet at the Service & Supply parking lot (across from the West Garage).

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 **.**

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. **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, 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 at User Profile account at 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 . 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 ebidding 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.l49 §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-Attorney 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 41 00
FORM FOR GENERAL BID
MGL c.30 §39M Over $50K

TO THE AWARDING AUTHORITY: University of Massachusetts Boston

A. The Undersigned proposes to furnish all labor and materials required for **Raised Pedestrian Crossing (UDrive West) [Project #UMBOS-2025-0907]** at in Dorchester, Massachusetts, in accordance with the accompanying plans and specifications prepared by **LKB Engineering** 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 $_____

Bid Amount in Words **Bid Amount in Numbers**

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.

_____

NAME OF BIDDER

_____

SIGNATURE AND TITLE OF PERSON SIGNING BID

Date: _____

_____

BUSINESS ADDRESS

_____

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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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
_____	_____
_____	_____
_____	_____
_____	_____

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

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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The undersigned agrees that each of the above named sub-bidders will be used for the work indicated at the amount stated, unless a substitution is made. The undersigned further agrees to pay the premiums for the payment bonds furnished by sub-bidders as requested herein and that all of the cost of all such premiums is included in the amount set forth in Item 1 of this bid.

The undersigned agrees that if he is selected as general contractor, he will promptly confer with the awarding authority on the question of sub-bidders; and that the awarding authority may substitute for any sub-bid listed above a sub-bid filed with the awarding authority by another sub-bidder for the sub-trade against whose standing and ability the undersigned makes no objection; and that the undersigned will use all such finally selected sub-bidders at the amounts named in their respective sub-bids and be in every way as responsible for them and their work as if they had been originally named in this general bid, the total contract price being adjusted to conform thereto.

E. 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 payment bond and performance bond, 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 100% of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price.

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 and that he will comply fully with all laws and regulations applicable to awards made subject to section forty-four A of Chapter 149 of the General Laws.

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 there under.

The undersigned further certifies under penalties of perjury that the undersigned is not debarred from doing public construction work under any law, rule or regulation of the federal government.

The undersigned hereby declares that the undersigned has carefully examined the Advertisement, Instructionsto Bidders, Owner - Contractor Agreement, General Conditions of the Contract, Special Conditions (if any), Plans and Specifications, all other Contract Documents, and also the Site upon which the proposed work is to be performed. The undersigned further declares that in regard to the conditions affecting the work to be done and the labor and materials needed, this proposal is based solely on the undersigned's own investigation and research and not in reliance upon any representation of any employee, officer or agent of the Commonwealth.

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;
- we are the only persons interested in this proposal;
- that it is made without any connection with any other person making any bid for the same work and without directly or indirectly influencing or attempting to influence any other person to bid to refrain from bidding or to influence the amount of the bid of any other person or corporation;
- that no person acting for, or employed by, the Commonwealth of Massachusetts is directly or indirectly interested in this proposal, or in any contract which be made under it, or in expected profits to arise there from.
- As used above the word "person" shall mean natural person, joint venture, partnership, corporation or other business or legal entity.

The undersigned certifies that it shall comply with the provisions of the Equal Employment Opportunity, Non-Discrimination, and Affirmative Action Program, if any, set forth in Article XII of the General Conditions of the Contract.

Should the Contract Documents require submission of special data to accompany the bid, the Awarding Authority reserves the right to rule the bidder's failure to submit such data an informality and to receive said data subsequently within a reasonable time as set by the Awarding Authority.

Date_____

_____
(Name of General Bidder)

By_____
(Name of Person Signing Bid and Title)

_____
(Business Address)

_____
(City and State)

The following information is furnished by the Bidder for the information of the University of Massachusetts Boston. Return this page with Bid Submission and fill in the appropriate information, which applies, to your type of business organization.

Is Bidder a corporation?_____If so, incorporated in what State_____
President_____Secretary or Clerk _____
Treasurer_____

If Bidder is a foreign (Not a Massachusetts) corporation, is it registered to do business inMassachusetts?_____

If Bidder is a foreign corporation and is selected, Bidder is required under M.G.L. c. 30, s. 39L to obtain from the Massachusetts Secretary of State, One Ashburton Place, 17th floor, a certificate stating that the corporation is registered to do business in Massachusetts, and to furnish said certificate to the awarding authority prior to the award.

Is Bidder a general partnership or joint venture?_____If so, name each partner or venturer
_____

Is Bidder a limited partnership? _____
Is Bidder registered in Massachusetts?_____If so, name each general partner
_____
If Bidder is a foreign limited partnership and is selected, Bidder is required under M.G.L. c. 30, s. 39L to obtain from the Massachusetts Secretary of State, One Ashburton Place, 17th floor, a certificate stating that the partnership is registered to do business in Massachusetts, and to furnish said certificate to the awarding authority prior to the award.

For each general partner or venturer that is a corporation, provide the following information (use additional sheets if necessary):

Name of corporation_____State of Incorporation _____
President_____Secretary or Clerk_____
Treasurer_____

Name of corporation_____State of Incorporation _____
President_____Secretary or Clerk_____
Treasurer_____

Is Bidder an individual? _____
Residence Address_____
Name under which Bidder does business_____
_____
Business Address_____

If selected Bidder is an individual doing business under a different name then Bidder must furnish evidence of any required DBA filing.

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OWNER - CONTRACTOR AGREEMENT

Awarding Authority: The University of Massachusetts Boston
This agreement ("Contract") is made as of the____ day of_____, 20____, by and between the Commonwealth of Massachusetts acting by and through the Awarding Authority identified above with a principal place of business at 100 William T Morrissey Blvd Boston, MA 02125,
and_____, a
_____with a principal place of business at _____
_____, hereinafter called the "Contractor".
Terms used in this Owner - Contractor Agreement which are defined in the General Conditions of the Contract shall have the meanings designated therein.

The Awarding Authority and the Contractor agree as follows:

Article 1. Scope of Work. The Work under this Contract is defined as all work required by the Contract Documents for the construction of UMB Raised Pedestrian Crossing (UDrive West) , Contract No. UMBOS-2025-0907 in accordance with and as described in the Plans and Specifications dated_____, 20 , prepared by (“Designer"), as modified by Addenda Nos. dated _____
, 20_.

Article 2. Time of for Completion. The Contractor shall commence the Work under this Contract on the date specified in the written "Notice to Proceed," and shall, within 39 days after such date, bring the Work to Substantial Completion. (Time to complete with alternate 1: days)

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

Alternate No(s): _____

Article 4. Approved Subcontractors. No Subcontractors shall be used for these or any other portions of the Work without the prior written approval of the Awarding Authority.

Article 5. Certifications.: Pursuant to M.G.L. c. 62(c), §49 (a), the individual signing this Contract on behalf of the Contractor hereby certifies, under the penalties of perjury, that to the best of his or her knowledge and belief the Contractor has complied with any and all applicable state and federal tax laws. The individual signing this

Contract on behalf of the Contractor further certifies under penalties of perjury that the Contractor is not presently debarred from doing public construction work in the Commonwealth under the provisions of M.G.L. c. 29, § 29F, or any other applicable debarment provisions of any other chapter of the General Laws or any rule

or regulation promulgated there under and is not presently debarred from doing public construction work by any agency of the United States Government..

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

-Part # 1 – Bid Instructions & Bid Form, including the Schedule of Prevailing Wages
-The General Bid submitted by the Contractor
-This Owner – Contractor Agreement
- Exhibit A: Prevailing Wage Rates Schedule (required for all contracts)
-The General Conditions of the Contract
-The Plans and Specifications, including Addenda identified in Article 1 above
-All Approved Change Orders issued after execution of this Owner - Contractor Agreement

Article 7. Liquidated Damages. For the purposes of Article 3 of the General Conditions of the Contract, liquidated damages for delay shall be as follows**: $ 500.00**

Article 8. Minority/Women Workforce Utilization Percentages: The applicable goals, for minority and women workforce utilization established for this Contract are as follows:15.3% for minorities and 6.9% for women

Article 9. Additional Insurance Provisions. The insurance requirements set forth in Article 7 of the General Conditions of the Contract are supplemented by the provisions, if any, appearing in Exhibit A attached hereto and incorporated herein.

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

CONTRACTOR:

_____
(Name of General Bidder)

By_____
(Name of Person Signing Bid and Title)

_____
(Business Address)

_____
(City and State)

Date_____

Owner – Contractor Agreement

Contract #: UMBOS-2025-0907
Title: UMB Raised Pedestrian Crossing (UDrive West)

AWARDING AUTHORITY:

By executing this Agreement, the undersigned authorized signatory of the Awarding Authority, who incurs no personal liability by reason of the execution hereof or anything herein contained, hereby certifies under penalties of perjury that all the applicable provisions of M.G.L. c. 30, §39M, have been complied with.

By: _____

Name: _____

Title: _____

Date: _____

By: _____

Name: _____

Title: _____

Date: _____

By: _____

Name: _____

Title: _____

Date: _____

Owner – Contractor Agreement

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PAYMENT BOND

Know all men by these presents, that

_____

as principal, and _____
as surety, are held and firmly bound unto the Commonwealth of Massachusetts in the sum of

_____

in lawful money of the United States of America, to be paid to the Commonwealth of Massachusetts, for which payments, well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the said principal has made a Contract with the Commonwealth acting through its _____ ("Awarding Authority") bearing date of _____, 20____, for the construction of Project No. _____ Contract No. _____
Project Name _____

_____

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

In witness whereof we hereunto set our hand and seals this _____ day of _____, 20__.

_____ (Seal)
(Print Name of General Contractor)

By _____
(Signature - Title)

_____(Seal)
(Print Name of Surety)

_____
(Signature - Title)

Surety Address _____
_____

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CERTIFICATE OF CORPORATE VOTE

_____ 20 ____

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

_____ (the "Corporation") and that at a
(Name of Corporation)
duly authorized meeting of the Board of Directors of the Corporation held on

_____ in _____ at which a quorum was
(Date) (Location)
present and voting it was voted to authorize _____
(Name)
_____ of the Corporation to execute
(Officer Title)
and deliver on behalf of the Corporation the following contract and to act as principal to execute bonds in connection therewith, which contract and bonds were presented to and made a part of the records of said meeting:

Contract No. _____

Contract Title: _____

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

_____ of the Corporation and that said vote has not been
(Officer Title)
repealed, rescinded or amended.

_____
Name

_____
Date

(CORPORATE SEAL)

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

_____
Notary Public

My Commission Expires: _____

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CERTIFICATE OF JOINT VENTURE
(INCLUDING SIGNATURE AUTHORITY)

This certificate is being given in connection with the execution by _____(the "Joint Venture") of the following construction contract with the Commonwealth of Massachusetts:

_____

_____

_____

In connection with the execution of the contract (the "Contract") the parties to the Joint Venture represent and warrant as follows:

1. Exhibit A attached hereto is a true and complete copy of the Joint Venture Agreement between the parties dated _____. Said Joint Venture Agreement is in full force and effect and has not been modified, amended, revoked, or terminated.

2. The principal place of business of the Joint Venture is as follows:

_____

_____

3. The Management Committee of the Joint Venture described in Section _____of the Joint Venture Agreement continues to consist of

_____

_____

who together have the power to bind the Joint Venture and the parties thereto.

4. The Management Committee of the Joint Venture hereby appoints _____ as an authorized representative of the Joint Venture who shall have the power, individually, to execute any and all documents in connection with the Contract and whose signature shall be binding upon the Joint Venture. The Management Committee may modify or revoke such appointment, and may appoint additional authorized representative(s), only with the consent of the Commonwealth and only by a written document executed by the members of the Management Committee.

5. No changes in the Management Committee of the Joint Venture shall be effective without the written consent of the Commonwealth.

6. No amendments to the Joint Venture Agreement shall be effective without the written consent of the Commonwealth.

7. By executing this certificate

_____

_____

acknowledge that they are jointly and severally liable to the Commonwealth of Massachusetts for all obligations of the Joint Venture.

This certificate is executed under seal as of the dates set forth opposite the last signature below:

_____, a Massachusetts joint venture

By: _____, a Massachusetts corporation
having a principal place of business at _____
_____,its general partner

By:_____

Its: _____
hereunto duly authorized

Date: _____

By: _____, a Massachusetts corporation
having a principal place of business at _____
_____, its general partner.

By:_____

Its: _____
hereunto duly authorized

Date: _____

(Note: This certificate may have to be modified depending upon the terms of the joint venture agreement.)

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

Pursuant to M.G.L., Ch. 62C, s. 49A and M.G.L., Ch. 151A, s. 19A, I,

_____ authorized signatory for

_____ whose principal place of business is at

_____ do hereby certify

under penalties of perjury that _____ has filed all state tax returns and paid all taxes as required by law and has complied with all state laws pertaining to contributions to the unemployment compensation fund and to payments in lieu of contributions.

The Business Organization Social Security Number or Federal Identification Number is

_____.

Signed under the penalties of perjury the _____ day of _____

20 ____.

Signature: _____

Name and Title: _____

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GENERAL CONDITIONS OF THE CONTRACT

Table of Contents

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1. GENERAL PROVISIONS

1.1 Scope of the Work. The Work comprises the completed project described in the Contract Documents and includes all labor, professional services, transportation, tools, materials, supplies, equipment, permits, approvals, documents, calculations, submittals, and certificates necessary to develop, perform, construct and complete the project in accordance with all applicable laws, ordinances, and regulations, and in accordance with the Contract Documents.

1.2 Interpretation. The Plans and Specifications and other Contract Documents are to be considered together and are intended to be mutually complementary, so that any work shown on the Plans though not specified in the Specifications, and any work specified in the Specifications though not shown on the Plans, is part of the Work to be performed by the Contractor. Capitalized terms not otherwise defined herein shall have the meanings assigned to them in the Owner-Contractor Agreement.

1.3 Administrator. The term "Administrator" means the person appointed by the University of Massachusetts Boston to administer this Contract.

1.4 Written Authorization. Actions taken, and approvals and decisions made by the University of Massachusetts Boston under this Contract require the prior approval and signature of the Administrator. These include, but are not limited to, the following: changes in the Contract Price, time for completion, or any other provision of this Contract; written orders, notices, and approvals given by the University of Massachusetts Boston pursuant to the Contract Documents or pursuant to any laws applicable to this Contract, including approval of "or equal" submissions; issuance of stop work orders; approval of Contractor's applications for payment; and termination of the Contract. Work undertaken by the Contractor not authorized by the Administrator's signature prior to the start of such work shall be considered unauthorized work and shall not entitle the Contractor to any extra payment. The Contractor shall perform, at its own expense, corrective measures required by the University of Massachusetts Boston due to any failure to obtain the prior approval of the Administrator for any item of work.

1.5 Contractor's General Duties. The Contractor shall perform the Work in a competent manner in accordance with the Contract Documents and all applicable laws. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures, and coordination of all portions of the Work under this Contract. The Contractor shall provide and perform for the Contract Price all of the duties and obligations set forth in the Contract Documents. Except as otherwise specified in this Contract, it is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable Laws. However, if the Contractor observes that portions of the Contract Documents are at variance with legal requirements, the Contractor shall promptly notify the University of Massachusetts Boston of that fact in writing. If the Contractor performs Work knowing it to be contrary to legal requirements, the Contractor shall be liable for all damages caused thereby, including the cost of correcting the Work.

1.6 Sales Tax Exemption and Other Taxes. To the extent that materials and supplies are used or incorporated in the performance of this Contract, the Contractor is considered an exempt purchaser under the Massachusetts Sales Act, Chapter 14 of the Acts of 1966. The Contractor shall pay all taxes and tariffs of any sort related to the Work, subject to the applicable exemptions.

1.7 Permits, Fees and Notices. The Contractor shall secure and pay for all permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work. The Contractor shall coordinate all efforts required to obtain these permits unless otherwise directed in writing by the University of Massachusetts Boston . The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations, codes, and lawful orders of public authorities bearing on the performance of the Work.

1.8 Safety Requirements. The Contractor shall comply with all Federal, State, and local safety laws and regulations applicable to the Work.

1.9 Minimum Wage Rates. The Contractor shall comply with M.G.L. c. 149, §§26- 27H. The wage schedule found in Exhibit A to the Instructions to Bidders lists the minimum wage rates that must be paid to all workers employed in the Work. throughout the term of this Contract, subject to the exceptions provided in M.G.L c.149, §§ 26-27H.. The University of Massachusetts Boston is not responsible for any errors, omissions, or misprints in the said schedule. The Contractor shall not have any claim for extra compensation from the University of Massachusetts Boston arising from the fact that the actual wages paid to workers employed in the Work exceed the rates listed on the schedule or as otherwise provided by law. The Contractor shall cause a copy of the schedule to be posted in a conspicuous place at the Site during the term of the Contract. If reserve police officers are employed by the Contractor, they shall be paid the prevailing wage of regular police officers. (See M.G.L c.149, §34B).

2.0 MATERIALS AND EQUIPMENT WARRANTY

The Contractor warrants to the University of Massachusetts Boston that the materials and equipment furnished under this Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents.

3.0 PROSECUTION OF THE WORK -- LIQUIDATED DAMAGES

3.1. Beginning, Progress Schedule. The Contract time shall commence upon the date specified in the Notice to Proceed executed by the Administrator and delivered to the Contractor after the execution of this Contract. The Contractor shall begin Work at the Site within ten days of said date unless otherwise ordered in writing by the University of Massachusetts Boston . Prior to commencing the Work, the Contractor shall meet with representatives of the University of Massachusetts Boston to discuss the quality assurance program, safety program, labor provisions, progress schedule, schedule of values, and other Contract procedures. Upon Approval

by the Administrator, the progress schedule shall constitute the progress schedule for the Work. Upon approval by the Administrator, the schedule of values shall be the basis for payment for the Work. The Contractor shall at the end of each month, or more often if required, furnish to the University of Massachusetts Boston a schedule meeting the requirements of the Specifications showing the actual progress of the parts of the Work in comparison with the approved progress schedule.

3.2 Time for Completion of Work. Time is of the essence of this Contract. The Work shall be completed within 75 calendar days, subject only to extensions specifically permitted in accordance with the terms of this Contract.

3.3 Definition of "Substantial Completion". For the purposes of this Contract the term "Substantial Completion" shall occur when (1) the Contractor fully completes the Work or substantially completes the Work so that the value of the Work remaining to be done is, in the estimate of the University of Massachusetts Boston , less than one percent of the original Contract price, or (2) the Contractor substantially completes the work and the University of Massachusetts Boston takes possession for occupancy, whichever occurs first. For the purposes of the preceding sentences the term "substantially completes" means that the work required by the Contract has been completed except for minor incomplete or unsatisfactory work items that do not materially impair the usefulness of the Work.

3. 4 Failure to Complete Work on Time - Liquidated Damages.
The University of Massachusetts Boston has determined that its damages as a result of Contractor's failure to complete the Work to Substantial Completion within the Contract time will be difficult or impracticable to ascertain. Accordingly, the Contractor shall pay to the University of Massachusetts Boston the sum designated as liquidated damages in the Contract for each and every calendar day that the Contractor is in default in completing the Work to Substantial Completion. Such moneys shall be paid as liquidated damages, and not as a penalty, to cover losses and expenses to the University of Massachusetts Boston resulting solely from the fact that the Work is not completed on time. Liquidated damages or a portion thereof may be waived by the University of Massachusetts Boston if the Contractor submits evidence satisfactory to the University of Massachusetts Boston that the delay was caused solely by conditions beyond the control of the Contractor and that the University of Massachusetts Boston has not suffered any damages as a result of said delay.

3.5 Collection of Liquidated Damages. The University of Massachusetts Boston may recover liquidated damages by deducting the amount thereof from any moneys due or that might become due the Contractor, and if such moneys shall be insufficient to cover the liquidated damages, then the Contractor or the Surety shall pay to the University of Massachusetts Boston the amount due.

3.6 University of Massachusetts Boston's Approvals and Interpretations. Decisions by the University of Massachusetts Boston regarding interpretation of the specifications, approval of equipment, material or any other approval, or progress of the Work,

shall be made promptly and, in any event, no later than thirty days after the Contractor's written submission for decision; but if such decision requires extended investigation and study, the University of Massachusetts Boston shall, within thirty days after the receipt of the submission, give the Contractor written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision will be made.

3.7 Extension for Delays Caused by University of Massachusetts Boston . The only circumstances under which the Contract Price shall be increased due to delays caused by the University of Massachusetts Boston are those specified in M.G.L. c. 30, §390 appearing in Appendix A to these General Conditions of the Contract. In all other cases the Contractor shall be entitled neither to increase the Contract Price nor to receive damages on account of any hindrances or delays, avoidable or unavoidable, but if the delay is caused by the University of Massachusetts Boston , the Contractor shall be entitled to an extension of time to the extent provided in M.G.L. c. 30, §390. The Contractor must submit any claim under this paragraph to the University of Massachusetts Boston in writing as soon as practicable after the end of the University of Massachusetts Boston's suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this Contract. Except for costs due to a suspension order, the University of Massachusetts Boston shall not approve any costs in the claim incurred more than 20 days before the Contractor notified the University of Massachusetts Boston in writing of the act or failure to act or the University of Massachusetts Boston that gave rise to the claim.

3.8 University of Massachusetts Boston's Right to Reject Defective Materials and Work. Except as otherwise provided herein, the University of Massachusetts Boston's inspection of the Work shall not relieve the Contractor of any of its responsibilities hereunder, and defective work shall be corrected. The University of Massachusetts Boston may reject unsuitable work, notwithstanding that such work and materials have been previously accepted for payment. If any part of the Work shall be found defective at any time before the final acceptance of the whole Work, the Contractor shall promptly correct such defect in a manner satisfactory to the University of Massachusetts Boston . If any material brought upon the site for use in the Work shall be rejected by the University of Massachusetts Boston as not in conformity with the Contract Documents, the Contractor shall promptly remove such materials from the site.

3.9 Substantial Completion of the Work; Final Completion; University of Massachusetts Boston's Remedies. When the Work has reached the point of Substantial Completion as shown on Approved payment request, the Contractor shall assist the University of Massachusetts Boston in the development of a punch list identifying those items of unfinished or unacceptable Work that remain to be performed or corrected under the Contract. The Contractor shall complete the lunch list items to final completion within 30 days after the University of Massachusetts Boston's approval of the punch list. At any time after the value of the Work remaining to be done is, in the estimation of the University of Massachusetts Boston , less than 1 per cent of the adjusted Contract price, or the University of Massachusetts Boston has determined that the Contractor has substantially completed the work and the University of Massachusetts Boston has taken possession for occupancy, the University of Massachusetts Boston may send to the Contractor by

certified mail, return receipt requested, a complete and final list of all incomplete and unsatisfactory work items, including, for each item on the list, a good faith estimate of the fair and reasonable cost of completing such item. The Contractor shall then complete all such work items within 30 days of receipt of such list or before the Contract completion date, whichever is later. If the Contractor fails to complete all incomplete and unsatisfactory work items within 45 days after receipt of such items furnished by the University of Massachusetts Boston or before the Contract completion date, whichever is later, subsequent to an additional 14 days' written notice to the Contractor by certified mail, return receipt requested, the University of Massachusetts Boston may terminate this Contract and complete the incomplete and unsatisfactory work items and charge the cost of same to the Contractor and such termination shall be without prejudice to any other rights or remedies the University of Massachusetts Boston may have under this Contract.

4.0 DEFINITION OF TERMS

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

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

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

Architect: The architect identified as the Designer in Article 1 of the Owner - Contractor Agreement.

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

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

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

Certificate of Agency Use and Occupancy: A certificate signed by the Designer and the Awarding Authority pursuant to the requirements of Article VI of these General Conditions of the Contract, indicating that the Awarding Authority has determined that (1)

the Work has been completed in accordance with the Contract Documents, except for Punch List items, (2) certificates of inspection, testing and/or approval (including a certificate of occupancy under the Building Code), operating permits for any mechanical apparatus which may be required to permit full use and occupancy of the Work by its intended users (which in a Subcontractor's case may include the Contractor) have been delivered to the Awarding Authority, (3) any applicable written warranties, operating instructions and related materials have been delivered to the Awarding Authority, and (4) the Work may be used for its intended purpose without substantial inconvenience or interference.

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

Contract: The Contract formed by the Contract Documents as defined in Article 6 of the Owner - Contractor Agreement.

Contract Documents: The documents listed in Article 6 of the Owner - Contractor Agreement.

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

Contract Price: The Contract Price stated in Article 3 of the Owner - Contractor Agreement which is the total sum owed to the Contractor for all of the Work.

DCAM: The Division of Capital Asset Management and Maintenance of the Commonwealth of Massachusetts.

Designer: The architect or engineer identified as the Designer in Article 1 of the Owner - Contractor Agreement.

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

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

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

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

General Bid: The completed bid form submitted by the Contractor in accordance with the requirements of M.G.L. c. 30-39M.

Laws: All applicable statutes, regulations, ordinances, codes, laws, orders, decrees, approvals, certificates and requirements of governmental and quasi-governmental authorities.

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

Notice to Proceed: The written notice provided by the Awarding Authority to the Contractor which authorizes the Contractor to commence the Work as of a date specified therein, from which date the time of completion specified in Article 2 of the Owner - Contractor Agreement is measured.

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

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

Plan(s): Drawing(s).

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

Progress Schedule: The progress schedule Approved by the Designer and the Awarding Authority.

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

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

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

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

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

Schedule of Values: The schedule Approved by the Awarding Authority which allocates the Contract Price to the various portions of the Work and is used as a basis for payments to the Contractor.

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

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

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

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

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

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

User Agency: The department, county, commission, board, agency or other instrumentality of the Commonwealth of Massachusetts or political subdivision thereof which operates or which will operate the facility at which the Work is undertaken or which comprises the completed Work.

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

Working Hours: 7:00 a.m. to 5:00 p.m. unless otherwise specified by applicable Laws.

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

5. CHANGES IN THE WORK

5.1 Changes within the Scope of the Work. A change order may be issued by the University of Massachusetts Boston for changes in the Work within the scope of the Contract, including but not limited to, changes in: (1) the Plans and Specifications; (2) the method or manner of performance of the Work; (3) the University of Massachusetts Boston - furnished facilities, equipment, materials, services, or Site; or (4) the schedule for performance of the Work. The Contractor shall immediately perform any change order work that is ordered in writing by the University of Massachusetts Boston .

5.2. Request for Equitable Adjustment due to Change Order. Whenever a change order is issued by the University of Massachusetts Boston that will cause a change in the Contractor's cost or time for performance, the Contractor or the University of Massachusetts Boston may request an equitable adjustment in the Contract Price or the Contract time. A request for such an adjustment shall be in writing and shall be submitted by the party making such claim to the other party.

5.3. Latent Conditions. If, during the progress of the Work, the Contractor or the University of Massachusetts Boston discovers that the actual subsurface or latent physical conditions encountered at the Site differ substantially or materially from those indicated in the Contract Documents, then either the Contractor or the University of Massachusetts Boston may request an equitable adjustment in the Contract Price in accordance with M.G.L. c.30, §39N appearing in Appendix A attached to these General Conditions of the Contract. Likewise if the

latent or subsurface physical condition causes a change in the time for performing the Work, either the Contractor or the University of Massachusetts Boston may request an equitable adjustment of the time for the performance of the Work.

5.4 Appeal Procedure. If the Contractor disputes a change, an equitable adjustment, or a Contract interpretation by the University of Massachusetts Boston , the Contractor shall follow the procedures set forth in M.G.L. c. 30, §39Q appearing in Appendix A to these General Conditions of the Contract.

6. PAYMENT PROVISIONS

6.1 Applications for Periodic Payments. Once each month, on a date established at the beginning of the Work, the Contractor shall deliver to the University of Massachusetts Boston an itemized Application for Payment, supported by such data substantiating the Contractor's right to payment as the University of Massachusetts Boston may require. The application shall reflect a minimum of 5% retainage and shall be subject to, and processed in accordance with, the provisions of M.G.L. c. 30, §39K appearing in Appendix A to these General Conditions.

6.2 Deductions by the University of Massachusetts Boston . The University of Massachusetts Boston may deduct from any application for a periodic payment submitted by the Contractor a retention based upon the value of its claims against the Contractor plus a retention of 5% of the approved amount of the Application for Payment and any other amounts authorized by M.G.L. c. 30, §39K.

6.3 Final Payment. Final Payment under this Contract shall be processed in accordance with the procedures set forth in M.G.L. c. 30, §39K. The acceptance by the Contractor of the last payment due under this Contract or the Contractor's execution of the Final Certificate of Completion, shall operate as a release to the University of Massachusetts Boston from all claims and liability related to this Contract.

7. WARRANTIES AND GUARANTEE

7.1 Warranty. The Contractor warrants to the University of MassachusettsBoston that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective.

7.2 General Guaranty. If at any time during the period of one (1) year from the date of the its substantial completion, as shown on an approved payment request, the Work or any part of the Work shall in the reasonable determination of the University of Massachusetts Boston require replacing or repairing due to the fact that it is broken, defective, or otherwise does not

conform to the Contract Documents, the University of Massachusetts Boston will notify the Contractor to make the required repairs or replacement. If the Contractor shall neglect to commence such repairs or replacements to the satisfaction of the University of Massachusetts Boston within ten (10) days from the date of giving or mailing such notice, then the University of Massachusetts Boston may employ other persons to make said repairs or replacements. The Contractor agrees, upon demand, to pay to the University of Massachusetts Boston all amounts which the University of Massachusetts Boston expends for such repairs or replacements. For items of work completed after substantial completion, the one- year guarantee shall commence at the time the University of Massachusetts Boston approves of the completion of such items. This one-year guarantee shall not limit any express guaranty or warranty required to be assigned to the University of Massachusetts Boston pursuant to the terms of the Plans and Specifications.

8. INSURANCE REQUIREMENTS

8.1 General. The Contractor shall submit three originals of each certificate of insurance, acceptable to the University of Massachusetts Boston , simultaneously with the execution of this Contract. The Contractor shall submit updated certificates prior to the expiration of any of the policies referenced in the certificates so that the University of Massachusetts Boston shall at all times possess certificates indicating current coverage. All policies shall be written on an "occurrence" basis and shall be issued by companies authorized to write that type of insurance under the laws of the Commonwealth and rated in Best's Insurance Guide (or any successor thereto or replacement thereof) as having a general policy holder rating of "A" or better and a financial rating of at least "9" or otherwise acceptable to the University of Massachusetts Boston . All policies shall provide that termination, cancellation, or material modification of the insurance required by this Contract, whether by the insurer or the insured, shall not be valid unless written notice thereof is given to the University of Massachusetts Boston at least thirty days prior to the effective date thereof, which date shall be expressed in said notice. The University of Massachusetts Boston and the Commonwealth shall be named as additional insureds on the Contractor's liability policies.

8.2 Worker's Compensation. The Contractor shall provide evidence of Worker's Compensation insurance in the following amounts:
Coverage A Per M.G.L. c.149 §34 and c.152 as amended
Employer's liability:
Coverage B up to $500,000 each accident
$ 500,000 disease per employee
$ 500,000 disease policy

8.3 Commercial General Liability. The Contractor shall provide evidence of commercial general liability insurance in the following amounts

Bodily Injury &	$ 1,000,000. each occurrence
Property Damage	$ 2,000,000. general aggregate
Products & Completed Operations	$ 1,000,000. aggregate
Personal & Advertising Injury	$ 1,000,000. each occurrence

8.4 Vehicle Liability.

Personal Injury	$ 500,000. each person
and Property Damage	$ 1,000,000. aggregate
Combined Single Limit	$1,000,000.

8.5 Certificates of Insurance. Copies of Policies. The Contractor shall file the original and one certified copy of all policies with the University of Massachusetts Boston within sixty days after Contract award. If the University of Massachusetts Boston is damaged by the Contractor's failure to maintain such insurance and to so notify the University of Massachusetts Boston , then the Contractor shall be responsible for all reasonable costs attributable thereto.

9.0 INDEMNIFICATION

The Contractor shall indemnify, defend (with counsel subject to the supervision of the Attorney General of the University of Massachusetts Boston as required by M.G.L. c. 12, §3) and hold harmless the University of Massachusetts Boston and the Commonwealth and their officers, agents, divisions, agencies, employees, representatives, successors and assigns from and against all claims, damages, losses and expenses, including but not limited to court costs and attorneys' fees, arising out of or resulting from the performance of the Work, including but not limited to those arising or resulting from: labor performed or furnished and/or materials used or employed in the performance of the Work; violations by Contractor, any Subcontractor, or by any person directly or indirectly employed or used by any of them in the performance of the Work or anyone for whose acts any of them may be liable
(Contractor, subcontractor and all such persons herein collectively called "Contractor's Personnel") of any Laws; violations of any provision of this Contract by any of Contractor's Personnel; injuries to any persons or damage to any property in connection with the Work; any act, omission, or neglect of Contractor's Personnel. The Contractor shall be obligated as provided above, regardless of whether or not such claims, damages, losses and/or expenses, are caused in whole or in part by the actions or inaction's of a party indemnified hereunder. In any and all claims by Contractor's Personnel against parties indemnified hereunder, the Contractor's indemnification obligation set forth above shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this Article 8.

10.0 BONDS

The Contractor shall provide the University of Massachusetts Boston with a Payment Bond in the form provided by the University of Massachusetts Boston , executed by a surety company licensed by the University of Massachusetts Boston ' Division of Insurance. The Payment Bond shall be equal to 50% of Contract Price.

11.0 TERMINATION

11.1 Termination for Cause.

The University of Massachusetts Boston may terminate this Contract for cause if it determines that any of the following circumstances have occurred:

- the Contractor is adjudged bankrupt or has made a general assignment for the benefit of its creditors;
- a receiver has been appointed of the Contractor's property;
- all or a part of the Work has been abandoned;
- the Contractor has sublet or assigned all or any portion of the Work, the Contract, or claims thereunder, without the prior written consent of the University of Massachusetts Boston , except as provided in the Contract Documents;
- the University of Massachusetts Boston has determined that the rate of progress required on the project is not being met;
- the Contractor has substantially violated any provisions of this Contract.

The University of Massachusetts Boston may complete the Work or any part thereof, and charge its expense of so completing the work or part thereof, to the Contractor. The University of Massachusetts Boston may take possession of and use any materials, machinery, implements and tools found upon the site of said Work. The University of Massachusetts Boston shall not be liable for any depreciation, loss or damage to said materials, machinery, implements or tools during said use and the Contractor shall be solely responsible for their removal from the Project site after the University of Massachusetts Boston has no further use for them.

11.2 Termination for Convenience.

(a) In the event that this Contract is terminated by the University of Massachusetts Boston prior to the completion of construction and termination is not based on a reason listed in Paragraph 10.1, the Contractor shall be compensated for its costs incurred, including reasonable costs of de-mobilization, calculated on a percent completion basis covering the period of time between the last Approved application for payment and the date of termination.
(b) Payment by the University of Massachusetts Boston pursuant to Subparagraph 10.2(a) shall be deemed to fully compensate the Contractor for all claims and expenses directly or indirectly attributable to the termination, including any claims for lost profits.

12 NON-APPROPRIATION

The Commonwealth certifies that at the time of the execution of this Contract, sufficient appropriations exist and shall be encumbered to fund the Contract Price. Payments are subject to appropriation and shall be made only for work performed in accordance with the terms of this Contract. The Contractor shall not be obligated to perform, and may not perform, work outside the duration and scope of this Contract without an appropriate amendment to this Contract, and a

sufficient appropriation(s) to support such additional work. The Commonwealth may immediately terminate or suspend this Contract in the event that the appropriation(s) funding this Contract is eliminated or reduced to an amount which will be insufficient to support anticipated future obligations under this Contract.

13 RECORDS AND LAWS

The Contractor shall make, and keep for at least six years after final payment, books, records, and accounts, which in reasonable detail accurately and fairly reflect the transactions and dispositions of the Contractor. [M.G.L. c. 30, §39R(b)(1)-(2)].
Until the expiration of six years after final payment, the Office of the Inspector General, and the Commissioner of DCAM shall have the right to examine any books, documents, papers or records of the Contractor or of its subcontractors that directly pertain to, and involve transactions relating to, the Contractor or its subcontractors. [M.G.L. c. 30, §39R(b)(1)-(2)]. If this is a materials contract with a contract price of over $100,000 the contractor shall also comply with M.G.L. c. 30, §39R(c).

14 CHOICE OF LAW

This Contract shall be construed under and governed by the laws of the University of Massachusetts Boston . The Contractor, and the agents thereof, agree to bring any federal or state legal proceedings arising under this Contract, in which either the Commonwealth or the University of Massachusetts Boston is a party, in a court of competent jurisdiction within the University of Massachusetts Boston . This section shall not be construed to limit any rights a party may have to intervene in any action, in any court or wherever, pending, in which the other is a party.

15 STATUTORY PROVISIONS INCORPORATED BY REFERENCE

The statutory provisions appearing in Appendix A attached hereto are incorporated into this Contract by reference.

APPENDIX A

Statutory Provisions Incorporated by Reference

Chapter 30: Section 39N. Construction contracts; equitable adjustment in contract price for differing subsurface or latent physical conditions.

Section 39N. Every contract subject to section forty-four A of chapter one hundred and forty-nine or subject to section thirty-nine M of chapter thirty shall contain the following paragraph in its entirety and an University of Massachusetts Boston may adopt reasonable rules or regulations in conformity with that paragraph concerning the filing, investigation and settlement of such claims:
If, during the progress of the work, the contractor or the University of Massachusetts Boston discovers that the actual subsurface or latent physical conditions encountered at the site differ substantially or materially from those shown on the plans or indicated in the contract documents either the contractor or the contracting authority may request an equitable adjustment in the contract price of the contract applying to work affected by the differing site conditions. A request for such an adjustment shall be in writing and shall be delivered by the party making such claim to the other party as soon as possible after such conditions are discovered. Upon receipt of such a claim from a contractor, or upon its own initiative, the contracting authority shall make an investigation of such physical conditions, and, if they differ substantially or materially from those shown on the plans or indicated in the contract documents or from those ordinarily encountered and generally recognized as inherent in work of the character provided for in the plans and contract documents and are of such a nature as to cause an increase or decrease in the cost of performance of the work or a change in the construction methods required for the performance of the work which results in an increase or decrease in the cost of the work, the contracting authority shall make an equitable adjustment in the contract price and the contract shall be modified in writing accordingly.

Chapter 30: Section 39O. Contracts for construction and materials; suspension, delay or interruption due to order of University of Massachusetts Boston ; adjustment in contract price; required provisions.

Section 39O. Every contract subject to the provisions of section thirty-nine M of this chapter or subject to section forty-four A of chapter one hundred forty-nine shall contain the following provisions (a) and (b) in their entirety and, in the event a suspension, delay, interruption or failure to act of the University of Massachusetts Boston increases the cost of performance to any subcontractor, that subcontractor shall have the same rights against the general contractor for payment for an increase in the cost of his performance as provisions (a) and (b) give the general contractor against the University of Massachusetts Boston , but nothing in provisions (a) and (b) shall in any way change, modify or alter any other rights which the general contractor or the subcontractor may have against each other.
(a) The University of Massachusetts Boston may order the general contractor in writing to suspend, delay, or interrupt all or any part of the work for such period of time as it may determine to be appropriate for the convenience of the University of Massachusetts Boston ; provided however, that if there is a suspension, delay or interruption for fifteen days or

more or due to a failure of the University of Massachusetts Boston to act within the time specified in this contract, the University of Massachusetts Boston shall make an adjustment in the contract price for any increase in the cost of performance of this contract but shall not include any profit to the general contractor on such increase; and provided further, that the University of Massachusetts Boston shall not make any adjustment in the contract price under this provision for any suspension, delay, interruption or failure to act to the extent that such is due to any cause for which this contract provides for an equitable adjustment of the contract price under any other contract provisions.
(b) The general contractor must submit the amount of a claim under provision (a) to the University of Massachusetts Boston in writing as soon as practicable after the end of the suspension, delay, interruption or failure to act and, in any event, not later than the date of final payment under this contract and, except for costs due to a suspension order, the University of Massachusetts Boston shall not approve any costs in the claim incurred more than twenty days before the general contractor notified the University of Massachusetts Boston in writing of the act or failure to act involved in the claim.

Chapter 30: Section 39P. Contracts for construction and materials; decisions of University of Massachusetts Boston on interpretation of specifications, etc. required promptly upon submission; time limit; notice.

Section 39P. Every contract subject to section thirty-nine M of this chapter or section forty-four A of chapter one hundred forty-nine which requires the University of Massachusetts Boston , any official, its architect or engineer to make a decision on interpretation of the specifications, approval of equipment, material or any other approval, or progress of the work, shall require that the decision be made promptly and, in any event, no later than thirty days after the written submission for decision; but if such decision requires extended investigation and study, the University of Massachusetts Boston , the official, architect or engineer shall, within thirty days after the receipt of the submission, give the party making the submission written notice of the reasons why the decision cannot be made within the thirty day period and the date by which the decision will be made.

Chapter 30: Section 39Q. Contracts for capital facility construction, etc.; contents; annual claims report.

Section 39Q. (1) Every contract awarded by any state agency as defined by section thirty-nine A of chapter seven for the construction, reconstruction, alteration, remodeling, repair or demolition of any capital facility as defined by the aforesaid section thirty-nine A shall contain the following subparagraphs (a) through (d) in their entirety:
(a) Disputes regarding changes in and interpretations of the terms or scope of the contract and denials of or failures to act upon claims for payment for extra work or materials shall be resolved according to the following procedures, which shall constitute the exclusive method for resolving such disputes. Written notice of the matter in dispute shall be submitted promptly by the claimant to the chief executive official of the state agency, which awarded the contract or his designee. No person or business entity having a contract with a state agency shall delay, suspend, or curtail performance under that contract as a result of any dispute subject to this section. Any disputed

order, decision or action by the agency or its authorized representative shall be fully performed or complied with pending resolution of the dispute.
(b) Within thirty days of submission of the dispute to the chief executive official of the state agency or his designee, he shall issue a written decision stating the reasons therefor, and shall notify the parties of their right of appeal under this section. If the official or his designee is unable to issue a decision within thirty days, he shall notify the parties to the dispute in writing of the reasons why a decision cannot be issued within thirty days and of the date by which the decision shall issue. Failure to issue a decision within the thirty-day period or within the additional time period specified in such written notice shall be deemed to constitute a denial of the claim and shall authorize resort to the appeal procedure described below. The decision of the chief executive official or his designee shall be final and conclusive unless an appeal is taken as provided below.
(c) Within twenty-one calendar days of the receipt of a written decision or of the failure to issue a decision as stated in the preceding subparagraph, any aggrieved party may file a notice of claim for an adjudicatory hearing with the division of hearing officers or the aggrieved party may file an action directly in a court of competent jurisdiction and shall serve copies thereof upon all other parties in the form and manner prescribed by the rules governing the conduct of adjudicatory proceedings of the division of hearing officers. In the event an aggrieved party exercises his option to file an action directly in court as provided in the previous sentence, the twenty-one day period shall not apply to such filing and the period of filing such action shall be the same period otherwise applicable for filing a civil action in superior court. The appeal shall be referred to a hearing officer experienced in construction law and shall be prosecuted in accordance with the formal rules of procedure for the conduct of adjudicatory hearings of the division of hearing officers, except as provided below. The hearing officer shall issue a final decision as expeditiously as possible, but in no event more than one hundred and twenty calendar days after conclusion of the adjudicatory hearing, unless the decision is delayed by a request for extension of time for filing post-hearing briefs or other submissions assented to by all parties. Whenever, because an extension of time has been granted, the hearing officer is unable to issue a decision within one hundred and twenty days, he shall notify all parties of the reasons for the delay and the date when the decision will issue. Failure to issue a decision within the one hundred and twenty-day period or within the additional period specified in such written notice shall give the petitioner the right to pursue any legal remedies available to him without further delay.
(d) When the amount in dispute is less than ten thousand dollars, a contractor who is party to the dispute may elect to submit the appeal to a hearing officer experienced in construction law for expedited hearing in accordance with the informal rules of practice and procedure of the division of hearing officers. An expedited hearing under this subparagraph shall be available at the sole option of the contractor. The hearing officer shall issue a decision no later than sixty days following the conclusion of any hearing conducted pursuant to this subparagraph. The hearing officer's decision shall be final and conclusive, and shall not be set aside except in cases of fraud.
(2) The commissioner of administration shall require the division of hearings officers to prepare annually a report concerning the construction contract claims submitted to the division during the preceding twelve months, in such form as the commissioner shall prescribe. The report shall contain, at a minimum, the following information: the number of claims submitted; the names of all parties to each such claim; a brief description of the claim; the date of submission and of disposition of the claim; its disposition, whether by settlement, withdrawal, default or written

decision; and the number of claims currently pending. The original of the report shall be submitted to the commissioner of administration by January fifteenth, and a copy shall be filed with the state librarian and shall be a public document.

Chapter 30: Section 39R. Definitions; contract provisions; management and financial statements; enforcement.

Section 39R. (a) The words defined herein shall have the meaning stated below whenever they appear in this section:
(1) ""Contractor" means any person, corporation, partnership, joint venture, sole proprietorship, or other entity awarded a contract pursuant to sections thirty-eight A %p1/2%p to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A to forty-four H, inclusive, of chapter one hundred and forty-nine, which is for an amount or estimated amount greater than one hundred thousand dollars.
(2) ""Contract" means any contract awarded or executed pursuant to sections thirty-eight A %p1/2%p to thirty-eight O, inclusive, of chapter seven and any contract awarded or executed pursuant to section eleven C of chapter twenty-five A, section thirty-nine M of chapter thirty, or sections forty-four A through forty-four H, inclusive, of chapter one hundred and forty-nine, which is for amount or estimated amount greater than one hundred thousand dollars.
(3) ""Records" means books of original entry, accounts, checks, bank statements and all other banking documents, correspondence, memoranda, invoices, computer printouts, tapes, discs, papers and other documents or transcribed information of any type, whether expressed in ordinary or machine language.
(4) ""Independent Certified Public Accountant" means a person duly registered in good standing and entitled to practice as a certified public accountant under the laws of the place of his residence or principal office and who is in fact independent. In determining whether an accountant is independent with respect to a particular person, appropriate consideration should be given to all relationships between the accountant and that person or any affiliate thereof. Determination of an accountant's independence shall not be confined to the relationships existing in connection with the filing of reports with the University of Massachusetts Boston .
(5) ""Audit", when used in regard to financial statements, means an examination of records by an independent certified public accountant in accordance with generally accepted accounting principles and auditing standards for the purpose of expressing a *certified* opinion thereon, or, in the alternative, a qualified opinion or a declination to express an opinion for stated reasons.
(6) ""Accountant's Report", when used in regard to financial statements, means a document in which an independent certified public accountant indicates the scope of the audit which he has made and sets forth his opinion regarding the financial statements taken as a whole with a listing of noted exceptions and qualifications, or an assertion to the effect that an overall opinion cannot be expressed. When an overall opinion cannot be expressed the reason therefor shall be stated. An accountant's report shall include as a part thereof a signed statement by the responsible corporate officer attesting that management has fully disclosed all material facts to the independent certified public accountant, and that the audited financial statement is a true and complete statement of the financial condition of the contractor.

(7) ""Management", when used herein, means the chief executive officers, partners, principals or other person or persons primarily responsible for the financial and operational policies and practices of the contractor.
(8) Accounting terms, unless otherwise defined herein, shall have a meaning in accordance with generally accepted accounting principles and auditing standards.
(b) Subsection (a)(2) hereof notwithstanding, every agreement or contract awarded or executed pursuant to sections thirty-eight A %p1/2%p to thirty-eight O, inclusive, of chapter seven, or eleven C of chapter twenty-five A, and pursuant to section thirty-nine M of chapter thirty or to section forty-four A through H, inclusive, of chapter one hundred and forty-nine, shall provide that:
(1) The contractor shall make, and keep for at least six years after final payment, books, records, and accounts which in reasonable detail accurately and fairly reflect the transactions and dispositions of the contractor, and
(2) until the expiration of six years after final payment, the office of inspector general, and the commissioner of capital asset management and maintenance shall have the right to examine any books, documents, papers or records of the contractor or of his subcontractors that directly pertain to, and involve transactions relating to, the contractor or his subcontractors, and
(3) if the agreement is a contract as defined herein, the contractor shall describe any change in the method of maintaining records or recording transactions which materially affect any statements filed with the University of Massachusetts Boston , including in his description the date of the change and reasons therefor, and shall accompany said description with a letter from the contractor's independent certified public accountant approving or otherwise commenting on the changes, and
(4) if the agreement is a contract as defined herein, the contractor has filed a statement of management on internal accounting controls as set forth in paragraph (c) below prior to the execution of the contract, and
(5) if the agreement is a contract as defined herein, the contractor has filed prior to the execution of the contracts and will continue to file annually, an audited financial statement for the most recent completed fiscal year as set forth in paragraph (d) below.
(c) Every contractor awarded a contract shall file with the University of Massachusetts Boston a statement of management as to whether the system of internal accounting controls of the contractor and its subsidiaries reasonably assures that:
(1) transactions are executed in accordance with management's general and specific authorization;
(2) transactions are recorded as necessary
i. to permit preparation of financial statements in conformity with generally accepted accounting principles, and
ii. to maintain accountability for assets;
(3) access to assets is permitted only in accordance with management's general or specific authorization; and
(4) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action was taken with respect to any difference.
Every contractor awarded a contract shall also file with the University of Massachusetts Boston a statement prepared and signed by an independent certified public accountant, stating that he has examined the statement of management on internal accounting controls, and expressing an opinion as to

(1) whether the representations of management in response to this paragraph and paragraph (b) above are consistent with the result of management's evaluation of the system of internal accounting controls; and
(2) whether such representations of management are, in addition, reasonable with respect to transactions and assets in amounts which would be material when measured in relation to the applicant's financial statements.
(d) Every contractor awarded a contract by the commonwealth or by any political subdivision thereof shall annually file with the commissioner of capital asset management and maintenance during the term of the contract a financial statement prepared by an independent certified public accountant on the basis of an audit by such accountant. The final statement filed shall include the date of final payment. All statements shall be accompanied by an accountant's report. Such statements shall be made available to the University of Massachusetts Boston upon request.
(e) The office of inspector general, the commissioner of capital asset management and maintenance and any other University of Massachusetts Boston shall enforce the provisions of this section. The commissioner of capital asset management and maintenance may after providing an opportunity for the inspector general and other interested parties to comment, promulgate pursuant to the provisions of chapter thirty A such rules, regulations and guidelines as are necessary to effectuate the purposes of this section. Such rules, regulations and guidelines may be applicable to all awarding authorities. A contractor's failure to satisfy any of the requirements of this section may be grounds for debarment pursuant to section forty-four C of chapter one hundred and forty-nine.
(f) Records and statements required to be made, kept or filed under the provisions of this section shall not be public records as defined in section seven of chapter four and shall not be open to public inspection; provided, however, that such records and statements shall be made available pursuant to the provisions of clause (2) of paragraph

APPENDIX B--INDEX OF COMMONLY-USED FORMS

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

Form of Subcontract – MGL c 149, s. 44F
Instructions Regarding Change Orders and Contract Modifications (DCAM Form 13)
Daily Time and Material Report for Change Orders
Request and Agreement for a Change in the Plans,
Specifications and/or Contract (DCAM Form 5)
Notice of Intent
Contractor's Weekly Workforce Report
Weekly Payroll Report Form and Statement of Compliance
Quarterly Projected Workforce Table
Form for Transfer of Title (Work Not Incorporated, DCAM Form 16)
Certificate of Agency Use and Occupancy -E-1
Certificate of Final Inspection, Release and Acceptance - E-2

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THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE FOR ADMINISTRATION AND FINANCE
DIVISION OF CAPITAL ASSET MANAGEMENT AND MAINTENANCE
One Ashburton Place, Boston, MA 02108

DAILY TIME AND MATERIAL REPORT FOR ALL CHANGE ORDER WORK OR WORK DONE UNDER PROTEST

Project No. _____ Contract No. _____ Date: _____

Project Title _____ Authorized by Emerg.No. _____

_

Contractor _____ or Change Order No. _____

or work under protest _____

Sheet _____ of _____

Was any contract work performed today other than C.O. concerned? ____YES ____NO
If Yes, list on Daily Progress Report.

Labor - Change Order or Alleged Extra Work Done Under Protest

Trade	Name of Worker	Hrs.	Remarks

Submitted by Superintendent _____
Subcontractors _____
_____
_____

Resident Engineer (note any discrepancy in above report)
Resident Engineer _____
The signature of the Resident Engineer is for verification of labor listed above and does not constitute acknowledgement that such labor is for extra work or that additional monies are due for such work.

Daily Time and Materials Report -Continued.

1. Materials Used -- Describe Fully
2. Misc. Equipment, Etc.-Describe Fully (Note if operator and crew are included with equip.)

Submitted by Superintendent_____

Subcontractors _____
_____
_____
_____

Resident Engineer (note any discrepancy in above report)
Resident Engineer _____

The signature of the Resident Engineer is for verification of materials listed above and does not constitute acknowledgement that such material is for extra work or that additional monies are due for such work.

Send one copy with Daily Report Each Day

Other copy to accompany Green Sheets to Designer when Change Order is completed

Prepare in duplicate

→ NOTICE OF INTENT ←

UNIVERSITY OF MASSACHUSETTS-BOSTON
Contract Modification/Authorization to Proceed
(For Change Authorization in the Contract Plans and/or Specifications)

Date:

Massachusetts State Project Number:	Contract Number:
Title:	Location:

Contractor:	Contract Start Date:	Contract Award: $
Request No.	Change Order No.:	Requestor:

Nature of Request:

Date:

Reason for Request:

Designers:

Date:

This change in work is to be performed according to ARTICLE VII of the specification in the contract.

_____ Predetermined **"LUMP SUM"** Total of: **$**_____.____
____ = If Checked Additional Verification Backup Data Must Be Provided With Formal Change Order • See Attached
_____ Lump Sum **"NOT TO EXCEED"**: **$**_____.____
(Maximum Price Based On Contract Unit Prices or Negotiated Agreed Unit Prices)
_____ **"TIME AND MATERIALS"** Not To Exceed: **$**_____.____
(Computed In Accordance With Article VII of the Contract • Requires Authorization of Commissioner)

Engineer	Date	Project Manager	Date
Engineer	Date	Project Manager	Date
Architect	Date	Deputy Director	Date
Architect	Date	Assistant Vice Chancellor for Facilities Administration	Date

EXTENSIONS OF CONTRACT TIME WILL BE ADDRESSED UPON SUBMITTAL OF THE OFFICIAL CHANGE ORDER

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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 has been printed on the reverse of this page 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.

In addition, every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority. For every week in which an apprentice is employed, a photocopy of the apprentice's identification card must be attached to the payroll report. Once collected, the awarding authority is also required to preserve those records for three years.

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

STATEMENT OF COMPLIANCE

_____, 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 _____

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WEEKLY CERTIFIED PAYROLL REPORT AND WORKFORCE PARTICIPATION FORM

CERTIFIED PAYROLL REPORT: Pursuant to MGL c. 149, s. 27B, **every contractor and subcontractor is required to submit a true and accurate copy of their certified weekly payroll records** to the awarding authority by first-class mail or e-mail. In addition, each weekly payroll must be accompanied by a statement of compliance signed by the employer. Failure to comply may result in the commencement of a criminal action or the issuance of a civil citation.

WORKFORCE PARTICIPATION GOALS: The Commonwealth of Massachusetts has set the following goals for workforce participation for minorities and women. The participation goals for this project shall be 15.3% for minorities and 6.9% for women. The Contractor shall strive to achieve on this project the labor workforce participation goals contained herein. **The Contractor shall enter the number of hours worked in each trade by each employee, identified as woman, minority, or non-minority below.**

Company Name:	Address:	Phone No.:		Payroll No.:
Employer's Signature:	**Title:**	**Contract No:**	**Tax Payer ID #:**	**Work Week Ending:**
Awarding Authority Name:	**Public Works Project Name:**	**Public Works Project Location:**		**Min. Wage Rate Sheet Number:**
General / Prime Contractor's Name:	**Subcontractor's Name:**	**Employer Hourly Fringe Benefit Contributions**		
		(B+C+D+E)	(A x F)	

Employee Name & Complete Address	Work Classification	Project Hours Non-Minority	Project Hours Minority	Project Hours Women	Employee is OSHA 10 certified (?)	Appr. Rate (%)	Hours Worked Su.	Mo.	Tu.	We.	Th.	Fr.	Sa.	Project Hours (A) All Other Hours	Hourly Base Wage (B)	Health & Welfare Insurance (C/)	ERISA Pension Plan (D)	Supp. Unemp. (E/)	Total Hourly Prev. Wage (F)	Project Gross Wages / Total Gross Wages	Check No. (H)

Last Modified: 06/18/2025 at 9:38AM EDT

APPRENTICESHIP DOCUMENTATION: **Please answer the questions below.**

(1) Are any apprentice employees identified above? **YES** ☐ **NO** ☐

(2) If yes, are all apprentice employees identified above currently registered with the MA DLS Division of Apprentice Standards? **YES** ☐ **NO** ☐

(3) If yes, is a copy of the apprentice ID card issued by the MA DLS Division of Apprentice Standards included for all apprentice employees identified above? **YES** ☐ **NO** ☐

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

MAURA HEALY
Governor
KIM DRISCOLL
Lt. Governor

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

LAUREN JONES
Secretary
MICHAEL FLANAGAN
Director

Awarding Authority: University of Massachusetts Boston **City/Town:** BOSTON

Contract Number:

Description of Work: Construction and modification to UDrive West to provide traffic mitigation, add bus drop off and raised pedestrian crosswalk

Job Location: 100 Morrissey Blvd., Boston MA 02125

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

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

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
(2 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	6/1/2025	$42.05	$14.91	$20.17	$0.00	$0.00	$77.13
	8/1/2025	$42.05	$15.41	$20.17	$0.00	$0.00	$77.63
	12/1/2025	$42.05	$15.41	$21.78	$0.00	$0.00	$79.24
	6/1/2026	$43.05	$15.41	$21.78	$0.00	$0.00	$80.24
	8/1/2026	$43.05	$15.91	$21.78	$0.00	$0.00	$80.74
	12/1/2026	$43.05	$15.91	$23.52	$0.00	$0.00	$82.48
(3 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	6/1/2025	$41.12	$14.91	$20.17	$0.00	$0.00	$76.20
	8/1/2025	$41.12	$15.41	$20.17	$0.00	$0.00	$76.70
	12/1/2025	$41.12	$15.41	$21.78	$0.00	$0.00	$78.31
	6/1/2026	$43.12	$15.41	$21.78	$0.00	$0.00	$80.31
	8/1/2026	$43.12	$15.91	$21.78	$0.00	$0.00	$80.81
	12/1/2026	$43.12	$15.91	$23.52	$0.00	$0.00	$82.55
(4 & 5 AXLE) DRIVER - EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	6/1/2025	$42.24	$14.91	$20.17	$0.00	$0.00	$77.32
	8/1/2025	$42.24	$15.41	$20.17	$0.00	$0.00	$77.82
	12/1/2025	$42.24	$15.41	$21.78	$0.00	$0.00	$79.43
	6/1/2026	$43.24	$15.41	$21.78	$0.00	$0.00	$80.43
	8/1/2026	$43.24	$15.91	$21.78	$0.00	$0.00	$80.93
	12/1/2026	$43.24	$15.91	$23.52	$0.00	$0.00	$82.67
ADS/SUBMERSIBLE PILOT PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1) For apprentice rates see "Apprentice- PILE DRIVER"	1/1/2024	$117.16	$10.08	$11.62	$12.67	$0.00	$151.53
AIR TRACK OPERATOR LABORERS LABORERS - ZONE 1	6/1/2025	$48.35	$9.90	$9.25	$9.65	$0.00	$77.15
	12/1/2025	$49.85	$9.90	$9.25	$9.65	$0.00	$78.65
	6/1/2026	$50.65	$9.90	$9.25	$9.65	$0.00	$79.45
	12/1/2026	$52.90	$9.90	$9.25	$9.65	$0.00	$81.70
	6/1/2027	$54.50	$9.90	$9.25	$9.65	$0.00	$83.30
	12/1/2027	$56.10	$9.90	$9.25	$9.65	$0.00	$84.90
	6/1/2028	$57.78	$9.90	$9.25	$9.65	$0.00	$86.58
	12/1/2028	$59.45	$9.90	$9.25	$9.65	$0.00	$88.25
For apprentice rates see "Apprentice- LABORER"							
AIR TRACK OPERATOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 1 (HEAVY & HIGHWAY)	6/1/2025	$48.45	$9.90	$9.25	$9.65	$0.00	$77.25
	12/1/2025	$49.95	$9.90	$9.25	$9.65	$0.00	$78.75
	6/1/2026	$51.50	$9.90	$9.25	$9.65	$0.00	$80.30
	12/1/2026	$53.00	$9.90	$9.25	$9.65	$0.00	$81.80
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. HEAT & FROST INSULATORS LOCAL 6 HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	6/1/2025	$43.80	$14.50	$4.30	$6.75	$0.00	$69.35
	12/1/2025	$44.80	$14.50	$4.30	$6.75	$0.00	$70.35
ASPHALT RAKER LABORERS LABORERS - ZONE 1	6/1/2025	$47.85	$9.90	$9.25	$9.65	$0.00	$76.65
	12/1/2025	$49.35	$9.90	$9.25	$9.65	$0.00	$78.15
	6/1/2026	$50.90	$9.90	$9.25	$9.65	$0.00	$79.70
	12/1/2026	$52.40	$9.90	$9.25	$9.65	$0.00	$81.20

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	6/1/2027	$54.00	$9.90	$9.25	$9.65	$0.00	$82.80
	12/1/2027	$55.60	$9.90	$9.25	$9.65	$0.00	$84.40
	6/1/2028	$57.28	$9.90	$9.25	$9.65	$0.00	$86.08
	12/1/2028	$58.95	$9.90	$9.25	$9.65	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"							
ASPHALT RAKER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 1 (HEAVY & HIGHWAY)	6/1/2025	$47.95	$9.90	$9.25	$9.65	$0.00	$76.75
	12/1/2025	$49.45	$9.90	$9.25	$9.65	$0.00	$78.25
	6/1/2026	$51.00	$9.90	$9.25	$9.65	$0.00	$79.80
	12/1/2026	$52.50	$9.90	$9.25	$9.65	$0.00	$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2025	$58.33	$15.55	$13.25	$3.25	$0.00	$90.38
	12/1/2025	$59.78	$15.55	$13.25	$3.25	$0.00	$91.83
	6/1/2026	$61.08	$15.55	$13.25	$3.25	$0.00	$93.13
	12/1/2026	$62.53	$15.55	$13.25	$3.25	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BACKHOE/FRONT-END LOADER OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2025	$58.33	$15.55	$13.25	$3.25	$0.00	$90.38
	12/1/2025	$59.78	$15.55	$13.25	$3.25	$0.00	$91.83
	6/1/2026	$61.08	$15.55	$13.25	$3.25	$0.00	$93.13
	12/1/2026	$62.53	$15.55	$13.25	$3.25	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
BARCO-TYPE JUMPING TAMPER LABORERS LABORERS - ZONE 1	6/1/2025	$47.85	$9.90	$9.25	$9.65	$0.00	$76.65
	12/1/2025	$49.35	$9.90	$9.25	$9.65	$0.00	$78.15
	6/1/2026	$50.90	$9.90	$9.25	$9.65	$0.00	$79.70
	12/1/2026	$52.40	$9.90	$9.25	$9.65	$0.00	$81.20
	6/1/2027	$54.00	$9.90	$9.25	$9.65	$0.00	$82.80
	12/1/2027	$55.60	$9.90	$9.25	$9.65	$0.00	$84.40
	6/1/2028	$57.28	$9.90	$9.25	$9.65	$0.00	$86.08
	12/1/2028	$58.95	$9.90	$9.25	$9.65	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER LABORERS LABORERS - ZONE 1	6/1/2025	$48.35	$9.90	$9.25	$9.65	$0.00	$77.15
	12/1/2025	$49.85	$9.90	$9.25	$9.65	$0.00	$78.65
	6/1/2026	$50.65	$9.90	$9.25	$9.65	$0.00	$79.45
	12/1/2026	$52.90	$9.90	$9.25	$9.65	$0.00	$81.70
	6/1/2027	$54.50	$9.90	$9.25	$9.65	$0.00	$83.30
	12/1/2027	$56.10	$9.90	$9.25	$9.65	$0.00	$84.90
	6/1/2028	$57.78	$9.90	$9.25	$9.65	$0.00	$86.58
	12/1/2028	$59.45	$9.90	$9.25	$9.65	$0.00	$88.25
For apprentice rates see "Apprentice- LABORER"							
BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 1 (HEAVY & HIGHWAY)	6/1/2025	$48.45	$9.90	$9.25	$9.65	$0.00	$77.25
	12/1/2025	$49.95	$9.90	$9.25	$9.65	$0.00	$78.75
	6/1/2026	$51.50	$9.90	$9.25	$9.65	$0.00	$80.30
	12/1/2026	$53.00	$9.90	$9.25	$9.65	$0.00	$81.80
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
BOILER MAKER BOILERMAKERS LOCAL 29 BOILERMAKERS LOCAL 29	1/1/2024	$48.12	$7.07	$14.60	$6.00	$0.00	$75.79

Apprentice: BOILER MAKER

Effective Date: 1/1/2024

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

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 (BOSTON)	2/1/2025	$65.80	$11.49	$15.57	$8.02	$0.00	$100.88
	8/1/2025	$67.95	$11.49	$15.57	$8.02	$0.00	$103.03
	2/1/2026	$69.30	$11.49	$15.57	$8.02	$0.00	$104.38
	8/1/2026	$71.50	$11.49	$15.57	$8.02	$0.00	$106.58
	2/1/2027	$72.90	$11.49	$15.57	$8.02	$0.00	$107.98

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

Effective Date: 2/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$32.90	$11.49	$15.57	$8.02	$0.00	$67.98
2	60.00	$39.48	$11.49	$15.57	$8.02	$0.00	$74.56
3	70.00	$46.06	$11.49	$15.57	$8.02	$0.00	$81.14
4	80.00	$52.64	$11.49	$15.57	$8.02	$0.00	$87.72
5	90.00	$59.22	$11.49	$15.57	$8.02	$0.00	$94.30

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

Effective Date: 8/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$33.98	$11.49	$15.57	$8.02	$0.00	$69.06
2	60.00	$40.77	$11.49	$15.57	$8.02	$0.00	$75.85
3	70.00	$47.57	$11.49	$15.57	$8.02	$0.00	$82.65
4	80.00	$54.36	$11.49	$15.57	$8.02	$0.00	$89.44
5	90.00	$61.16	$11.49	$15.57	$8.02	$0.00	$96.24

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

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2026	$61.84	$15.55	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
CAISSON & UNDERPINNING BOTTOM MAN	6/1/2025	$48.85	$9.90	$9.25	$9.80	$0.00	$77.80
LABORERS	12/1/2025	$50.35	$9.90	$9.25	$9.80	$0.00	$79.30
LABORERS - FOUNDATION AND MARINE	6/1/2026	$51.90	$9.90	$9.25	$9.80	$0.00	$80.85
	12/1/2026	$53.40	$9.90	$9.25	$9.80	$0.00	$82.35
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING LABORER	6/1/2025	$47.70	$9.90	$9.25	$9.80	$0.00	$76.65
LABORERS	12/1/2025	$49.20	$9.90	$9.25	$9.80	$0.00	$78.15
LABORERS - FOUNDATION AND MARINE	6/1/2026	$50.75	$9.90	$9.25	$9.80	$0.00	$79.70
	12/1/2026	$52.25	$9.90	$9.25	$9.80	$0.00	$81.20
For apprentice rates see "Apprentice- LABORER"							
CAISSON & UNDERPINNING TOP MAN	6/1/2025	$48.03	$9.90	$9.25	$9.80	$0.00	$76.98
LABORERS	12/1/2025	$49.53	$9.90	$9.25	$9.80	$0.00	$78.48
LABORERS - FOUNDATION AND MARINE	6/1/2026	$51.08	$9.90	$9.25	$9.80	$0.00	$80.03
	12/1/2026	$52.58	$9.90	$9.25	$9.80	$0.00	$81.53
For apprentice rates see "Apprentice- LABORER"							
CARBIDE CORE DRILL OPERATOR	6/1/2025	$47.85	$9.90	$9.25	$9.65	$0.00	$76.65
LABORERS	12/1/2025	$49.35	$9.90	$9.25	$9.65	$0.00	$78.15
LABORERS - ZONE 1	6/1/2026	$50.90	$9.90	$9.25	$9.65	$0.00	$79.70
	12/1/2026	$52.40	$9.90	$9.25	$9.65	$0.00	$81.20
	6/1/2027	$54.00	$9.90	$9.25	$9.65	$0.00	$82.80
	12/1/2027	$55.60	$9.90	$9.25	$9.65	$0.00	$84.40
	6/1/2028	$57.28	$9.90	$9.25	$9.65	$0.00	$86.08
	12/1/2028	$58.95	$9.90	$9.25	$9.65	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"							
CARPENTER	3/1/2025	$60.46	$9.83	$11.47	$8.50	$0.00	$90.26
CARPENTERS	9/1/2025	$61.96	$9.83	$11.47	$8.50	$0.00	$91.76
CARPENTERS -ZONE 1 (Metro Boston)	3/1/2026	$63.46	$9.83	$11.47	$8.50	$0.00	$93.26
	9/1/2026	$64.96	$9.83	$11.47	$8.50	$0.00	$94.76
	3/1/2027	$66.46	$9.83	$11.47	$8.50	$0.00	$96.26

Apprentice: CARPENTER

Effective Date: 3/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$27.21	$9.83	$0.00	$1.73	$0.00	$38.77
2	45.00	$27.21	$9.83	$0.00	$1.73	$0.00	$38.77
3	55.00	$33.25	$9.83	$0.00	$3.40	$0.00	$46.48
4	55.00	$33.25	$9.83	$0.00	$3.40	$0.00	$46.48
5	70.00	$42.32	$9.83	$11.41	$5.10	$0.00	$68.66
6	70.00	$42.32	$9.83	$11.41	$5.10	$0.00	$68.66
7	80.00	$48.37	$9.83	$11.44	$6.80	$0.00	$76.44
8	80.00	$48.37	$9.83	$11.44	$6.80	$0.00	$76.44

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
CARPENTER WOOD FRAME	4/1/2025	$38.54	$7.56	$4.47	$5.00	$0.00	$55.57
CARPENTERS	10/1/2025	$39.34	$7.56	$4.47	$5.00	$0.00	$56.37
CARPENTERS -ZONE 1 (Wood Frame)	4/1/2026	$40.14	$7.56	$4.47	$5.00	$0.00	$57.17
	10/1/2026	$40.94	$7.56	$4.47	$5.00	$0.00	$57.97
	4/1/2027	$41.74	$7.56	$4.47	$5.00	$0.00	$58.77

All Aspects of New Wood Frame Work

Apprentice: CARPENTER

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$27.88	$9.83	$0.00	$1.73	$0.00	$39.44
2	45.00	$27.88	$9.83	$0.00	$1.73	$0.00	$39.44
3	55.00	$34.08	$9.83	$0.00	$3.40	$0.00	$47.31
4	55.00	$34.08	$9.83	$0.00	$3.40	$0.00	$47.31
5	70.00	$43.37	$9.83	$11.41	$5.10	$0.00	$69.71
6	70.00	$43.37	$9.83	$11.41	$5.10	$0.00	$69.71
7	80.00	$49.57	$9.83	$11.44	$6.80	$0.00	$77.64
8	80.00	$49.57	$9.83	$11.44	$6.80	$0.00	$77.64

Apprentice: CARPENTER WOOD FRAME

Effective Date: 4/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$19.27	$7.56	$0.00	$0.00	$0.00	$26.83
2	50.00	$19.27	$7.56	$0.00	$0.00	$0.00	$26.83
3	55.00	$21.20	$7.56	$0.00	$2.00	$0.00	$30.76
4	55.00	$21.20	$7.56	$0.00	$2.00	$0.00	$30.76
5	70.00	$26.98	$7.56	$4.47	$3.00	$0.00	$42.01
6	70.00	$26.98	$7.56	$4.47	$3.00	$0.00	$42.01
7	80.00	$30.83	$7.56	$4.47	$4.00	$0.00	$46.86
8	80.00	$30.83	$7.56	$4.47	$4.00	$0.00	$46.86

Apprentice: CARPENTER WOOD FRAME

Effective Date: 10/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$19.67	$7.56	$0.00	$0.00	$0.00	$27.23
2	50.00	$19.67	$7.56	$0.00	$0.00	$0.00	$27.23
3	55.00	$21.64	$7.56	$0.00	$2.00	$0.00	$31.20
4	55.00	$21.64	$7.56	$0.00	$2.00	$0.00	$31.20
5	70.00	$27.54	$7.56	$4.47	$3.00	$0.00	$42.57
6	70.00	$27.54	$7.56	$4.47	$3.00	$0.00	$42.57
7	80.00	$31.47	$7.56	$4.47	$4.00	$0.00	$47.50
8	80.00	$31.47	$7.56	$4.47	$4.00	$0.00	$47.50

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
CEMENT MASONRY/PLASTERING BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 (BOSTON)	7/1/2024	$49.19	$13.35	$16.43	$7.78	$1.80	$88.55

Apprentice: CEMENT MASONRY/PLASTERING

Effective Date: 7/1/2024

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

CHAIN SAW OPERATOR LABORERS LABORERS - ZONE 1	6/1/2025	$47.85	$9.90	$9.25	$9.65	$0.00	$76.65
	12/1/2025	$49.35	$9.90	$9.25	$9.65	$0.00	$78.15
	6/1/2026	$50.90	$9.90	$9.25	$9.65	$0.00	$79.70
	12/1/2026	$52.40	$9.90	$9.25	$9.65	$0.00	$81.20
	6/1/2027	$54.00	$9.90	$9.25	$9.65	$0.00	$82.80
	12/1/2027	$55.60	$9.90	$9.25	$9.65	$0.00	$84.40
	6/1/2028	$57.28	$9.90	$9.25	$9.65	$0.00	$86.08
	12/1/2028	$58.95	$9.90	$9.25	$9.65	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"							
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2025	$59.51	$15.55	$13.25	$3.25	$0.00	$91.56
	12/1/2025	$60.98	$15.55	$13.25	$3.25	$0.00	$93.03
	6/1/2026	$62.31	$15.55	$13.25	$3.25	$0.00	$94.36
	12/1/2026	$63.79	$15.55	$13.25	$3.25	$0.00	$95.84
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
COMPRESSOR OPERATOR OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2025	$37.52	$15.55	$13.25	$3.25	$0.00	$69.57
	12/1/2025	$38.47	$15.55	$13.25	$3.25	$0.00	$70.52
	6/1/2026	$39.33	$15.55	$13.25	$3.25	$0.00	$71.38
	12/1/2026	$40.28	$15.55	$13.25	$3.25	$0.00	$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
DELEADER (BRIDGE) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 1	1/1/2025	$58.46	$9.95	$11.85	$12.10	$0.00	$92.36

Apprentice: DELEADER (BRIDGE)

Effective Date: 1/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.23	$9.95	$0.00	$0.00	$0.00	$39.18
2	55.00	$32.15	$9.95	$0.00	$6.66	$0.00	$48.76

Construction

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

Apprentice: DELEADER (BRIDGE)

Effective Date: 1/1/2025

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

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
DEMO: ADZEMAN LABORERS LABORERS - ZONE 1	6/2/2025	$47.75	$9.90	$9.25	$9.65	$0.00	$76.55
	12/1/2025	$49.25	$9.90	$9.25	$9.65	$0.00	$78.05
	6/1/2026	$50.80	$9.90	$9.25	$9.65	$0.00	$79.60
	12/7/2026	$52.30	$9.90	$9.25	$9.65	$0.00	$81.10
	6/7/2027	$53.90	$9.90	$9.25	$9.65	$0.00	$82.70
	12/6/2027	$55.50	$9.90	$9.25	$9.65	$0.00	$84.30
	6/5/2028	$57.18	$9.90	$9.25	$9.65	$0.00	$85.98
	12/4/2028	$58.85	$9.90	$9.25	$9.65	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BACKHOE/LOADER/HAMMER OPERATOR LABORERS LABORERS - ZONE 1	6/2/2025	$48.75	$9.90	$9.25	$9.65	$0.00	$77.55
	12/1/2025	$50.25	$9.90	$9.25	$9.65	$0.00	$79.05
	6/1/2026	$51.80	$9.90	$9.25	$9.65	$0.00	$80.60
	12/7/2026	$53.30	$9.90	$9.25	$9.65	$0.00	$82.10
	6/7/2027	$54.90	$9.90	$9.25	$9.65	$0.00	$83.70
	12/6/2027	$56.50	$9.90	$9.25	$9.65	$0.00	$85.30
	6/5/2028	$58.18	$9.90	$9.25	$9.65	$0.00	$86.98
	12/4/2028	$59.85	$9.90	$9.25	$9.65	$0.00	$88.65
For apprentice rates see "Apprentice- LABORER"							
DEMO: BURNERS LABORERS LABORERS - ZONE 1	6/2/2025	$48.50	$9.90	$9.25	$9.65	$0.00	$77.30
	12/1/2025	$50.00	$9.90	$9.25	$9.65	$0.00	$78.80
	6/1/2026	$51.55	$9.90	$9.25	$9.65	$0.00	$80.35
	12/7/2026	$53.05	$9.90	$9.25	$9.65	$0.00	$81.85
	6/7/2027	$54.65	$9.90	$9.25	$9.65	$0.00	$83.45
	12/6/2027	$56.25	$9.90	$9.25	$9.65	$0.00	$85.05
	6/5/2028	$57.93	$9.90	$9.25	$9.65	$0.00	$86.73
	12/4/2028	$59.60	$9.90	$9.25	$9.65	$0.00	$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: CONCRETE CUTTER/SAWYER LABORERS LABORERS - ZONE 1	6/2/2025	$48.75	$9.90	$9.25	$9.65	$0.00	$77.55
	12/1/2025	$50.25	$9.90	$9.25	$9.65	$0.00	$79.05
	6/1/2026	$51.80	$9.90	$9.25	$9.65	$0.00	$80.60
	12/7/2026	$53.30	$9.90	$9.25	$9.65	$0.00	$82.10
	6/7/2027	$54.90	$9.90	$9.25	$9.65	$0.00	$83.70
	12/6/2027	$56.50	$9.90	$9.25	$9.65	$0.00	$85.30
	6/5/2028	$58.18	$9.90	$9.25	$9.65	$0.00	$86.98
	12/4/2028	$59.85	$9.90	$9.25	$9.65	$0.00	$88.65

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"							
DEMO: JACKHAMMER OPERATOR LABORERS LABORERS - ZONE 1	6/2/2025	$48.50	$9.90	$9.25	$9.65	$0.00	$77.30
	12/1/2025	$50.00	$9.90	$9.25	$9.65	$0.00	$78.80
	6/1/2026	$51.55	$9.90	$9.25	$9.65	$0.00	$80.35
	12/7/2026	$53.05	$9.90	$9.25	$9.65	$0.00	$81.85
	6/7/2027	$54.65	$9.90	$9.25	$9.65	$0.00	$83.45
	12/6/2027	$56.25	$9.90	$9.25	$9.65	$0.00	$85.05
	6/5/2028	$57.93	$9.90	$9.25	$9.65	$0.00	$86.73
	12/4/2028	$59.60	$9.90	$9.25	$9.65	$0.00	$88.40
For apprentice rates see "Apprentice- LABORER"							
DEMO: WRECKING LABORER LABORERS LABORERS - ZONE 1	6/2/2025	$47.75	$9.90	$9.25	$9.65	$0.00	$76.55
	12/1/2025	$49.25	$9.90	$9.25	$9.65	$0.00	$78.05
	6/1/2026	$50.80	$9.90	$9.25	$9.65	$0.00	$79.60
	12/7/2026	$52.30	$9.90	$9.25	$9.65	$0.00	$81.10
	6/7/2027	$53.90	$9.90	$9.25	$9.65	$0.00	$82.70
	12/6/2027	$55.50	$9.90	$9.25	$9.65	$0.00	$84.30
	6/5/2028	$57.18	$9.90	$9.25	$9.65	$0.00	$85.98
	12/4/2028	$58.85	$9.90	$9.25	$9.65	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"							
DIRECTIONAL DRILL MACHINE OPERATOR OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2025	$57.68	$15.55	$13.25	$3.25	$0.00	$89.73
	12/1/2025	$59.12	$15.55	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$60.40	$15.55	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.84	$15.55	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
DIVER PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$78.11	$10.08	$11.62	$10.04	$0.00	$109.85
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Diver wage 70/80/90 2A $69.83, 3A $91.79,4A $102.14 Total Rate							
DIVER TENDER PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$55.79	$10.08	$11.62	$12.67	$0.00	$90.16
as of 8-1-24, Apprentices with diving licenses begin at second year. % of Piledriver wage 70/80/90 2A $54.20, 3A $73.93,4A $82.05 Total Rate							
DIVER TENDER (EFFLUENT) PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$83.69	$10.08	$11.62	$12.67	$0.00	$118.06
For apprentice rates see "Apprentice- PILE DRIVER"							
DIVER/SLURRY (EFFLUENT) PILE DRIVER LOCAL 56 PILE DRIVER LOCAL 56 (ZONE 1)	8/1/2024	$117.16	$10.08	$11.62	$12.67	$0.00	$151.53
For apprentice rates see "Apprentice- PILE DRIVER"							
DRAWBRIDGE OPERATOR (Construction) DRAWBRIDGE - SEIU LOCAL 888 DRAWBRIDGE - SEIU LOCAL 888	7/1/2020	$26.77	$6.67	$3.93	$0.00	$0.16	$37.53

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
ELECTRICIAN	3/1/2025	$64.26	$13.00	$14.31	$8.72	$0.00	$100.29
ELECTRICIANS LOCAL 103	9/1/2025	$66.17	$13.00	$14.37	$8.72	$0.00	$102.26
ELECTRICIANS LOCAL 103	3/1/2026	$67.37	$13.00	$14.40	$8.72	$0.00	$103.49
	9/1/2026	$69.28	$13.00	$14.46	$8.72	$0.00	$105.46
	3/1/2027	$70.47	$13.00	$14.49	$8.72	$0.00	$106.68
	9/1/2027	$72.39	$13.00	$14.55	$8.72	$0.00	$108.66
	3/1/2028	$73.59	$13.00	$14.59	$8.72	$0.00	$109.90

Apprentice: ELECTRICIAN

Effective Date: 3/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$25.70	$13.00	$0.77	$0.00	$0.00	$39.47
2	40.00	$25.70	$13.00	$0.77	$0.00	$0.00	$39.47
3	45.00	$28.92	$13.00	$13.25	$3.92	$0.00	$59.09
4	45.00	$28.92	$13.00	$13.25	$3.92	$0.00	$59.09
5	50.00	$32.13	$13.00	$13.34	$4.36	$0.00	$62.83
6	55.00	$35.34	$13.00	$13.44	$4.80	$0.00	$66.58
7	60.00	$38.56	$13.00	$13.54	$5.23	$0.00	$70.33
8	65.00	$41.77	$13.00	$13.63	$5.67	$0.00	$74.07
9	70.00	$44.98	$13.00	$13.73	$6.10	$0.00	$77.81
10	75.00	$48.20	$13.00	$13.83	$6.54	$0.00	$81.57

Apprentice: ELECTRICIAN

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$26.47	$13.00	$0.79	$0.00	$0.00	$40.26
2	40.00	$26.47	$13.00	$0.79	$0.00	$0.00	$40.26
3	45.00	$29.78	$13.00	$13.27	$3.92	$0.00	$59.97
4	45.00	$29.78	$13.00	$13.27	$3.92	$0.00	$59.97
5	50.00	$33.09	$13.00	$13.37	$4.36	$0.00	$63.82
6	55.00	$36.39	$13.00	$13.47	$4.80	$0.00	$67.66
7	60.00	$39.70	$13.00	$13.57	$5.23	$0.00	$71.50
8	65.00	$43.01	$13.00	$13.67	$5.67	$0.00	$75.35
9	70.00	$46.32	$13.00	$13.77	$6.10	$0.00	$79.19
10	75.00	$49.63	$13.00	$13.87	$6.54	$0.00	$83.04

ELEVATOR CONSTRUCTOR	1/1/2022	$65.62	$16.03	$10.71	$9.50	$0.00	$101.86
ELEVATOR CONSTRUCTORS LOCAL 4							
ELEVATOR CONSTRUCTORS LOCAL 4							

Apprentice: ELEVATOR CONSTRUCTOR

Effective Date: 1/1/2022

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

Construction

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

Apprentice: ELEVATOR CONSTRUCTOR

Effective Date: 1/1/2022

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

ELEVATOR CONSTRUCTOR HELPER ELEVATOR CONSTRUCTORS LOCAL 4 ELEVATOR CONSTRUCTORS LOCAL 4	1/1/2022	$45.93	$16.03	$10.71	$9.50	$0.00	$82.17
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"							
FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 1 (HEAVY & HIGHWAY)	6/1/2025	$47.95	$9.90	$9.25	$9.65	$0.00	$76.75
	12/1/2025	$49.45	$9.90	$9.25	$9.65	$0.00	$78.25
	6/1/2026	$51.00	$9.90	$9.25	$9.65	$0.00	$79.80
	12/1/2026	$52.50	$9.90	$9.25	$9.65	$0.00	$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	5/1/2025	$53.22	$15.30	$13.15	$3.25	$0.00	$84.92
	11/1/2025	$54.51	$15.30	$13.15	$3.25	$0.00	$86.21
	5/1/2026	$55.95	$15.30	$13.15	$3.25	$0.00	$87.65
	11/1/2026	$57.24	$15.30	$13.15	$3.25	$0.00	$88.94
	5/1/2027	$58.67	$15.30	$13.15	$3.25	$0.00	$90.37
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	5/1/2025	$54.82	$15.30	$13.15	$3.25	$0.00	$86.52
	11/1/2025	$56.12	$15.30	$13.15	$3.25	$0.00	$87.82
	5/1/2026	$57.57	$15.30	$13.15	$3.25	$0.00	$89.27
	11/1/2026	$58.87	$15.30	$13.15	$3.25	$0.00	$90.57
	5/1/2027	$60.32	$15.30	$13.15	$3.25	$0.00	$92.02
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	5/1/2025	$26.22	$15.30	$13.15	$3.25	$0.00	$57.92
	11/1/2025	$26.98	$15.30	$13.15	$3.25	$0.00	$58.68
	5/1/2026	$27.83	$15.30	$13.15	$3.25	$0.00	$59.53
	11/1/2026	$28.59	$15.30	$13.15	$3.25	$0.00	$60.29
	5/1/2027	$29.44	$15.30	$13.15	$3.25	$0.00	$61.14
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FIRE ALARM INSTALLER ELECTRICIANS LOCAL 103 ELECTRICIANS LOCAL 103	3/1/2025	$64.26	$13.00	$14.31	$8.72	$0.00	$100.29
	9/1/2025	$66.17	$13.00	$14.37	$8.72	$0.00	$102.26
	3/1/2026	$67.37	$13.00	$14.40	$8.72	$0.00	$103.49
	9/1/2026	$69.28	$13.00	$14.46	$8.72	$0.00	$105.46
	3/1/2027	$70.47	$13.00	$14.49	$8.72	$0.00	$106.68
	9/1/2027	$72.39	$13.00	$14.55	$8.72	$0.00	$108.66
	3/1/2028	$73.59	$13.00	$14.59	$8.72	$0.00	$109.90

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- ELECTRICIAN"							
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING ELECTRICIANS LOCAL 103 ELECTRICIANS LOCAL 103	3/1/2025	$51.41	$13.00	$13.92	$6.98	$0.00	$85.31
	9/1/2025	$52.94	$13.00	$13.97	$6.98	$0.00	$86.89
	3/1/2026	$53.90	$13.00	$14.00	$6.98	$0.00	$87.88
	9/1/2026	$55.42	$13.00	$14.04	$6.98	$0.00	$89.44
	3/1/2027	$56.38	$13.00	$14.07	$6.98	$0.00	$90.43
	9/1/2027	$57.91	$13.00	$14.12	$6.98	$0.00	$92.01
	3/1/2028	$58.87	$13.00	$14.15	$6.98	$0.00	$93.00
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"							
FIREMAN (ASST. ENGINEER) OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2025	$47.02	$15.55	$13.25	$3.25	$0.00	$79.07
	12/1/2025	$48.19	$15.55	$13.25	$3.25	$0.00	$80.24
	6/1/2026	$49.25	$15.55	$13.25	$3.25	$0.00	$81.30
	12/1/2026	$50.43	$15.55	$13.25	$3.25	$0.00	$82.48
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
FLAGGER & SIGNALER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 1 (HEAVY & HIGHWAY)	6/1/2025	$28.09	$9.90	$9.25	$9.65	$0.00	$56.89
	12/1/2025	$28.09	$9.90	$9.25	$9.65	$0.00	$56.89
	6/1/2026	$29.21	$9.90	$9.25	$9.65	$0.00	$58.01
	12/1/2026	$29.21	$9.90	$9.25	$9.65	$0.00	$58.01
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
FLOORCOVERER FLOORCOVERERS LOCAL 2168 FLOORCOVERERS LOCAL 2168 ZONE I	3/1/2025	$57.73	$8.83	$11.47	$8.80	$0.00	$86.83
	9/1/2025	$59.23	$8.83	$11.47	$8.80	$0.00	$88.33
	3/1/2026	$60.73	$8.83	$11.47	$8.80	$0.00	$89.83
	9/1/2026	$62.23	$8.83	$11.47	$8.80	$0.00	$91.33
	3/1/2027	$63.73	$8.83	$11.47	$8.80	$0.00	$92.83

Apprentice: FLOORCOVERER

Effective Date: 3/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$25.98	$8.83	$0.00	$1.76	$0.00	$36.57
2	45.00	$25.98	$8.83	$0.00	$1.76	$0.00	$36.57
3	55.00	$31.75	$8.83	$0.00	$3.52	$0.00	$44.10
4	55.00	$31.75	$8.83	$0.00	$3.52	$0.00	$44.10
5	70.00	$40.41	$8.83	$11.47	$5.28	$0.00	$65.99
6	70.00	$40.41	$8.83	$11.47	$5.28	$0.00	$65.99
7	80.00	$46.18	$8.83	$11.47	$7.04	$0.00	$73.52
8	80.00	$46.18	$8.83	$11.47	$7.04	$0.00	$73.52

Apprentice: FLOORCOVERER

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$26.65	$8.83	$0.00	$1.76	$0.00	$37.24

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: FLOORCOVERER							
Effective Date: 9/1/2025							
Step / Percent		**Apprentice Base Wage**					
2 / 45.00		$26.65	$8.83	$0.00	$1.76	$0.00	$37.24
3 / 55.00		$32.58	$8.83	$0.00	$3.52	$0.00	$44.93
4 / 55.00		$32.58	$8.83	$0.00	$3.52	$0.00	$44.93
5 / 70.00		$41.46	$8.83	$11.47	$5.28	$0.00	$67.04
6 / 70.00		$41.46	$8.83	$11.47	$5.28	$0.00	$67.04
7 / 80.00		$47.38	$8.83	$11.47	$7.04	$0.00	$74.72
8 / 80.00		$47.38	$8.83	$11.47	$7.04	$0.00	$74.72
FORK LIFT/CHERRY PICKER	6/1/2025	$58.33	$15.55	$13.25	$3.25	$0.00	$90.38
OPERATING ENGINEERS LOCAL 4	12/1/2025	$59.78	$15.55	$13.25	$3.25	$0.00	$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	$61.08	$15.55	$13.25	$3.25	$0.00	$93.13
	12/1/2026	$62.53	$15.55	$13.25	$3.25	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
GENERATOR/LIGHTING PLANT/HEATERS	6/1/2025	$37.52	$15.55	$13.25	$3.25	$0.00	$69.57
OPERATING ENGINEERS LOCAL 4	12/1/2025	$38.47	$15.55	$13.25	$3.25	$0.00	$70.52
OPERATING ENGINEERS LOCAL 4	6/1/2026	$39.33	$15.55	$13.25	$3.25	$0.00	$71.38
	12/1/2026	$40.28	$15.55	$13.25	$3.25	$0.00	$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)	1/1/2025	$53.75	$9.95	$11.85	$12.10	$0.00	$87.65
GLAZIERS LOCAL 35							
GLAZIERS LOCAL 35 (ZONE 1)							
Apprentice: GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)							
Effective Date: 1/1/2025							
Step / Percent		**Apprentice Base Wage**					
1 / 50.00		$26.88	$9.95	$0.00	$0.00	$0.00	$36.83
2 / 55.00		$29.56	$9.95	$0.00	$6.66	$0.00	$46.17
3 / 60.00		$32.25	$9.95	$0.00	$7.26	$0.00	$49.46
4 / 65.00		$34.94	$9.95	$0.00	$7.87	$0.00	$52.76
5 / 70.00		$37.63	$9.95	$11.85	$8.47	$0.00	$67.90
6 / 75.00		$40.31	$9.95	$11.85	$9.08	$0.00	$71.19
7 / 80.00		$43.00	$9.95	$11.85	$9.68	$0.00	$74.48
8 / 90.00		$48.38	$9.95	$11.85	$10.89	$0.00	$81.07
HOISTING ENGINEER/CRANES/GRADALLS	6/1/2025	$58.33	$15.55	$13.25	$3.25	$0.00	$90.38
OPERATING ENGINEERS LOCAL 4	12/1/2025	$59.78	$15.55	$13.25	$3.25	$0.00	$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	$61.08	$15.55	$13.25	$3.25	$0.00	$93.13
	12/1/2026	$62.53	$15.55	$13.25	$3.25	$0.00	$94.58

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

Apprentice: HOISTING ENGINEER/CRANES/GRADALLS

Effective Date: 6/1/2025

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

Apprentice: HOISTING ENGINEER/CRANES/GRADALLS

Effective Date: 12/1/2025

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

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
HVAC (DUCTWORK) SHEETMETAL WORKERS LOCAL 17 SHEETMETAL WORKERS LOCAL 17 - A	2/1/2025	$59.13	$14.91	$18.74	$9.53	$2.98	$105.29
	8/1/2025	$60.98	$14.91	$18.74	$9.53	$2.98	$107.14
	2/1/2026	$62.93	$14.91	$18.74	$9.53	$2.98	$109.09
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (ELECTRICAL CONTROLS) ELECTRICIANS LOCAL 103 ELECTRICIANS LOCAL 103	3/1/2025	$64.26	$13.00	$14.31	$8.72	$0.00	$100.29
	9/1/2025	$66.17	$13.00	$14.37	$8.72	$0.00	$102.26
	3/1/2026	$67.37	$13.00	$14.40	$8.72	$0.00	$103.49
	9/1/2026	$69.28	$13.00	$14.46	$8.72	$0.00	$105.46
	3/1/2027	$70.47	$13.00	$14.49	$8.72	$0.00	$106.68
	9/1/2027	$72.39	$13.00	$14.55	$8.72	$0.00	$108.66
	3/1/2028	$73.59	$13.00	$14.59	$8.72	$0.00	$109.90
For apprentice rates see "Apprentice- ELECTRICIAN"							
HVAC (TESTING AND BALANCING - AIR) SHEETMETAL WORKERS LOCAL 17 SHEETMETAL WORKERS LOCAL 17 - A	2/1/2025	$59.13	$14.91	$18.74	$9.53	$2.98	$105.29
	8/1/2025	$60.98	$14.91	$18.74	$9.53	$2.98	$107.14
	2/1/2026	$62.93	$14.91	$18.74	$9.53	$2.98	$109.09
For apprentice rates see "Apprentice- SHEET METAL WORKER"							
HVAC (TESTING AND BALANCING -WATER) PIPEFITTERS LOCAL 537	3/1/2025	$68.88	$12.70	$13.05	$8.75	$0.00	$103.38

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
PIPEFITTERS LOCAL 537							
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HVAC MECHANIC PIPEFITTERS LOCAL 537 PIPEFITTERS LOCAL 537	3/1/2025	$68.88	$12.70	$13.05	$8.75	$0.00	$103.38
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"							
HYDRAULIC DRILLS LABORERS LABORERS - ZONE 1	6/1/2025	$48.35	$9.90	$9.25	$9.65	$0.00	$77.15
	12/1/2025	$49.85	$9.90	$9.25	$9.65	$0.00	$78.65
	6/1/2026	$50.65	$9.90	$9.25	$9.65	$0.00	$79.45
	12/1/2026	$52.90	$9.90	$9.25	$9.65	$0.00	$81.70
	6/1/2027	$54.50	$9.90	$9.25	$9.65	$0.00	$83.30
	12/1/2027	$56.10	$9.90	$9.25	$9.65	$0.00	$84.90
	6/1/2028	$57.78	$9.90	$9.25	$9.65	$0.00	$86.58
	12/1/2028	$59.45	$9.90	$9.25	$9.65	$0.00	$88.25
For apprentice rates see "Apprentice- LABORER"							
HYDRAULIC DRILLS (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 1 (HEAVY & HIGHWAY)	6/1/2025	$48.45	$9.90	$9.25	$9.65	$0.00	$77.25
	12/1/2025	$49.95	$9.90	$9.25	$9.65	$0.00	$78.75
	6/1/2026	$51.50	$9.90	$9.25	$9.65	$0.00	$80.30
	12/1/2026	$53.00	$9.90	$9.25	$9.65	$0.00	$81.80
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
INSULATOR (PIPES & TANKS) HEAT & FROST INSULATORS LOCAL 6 HEAT & FROST INSULATORS LOCAL 6 (BOSTON)	9/1/2024	$56.92	$14.75	$9.52	$10.09	$0.00	$91.28
	9/1/2025	$60.34	$14.75	$9.52	$10.09	$0.00	$94.70
	9/1/2026	$63.76	$14.75	$9.52	$10.09	$0.00	$98.12

Apprentice: INSULATOR (PIPES & TANKS)

Effective Date: 9/1/2024

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$28.46	$14.75	$9.27	$5.05	$0.00	$57.53
2	60.00	$34.15	$14.75	$9.32	$6.05	$0.00	$64.27
3	70.00	$39.84	$14.75	$9.37	$7.06	$0.00	$71.02
4	80.00	$45.54	$14.75	$9.42	$8.07	$0.00	$77.78

Apprentice: INSULATOR (PIPES & TANKS)

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$30.17	$14.75	$9.27	$5.05	$0.00	$59.24
2	60.00	$36.20	$14.75	$9.32	$6.05	$0.00	$66.32
3	70.00	$42.24	$14.75	$9.37	$7.06	$0.00	$73.42
4	80.00	$48.27	$14.75	$9.42	$8.07	$0.00	$80.51

IRONWORKER/WELDER IRONWORKERS LOCAL 7	3/16/2024	$53.97	$8.35	$12.70	$14.00	$0.00	$89.02

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
IRONWORKERS LOCAL 7 (BOSTON AREA)							

Apprentice: IRONWORKER/WELDER

Effective Date: 3/16/2024

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$32.38	$8.35	$12.70	$14.00	$0.00	$67.43
2	70.00	$37.78	$8.35	$12.70	$14.00	$0.00	$72.83
3	75.00	$40.48	$8.35	$12.70	$14.00	$0.00	$75.53
4	80.00	$43.18	$8.35	$12.70	$14.00	$0.00	$78.23
5	85.00	$45.87	$8.35	$12.70	$14.00	$0.00	$80.92
6	90.00	$48.57	$8.35	$12.70	$14.00	$0.00	$83.62

JACKHAMMER & PAVING BREAKER OPERATOR	6/1/2025	$47.85	$9.90	$9.25	$9.65	$0.00	$76.65
LABORERS	12/1/2025	$49.35	$9.90	$9.25	$9.65	$0.00	$78.15
LABORERS - ZONE 1	6/1/2026	$50.90	$9.90	$9.25	$9.65	$0.00	$79.70
	12/1/2026	$52.40	$9.90	$9.25	$9.65	$0.00	$81.20
	6/1/2027	$54.00	$9.90	$9.25	$9.65	$0.00	$82.80
	12/1/2027	$55.60	$9.90	$9.25	$9.65	$0.00	$84.40
	6/1/2028	$57.28	$9.90	$9.25	$9.65	$0.00	$86.08
	12/1/2028	$58.95	$9.90	$9.25	$9.65	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"							

LABORER	6/1/2025	$47.60	$9.90	$9.25	$9.65	$0.00	$76.40
LABORERS	12/1/2025	$49.10	$9.90	$9.25	$9.65	$0.00	$77.90
LABORERS - ZONE 1	6/1/2026	$50.65	$9.90	$9.25	$9.65	$0.00	$79.45
	12/1/2026	$52.15	$9.90	$9.25	$9.65	$0.00	$80.95
	6/1/2027	$53.75	$9.90	$9.25	$9.65	$0.00	$82.55
	12/1/2027	$55.35	$9.90	$9.25	$9.65	$0.00	$84.15
	6/1/2028	$57.03	$9.90	$9.25	$9.65	$0.00	$85.83
	12/1/2028	$58.70	$9.90	$9.25	$9.65	$0.00	$87.50

Apprentice: LABORER

Effective Date: 6/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$28.56	$9.90	$9.25	$9.65	$0.00	$57.36
2	70.00	$33.32	$9.90	$9.25	$9.65	$0.00	$62.12
3	80.00	$38.08	$9.90	$9.25	$9.65	$0.00	$66.88
4	90.00	$42.84	$9.90	$9.25	$9.65	$0.00	$71.64

Apprentice: LABORER

Effective Date: 12/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	60.00	$29.46	$9.90	$9.25	$9.65	$0.00	$58.26

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
Apprentice: LABORER							
Effective Date: 12/1/2025							
Step / Percent		**Apprentice Base Wage**	**Health**	**Pension**	**Annuity**	**Supplemental Unemployment**	**Total Rate**
2 / 70.00		$34.37	$9.90	$9.25	$9.65	$0.00	$63.17
3 / 80.00		$39.28	$9.90	$9.25	$9.65	$0.00	$68.08
4 / 90.00		$44.19	$9.90	$9.25	$9.65	$0.00	$72.99
LABORER (HEAVY & HIGHWAY)	6/1/2025	$47.70	$9.90	$9.25	$9.65	$0.00	$76.50
LABORERS	12/1/2025	$49.20	$9.90	$9.25	$9.65	$0.00	$78.00
LABORERS - ZONE 1 (HEAVY & HIGHWAY)	6/1/2026	$50.75	$9.90	$9.25	$9.65	$0.00	$79.55
	12/1/2026	$52.25	$9.90	$9.25	$9.65	$0.00	$81.05
Apprentice: LABORER (HEAVY & HIGHWAY)							
Effective Date: 6/1/2025							
Step / Percent		**Apprentice Base Wage**	**Health**	**Pension**	**Annuity**	**Supplemental Unemployment**	**Total Rate**
1 / 60.00		$28.62	$9.65	$9.25	$9.65	$0.00	$57.17
2 / 70.00		$33.39	$9.65	$9.25	$9.65	$0.00	$61.94
3 / 80.00		$38.16	$9.65	$9.25	$9.65	$0.00	$66.71
4 / 90.00		$42.93	$9.65	$9.25	$9.65	$0.00	$71.48
Apprentice: LABORER (HEAVY & HIGHWAY)							
Effective Date: 12/1/2025							
Step / Percent		**Apprentice Base Wage**	**Health**	**Pension**	**Annuity**	**Supplemental Unemployment**	**Total Rate**
1 / 60.00		$29.52	$9.90	$9.25	$9.65	$0.00	$58.32
2 / 70.00		$34.44	$9.90	$9.25	$9.65	$0.00	$63.24
3 / 80.00		$39.36	$9.90	$9.25	$9.65	$0.00	$68.16
4 / 90.00		$44.28	$9.90	$9.25	$9.65	$0.00	$73.08
LABORER: CARPENTER TENDER	6/1/2025	$47.60	$9.90	$9.25	$9.65	$0.00	$76.40
LABORERS	12/1/2025	$49.10	$9.90	$9.25	$9.65	$0.00	$77.90
LABORERS - ZONE 1	6/1/2026	$50.65	$9.90	$9.25	$9.65	$0.00	$79.45
	12/1/2026	$52.15	$9.90	$9.25	$9.65	$0.00	$80.95
	6/1/2027	$53.75	$9.90	$9.25	$9.65	$0.00	$82.55
	12/1/2027	$55.35	$9.90	$9.25	$9.65	$0.00	$84.15
	6/1/2028	$57.03	$9.90	$9.25	$9.65	$0.00	$85.83
	12/1/2028	$58.70	$9.90	$9.25	$9.65	$0.00	$87.50
For apprentice rates see "Apprentice- LABORER"							
LABORER: CEMENT FINISHER TENDER	6/1/2025	$47.60	$9.90	$9.25	$9.65	$0.00	$76.40
LABORERS	12/1/2025	$49.10	$9.90	$9.25	$9.65	$0.00	$77.90
LABORERS - ZONE 1	6/1/2026	$50.65	$9.90	$9.25	$9.65	$0.00	$79.45
	12/1/2026	$52.15	$9.90	$9.25	$9.65	$0.00	$80.95
	6/1/2027	$53.75	$9.90	$9.25	$9.65	$0.00	$82.55

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
	12/1/2027	$55.35	$9.90	$9.25	$9.65	$0.00	$84.15
	6/1/2028	$57.03	$9.90	$9.25	$9.65	$0.00	$85.83
	12/1/2028	$58.70	$9.90	$9.25	$9.65	$0.00	$87.50
For apprentice rates see "Apprentice- LABORER"							
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER LABORERS LABORERS - ZONE 1	6/2/2025	$47.75	$9.90	$9.25	$9.65	$0.00	$76.55
	12/1/2025	$49.25	$9.90	$9.25	$9.65	$0.00	$78.05
	6/1/2026	$50.80	$9.90	$9.25	$9.65	$0.00	$79.60
	12/7/2026	$52.30	$9.90	$9.25	$9.65	$0.00	$81.10
	6/7/2027	$53.90	$9.90	$9.25	$9.65	$0.00	$82.70
	12/6/2027	$55.50	$9.90	$9.25	$9.65	$0.00	$84.30
	6/5/2028	$57.18	$9.90	$9.25	$9.65	$0.00	$85.98
	12/4/2028	$58.85	$9.90	$9.25	$9.65	$0.00	$87.65
For apprentice rates see "Apprentice- LABORER"							
LABORER: MASON TENDER LABORERS LABORERS - ZONE 1	6/1/2025	$47.85	$9.90	$9.25	$9.65	$0.00	$76.65
	12/1/2025	$49.35	$9.90	$9.25	$9.65	$0.00	$78.15
	6/1/2026	$50.90	$9.90	$9.25	$9.65	$0.00	$79.70
	12/1/2026	$52.40	$9.90	$9.25	$9.65	$0.00	$81.20
	6/1/2027	$54.00	$9.90	$9.25	$9.65	$0.00	$82.80
	12/1/2027	$55.60	$9.90	$9.25	$9.65	$0.00	$84.40
	6/1/2028	$57.28	$9.90	$9.25	$9.65	$0.00	$86.08
	12/1/2028	$58.95	$9.90	$9.25	$9.65	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"							
LABORER: MASON TENDER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 1 (HEAVY & HIGHWAY)	6/1/2025	$47.95	$9.90	$9.25	$9.65	$0.00	$76.75
	12/1/2025	$49.45	$9.90	$9.25	$9.65	$0.00	$78.25
	6/1/2026	$51.00	$9.90	$9.25	$9.65	$0.00	$79.80
	12/1/2026	$52.50	$9.90	$9.25	$9.65	$0.00	$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
LABORER: MULTI-TRADE TENDER LABORERS LABORERS - ZONE 1	6/1/2025	$47.60	$9.90	$9.25	$9.65	$0.00	$76.40
	12/1/2025	$49.10	$9.90	$9.25	$9.65	$0.00	$77.90
	6/1/2026	$50.65	$9.90	$9.25	$9.65	$0.00	$79.45
	12/1/2026	$52.15	$9.90	$9.25	$9.65	$0.00	$80.95
	6/1/2027	$53.75	$9.90	$9.25	$9.65	$0.00	$82.55
	12/1/2027	$55.35	$9.90	$9.25	$9.65	$0.00	$84.15
	6/1/2028	$57.03	$9.90	$9.25	$9.65	$0.00	$85.83
	12/1/2028	$58.70	$9.90	$9.25	$9.65	$0.00	$87.50
For apprentice rates see "Apprentice- LABORER"							
LABORER: TREE REMOVER LABORERS LABORERS - ZONE 1	6/1/2025	$47.60	$9.90	$9.25	$9.65	$0.00	$76.40
	12/1/2025	$49.10	$9.90	$9.25	$9.65	$0.00	$77.90
	6/1/2026	$50.65	$9.90	$9.25	$9.65	$0.00	$79.45
	12/1/2026	$52.15	$9.90	$9.25	$9.65	$0.00	$80.95
	6/1/2027	$53.75	$9.90	$9.25	$9.65	$0.00	$82.55
	12/1/2027	$55.35	$9.90	$9.25	$9.65	$0.00	$84.15
	6/1/2028	$57.03	$9.90	$9.25	$9.65	$0.00	$85.83
	12/1/2028	$58.70	$9.90	$9.25	$9.65	$0.00	$87.50
This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
LASER BEAM OPERATOR	6/1/2025	$47.85	$9.90	$9.25	$9.65	$0.00	$76.65
LABORERS LABORERS - ZONE 1	12/1/2025	$49.35	$9.90	$9.25	$9.65	$0.00	$78.15
	6/1/2026	$50.90	$9.90	$9.25	$9.65	$0.00	$79.70
	12/1/2026	$52.40	$9.90	$9.25	$9.65	$0.00	$81.20
	6/1/2027	$54.00	$9.90	$9.25	$9.65	$0.00	$82.80
	12/1/2027	$55.60	$9.90	$9.25	$9.65	$0.00	$84.40
	6/1/2028	$57.28	$9.90	$9.25	$9.65	$0.00	$86.08
	12/1/2028	$58.95	$9.90	$9.25	$9.65	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"							
LASER BEAM OPERATOR (HEAVY & HIGHWAY)	6/1/2025	$47.95	$9.90	$9.25	$9.65	$0.00	$76.75
LABORERS LABORERS - ZONE 1 (HEAVY & HIGHWAY)	12/1/2025	$49.45	$9.90	$9.25	$9.65	$0.00	$78.25
	6/1/2026	$51.00	$9.90	$9.25	$9.65	$0.00	$79.80
	12/1/2026	$52.50	$9.90	$9.25	$9.65	$0.00	$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
MARBLE & TILE FINISHERS	2/1/2025	$50.36	$11.49	$15.57	$6.05	$0.00	$83.47
BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 - MARBLE & TILE	8/1/2025	$52.08	$11.49	$15.57	$6.05	$0.00	$85.19
	2/1/2026	$53.16	$11.49	$15.57	$6.05	$0.00	$86.27
	8/1/2026	$54.92	$11.49	$15.57	$6.05	$0.00	$88.03
	2/1/2027	$56.04	$11.49	$15.57	$6.05	$0.00	$89.15

Apprentice: MARBLE & TILE FINISHERS

Effective Date: 2/1/2025

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

Apprentice: MARBLE & TILE FINISHERS

Effective Date: 8/1/2025

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

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

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
MECH. SWEEPER OPERATOR (ON CONST. SITES)	6/1/2025	$57.68	$15.55	$13.25	$3.25	$0.00	$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	$59.12	$15.55	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.40	$15.55	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.84	$15.55	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
MECHANICS MAINTENANCE	6/1/2025	$57.68	$15.55	$13.25	$3.25	$0.00	$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	$59.12	$15.55	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.40	$15.55	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.84	$15.55	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
MILLWRIGHT (Zone 1)	1/6/2025	$50.53	$10.08	$11.47	$10.25	$0.00	$82.33
MILLWRIGHTS LOCAL 1121	1/5/2026	$53.03	$10.08	$11.47	$10.25	$0.00	$84.83
MILLWRIGHTS LOCAL 1121 - Zone 1							

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH

Effective Date: 2/1/2025

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

Apprentice: MARBLE MASONS,TILELAYERS & TERRAZZO MECH

Effective Date: 8/1/2025

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

Apprentice: MILLWRIGHT (Zone 1)

Effective Date: 1/6/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	$27.79	$10.08	$0.00	$5.64	$0.00	$43.51
2	65.00	$32.84	$10.08	$0.00	$6.66	$0.00	$49.58
3	75.00	$37.90	$10.08	$11.47	$7.69	$0.00	$67.14
4	85.00	$42.95	$10.08	$11.47	$8.71	$0.00	$73.21

Construction

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

Apprentice: MILLWRIGHT (Zone 1)

Effective Date: 1/5/2026

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	55.00	$29.17	$10.08	$0.00	$5.64	$0.00	$44.89
2	65.00	$34.47	$10.08	$0.00	$6.66	$0.00	$51.21
3	75.00	$39.77	$10.08	$11.47	$7.69	$0.00	$69.01
4	85.00	$45.08	$10.08	$11.47	$8.71	$0.00	$75.34

MORTAR MIXER LABORERS LABORERS - ZONE 1	6/1/2025	$47.85	$9.90	$9.25	$9.65	$0.00	$76.65
	12/1/2025	$49.35	$9.90	$9.25	$9.65	$0.00	$78.15
	6/1/2026	$50.90	$9.90	$9.25	$9.65	$0.00	$79.70
	12/1/2026	$52.40	$9.90	$9.25	$9.65	$0.00	$81.20
	6/1/2027	$54.00	$9.90	$9.25	$9.65	$0.00	$82.80
	12/1/2027	$55.60	$9.90	$9.25	$9.65	$0.00	$84.40
	6/1/2028	$57.28	$9.90	$9.25	$9.65	$0.00	$86.08
	12/1/2028	$58.95	$9.90	$9.25	$9.65	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"							
OILER (OTHER THAN TRUCK CRANES,GRADALLS) OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2025	$25.97	$15.30	$13.15	$3.25	$0.00	$57.67
	12/1/2025	$26.63	$15.30	$13.15	$3.25	$0.00	$58.33
	6/1/2026	$27.22	$15.30	$13.15	$3.25	$0.00	$58.92
	12/1/2026	$27.89	$15.30	$13.15	$3.25	$0.00	$59.59
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
OILER (TRUCK CRANES, GRADALLS) OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2025	$31.80	$15.30	$13.15	$3.25	$0.00	$63.50
	12/1/2025	$32.60	$15.30	$13.15	$3.25	$0.00	$64.30
	6/1/2026	$33.32	$15.30	$13.15	$3.25	$0.00	$65.02
	12/1/2026	$34.12	$15.30	$13.15	$3.25	$0.00	$65.82
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
OTHER POWER DRIVEN EQUIPMENT - CLASS II OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2025	$57.68	$15.55	$13.25	$3.25	$0.00	$89.73
	12/1/2025	$59.12	$15.55	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$60.40	$15.55	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.84	$15.55	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PAINTER (BRIDGES/TANKS) PAINTERS LOCAL 35 PAINTERS LOCAL 35 - ZONE 1	1/1/2025	$58.46	$9.95	$11.85	$12.10	$0.00	$92.36

Apprentice: PAINTER (BRIDGES/TANKS)

Effective Date: 1/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$29.23	$9.95	$0.00	$0.00	$0.00	$39.18
2	55.00	$32.15	$9.95	$0.00	$6.66	$0.00	$48.76

Construction

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

Apprentice: PAINTER (BRIDGES/TANKS)

Effective Date: 1/1/2025

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

PAINTER (SPRAY OR SANDBLAST, NEW) * 1/1/2025 $55.15 $9.95 $11.85 $12.10 $0.00 $89.05

* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.

PAINTERS LOCAL 35

PAINTERS LOCAL 35 - ZONE 1

Apprentice: PAINTER (SPRAY OR SANDBLAST, NEW) *

Effective Date: 1/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$27.58	$9.95	$0.00	$0.00	$0.00	$37.53
2	55.00	$30.33	$9.95	$0.00	$6.66	$0.00	$46.94
3	60.00	$33.09	$9.95	$0.00	$7.26	$0.00	$50.30
4	65.00	$35.85	$9.95	$0.00	$7.87	$0.00	$53.67
5	70.00	$38.61	$9.95	$11.85	$8.47	$0.00	$68.88
6	75.00	$41.36	$9.95	$11.85	$9.08	$0.00	$72.24
7	80.00	$44.12	$9.95	$11.85	$9.68	$0.00	$75.60
8	90.00	$49.64	$9.95	$11.85	$10.89	$0.00	$82.33

PAINTER (SPRAY OR SANDBLAST, REPAINT) 1/1/2025 $53.21 $9.95 $11.85 $12.10 $0.00 $87.11

PAINTERS LOCAL 35

PAINTERS LOCAL 35 - ZONE 1

Apprentice: PAINTER (SPRAY OR SANDBLAST, REPAINT)

Effective Date: 1/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$26.61	$9.95	$0.00	$0.00	$0.00	$36.56
2	55.00	$29.27	$9.95	$0.00	$6.66	$0.00	$45.88
3	60.00	$31.93	$9.95	$0.00	$7.26	$0.00	$49.14
4	65.00	$34.59	$9.95	$0.00	$7.87	$0.00	$52.41
5	70.00	$37.25	$9.95	$11.85	$8.47	$0.00	$67.52
6	75.00	$39.91	$9.95	$11.85	$9.08	$0.00	$70.79
7	80.00	$42.57	$9.95	$11.85	$9.68	$0.00	$74.05
8	90.00	$47.89	$9.95	$11.85	$10.89	$0.00	$80.58

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
PAINTER / TAPER (BRUSH, NEW) *	1/1/2025	$53.75	$9.95	$11.85	$12.10	$0.00	$87.65
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.							
PAINTERS LOCAL 35							
PAINTERS LOCAL 35 - ZONE 1							

Apprentice: PAINTER / TAPER (BRUSH, NEW) *

Effective Date: 1/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$26.88	$9.95	$0.00	$0.00	$0.00	$36.83
2	55.00	$29.56	$9.95	$0.00	$6.66	$0.00	$46.17
3	60.00	$32.25	$9.95	$0.00	$7.26	$0.00	$49.46
4	65.00	$34.94	$9.95	$0.00	$7.87	$0.00	$52.76
5	70.00	$37.63	$9.95	$11.85	$8.47	$0.00	$67.90
6	75.00	$40.31	$9.95	$11.85	$9.08	$0.00	$71.19
7	80.00	$43.00	$9.95	$11.85	$9.68	$0.00	$74.48
8	90.00	$48.38	$9.95	$11.85	$10.89	$0.00	$81.07

PAINTER / TAPER (BRUSH, REPAINT)	1/1/2025	$51.81	$9.95	$11.85	$12.10	$0.00	$85.71
PAINTERS LOCAL 35							
PAINTERS LOCAL 35 - ZONE 1							

Apprentice: PAINTER / TAPER (BRUSH, REPAINT)

Effective Date: 1/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$25.91	$9.95	$0.00	$0.00	$0.00	$35.86
2	55.00	$28.50	$9.95	$0.00	$6.66	$0.00	$45.11
3	60.00	$31.09	$9.95	$0.00	$7.26	$0.00	$48.30
4	65.00	$33.68	$9.95	$0.00	$7.87	$0.00	$51.50
5	70.00	$36.27	$9.95	$11.85	$8.47	$0.00	$66.54
6	75.00	$38.86	$9.95	$11.85	$9.08	$0.00	$69.74
7	80.00	$41.45	$9.95	$11.85	$9.68	$0.00	$72.93
8	90.00	$46.63	$9.95	$11.85	$10.89	$0.00	$79.32

PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY)	6/1/2025	$47.70	$9.90	$9.25	$9.65	$0.00	$76.50
LABORERS	12/1/2025	$49.20	$9.90	$9.25	$9.65	$0.00	$78.00
LABORERS - ZONE 1 (HEAVY & HIGHWAY)	6/1/2026	$50.75	$9.90	$9.25	$9.65	$0.00	$79.55
	12/1/2026	$52.25	$9.90	$9.25	$9.65	$0.00	$81.05
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							

PANEL & PICKUP TRUCKS DRIVER	6/1/2025	$41.88	$14.91	$20.17	$0.00	$0.00	$76.96
TEAMSTERS JOINT COUNCIL NO. 10	8/1/2025	$41.88	$15.41	$20.17	$0.00	$0.00	$77.46
TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	12/1/2025	$41.88	$15.41	$21.78	$0.00	$0.00	$79.07
	6/1/2026	$42.88	$15.41	$21.78	$0.00	$0.00	$80.07
	8/1/2026	$42.88	$15.91	$21.78	$0.00	$0.00	$80.57
	12/1/2026	$42.88	$15.91	$23.52	$0.00	$0.00	$82.31

Construction

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

Apprentice: PILE DRIVER

Effective Date: 8/1/2024

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

PIPEFITTER & STEAMFITTER PIPEFITTERS LOCAL 537 PIPEFITTERS LOCAL 537	3/1/2025	$68.88	$12.70	$13.05	$8.75	$0.00	$103.38

Apprentice: PIPEFITTER & STEAMFITTER

Effective Date: 3/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	40.00	$27.55	$12.70	$0.30	$8.75	$0.00	$49.30
2	45.00	$31.00	$12.70	$13.05	$8.75	$0.00	$65.50
3	60.00	$41.33	$12.70	$13.05	$8.75	$0.00	$75.83
4	70.00	$48.22	$12.70	$13.05	$8.75	$0.00	$82.72
5	80.00	$55.10	$12.70	$13.05	$8.75	$0.00	$89.60

PIPELAYER LABORERS LABORERS - ZONE 1	6/1/2025	$47.85	$9.90	$9.25	$9.65	$0.00	$76.65
	12/1/2025	$49.35	$9.90	$9.25	$9.65	$0.00	$78.15
	6/1/2026	$50.90	$9.90	$9.25	$9.65	$0.00	$79.70
	12/1/2026	$52.40	$9.90	$9.25	$9.65	$0.00	$81.20
	6/1/2027	$54.00	$9.90	$9.25	$9.65	$0.00	$82.80
	12/1/2027	$55.60	$9.90	$9.25	$9.65	$0.00	$84.40
	6/1/2028	$57.28	$9.90	$9.25	$9.65	$0.00	$86.08
	12/1/2028	$58.95	$9.90	$9.25	$9.65	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"							
PIPELAYER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 1 (HEAVY & HIGHWAY)	6/1/2025	$47.95	$9.90	$9.25	$9.65	$0.00	$76.75
	12/1/2025	$49.45	$9.90	$9.25	$9.65	$0.00	$78.25
	6/1/2026	$51.00	$9.90	$9.25	$9.65	$0.00	$79.80
	12/1/2026	$52.50	$9.90	$9.25	$9.65	$0.00	$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
PLUMBERS & GASFITTERS PLUMBERS & GASFITTERS LOCAL 12 PLUMBERS & GASFITTERS LOCAL 12	3/2/2025	$69.84	$14.32	$12.31	$8.00	$0.00	$104.47

Apprentice: PLUMBERS & GASFITTERS

Effective Date: 3/2/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	35.00	$24.44	$14.32	$4.61	$2.80	$0.00	$46.17
2	40.00	$27.94	$14.32	$5.22	$3.20	$0.00	$50.68
3	55.00	$38.41	$14.32	$7.07	$4.40	$0.00	$64.20
4	65.00	$45.40	$14.32	$8.30	$5.20	$0.00	$73.22
5	75.00	$52.38	$14.32	$9.53	$6.00	$0.00	$82.23

PNEUMATIC CONTROLS (TEMP.) PIPEFITTERS LOCAL 537 PIPEFITTERS LOCAL 537	3/1/2025	$68.88	$12.70	$13.05	$8.75	$0.00	$103.38

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

PNEUMATIC DRILL/TOOL OPERATOR LABORERS LABORERS - ZONE 1	6/1/2025	$47.85	$9.90	$9.25	$9.65	$0.00	$76.65
	12/1/2025	$49.35	$9.90	$9.25	$9.65	$0.00	$78.15
	6/1/2026	$50.90	$9.90	$9.25	$9.65	$0.00	$79.70
	12/1/2026	$52.40	$9.90	$9.25	$9.65	$0.00	$81.20
	6/1/2027	$54.00	$9.90	$9.25	$9.65	$0.00	$82.80
	12/1/2027	$55.60	$9.90	$9.25	$9.65	$0.00	$84.40
	6/1/2028	$57.28	$9.90	$9.25	$9.65	$0.00	$86.08
	12/1/2028	$58.95	$9.90	$9.25	$9.65	$0.00	$87.75

For apprentice rates see "Apprentice- LABORER"

PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 1 (HEAVY & HIGHWAY)	6/1/2025	$47.95	$9.90	$9.25	$9.65	$0.00	$76.75
	12/1/2025	$49.45	$9.90	$9.25	$9.65	$0.00	$78.25
	6/1/2026	$51.00	$9.90	$9.25	$9.65	$0.00	$79.80
	12/1/2026	$52.50	$9.90	$9.25	$9.65	$0.00	$81.30

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

POWDERMAN & BLASTER LABORERS LABORERS - ZONE 1	6/1/2025	$48.60	$9.90	$9.25	$9.65	$0.00	$77.40
	12/1/2025	$50.10	$9.90	$9.25	$9.65	$0.00	$78.90
	6/1/2026	$51.65	$9.90	$9.25	$9.65	$0.00	$80.45
	12/1/2026	$53.15	$9.90	$9.25	$9.65	$0.00	$81.95
	6/1/2027	$54.75	$9.90	$9.25	$9.65	$0.00	$83.55
	12/1/2027	$56.35	$9.90	$9.25	$9.65	$0.00	$85.15
	6/1/2028	$58.03	$9.90	$9.25	$9.65	$0.00	$86.83
	12/1/2028	$59.70	$9.90	$9.25	$9.65	$0.00	$88.50

For apprentice rates see "Apprentice- LABORER"

POWDERMAN & BLASTER (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 1 (HEAVY & HIGHWAY)	6/1/2025	$48.70	$9.90	$9.25	$9.65	$0.00	$77.50
	12/1/2025	$50.20	$9.90	$9.25	$9.65	$0.00	$79.00
	6/1/2026	$51.75	$9.90	$9.25	$9.65	$0.00	$80.55
	12/1/2026	$53.25	$9.90	$9.25	$9.65	$0.00	$82.05

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)							
POWER SHOVEL/DERRICK/TRENCHING MACHINE	6/1/2025	$58.33	$15.55	$13.25	$3.25	$0.00	$90.38
OPERATING ENGINEERS LOCAL 4	12/1/2025	$59.78	$15.55	$13.25	$3.25	$0.00	$91.83
OPERATING ENGINEERS LOCAL 4	6/1/2026	$61.08	$15.55	$13.25	$3.25	$0.00	$93.13
	12/1/2026	$62.53	$15.55	$13.25	$3.25	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PUMP OPERATOR (CONCRETE)	6/1/2025	$57.68	$15.55	$13.25	$3.25	$0.00	$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	$59.12	$15.55	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.40	$15.55	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.84	$15.55	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
PUMP OPERATOR (DEWATERING, OTHER)	6/1/2025	$37.52	$15.55	$13.25	$3.25	$0.00	$69.57
OPERATING ENGINEERS LOCAL 4	12/1/2025	$38.47	$15.55	$13.25	$3.25	$0.00	$70.52
OPERATING ENGINEERS LOCAL 4	6/1/2026	$39.33	$15.55	$13.25	$3.25	$0.00	$71.38
	12/1/2026	$40.28	$15.55	$13.25	$3.25	$0.00	$72.33
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
READY MIX CONCRETE DRIVERS after 4/30/12 (Drivers Hired After 4/30/2012) TEAMSTERS 25 (Metro) - Aggregate TEAMSTERS 25 (Metro) - Aggregate	8/1/2022	$30.40	$11.91	$15.25	$0.00	$0.00	$57.56
READY-MIX CONCRETE DRIVER	8/1/2022	$34.41	$11.91	$15.25	$0.00	$0.00	$61.57
TEAMSTERS 25 (Metro) - Aggregate							
TEAMSTERS 25 (Metro) - Aggregate							
RECLAIMERS	6/1/2025	$57.68	$15.55	$13.25	$3.25	$0.00	$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	$59.12	$15.55	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.40	$15.55	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.84	$15.55	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
RIDE-ON MOTORIZED BUGGY OPERATOR	6/1/2025	$47.85	$9.90	$9.25	$9.65	$0.00	$76.65
LABORERS	12/1/2025	$49.35	$9.90	$9.25	$9.65	$0.00	$78.15
LABORERS - ZONE 1	6/1/2026	$50.90	$9.90	$9.25	$9.65	$0.00	$79.70
	12/1/2026	$52.40	$9.90	$9.25	$9.65	$0.00	$81.20
	6/1/2027	$54.00	$9.90	$9.25	$9.65	$0.00	$82.80
	12/1/2027	$55.60	$9.90	$9.25	$9.65	$0.00	$84.40
	6/1/2028	$57.28	$9.90	$9.25	$9.65	$0.00	$86.08
	12/1/2028	$58.95	$9.90	$9.25	$9.65	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"							
ROLLER/SPREADER/MULCHING MACHINE	6/1/2025	$57.68	$15.55	$13.25	$3.25	$0.00	$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	$59.12	$15.55	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.40	$15.55	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.84	$15.55	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg)	2/1/2025	$52.03	$13.28	$12.67	$9.03	$0.00	$87.01
ROOFERS LOCAL 33	8/1/2025	$53.53	$13.28	$12.67	$9.03	$0.00	$88.51
ROOFERS LOCAL 33	2/1/2026	$54.78	$13.28	$12.67	$9.03	$0.00	$89.76

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

Effective Date: 2/1/2025

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

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

Effective Date: 8/1/2025

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

ROOFER SLATE / TILE / PRECAST CONCRETE	2/1/2025	$52.28	$13.28	$12.67	$9.03	$0.00	$87.26
ROOFERS LOCAL 33	8/1/2025	$53.78	$13.28	$12.67	$9.03	$0.00	$88.76
ROOFERS LOCAL 33	2/1/2026	$55.03	$13.28	$12.67	$9.03	$0.00	$90.01

For apprentice rates see "Apprentice- ROOFER"

SHEETMETAL WORKER	2/1/2025	$59.13	$14.91	$18.74	$9.53	$2.98	$105.29
SHEETMETAL WORKERS LOCAL 17	8/1/2025	$60.98	$14.91	$18.74	$9.53	$2.98	$107.14
SHEETMETAL WORKERS LOCAL 17 - A	2/1/2026	$62.93	$14.91	$18.74	$9.53	$2.98	$109.09

Apprentice: SHEETMETAL WORKER

Effective Date: 2/1/2025

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

Construction

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

Apprentice: SHEETMETAL WORKER

Effective Date: 2/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
10	85.00	$50.26	$14.91	$16.55	$2.75	$2.49	$86.96

Apprentice: SHEETMETAL WORKER

Effective Date: 8/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	42.00	$25.61	$14.91	$6.13	$0.00	$0.00	$46.65
2	42.00	$25.61	$14.91	$6.13	$0.00	$0.00	$46.65
3	47.00	$28.66	$14.91	$11.01	$1.25	$1.62	$57.45
4	47.00	$28.66	$14.91	$11.01	$1.25	$1.62	$57.45
5	52.00	$31.71	$14.91	$11.74	$1.50	$1.74	$61.60
6	52.00	$31.71	$14.91	$11.74	$1.75	$1.75	$61.86
7	60.00	$36.59	$14.91	$12.90	$2.00	$1.93	$68.33
8	65.00	$39.64	$14.91	$13.63	$2.25	$2.04	$72.47
9	75.00	$45.74	$14.91	$15.09	$2.75	$2.28	$80.77
10	85.00	$51.83	$14.91	$16.55	$2.75	$2.49	$88.53

SPECIALIZED EARTH MOVING EQUIP < 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	6/1/2025	$42.34	$14.91	$20.17	$0.00	$0.00	$77.42
	8/1/2025	$42.34	$15.41	$20.17	$0.00	$0.00	$77.92
	12/1/2025	$42.34	$15.41	$21.78	$0.00	$0.00	$79.53
	6/1/2026	$43.34	$15.41	$21.78	$0.00	$0.00	$80.53
	8/1/2026	$43.34	$15.91	$21.78	$0.00	$0.00	$81.03
	12/1/2026	$43.34	$15.91	$23.52	$0.00	$0.00	$82.77
SPECIALIZED EARTH MOVING EQUIP > 35 TONS TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	6/1/2025	$42.63	$14.91	$20.17	$0.00	$0.00	$77.71
	8/1/2025	$42.63	$15.41	$20.17	$0.00	$0.00	$78.21
	12/1/2025	$42.63	$15.41	$21.78	$0.00	$0.00	$79.82
	6/1/2026	$43.63	$15.41	$21.78	$0.00	$0.00	$80.82
	8/1/2026	$43.63	$15.91	$21.78	$0.00	$0.00	$81.32
	12/1/2026	$43.63	$15.91	$23.52	$0.00	$0.00	$83.06
SPRINKLER FITTER SPRINKLER FITTERS LOCAL 550 SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1	3/1/2025	$72.14	$11.51	$7.30	$16.50	$0.00	$107.45

Apprentice: SPRINKLER FITTER

Effective Date: 3/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	35.00	$25.25	$11.51	$13.07	$0.00	$0.00	$49.83
2	40.00	$28.86	$11.51	$13.90	$0.00	$0.00	$54.27
3	45.00	$32.46	$11.51	$14.73	$0.00	$0.00	$58.70

Construction

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

Apprentice: SPRINKLER FITTER

Effective Date: 3/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
4	50.00	$36.07	$11.51	$15.55	$0.00	$0.00	$63.13
5	55.00	$39.68	$11.51	$16.37	$0.00	$0.00	$67.56
6	60.00	$43.28	$11.51	$17.20	$0.00	$0.00	$71.99
7	65.00	$46.89	$11.51	$18.03	$0.00	$0.00	$76.43
8	70.00	$50.50	$11.51	$18.85	$0.00	$0.00	$80.86
9	75.00	$54.11	$11.51	$19.67	$0.00	$0.00	$85.29
10	80.00	$57.71	$11.51	$20.50	$0.00	$0.00	$89.72

STEAM BOILER OPERATOR	6/1/2025	$57.68	$15.55	$13.25	$3.25	$0.00	$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	$59.12	$15.55	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.40	$15.55	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.84	$15.55	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN	6/1/2025	$57.68	$15.55	$13.25	$3.25	$0.00	$89.73
OPERATING ENGINEERS LOCAL 4	12/1/2025	$59.12	$15.55	$13.25	$3.25	$0.00	$91.17
OPERATING ENGINEERS LOCAL 4	6/1/2026	$60.40	$15.55	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.84	$15.55	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
TELECOMMUNICATION TECHNICIAN	3/1/2025	$51.41	$13.00	$13.92	$6.98	$0.00	$85.31
ELECTRICIANS LOCAL 103	9/1/2025	$52.94	$13.00	$13.97	$6.98	$0.00	$86.89
ELECTRICIANS LOCAL 103	3/1/2026	$53.90	$13.00	$14.00	$6.98	$0.00	$87.88
	9/1/2026	$55.42	$13.00	$14.04	$6.98	$0.00	$89.44
	3/1/2027	$56.38	$13.00	$14.07	$6.98	$0.00	$90.43
	9/1/2027	$57.91	$13.00	$14.12	$6.98	$0.00	$92.01
	3/1/2028	$58.87	$13.00	$14.15	$6.98	$0.00	$93.00

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 3/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$23.13	$13.00	$0.69	$0.00	$0.00	$36.82
2	45.00	$23.13	$13.00	$0.69	$0.00	$0.00	$36.82
3	50.00	$25.71	$13.00	$13.15	$3.49	$0.00	$55.35
4	50.00	$25.71	$13.00	$13.15	$3.49	$0.00	$55.35
5	55.00	$28.28	$13.00	$13.23	$3.84	$0.00	$58.35
6	60.00	$30.85	$13.00	$13.31	$4.19	$0.00	$61.35
7	65.00	$33.42	$13.00	$13.38	$4.54	$0.00	$64.34
8	70.00	$35.99	$13.00	$13.46	$4.89	$0.00	$67.34
9	75.00	$38.56	$13.00	$13.54	$5.24	$0.00	$70.34
10	80.00	$41.13	$13.00	$13.61	$5.58	$0.00	$73.32

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

Apprentice: TELECOMMUNICATION TECHNICIAN

Effective Date: 9/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	45.00	$23.82	$13.00	$0.71	$0.00	$0.00	$37.53
2	45.00	$23.82	$13.00	$0.71	$0.00	$0.00	$37.53
3	50.00	$26.47	$13.00	$13.17	$3.49	$0.00	$56.13
4	50.00	$26.47	$13.00	$13.17	$3.49	$0.00	$56.13
5	55.00	$29.12	$13.00	$13.25	$3.84	$0.00	$59.21
6	60.00	$31.76	$13.00	$13.33	$4.19	$0.00	$62.28
7	65.00	$34.41	$13.00	$13.41	$4.54	$0.00	$65.36
8	70.00	$37.06	$13.00	$13.49	$4.89	$0.00	$68.44
9	75.00	$39.71	$13.00	$13.57	$5.24	$0.00	$71.52
10	80.00	$42.35	$13.00	$13.65	$5.58	$0.00	$74.58

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
TERRAZZO FINISHERS BRICKLAYERS LOCAL 3 BRICKLAYERS LOCAL 3 - MARBLE & TILE	2/1/2025	$64.74	$11.49	$15.57	$8.02	$0.00	$99.82
	8/1/2025	$66.89	$11.49	$15.57	$8.02	$0.00	$101.97
	2/1/2026	$68.24	$11.49	$15.57	$8.02	$0.00	$103.32
	8/1/2026	$70.44	$11.49	$15.57	$8.02	$0.00	$105.52
	2/1/2027	$71.84	$11.49	$15.57	$8.02	$0.00	$106.92

Apprentice: TERRAZZO FINISHERS

Effective Date: 2/1/2025

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

Apprentice: TERRAZZO FINISHERS

Effective Date: 8/1/2025

Step	Percent	Apprentice Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
1	50.00	$33.45	$11.49	$15.57	$8.02	$0.00	$68.53
2	60.00	$40.13	$11.49	$15.57	$8.02	$0.00	$75.21
3	70.00	$46.82	$11.49	$15.57	$8.02	$0.00	$81.90
4	80.00	$53.51	$11.49	$15.57	$8.02	$0.00	$88.59
5	90.00	$60.20	$11.49	$15.57	$8.02	$0.00	$95.28

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
TEST BORING DRILLER LABORERS LABORERS - FOUNDATION AND MARINE	6/1/2025	$51.70	$9.90	$9.25	$9.80	$0.00	$80.65
	12/1/2025	$53.20	$9.90	$9.25	$9.80	$0.00	$82.15
	6/1/2026	$54.75	$9.90	$9.25	$9.80	$0.00	$83.70
	12/1/2026	$56.25	$9.90	$9.25	$9.80	$0.00	$85.20

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- LABORER"							
TEST BORING DRILLER HELPER LABORERS LABORERS - FOUNDATION AND MARINE	6/1/2025	$47.82	$9.90	$9.25	$9.80	$0.00	$76.77
	12/1/2025	$49.32	$9.90	$9.25	$9.80	$0.00	$78.27
	6/1/2026	$50.87	$9.90	$9.25	$9.80	$0.00	$79.82
	12/1/2026	$52.37	$9.90	$9.25	$9.80	$0.00	$81.32
For apprentice rates see "Apprentice- LABORER"							
TEST BORING LABORER LABORERS LABORERS - FOUNDATION AND MARINE	6/1/2025	$47.70	$9.90	$9.25	$9.80	$0.00	$76.65
	12/1/2025	$49.20	$9.90	$9.25	$9.80	$0.00	$78.15
	6/1/2026	$50.75	$9.90	$9.25	$9.80	$0.00	$79.70
	12/1/2026	$52.25	$9.90	$9.25	$9.80	$0.00	$81.20
For apprentice rates see "Apprentice- LABORER"							
TRACTORS/PORTABLE STEAM GENERATORS OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2025	$57.68	$15.55	$13.25	$3.25	$0.00	$89.73
	12/1/2025	$59.12	$15.55	$13.25	$3.25	$0.00	$91.17
	6/1/2026	$60.40	$15.55	$13.25	$3.25	$0.00	$92.45
	12/1/2026	$61.84	$15.55	$13.25	$3.25	$0.00	$93.89
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
TRAILERS FOR EARTH MOVING EQUIPMENT TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	6/1/2025	$42.92	$14.91	$20.17	$0.00	$0.00	$78.00
	8/1/2025	$42.92	$15.41	$20.17	$0.00	$0.00	$78.50
	12/1/2025	$42.92	$15.41	$21.78	$0.00	$0.00	$80.11
	6/1/2026	$43.92	$15.41	$21.78	$0.00	$0.00	$81.11
	8/1/2026	$43.92	$15.91	$21.78	$0.00	$0.00	$81.61
	12/1/2026	$43.92	$15.91	$23.52	$0.00	$0.00	$83.35
TUNNEL WORK - COMPRESSED AIR LABORERS LABORERS (COMPRESSED AIR)	6/1/2025	$59.93	$9.90	$9.25	$10.25	$0.00	$89.33
	12/1/2025	$61.43	$9.90	$9.25	$10.25	$0.00	$90.83
	6/1/2026	$62.98	$9.90	$9.25	$10.25	$0.00	$92.38
	12/1/2026	$64.48	$9.90	$9.25	$10.25	$0.00	$93.88
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) LABORERS LABORERS (COMPRESSED AIR)	6/1/2025	$61.93	$9.90	$9.25	$10.25	$0.00	$91.33
	12/1/2025	$63.43	$9.90	$9.25	$10.25	$0.00	$92.83
	6/1/2026	$64.98	$9.90	$9.25	$10.25	$0.00	$94.38
	12/1/2026	$66.48	$9.90	$9.25	$10.25	$0.00	$95.88
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR LABORERS LABORERS (FREE AIR TUNNEL)	6/1/2025	$52.00	$9.90	$9.25	$10.25	$0.00	$81.40
	12/1/2025	$53.50	$9.90	$9.25	$10.25	$0.00	$82.90
	6/1/2026	$55.05	$9.90	$9.25	$10.25	$0.00	$84.45
	12/1/2026	$56.55	$9.90	$9.25	$10.25	$0.00	$85.95
For apprentice rates see "Apprentice- LABORER"							
TUNNEL WORK - FREE AIR (HAZ. WASTE) LABORERS LABORERS (FREE AIR TUNNEL)	6/1/2025	$54.00	$9.90	$9.25	$10.25	$0.00	$83.40
	12/1/2025	$55.50	$9.90	$9.25	$10.25	$0.00	$84.90
	6/1/2026	$57.05	$9.90	$9.25	$10.25	$0.00	$86.45
	12/1/2026	$58.55	$9.90	$9.25	$10.25	$0.00	$87.95
For apprentice rates see "Apprentice- LABORER"							

Construction

Classification	Effective Date	Base Wage	Health	Pension	Annuity	Supplemental Unemployment	Total Rate
VAC-HAUL TEAMSTERS JOINT COUNCIL NO. 10 TEAMSTERS JOINT COUNCIL NO. 10 ZONE A	6/1/2025	$42.34	$14.91	$20.17	$0.00	$0.00	$77.42
	8/1/2025	$42.34	$15.41	$20.17	$0.00	$0.00	$77.92
	12/1/2025	$42.34	$15.41	$21.78	$0.00	$0.00	$79.53
	6/1/2026	$43.34	$15.41	$21.78	$0.00	$0.00	$80.53
	8/1/2026	$43.34	$15.91	$21.78	$0.00	$0.00	$81.03
	12/1/2026	$43.34	$15.91	$23.52	$0.00	$0.00	$82.77
WAGON DRILL OPERATOR LABORERS LABORERS - ZONE 1	6/1/2025	$47.85	$9.90	$9.25	$9.65	$0.00	$76.65
	12/1/2025	$49.35	$9.90	$9.25	$9.65	$0.00	$78.15
	6/1/2026	$50.90	$9.90	$9.25	$9.65	$0.00	$79.70
	12/1/2026	$52.40	$9.90	$9.25	$9.65	$0.00	$81.20
	6/1/2027	$54.00	$9.90	$9.25	$9.65	$0.00	$82.80
	12/1/2027	$55.60	$9.90	$9.25	$9.65	$0.00	$84.40
	6/1/2028	$57.28	$9.90	$9.25	$9.65	$0.00	$86.08
	12/1/2028	$58.95	$9.90	$9.25	$9.65	$0.00	$87.75
For apprentice rates see "Apprentice- LABORER"							
WAGON DRILL OPERATOR (HEAVY & HIGHWAY) LABORERS LABORERS - ZONE 1 (HEAVY & HIGHWAY)	6/1/2025	$47.95	$9.90	$9.25	$9.65	$0.00	$76.75
	12/1/2025	$49.45	$9.90	$9.25	$9.65	$0.00	$78.25
	6/1/2026	$51.00	$9.90	$9.25	$9.65	$0.00	$79.80
	12/1/2026	$52.50	$9.90	$9.25	$9.65	$0.00	$81.30
For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"							
WASTE WATER PUMP OPERATOR OPERATING ENGINEERS LOCAL 4 OPERATING ENGINEERS LOCAL 4	6/1/2025	$58.33	$15.55	$13.25	$3.25	$0.00	$90.38
	12/1/2025	$59.78	$15.55	$13.25	$3.25	$0.00	$91.83
	6/1/2026	$61.08	$15.55	$13.25	$3.25	$0.00	$93.13
	12/1/2026	$62.53	$15.55	$13.25	$3.25	$0.00	$94.58
For apprentice rates see "Apprentice- OPERATING ENGINEERS"							
WATER METER INSTALLER PLUMBERS & GASFITTERS LOCAL 12 PLUMBERS & GASFITTERS LOCAL 12	3/2/2025	$69.84	$14.32	$12.31	$8.00	$0.00	$104.47
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"							

Additional Apprentice Information

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

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

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

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PART IV

SPECIFICATIONS FOR THE PROJECT

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SECTION 010150
CONTRACTORS USE OF PREMISES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.01 CAMPUS COORDINATION

A. Schedule and perform work to afford minimum of interruption to normal and continuous operation of utility systems. The Contractor shall submit to UMB Project Manager and the Designer for approval, proposed schedule for performing work; including construction of new utilities, re-routing of existing utilities and final connection of new work to existing work. Schedule shall indicate shutdown time required for each operation.

1. Work includes checking all safety devices to verify that they have come back on- line after interruption. This requirement will not be waived.

B. The Contractor shall notify UMB Project Manager and the Designer in writing, 72 hours in advance of the proposed time for shutting down or interrupting any utilities, services or facilities which may affect the operation of other buildings, services or facilities of the University (System Impairment). Prior to any shutting down or interrupting of any utilities, services, facilities or campus activities or operations the Contractor, in coordination with the Subcontractors performing such work, a System Impairment(s) Request / Notification form must be completed and approved by the UMB Project Manager.

C. System Impairment(s) Request / Notification Process

1. The purpose of this process is to outline the process for request and approval of impairments to any system of a building or area having an impact on any Operations, Life Safety System, Environmental Health System or campus environment. The goal being to implement the most feasible, efficient, and effective procedure for all to assure adequate process review and approval occurs in an effort to minimize risk and disruption to University business operations. An Impairment, for the purpose of work on the project at UMass Boston, is defined as:

a. Any utility or system shutdown required that affects a life safety system of any kind;
b. Any utility or system shutdown required that also serves occupied areas;
c. Any work being performed in a public or occupied space;
d. Any work that has potential to cause dust, excessive noise or vibrations, odors, fumes or discomfort to occupants;

e. Any work that in the opinion of UMass will create an impediment normal University operation.

The following process serves to assure clear communication is maintained while providing a framework to allow for maximum support of University endeavors by Facilities staff.

2. Form: The Impairment Notification Form shall be the initiating document to commence the Request for Impairment process. The form template shall be made available to the Contractor for use and distribution to the Subcontractors. The Contractor shall maintain accurate records of each Impairment Request and all subsequent revisions to the Request for Impairment form and associated documentation.

3. Preliminary Review, UMB Project Manager Approval: It is the Contractor's and Subcontractor's responsibility to communicate the plans for the impairment with the UMB Project Manager and gain approval for the proposed date and reason prior to submission for final signature. The UMB Project Manager is responsible for communicating and coordinating the requested impairment with Facilities, building occupants and end users, and other impacted parties prior to UMB final approval of the Impairment.

4. Submit the Form: The Contractor shall complete the Impairment Request / Notification form for final review and approval by UMass Boston. Note: a minimum of (3) business days prior notice is required to maximize the ability to accommodate a request.
   a. The request is to include a detailed description of the reason for impairment and/or include a detailed work plan outlining the process and safe- guards to be employed to be employed to minimize risk during the impairment.
   b. Any support from UMass Boston staff or vendors required is to be indicated in the Impairment Request / Notification. UMB Project Manager will coordinate with Facilities staff to arrange for the support.

5. UMass Boston Approval: UMass Boston will perform a final review and approve if acceptable. The approved form will be distributed to all parties. UMass Boston's authorization reflects only its approval of the impairment date/time, scope of work and impacts described in the Impairment Plan. It does not reflect UMass Boston's verifying as-built conditions which must be verified by the contractor in the field. Note: Written approval form signed by UMass Boston is to be obtained prior to proceeding with the Impairment.

6. Closeout: Upon restoration of the impaired system, the requestor shall provide notification of the complete restoration via reply email to all listed parties to the impairment approval received. Not until the UMB Project Manager signs off on the Impairment upon completion and review that the work is complete and all impaired/affected systems are back in operation will the Impairment be closed out.

7. Impairment Schedule: The Contractor along with input from the Subcontractors shall submit a proposed Impairment Schedule identifying all dates and durations of pro- posed impairments for the Project. Some impairments may take weeks of planning before they can be approved for implementation. It is in the best interest of the project to provide a proactive schedule so that impairments can be planned and coordinated well in advance of the proposed date of Impairment. The CM's failure to properly plan and coordinate all Impairments shall not relieve him/her of their obligation to maintain the project schedules and shall not be grounds for a delay claim.

D. Coordinate with UMB and the Designer, work in connection with adjacent driveways, walks, or other facilities which would prevent access thereto or interrupt, restrict, or otherwise infringe upon the University's use thereof.

E. The Contractor and Subcontractors shall be aware of the sensitivity of the campus community to noise, dust, debris, vibration, and site maintenance and take appropriate precautions to avoid conflict.

F. Damage to existing work, if caused by the Contractor's operations under this Contract, shall be repaired at the Contractor's expense.

1. An existing conditions survey shall be conducted, with the Designer & the UMB Project Manager at which existing conditions will be videotaped by the Contractor. A copy of the videotape will be provided to the UMB Project Manager.

G. Trenching, if required, and other work outside construction limits shall be expedited to fullest extent and carried out with minimum of inconvenience to normal operation of the University and public traffic. Walks, paved or landscaped areas over which temporary driveways cross, shall upon completion of the work, be restored to their original condition. Temporary roadways shall be bridged over trenched areas. Filing is required for an UMB issued trench permit.

H. The Contractor can gain access to the premises during the hours specified below. In addition, the Contractor and his personnel will limit themselves only within the working premises during working hours. If work needs to be scheduled during times other than those listed below, Contractor shall inform the UMB Project Manager one week prior to work.

1. Deliveries: 6:30 am to 5:00 pm. Use of Wheatley and McCormack loading docks must be coordinated with the UMB Project Manager.
2. General Access: 6:30 am to 6:00 pm.

I. Confine operations at the site to areas permitted by:
   1. Laws
   2. Ordinances
   3. Permits
   4. Contract Documents
   5. Owner's Regulations

J. Attachment
    1. Form of Impairment Notification

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

IMPAIRMENT NOTIFICATION

UMB Project: XXX

Impairment/Work Notification No. X

Notification Submitted: xx/xx/2020

XXX Construction Contacts:

Name 1 XXX-XXX-XXXX

Name 2 XXX-XXX-XXXX

1. Date/Time Requested: (date / time) Planned Impairment ____ (date / time) Planned Restoration ____

2. Facility Impaired:

☐ 010 Wheatley Hall	☐ 060 ISC	☐ 120 Clark Athletic Center
☐ 020 McCormack Hall	☐ 080 Science Center	☐ 150 Service & Supply
☐ 030 Univ Hall (GAB 1)	☐ 090 Healey Library	☐ CAMPUS PLAZA
☐ 050 Campus Center	☐ 110 Quinn Administration	☐ OTHER *Note Location in Description

3. System/s to be Impaired:

☐ Mechanical	☐ Fire Alarm	☐ Egress System
☐ Electrical	☐ Fire Pump	☐ Pedestrian Circulation
☐ Fire Protection	☐ Sanitary	☐ Other _____

3. Work to be Performed: (attach plan diagrams and other back up as necessary to communicate impairment details)

4. Additional Information: (attach plan diagrams and other back up as necessary to communicate impairment details)

Requested By: XX

Firm: XXX Const Co

Phone: XXX-XXX-XXXX

Email:

Approved by: _____

Firm: UMass Boston

Date: _____

UMB Energy Mgmt/O&S (EMS):		617-287-5480
UMB Project Manager:		XXX-XXX-XXX
UMB Deputy Director of Facilities:	Dave Torrice	617-438-0631
Owner's Project Manager,		

NOTE: UMass Boston's authorization reflects only its approval of the impairment date/time, scope of work and impacts described in the Impairment Plan. It does not reflect UMass Boston's verifying as-built conditions which must be verified by the contractor in the field.

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SECTION 011000

GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

1.2 PROJECT REQUIREMENTS

A. Project Identification: University Drive West Improvements – Raised Pedestrian Crosswalk

B. Particular Project Requirements:

1. The General Contractor is to adhere to the plans and specifications for the UMass Boston Campus University Drive West Improvements including the Raised Pedestrian Crossing on University Drive West.

C. Project Requirements for Temporary Utilities and Facilities:

1. Toilet Facilities: The General Contractor should assume use of project-designated facilities

D. Permits and Fees: Any special permits or fees required for the raised pedestrian crosswalk installation to be coordinated with the General Contractor.

E. Codes: Comply with applicable codes and regulations of authorities having jurisdiction. Submit copies of inspection reports, notices and similar communications to Designer.

F. Dimensions: Verify dimensions indicated on drawings with field dimensions before fabrication or ordering of materials. Do not scale drawings.

G. Existing Conditions: Notify Designer of existing conditions differing from those indicated on the drawings. Verify final grades to ensure correct elevation for concrete footings/mounting plates; coordinate final spot elevations with the GC to ensure compatibility with access ramps before starting installation.

H. Contractor’s Conduct on Premises: The Contractor and their employees shall behave in a respectful, courteous and safe manner. Abusive, harassing, and lewd behavior is prohibited. Music playing is prohibited. Alcohol, tobacco, and drug use is prohibited.

1.3 SPECIFICATION INFORMATION

A. These specifications are a specialized form of technical writing edited from master specifications and contain deviations from traditional writing formats. Capitalization, underlining and bold print is only used to assist reader in finding information and no other meaning is implied.

B. Except where specifically indicated otherwise, the subject of all imperative statements is the Contractor.

C. Sections are generally numbered in conformance with Construction Specifications Institute Masterformat System. Numbering sequence is not consecutive. Refer to the Table of Contents for names and numbers of sections included in this Project.

D. Pages are numbered separately for each section. Each section is noted with "End of Section" to indicate the last page of a section.

1.4 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Designer's action on Contractor's submittals, applications, and requests, "approved" is limited to Designer's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Designer. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.5 INDUSTRY STANDARDS

A. Referenced standards are part of the Contract Documents and have the same force and effect as if bound with these specifications.

B. Except where specifically indicated otherwise, comply with the current standard in effect as of the date of the Owner/Contractor Agreement. Obtain copies of industry

standards directly from publisher.

C. The titles of industry standard organizations are commonly abbreviated; full titles may be found in Encyclopedia of Associations or consult Designer.

1.6 CODES AND REGULATIONS

A. Comply with all applicable codes, ordinances, regulations and requirements of authorities having jurisdiction.

B. Submit copies of all permits, licenses, certifications, inspection reports, releases, notices, judgments, and communications from authorities having jurisdiction to the Designer.

C. COVID-19 Procedures: The Contractor shall submit a written plan for jobsite COVID-19 Procedures in compliance with applicable governmental regulations and as supplemented by the Contractor's own requirements, if any. Scope shall include that people and materials entering the site shall be required to comply with the written plan. Identify the Contractor's personnel responsible for implementing such procedures. For the record, submit a monthly statement certifying that the Contractor has enforced the provisions in its written plan. The Contractor acknowledges that its written plan and monthly statements are submitted for the record only and not for approval by neither the Owner nor the Designer nor their agents.

1.7 PROGRESS SCHEDULE

A. Coordinate delivery and installation with the project GC. If requested, provide comprehensive bar chart schedule showing all major and critical minor portions of the work, sequence of work and duration of each activity. Update and reissue regularly, but not less than monthly.

1.8 SCHEDULE OF VALUES

A. Prepare Schedule of Values to coordinate with application for payment breakdown. Submit at least 10 days before first payment application. Update and reissue regularly, but not less than monthly.

1.9 PAYMENT REQUESTS

A. Provide three copies of each request on completely filled out copies of AIA G702 and continuation sheet G703. Substantiate requests with complete documentation; include change orders to date. Provide partial lien waivers for work in progress and full lien waivers for completed work.

B. As-Constructed Record Drawing Certification: Certify as a part of each application for payment that the project as-constructed record documents are current at the time of application is submitted. The Contractor shall require such drawings to be current as a condition of approving any payment to the trade Contractor and Subcontractor.

C. Before first payment application, provide the following:
1. List of subcontractors, suppliers and fabricators.
2. Schedule of values.
3. Progress schedule.
4. Submittal schedule keyed to project schedule.
5. List of Contractor's key project personnel.

6. Copies of permits and other communications from authorities.
7. Contractor's certificate of insurance.
8. Performance and payment bonds if required.
9. Unit price schedule.

D. Before final payment application, provide and complete the following:

1. Complete closeout requirements.
2. Complete punch list items.
3. Settle all claims.
4. Transmit record documents to Designer. Include statement that Designer's Supplemental Instructions, Change Orders, Construction Change Directives and minor changes in the work have been incorporated in the as-constructed record drawings.
5. Prove that all taxes, fees and similar obligations have been paid.
6. Remove temporary facilities and surplus materials.
7. Change lock cylinders or cores.
8. Clean the work.
9. Submit consent of surety, if any, for final payment.

1.10 PROCEDURES AND CONTROLS

A. Project Meetings: Coordinate meeting attendance with the GC. Designer or representative should attend weekly job meetings as needed/relevant. The Designer shall be represented by an authorized representative who is familiar with the project. An authorized representative of any subcontractor or sub-subcontractor shall attend such meetings if the representative's presence is requested by the Designer. Such representatives shall be empowered to make binding commitments on all matters to be discussed at such meetings, including costs, payments, change orders, time schedules and manpower. Any notices required under the Contract may be served on such representatives. .

1. Pre-Installation Conference: Attendance by Designer, General Contractor, related sub contractors. Agenda shall include: Quality of workmanship, coordination with other construction activities, interpretations, job schedule, submittals, approvals, requisition procedures, testing, protection of construction, and construction waste management.
2. Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction, as specified. Preinstallation Conferences may be part of Progress Meeting agenda. Attendance by General Contractor and representatives of manufacturers and fabricators involved in construction activities and the coordination or integration with other materials and installations that have preceded or will follow.
3. Progress Meetings: Hold regularly before preparation of payment requests and additional meetings as requested by the Designer. Attendance by Designer, Contractor, and others as determined by Contractor. Agenda shall include work in progress and payment requests.

B. Emergency Contacts: Furnish the Owner and Designer, in writing, the names and telephone numbers of individuals to be contacted in the event of an out-of-hours emergency at the building site. Post a similar list readily visible from the outside of the field office or a location acceptable to the Designer.

C. Layout: Layout work and be responsible for all lines, elevations, and measurements of the building, grading, utilities and other work executed under the contract. The General Contractor is responsible for the coordination of all components of the raised pedestrian crosswalk project including installing all associated components and appurtenances and maintaining a safe working environment for workers and the general public. Retain a registered professional engineer or registered land surveyor, acceptable to the Designer, to initially establish exterior lines and required elevations of footings and landscape components. The registered professional engineer or registered land surveyor shall certify the actual location of the raised pedestrian crosswalk in relation to other components on the UMass Campus.

D. Field Measurements for Fixed Equipment: Dimensions for fixed equipment to be supplied under this Contract or separate contracts shall be determined by field measurements taken jointly by the Contractor and the equipment supplier involved. A record of the field measurements shall be kept until time of substantial completion of the project, or until the equipment has been fully installed and accepted by the Owner, whichever is later. Responsibility for fixed equipment fabricated accurately to field measurements for proper fit and operation shall be that of the Contractor. Contractor shall pay all costs involved in correcting any misfitting fixed equipment as fabricated.

E. Project Limit Line: The boundaries of the site do not limit the responsibility of the Contractor to perform the work in its entirety. Make utility connections as indicated.

F. Matching: Where matching is indicated, the Designer shall be the sole and final judge of what is an acceptable match. Mockups and sample submissions are required.

G. Observation: Notify the Designer and authorities having jurisdiction at least thirty-six hours in advance of concealing any work.

H. Utilities: Meet with the project engineers and subcontractors to coordinate connecting power to the Rectangular Rapid Flashing Beacons (RRFB's).

I. Clean-Up: Frequently clean-up all waste, remove from site regularly, and legally dispose of off- site.

J. Installer's Acceptance of Conditions: All installers shall inspect substrates and conditions under which work is to be executed and shall report in writing to the General Contractor all conditions detrimental to the proper execution and completion of the work. Do not proceed with work until unsatisfactory conditions are corrected. Beginning work means installer accepts previous work and conditions.

K. Coordination: The General Contractor shall be fully responsible for coordinating all trades, coordinating construction sequences and schedules, and coordinating the actual installed location and interface of all work.

1. Exact locations of Rectangular Rapid Flashing Beacons (RRFB's) shall be obtained from the project plans before the work is roughed in. This work may also be reviewed with the General Contractor and their subcontractors to ensure proposed electrification and connection of the RRFB's to the campus infrastructure. Work installed without such information from the Designer shall be relocated at the Contractor's expense if the Designer so requests.

L. Request For Interpretation (RFIs):

1. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.

a. RFIs shall originate with Contractor. RFIs submitted by entities other than the Contractor will be returned with no response.

2. Content of the RFI: Include a detailed, legible description of item needing interpretation.

3. Designer's Action: Designer will review each RFI, determine action required, and return it. Allow three working days for Designer's response for each RFI. RFIs received after 1:00p.m. will be considered as received the following working day.

4. The following RFIs will be returned without action:

a. Requests for approval of submittals.

b. Requests for approval of substitutions.

c. Requests for coordination information already indicated in the Contract Documents.

d. Requests for adjustments in the Contract Time or the Contract Sum.

e. Requests for interpretation of Designer's actions on submittals.

f. Incomplete RFIs or RFIs with numerous errors.

1.11 SUBMITTALS

A. Required Submittals: Submit shop drawings, product data, initial selection samples, verification samples, calculations, coordination drawings, schedules, and all other submittals as specified in individual specification sections.

B. Submittal Schedule: Within 30 days after award of contract and before first application for payment, prepare list of submittals in chronological sequence showing all submittals and proposed date first due at Designer's office and proposed date due to be returned to Contractor. Note relevant specification section number.

C. Contractor's Preparation of Submittals: Modify and customize all submittals to show interface with adjacent work and association with the project. Identify each submittal with name of project, date, Contractor's name, subcontractor's name, manufacturer's name, submittal name, relevant specification section numbers, and Submittal Schedule reference number. Stamp and sign each submittal to show the Contractor's review and approval of each submittal before delivery to Designer's office; unstamped and unsigned submittals will be returned without action by the Designer. Leave 4" x 6" open space for Designer's "action" stamp.

1. Electronic Submittals: Provide a copy of all submittals in electronic format to the Designer. Designer will return a file of reviewed submittal in electronic format to the Contractor for distribution to subcontractors, suppliers, fabricators, governing authorities and others as necessary for proper performance of the Work. Unless otherwise amenable to the Designer, additional hard copies of submittals will not be reviewed by the Designer (or Consultant) and will not be returned to the Contractor.

2. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.

3. Name file with submittal number or other unique identifier, including revision identifier.

4. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Designer and Construction Manager.

5. Transmittal Form for Electronic Submittals: Use electronic form acceptable to Designer.

D. Product Data: Provide manufacturer's preprinted literature including, without limitation, manufacturer's standard printed description of product, materials and construction, recommendations for application and use, certification of compliance with standards, instructions for installation, and special coordination requirements. Collect data into one submittal for each unit of work or system; mark each copy to show which choices and options are applicable to project.

1. Installer Copy: Verify that the Installer has a current copy of the relevant product data, including installation instructions, before permitting installation to begin.

E. Shop Drawings: Provide accurately prepared, large scale and detailed shop drawings prepared specifically for this project. Show adjacent conditions and related work. Show accurate field dimensions and clearly note field conditions. Identify materials and products in the work shown. Note special coordination required.

1. After Designer's action, follow specified distribution procedure.

F. Samples: Provide units identical with final materials and products to be installed in the work. Label each sample with description, source, generic name or manufacturer's name and model number. Designer will review samples for confirmation of visual design intent, color, pattern, texture and type only; Designer will not test samples for compliance with other Contract requirements which shall remain the exclusive responsibility of the Contractor.

G. Timing of Submittals: Submit submittals in a timely fashion to allow at least 10 business days for each office's review and handling. This means that submittals which have to be reviewed by the Designer and one of their consultants require at least 20 business days for review and handling. Add ten business days for each additional consultant who must review a submission.

H. Designer's Action on Submittals: Designer will review submittals, stamp with "action stamp", mark action, and return to Contractor. Designer will review submittals only for conformance with the design concept of the project. The Contractor is responsible for confirming compliance with other Contract requirements, including without limitation, performance requirements, field dimensions, fabrication methods, means, methods, techniques, sequences and procedures of construction, coordination with other work. The Designer's review and approval of submittals shall be held to the limitations stated in the Owner/Designer Agreement and the Conditions of the Contract. In no case shall approval or acceptance by the Designer be interpreted as a release of Contractor of their responsibilities to fulfill all of the requirements of the Contract Documents.

1. Required Resubmittal: Unless submittal is noted "reviewed" or "reviewed except as noted, resubmission not required," make corrections or changes to original and resubmit to Designer.

2. Distribution: When submittal is noted "reviewed" or "reviewed as noted, resubmittal not required," make prints or copies and distribute to Owner, Subcontractors involved, and to all other parties requiring information from the submittal for performance or coordination of related work.

1.12 WARRANTIES

A. Warranties Required: Refer to individual trade sections for specific product warranty requirements.

B. Procurement: Where a warranty is required, do not purchase or subcontract for materials or work until it has been determined that parties required to countersign warranties are willing to do so.

C. Warranty Forms: Submit written warranty to Owner through Designer for approval prior to execution. Furnish two copies of executed warranty to Owner for their records; furnish two additional conformed copies where required for maintenance manual.

D. Work Covered: Contractor shall remove and replace other work of project which has been damaged as a result of failure of warrantee work or equipment, or which must be removed and replaced to provide access to work under warranty. Unless otherwise specified, warranty shall cover full cost of replacement or repair, and shall not be prorated on basis of useful service life.

E. Warranty Extensions: Work repaired or replaced under warranty shall be warranted until the original warranty expiration date or for ninety days whichever is later in time.

F. Warranty Effective Starting Date: Guarantee period for all work, material and equipment shall begin on the date of substantial completion of the Project, not when subcontractor has completed their work nor when equipment is turned on. In addition to the one year guarantees for the entire work covered by these Contract Documents, refer to the various sections of the specifications for extended guarantee or maintenance requirements for various material and equipment.

G. Warranties are Irrevocable: Warranties issued to the Owner are irrevocable.

1. Non-Payment: If warrantor refuses to issue warranty, or attempts to revoke warranty due to lack of payment by any party other than the Owner, the Contractor shall resolve the payment conflict, and cause the warranty to be issued or reinstated.
2. Incomplete or incorrect Installation: If warrantor refuses to issue warranty, or attempts to revoke warranty due to improper installation or other deficiency, the Contractor shall correct the deficiency and cause the warranty to be issued or reinstated.

H. Transferable Warranties: All warranties shall permit Owner to transfer or assign warranties to future owners or other assignors at no additional cost to the Owner for the full warranty period.

1.13 TEMPORARY FACILITIES AND UTILITIES

A. Scope of Temporary Work: This article is not intended to limit the scope of temporary work required under the Contract. Provide all temporary facilities and utilities needed.

B. Permits and Fees: Obtain and pay for all permits, fees and charges related to temporary work.

C. Codes and Authorities Having Jurisdiction for Temporary Facilities and Utilities: Comply with all requirements of authorities having jurisdiction, codes, utility companies, OSHA, and industry standards including, but not limited to the following:

1. NFPA 241, Standard for Safeguarding Construction, Alteration, and Demolition Operations.
2. ANSI-A10 Series, Safety Requirements for Construction and Demolition.
3. NECA National Joint Guideline NJG-6, Temporary Job Utilities and Services.
4. Electrical Service: NEMA, NECA, and UL.

D. Field Offices: Provide Contractor's field offices as needed. Keep current copies of all Contract Documents and project paperwork neatly on file at jobsite. Permit Desinger's unrestricted use of Contractor's field office facilities including copiers, telephones, plan tables, and other equipment. Furnish, maintain, and pay for light, power, phone, fax, and other field office services.

E. Shops and Sheds: At Contractor's option, provide shops and sheds for Contractor's use as needed. Locate shops and sheds where acceptable to Owner and authorities having jurisdiction. Prior to completion of construction, temporary storage facilities and surplus stored materials shall be removed from the site.

F. Weather Protection: It is the intent of these Specifications to require that the Contractor shall provide temporary enclosures and heat to permit construction work to be carried on during the months of November through March. Under no circumstances shall the Contractor suspend any work during the months of November through March because of their reluctance to provide and pay for temporary weather protection. These Specifications are not to be construed as requiring enclosures or heat for operations that are not economically feasible to protect in the judgment of the Designer. Included in the preceding category, without limitation, are such items as site work, excavation, steel erection, erection of certain "exterior" wall panels, roofing, and similar operations.

1. 'Weather Protection' shall mean the temporary protection of that work adversely affected by moisture, wind, and cold, by covering, enclosing and/or heating. This protection shall provide adequate working areas during the months of November through March consistent with the approved construction schedule to permit the continuous progress of all work necessary to maintain an orderly and efficient sequence of construction operations. The Contractor shall furnish and install all "weather protection" material and be responsible for all costs, including heating required to maintain a minimum temperature of 55 degrees F. at the working surface. This provision does not supersede any specific requirements for methods of construction, curing of materials or the applicable general conditions set forth in the Contract with added regard to performance obligations of the Contractor.
2. Within 30 calendar days after his award of contract, the Contractor shall submit in writing to the Designer for approval, his proposed methods for "Weather Protection."
3. Installation of weather protection and heating devices shall comply with all safety regulations including provisions for adequate ventilation and fire protection devices.
4. Heating devices which may cause damage to finish surfaces shall not be used.

G. Equipment and Tools: Provide all equipment including, but not limited to, hoists, lifts, scaffolding, machines, tools and the like, as needed for execution of the work. Provide safe access to all parts of the work.

H. Temporary Enclosures: Provide temporary enclosures to maintain proper temperatures and to prevent weather damage. Always maintain legal means of egress.

I. Snow and Ice: Remove all snow and ice which interferes with work or safety.

J. Streets, Walks and Grounds: Maintain public and private roads and walks clear of debris caused by construction operations. Repair all damage caused to streets, drives, curbs, sidewalks, fences, poles and similar items where disturbed or damaged by building construction and leave them in as good condition after completion of the work as before operations started.

K. Protection: Protect nearby property and the public from construction activities. Provide and maintain barricades, warning signs and lights, railings, walkways and similar items. Immediately repair damaged property to its condition before being damaged.

L. Public Services: Provide temporary public services such as, street lighting, night lighting, sidewalks, covered passages, signs, signals and the like, as requested by authorities having jurisdiction.

M. Construction Fencing: Provide construction fencing and barriers as applicable to the project and as required by code to protect personnel, the public, and to control access.

N. Security: Secure site against unauthorized entry at all times. Provide secure, locked temporary enclosures. Protect the work at all times. Provide watchman service, if necessary, to protect the work.

O. Signs: Erect project identification signs in compliance with details to be provided by Designer. Signs shall be minimum 4' x 8' exterior grade plywood and shall contain the names of the project, Owner, Designer, major Consultants, Contractor, and major financing institution. Except for safety and warning signs, no other signs are permitted. Location as acceptable to the Designer.

P. Fire Prevention: Take every precaution to prevent fire. Provide and maintain in good operating condition suitable and adequate fire protection equipment and services, and comply with recommendations regarding fire protection made by the representative of the fire insurance company carrying insurance on the Work or by the local fire chief or fire marshal. The area within the site limits shall be kept orderly and clean, and all combustible rubbish shall be promptly removed from the site.

Q. Egress: Maintain safe and legal means of egress at all times. At all times, provide at least two separate means of egress.

1.14 PRODUCTS AND SUBSTITUTIONS

A. Specified Products: In all cases in which a manufacturer's name, trade name or other proprietary designation is used in connection with materials or articles to be furnished under this Contract, whether or not the phrase "or equal" is used after such name, the Contractor shall provide the product of the named manufacturers without substitution, unless a written request for a substitution has been submitted by the Contractor and approved in writing by the Designer.

B. Deviations from Detailed Requirements: If the Contractor proposes to use material which, while suitable for the intended use, deviates in any way from the detailed requirements of the Contract Documents, the Contractor shall inform the Designer in writing of the nature of such deviations at the time the materials is submitted for approval, and shall request written approval of the deviation from the requirements of the Contract Documents.

C. Approval of Substitutions: In requesting approval of deviations or substitutions, the Contractor shall provide evidence, including, but not limited to manufacturer's data, leading to a reasonable certainty that the proposed substitution or deviation will provide a quality of result at least equal to that attainable if the detailed requirements of the Contract Documents were strictly followed. If, in the opinion of the Designer, the evidence presented by the Contractor does not provide a sufficient basis for such reasonable certainty, the Designer may reject such substitution or deviation without further investigation.

D. Intent of Contract Documents: The Contract Documents are intended to produce a raised pedestrian crosswalk of consistent character and quality of design. All components of the raised pedestrian crosswalk, including visible items of electrical and transportation related equipment have been selected to have a coordinated design effect. The Designer shall judge the design and appearance of proposed substitutes on the basis of the suitability in relation to the overall design of the Project, as well as for their intrinsic merits. The Designer will not approve as equal to materials specified proposed substitutes which in the Designer's opinion, would be out of character, obtrusive, or otherwise inconsistent with the character or quality of design of the Project. In order to permit coordinated design of color and finishes the Contractor shall furnish the substituted material in any color, finish texture, or pattern which would have been available from the manufacturer originally specified, at no additional cost to the Owner.

E. Additional Costs or Impact: Any additional cost, or any loss or damage arising from the substitution of any material or any method for those originally specified shall be borne by the contractor, notwithstanding approval or acceptance of such substitution by the Owner or the Designer, unless such substitution was made at the written request or direction of the Owner and the Designer. Any decrease in the cost of the substitution shall be returned to the Owner.

F. Manufacturers: To the greatest degree possible, provide primary materials and products from one manufacturer for each type or kind. Provide secondary materials as recommended by manufacturers of primary materials.

G. Substitution Requests: Identify product to be replaced by substitute by reference to specification sections and drawing numbers. Provide Contractor's certification and evidence to prove compliance with Contract Document requirements as acceptable to Designer.

H. Substitution Conditions: Substitution requests will be returned without action unless one of the following conditions is satisfied. The Contractor shall state which of the following conditions applies to the requested substitution:

1. Request is due to an "or equal" clause.
2. Specified material or product cannot be coordinated with other work.
3. Specified material or product is not acceptable to authorities having jurisdiction.
4. Substantial advantage is offered Owner in terms of cost, time, or other valuable consideration.
5. Specified material or product is not available.

I. Invalid Substitutions: Contractor's submittal and Designer 's acceptance of shop drawings, samples, product data or other submittal is not a valid request for, nor an approval of a substitution unless the Contractor presents the information when first submitted as a Request for Substitution.

J. Compatibility of Materials Used in the Work:

1. Ensure complete compatibility between materials.
2. Compatibility shall include adhesion, erosion, solubility, differential thermal response, and galvanic action.
3. Provide evidence of compatibility.
4. Provide custom testing where evidence is not available.
5. Where materials are not compatible, provide necessary isolation or transition materials and provide details of same.

6. Correct defects resulting from incompatibility including de-construction and re-construction of assemblies – whether materials are part of a submittal and substitution process or not.
7. Proposed substitutions may be rejected where compatibility information is not provided; or where compatibility is not adequately addressed, according to the Designer's judgment; or where incompatible materials would negatively impact the project's success.

1.15 DELIVERY, STORAGE AND HANDLING

A. Manufacturer's Instructions: Strictly comply with manufacturer's instructions and recommendations and prevent damage, deterioration and loss, including theft. Minimize long- term storage at the site. Maintain environmental conditions, temperature, ventilation, and humidity within range permitted by manufacturers of materials and products used.

1.16 OWNER-FURNISHED CONTRACTOR-INSTALLED (OFCI) PRODUCTS

1.17 LABELS

A. Labels, Trademarks, & Tradenames: Locate required labels on inconspicuous surfaces. Do not provide labels, nameplates, or trademarks which are not required. Provide permanent data plate on each item of equipment stating manufacturer, model, serial number, capacity, ratings and all other essential data.

1.18 RECORD DOCUMENTS

A. Definition of As-Constructed Record Drawings: (commonly called "as-builts") are the record of the Project as constructed based on information the Contractor provides to the Owner under the contract for construction. Because the As-constructed Record Drawings will be based on the Contractor's mark-ups, the Designer is not responsible for the accuracy or completeness of the As-constructed Record Drawings.

B. Definition of As-Designed Record Drawings: The record of everything the Designer designed for the Project, and including the original Construction Documents plus all addenda, Designer's Supplemental Instructions, Change Orders, Construction Change Directives and minor changes in the work.

C. General: Keep as-constructed record documents neatly and accurately. Record information as the work progresses and deliver to Designer at time of final acceptance. Include in record documents all field changes made, all relevant dimensions, and all relevant details of the work. Keep record documents up to date with all Designer's Supplemental Instructions, Change Orders, Construction Change Directives and minor changes in the work clearly indicated.

D. Drawings: keep a set of blackline prints at the site. Neatly and accurately note all deviations from the Contract Documents and the exact actual location of the work as installed. Marked-up and colored prints will be used as a guide to determine the progress of the work installed. Requisitions for payment will not be approved until the record documents are accurate and up-to-date.

1. At completion of the work, submit one complete set of marked-up as-built prints for review. After acceptance, these marked-up as-built prints shall be used in the preparation of the as-built drawings.
2. Designer shall furnish Contractor with AutoCAD file for originals of the Contract Drawings. The Contractor shall make modifications to these files as shown on

the marked-up prints. Remove superseded data to show the completed installation.

3. The Contractor shall deliver the completed AutoCAD as-constructed record drawings, in the same version as Contract Drawings, properly titled and dated to the Designer. Indicate preparer of as-built drawings. These as-built drawings shall become the property of the Owner.

E. Specifications: Maintain one clean copy of complete specifications including addenda, modifications, and bulletins with changes, substitutions, and selected options clearly noted. Circle or otherwise clearly indicate which manufacturer and products are actually used.

1.19 PROJECT CLOSE OUT

A. Complete the following prior to Substantial Completion:

1. Provide Contractor's Punch List of incomplete items stating reason for incompletion and value of incompletion.
2. Advise Owner of insurance change over requirements.
3. Submit all warranties, maintenance contracts, final certificates and similar documents.
4. Submit record documents.
5. Deliver maintenance stocks of materials where specified.
6. Make final change over of lock cylinders or cores and advise Owner of change of security responsibility.
7. Complete startup of all systems and instruct Owner's personnel in proper operation and routine maintenance of systems and equipment.
8. Complete clean up and restoration of damaged finishes.
9. Remove all temporary facilities and utilities that are no longer needed.
10. Request Designer's inspection for Substantial Completion.

B. Designer will either issue a Certificate of Substantial Completion or notify Contractor of work which must be performed prior to issue of certificate.

C. Complete the following prior to Final Acceptance and payment:

1. Obtain Certificate of Substantial Completion.
2. Submit final application for payment, showing final accounting of changes in the work.
3. Provide final releases and lien waivers not previously submitted.
4. Submit certified copy of final punch list stating that Contractor has completed or corrected each item.
5. Submit Consent of Surety for final payment.
6. Submit evidence of Contractor's continuing insurance coverage (if required by Contract Documents).

1.20 FINAL CLEANING AND REPAIR

A. Clean Up: Immediately prior to the Designer's inspection for Substantial Completion, the General Contractor shall completely clean the premises and clean and prepare the completed work in order for it to be used for its intended purpose in accordance with

the Contract Documents. Such work shall include, but not be limited to the following:

1. Concrete surfaces shall be cleaned and washed.
2. Resilient coverings shall be cleaned, waxed and buffed as applicable.
3. Stains, spots, dust, marks and smears shall be removed from all surfaces.
4. Hardware and metal surfaces shall be cleaned and polished.
5. Use low-emitting, environmentally friendly cleaning agents and procedures. Do not use ammonia-, chlorine bleach-, or solvent-based cleaners, unless authorized in writing by Designer.

B. Repairs: Repair and touch-up all damaged and deteriorated products and surfaces.

1.21 DRAWING LIST (OU will furnish drawing list)

PART 2 - PRODUCTS [Not Used]

PART 3 - EXECUTION [Not Used]

END OF
SECTION

SECTION 024100
SITE DEMOLITION

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this trade.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

D. All demolition shall be in accordance with the Massachusetts Standard Specifications and all other applicable local, state, and federal requirements.

1.2 WORK DESCRIPTION

A. The Contractor shall perform all work and supply all labor, material, tools and equipment necessary to:

1. Demolish, remove, and dispose of items not required for reuse on site and as indicated on Drawings. Demolition is to take place in multiple phases as shown on the plans. This shall include, but is not limited to curbing, bituminous and cement concrete pavement, pads, aprons, slabs, bollards, utility poles, drainage systems including piping and structures, sanitary sewer systems including tanks, piping, filter media soils and membranes, irrigation lines, water mains and water system features including hydrants, valves, and gate boxes.
2. Any portion of the site soils anticipated by the Contractor for reuse on the project shall be stockpiled and tested by the Contractor for source investigation of potential reuse of material. Soil materials to be reused onsite may require amendment including blending of onsite and imported soil materials.
3. Disposal of items to an approved off-site disposal facility.
4. Cleaning of catch basins and drain manholes.
5. Filling voids and excavations resulting from the work.
6. Removing above- and below-grade site features.
7. Take inventory of, remove, store and relocate or turn over all memorial plaques and trees as specified on the demolition plans.
8. Removal of existing utility structures (including but not limited to underground tanks, catch basins, manholes) and piping (sewer, water and drainage) as indicated on the Site Demolition Plan.
9. Removal from the site and legal disposal of all materials resulting from the demolition and construction operations except those specified to be stockpiled or reused.

10. Removal of all additional site items required to complete the work, as shown on the plans.
11. Stockpiling of materials for reuse by the Owner.
12. Investigation of potentially contaminated materials as indicated in the Phase I Environmental Site Assessment prepared for the site.

B. Related Sections include the following:
1. Section 01 50 00 – Temporary Facilities and Control
2. Section 01 56 39 – Tree Protection and Trimming
3. Section 31 00 00 - Earthwork

1.3 SUBMITTALS

A. Submit at least 1 week prior to the start of construction:
1. Permits for transport and disposal of debris.
2. Permits and notices authorizing demolition.
3. Certificates of utility services severances.
4. Demolition procedures and operational sequence.
5. Temporary Sanitary Collection and Disposal Plan.

B. Documentation of investigation of potentially contaminated areas as identified in the Phase I Environmental Site Assessment prepared for the site shall be submitted to the Engineer.

1.4 PERMITS AND CODES

A. All work shall comply with all codes, rules, regulations, laws and ordinances for the City of Boston, the Commonwealth of Massachusetts, and all other authorities having jurisdiction. All work necessary to make site demolition comply with such requirements shall be provided without additional cost to the Owner.

B. The Contractor shall procure and pay for all permits and licenses required for work under this Section.

C. The Contractor shall not close or obstruct any streets or passageways, unless and until the Contractor shall have first secured all necessary municipal, State, or other permits thereof. No material whatsoever shall be placed or stored nor shall parking be permitted in streets or passageways. The Contractor shall conduct operations to interfere as little as possible with the use ordinarily made of both on-site and off-site roads, driveways, sidewalks or other facilities near enough to the work to be affected thereby.

1.5 DISPOSITION OF EXISTING UTILITIES

A. Active utilities existing on the site shall be carefully protected from damage and relocated or removed as necessitated by the work. When an active utility line is exposed during construction, its location and elevation shall be recorded, and both the Engineer and the Owner notified in writing.

B. Active utilities to be abandoned once new utility is installed shall be removed and disposed once Contractor has completed the proposed work. Contractor is responsible for maintaining existing utility performance throughout construction.

C. Inactive or abandoned utilities encountered during construction operations shall be removed. The location of such utilities shall be noted and reported in writing to the Engineer.

1.6 QUALITY ASSURANCE

A. Pre-installation Conference: Conduct conference at Project site to comply with Project Meeting Requirements in Section 010000 Summary.

1.7 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from the Engineer and authorities having jurisdiction.
2. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

B. Utility Locator Service: Notify utility locator service for area where Project is located before commencing any site work.

C. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place and all permits are obtained.

D. Contractor is responsible for all construction phase permits including but not limited to: NPDES Construction General Permit, Construction phase Storm Water Pollution Prevention Plan, Mass DOT Trench permit (as applicable), City of Boston DPW Trench Permit, and all other applicable permits, registrations, notifications, and applications.

PART 2 - PRODUCTS

2.1 DEMOLITION TECHNIQUES

A. Contractor shall not use any explosives for demolition.

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. Before beginning demolition work, coordinate with utility companies and disconnect all utility service lines to the structures shown to be demolished. Notify the proper local authorities and utility companies, in writing before work commences. Remove all utility and service lines in accordance with the authorities and/or companies having jurisdiction over such work. Identify the location and size of all caps and plugs to the Engineer in writing.

B. Take all possible precautions to avoid damaging those materials, which are to remain.

C. Demolition work shall be carried out in a careful and orderly manner. Provide adequate protection to persons and property inside and outside of the site.

D. Do not commence work until trees and other items to be saved have been protected as directed by the Engineer in the field. Protection shall remain for the duration of the work.

E. Burn no material or debris on the site.

F. Take all possible precautions to avoid damaging those materials which are to be salvaged or reused on the site.

G. Sanitary filter media, materials within sanitary tanks, materials within sanitary structures, and all other existing sanitary disposal features shall be removed within the work area and legally disposed. Sanitary materials shall be reused onsite.

3.2 TITLE, SALVAGE AND REUSE

A. Property belonging to public bodies or public service companies shall not become the property of the Contractor unless written authorization is given by the Engineer.

B. All other salvage and materials resulting from the Demolition work shall become the property of the Contractor unless otherwise directed by the Engineer or specified herein or on the Contract Drawings to be stockpiled and shall be removed from the site.

C. The existing condition of all materials specified to be: Removed and Reset, Removed and Stockpiled, or Removed and Stockpiled for the Owner; shall be recorded in a video provided in electronic format to the Engineer for approval. Any damage or condition not noted in the recorded video approved by the Engineer will be deemed damage caused by the Contractor and the Contractor shall replace the feature at no additional cost to the Owner.

3.3 REMOVAL

A. Demolish and remove the aforementioned items in their entirety, including footings and underground structures.

B. Remove and legally dispose of, at no cost to the Owner, all materials and debris resulting from the Demolition work except those specified herein to be stockpiled. Leave the site in safe and clean condition.

3.4 RESTORATION OF SITE ITEMS

A. Wherever streets, lawns or other items outside the Contract Limit Lines have been excavated in fulfilling the work required under this Contract, the Contractor shall furnish and install all material at no cost to the Owner to bring finish surfaces level with the existing adjacent conditions. All work shall be installed to match the existing conditions. Notify the proper authorities prior to restoring surfaces outside the Limit of Work to assure conformance to existing requirements.

3.5 GENERAL

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Depressions, excavations and voids resulting from demolition shall be filled with suitable material as outlined in Section 31 00 00.

C. Conduct demolition operations in a manner that will prevent damage to adjacent structures, utilities, pavements and other facilities to remain.

D. Cease operations immediately if any damage, settlement or other adverse effect on adjacent structures occurs. Immediately notify the Engineer and regulatory authorities. Do not resume operations until conditions are corrected, damage repaired, and approval received from the Engineer.

E. Provide hoses and water connections. Spray water onto demolition to prevent dust.

F. Grade site and stockpile material to prevent runoff from leaving the site.

G. Clean neighboring properties and improvements of dust, dirt, and debris caused by demolition operations. Return properties to conditions prior to start of work.

H. Demolition limits of existing pavement shall be saw-cut along straight lines resulting in clean vertical edges.

I. Protect existing site improvements to remain from damage during construction.

1. Restore damaged improvements to their original condition, as acceptable to Engineer.

3.6 UTILITIES

A. Notify all corporations, companies, individuals, or local authorities owning or having jurisdiction over utilities running to, though, or across areas to be affected by demolition operations.

B. The Contractor shall mark locations of underground utilities prior to initiating site work; Dig-Safe clearance shall be obtained.

C. The Contractor shall exercise reasonable care to verify locations of existing subsurface structures and utilities.

D. Have all discontinued utility services disconnected in accordance with the requirements of the utility owner. Utilities shall be abandoned in accordance with details shown on the Drawings.

3.7 SITE IMPROVEMENTS

A. Remove existing above- and below-grade improvements as indicated and as necessary to facilitate new construction.

B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.

1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut length of existing pavement to remain before removing existing pavement. Saw-cut faces vertically.

3.8 DISPOSAL

A. Disposal: Remove surplus soil material, unsuitable topsoil, unsuitable soils, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off property.

1. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

3.9 REMOVE AND DISPOSE FLEXIBLE PAVEMENT, CURBING, CONCRETE, CONCRETE WALKS, AND FENCE

A. All pavement, base course, sidewalks, curbs, gutters, of whatever nature designated to be removed shall be so removed and legally disposed of. When specified, ballast, gravel, bituminous material or other surfacing or pavement materials shall be removed and stockpiled. Otherwise, such material shall be legally disposed. Where the remainder of the existing pavement or sidewalks is to remain undisturbed, a clean saw cut shall be made to separate the remaining pavement from that being removed.

End of Section

SECTION 310000
EARTHWORK

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. The General Documents, as listed in the Table of Contents, and applicable parts of Division 1, GENERAL REQUIREMENTS, shall be included in and made a part of this Section.

B. Examine all drawings and all other Sections of the Specifications for the requirements therein affecting the work of this trade. Plans, surveys, measurements and dimensions, under which the work is to be performed are believed to be correct to the best of the Engineer's knowledge, but the Contractor shall have examined them for himself during the bidding period, as no allowance will be made for any errors or inaccuracies that may be found herein. The contractor shall reconcile all drawings. Where there is a conflict between drawings, the interpretation that most in favor of the owner shall be adopted.

C. The Contractor shall become thoroughly familiar with the site, consult records and drawings of adjacent structures and of existing utilities and their connections, and note all conditions which may influence the work of this Section.

D. By submitting a bid, the Contractor affirms that he has carefully examined the site and all conditions affecting work under this Section. No claim for additional costs will be allowed because of lack of full knowledge of existing conditions.

E. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure a steady progress of work under this Contract.

1.2 SCOPE OF WORK

A. The work of this section consists of all excavation, filling and grading and related items as indicated on the Drawings and/or as specified herein and includes, but is not limited to, the following:

1. All materials, equipment, labor and services required for all Earth Moving work, including all items incidental thereto, as specified herein and as shown on the Drawings.
2. Excavation of all types, including but not limited to excavations for footings, slabs, foundations, retaining walls, new pavements, ramps, stairways, equipment pads, curbs, sidewalks, and utilities, to the lines and grades shown in the Drawings or the limits specified herein, whichever is deeper. Excavation shall include removal and legal offsite disposal of all materials that cannot be reused.
3. Excavating, filling, trenching, backfilling, compaction and concrete encasement of utility conduits, of all description, required for the construction of foundations, walls, building structures, retaining walls, new pavements, ramps, stairways, equipment pads, curbs, sidewalks, utility structures, lawn areas, athletic fields, and site improvements. Provide all additional fill

materials as required and specified herein. Refer to Sections on Heating, Plumbing, Fire Protection, Electrical and Structural for other excavation.

4. Entirely removing topsoil, subsoil, tree stumps, root balls, buried organic soil, asphalt, concrete structures, demolition debris, below ground structures, existing fill, and other deleterious matter from within the proposed building footprint.
5. Entirely removing topsoil, subsoil, surficial organic material, tree stumps, root balls, asphalt, concrete and other deleterious material from within the proposed paved areas.
6. Removing topsoil, subsoil, root balls, tree stumps, and other deleterious material from within the proposed athletic fields where the grades are anticipated to be raised. The surficial organic material, asphalt, and concrete shall be removed from within the proposed athletic fields in accordance with the recommendation provided by the Landscape Architect.
7. Improving the existing fill under the subbase of paved areas and proposed athletic fields.
8. Screening and stockpiling the topsoil for reuse as directed by the Engineer.
9. Performing test pits before start and during construction as required by the Geotechnical Engineer.
10. Removing and disposing of spoiled material not suitable for fill from the site. No burning on the site shall be permitted.
11. Rehandling, hauling and placing of stockpiled materials for use in refilling, filling, backfilling, grading and such other operations. Stockpiling shall include protection to maintain materials in a workable condition.
12. Furnishing, placing, and compacting fill materials.
13. Removing, hauling, stockpiling, rehandling, and placement of materials. Over-excavation to remove unsuitable materials.
14. Proofrolling of exposed subgrade for fill, footings, foundations, slabs, walks, pavements, lawns and grasses, and exterior plants.
15. Backfilling of excavations for foundations, footings, walls, utilities, pavements, sidewalks, and landscaped areas with specified on-site and imported materials.
16. Disposing off-site of excess or unsuitable materials.
17. Placing bedding, sub-base and base course layers.
18. Stabilizing/mitigating of saturated or otherwise disturbed materials.
19. Performing rough and final grading.
20. Filling slopes and site retaining walls.
21. Installing excavation support, shoring or bracing as necessary
22. Protecting existing buildings, utilities, roads, pavements, lawns, planting and other improvements from damage due to construction.
23. Performing coordination of material testing shall be the responsibility of the Contractor. All imported material tested shall be under ASTM D422 and shall be paid for by the Contractor.
24. Performing material testing, and field density testing as needed.
25. Performing dust control and cleanup.

26. Dewatering.
27. Installing fencing and safety devices or controls as specified and as necessary.
28. Notifying all affected utility companies and Dig Safe before the start of work.

B. The Work of this Section shall include performance of pre and post construction condition surveys.

1.3 CONTRACT REFERENCE

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Related Sections
1. Section 02 41 00, Site Demolition
2. Section 31 00 00, Earthwork
3. Section 31 10 00, Site Preparation and Clearing
4. Section 31 25 00, Erosion Control
5. Section 32 00 00, Bituminous Concrete Pavement
6. Section 32 13 13, Site Concrete
7. Section 32 17 23, Pavement Markings
8. Section 33 05 13, Manholes and Catchbasins

1.4 DESCRIPTION

A. The Contractor shall furnish all labor, material, tools and equipment necessary to excavate materials; segregate, track, handle, sample, analyze, and test excavated materials, backfill, and re-grade as indicated on the Drawings.

B. The Contractor shall use suitable on-site soils and fill, and soil from off-site sources, as needed. The contractor shall avoid mixing the reusable soils with fine-grained and/or organic soils. Imported materials or blending of onsite materials with imported materials are anticipated for this project.

C. The Contractor shall make excavations in such a manner and to such widths that will provide suitable room for performing the Work and shall furnish and place all sheeting, bracing, and supports, if necessary. Excavation support is anticipated for this project.

D. The Contractor shall provide labor and material for all pumping and draining, if necessary; and shall render the bottom of excavation firm and dry and in all respects acceptable. The Contractor shall collect and properly dispose of all discharge water from dewatering systems in accordance with local and State requirements and permits.

E. The Contractor shall raise the Site to final grades and compact the subgrade and intermediate layers to the required criteria set forth within this Section.

F. The contractor shall provide routine monitoring of in-place excavation support system.

G. Contractor shall protect and moisture condition all on site and imported materials for proper installation, compaction, and use. This includes covering, drying, and adding moisture in order to maintain suitable workability of the soil materials. Failure by the Contractor to follow this requirement shall not be cause for additional cost to the Owner.

1.5 INFORMATION

A. Information on the Drawings, Reference Drawings, Geotechnical Reports, and in the Specifications relating to subsurface conditions, natural phenomena, and existing utilities and structures is from the best sources presently available. Such information is furnished only for information and is not guaranteed.

B. Site Information – Data on indicated subsurface conditions are not intended as representations or warrants of continuity of such conditions between soil borings. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn there by the Contractor. Data is made available for the convenience of the Contractor. The Owner and Engineer assume no responsibility for the accuracy of the data other than at the particular locations and at the time the explorations were made.

C. The Contractor, at his/her own expense, may conduct additional subsurface testing for his/her own information after approval by the Owner. The Owner assumes no responsibility for the Contractor's failure to make his own site investigation and makes no representation other than the soils reports regarding the character of the soil or subsurface conditions which may be encountered during the performance of the work. The Contractor shall refer to the Geotechnical Report. Failure by the Contractor to be aware of existing site conditions shall not be cause for additional cost to the Owner.

1.6 SUBSURFACE CONDITIONS AND SPECIAL SITE CONSIDERATIONS

A. Geotechnical testing including soil boring and test pits have been made by qualified Contractors for this site. The Owner, the Engineer, and the Geotechnical Engineer assume no responsibility for the accuracy of the data and for the Contractor's failure to make his own site investigation and make no representation other than the soils reports regarding the character of the soil or subsurface conditions which may be encountered during the performance of the work. The Contractor shall refer to Section 00 31 32. Failure by the Contractor to be aware of existing site conditions within the confines of the information provided as part of the bid documents shall not be cause for additional cost to the Owner.

B. Information on subsurface conditions is made available for the convenience of the Bidders. The Owner does not represent to the Contractor that the information is either an accurate or a comprehensive indication of subsurface conditions. Bidders are invited to review the information to apprise themselves of the information available, and also to make additional investigations at their own expense.

C. Interpretation of this data for purposes of construction is the responsibility of the Contractor. It is the Contractor’s responsibility to make interpretations and draw conclusions with respect to the character of materials to be encountered and groundwater conditions at the site and their impact upon Contractor’s work based on his expert knowledge of the area, construction dewatering methods, and support of excavation methods. Contractor may, at his own expense, conduct

additional subsurface testing as required for his own information after approval by the Owner.

D. The Geotechnical Report indicates that the materials present at the site include fill and weathered bedrock deemed unacceptable for use as a bearing strata for foundations. The contractor is made aware of this condition and will not be eligible to receive additional compensation exceeding the Contractor's initial bid for imported material.

E. It is the responsibility of the Contractor under this Contract to do the necessary excavation, filling, grading and rough and final grading to bring the existing grades to subgrade and parallel to finished grades as specified herein and as shown on the Drawings for this Work. The Contractor shall visit the site prior to submitting a bid to become familiar with the extent of the work to be done under this Contract. The Contractor shall be responsible for determining the quantities of earth materials necessary to complete the work under this Section. All earth materials shall be included in the Contractor's base bid.

F. Test boring locations as depicted on the Drawings are located by hand-held GPS and should only be considered as accurate as the procedure utilized.

G. The Contractor shall be aware that the ground surface elevation was measured by handheld GPS and are approximate.

H. No claim for extra cost or extension of time resulting from reliance by the Contractor on information presented herein shall be allowed, except as provided in the Contract Documents.

1.7 QUALITY CONTROL

A. The Owner may retain and pay for the services of an independent testing agency (Soils Representative) to monitor backfill operations, perform laboratory tests on soil samples, and to perform field density tests; and a Geotechnical Engineer to periodically observe the earthwork operations, observe the preparation of the subgrade for footings, slabs, and paved areas, and to review laboratory and field test data. The geotechnical engineer may from time to time request that the contractor excavate tests pits ahead of excavation to confirm subsurface conditions. Test pits shall be performed at no additional cost to the Owner.

B. The services of the Soils representative may include, but are not limited to performing observations and testing during placement of fills within the proposed building, parking area, and controlled fill areas.

C. The Contractor shall make provisions for allowing safe and timely observations and testing of Contractor's Work by the Geotechnical Engineer and by Soils Representative. The presence of the Soils Representative and/or the Geotechnical Engineer does not include supervision or direction of the actual work of the Contractor, his employees or agents. Neither the presence of the Soils Representative and/or the Geotechnical Engineer, 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 quality of work and failures discovered by testing shall be paid for by the Contractor at no additional expense

to Owner, and the costs thereof will be deducted by the Owner from the Contract Sum.

1. Testing frequency shall be as follows:

Material	Responsible Party	Situation	Test	Minimum Frequency
Structural Fill/ Ordinary Fill/ Gravel Borrow/ Common Borrow/ Bedding Material/ Crushed Stone / Pea Gravel	Contractor	Source Investigation	Grain Size through 0.002 mm	1 per source
			Moisture Density Relationship	1 per source
	Owner	During Placement	Grain Size through 0.002 mm	1 per 100 tons
			Moisture Density Relationship	1 per 100 tons
	Owner	As-Placed	Dry Density and As-Placed Moisture	2 per lift per location or activity and no less than 1 every 500 sf
Loam Borrow	Contractor	During Placement	PH, Nitrogen, Phosphorous, Potassium, and USDA Classification	2 per Acre
Riprap	Contractor	Source Investigation	Source Material Certification	1 per source
			Specific Gravity	1 per source
	Contractor	During Placement	Source Material Certification	1 per 500 tons
			Specific Gravity	1 per 500 tons

1.8 COORDINATION

A. Prior to start of earthwork, the Contractor shall arrange an onsite meeting with the Engineer, the Geotechnical Engineer, and the testing agency for the purpose of establishing the Contractor's schedule of operations, and scheduling observation and testing procedures and requirements.

B. As construction proceeds, the Contractor shall be responsible for notifying the Geotechnical Engineer at least 2 days and the testing agency at least 24 hours prior to the start of earthwork operations requiring observation and/or testing. **This section also applies to instances when the General Contractor resumes earthwork operations after a period of pause in earthwork operations that require observations by the Geotechnical Engineer.**

C. The work of this Section shall be coordinated with that of other trades affecting, or affected by, this work, as necessary to ensure the steady progress of all work of the Contract.

1.9 PERMITS, CODES AND SAFETY REQUIREMENTS

A. This project is subject to the Safety and Health regulations of the U.S. Department of Labor set forth in 29 CFR, Part 1926. Contractors shall be familiar with the requirements of these regulations.

B. The Contractor is responsible for the adequacy of the excavation support system and shall retain the services of a Professional Engineer registered in Massachusetts to design any required excavation support systems. The Contractor’s Professional Engineer shall practice in a discipline applicable to excavation work, shall have experience in the design of excavation support systems and shall design in conformance with OSHA requirements. The

Contractor's Professional Engineer shall provide sufficient on-site inspection and supervision to assure that the excavation support system is installed and functions in accordance with his design. Criteria listed herein defining the responsibilities of the Contractor's Professional Engineer are minimum requirements.

C. All work shall conform to the Drawings and Specifications and shall comply with applicable codes and regulations.

D. Comply with the rules, regulations, laws and ordinances of the City of Boston, of the State of Massachusetts, appropriate agencies of the State of Massachusetts and all other authorities having jurisdiction. Coordinate all work done within Town and State rights of way with the appropriate agencies. Provide all required traffic control and safety measures, including uniformed police officers per Town and State requirements. All labor, materials, equipment and services necessary to make the work comply with such requirements shall be provided without additional cost to the Owner.

E. Comply with the provisions of the Manual of Accident Prevention in Construction of the Associated General Contractors of America, Inc., and the requirements of the Occupational Safety and Health Administration (OSHA), United States Department of Labor whichever is more stringent.

F. The Contractor shall procure and pay for all permits and licenses required for the complete work specified herein and shown on the Drawings.

G. The Contractor shall not close or obstruct any street, sidewalk, or passageway unless authorized in writing by the Engineer. The Contractor shall so conduct his operations as to interfere as little as possible with the use ordinarily made of roads, driveways, sidewalks or other facilities near enough to the work to be affected hereby. The Contractor shall comply with the time limits established by the terms for trucking onto and off the site.

H. Any apparent conflict between the Drawings and Specifications and the applicable codes and regulations shall be referred to the Engineer in writing, for resolution before the work is started.

I. The Contractor shall comply with all excavation, trenching, and related sheeting and bracing requirements of Occupational Safety and Health Administration (OSHA) excavation safety standards, 29 CFR Part 1926.650 through 1926.652.

1.10 LAYOUTS AND GRADES

A. All line and grade work not presently established at the site shall be laid out by a survey team under the supervision of a Land Surveyor or Professional Engineer registered in the Commonwealth of Massachusetts and employed by the Contractor in accordance with Drawings and Specifications. Basic layout for the project is shown on the drawings. The Contractor shall supply all additional layout and grade control as necessary to properly implement and construct the work. The Contractor shall establish permanent benchmarks and replace as directed any which are destroyed or disturbed. The Contractor shall employ and pay all costs for a registered Civil Engineer or Surveyor who is licensed within the jurisdiction of the project site to lay out all lines and grades in accordance with the Drawings and Specifications, and as necessary or required for the construction. The Contractor

shall submit building layout drawings for approval, stamped by a Registered Surveyor.

B. The words “finished grades” as used herein shall mean final grade elevations indicated on the Drawings. Spot elevations shall govern over proposed contours. Where not otherwise indicated, project site areas outside of the building shall be given uniform slopes between points for which finished grades are indicated or between such points and existing established grades.

C. The word “subgrade” as used herein, means the surface or elevation remaining after completing excavation or top surface of a fill or backfill required surface of subsoil, borrow fill or compacted fill. This surface is immediately beneath the site improvements, fill materials as dimensioned on the Drawings, or other proposed surface material.

D. The words “rough grading” shall mean excavating or filling to elevations indicated, and to the required depths herein. The permissible tolerance of rough grading within an area 100 sq. ft. shall not exceed plus or minus 2 in. The cost of placing fill material to refill areas having rough grades lower than designed shall be borne by the Contractor.

1.11 DISPOSITION OF EXISTING UTILITIES

A. All work shall be executed in such a manner as to prevent any damage to existing buildings, streets, curbs, paving, service utility lines, structures and adjoining property. Existing streets, sidewalks and curbs damaged during the project work shall be repaired or replaced to their condition prior to commencement of Earth Moving operations.

B. Locate and mark underground utilities to remain in service before beginning the work. Active utilities existing on the site and work areas shall be carefully protected from damage and relocated or removed as necessitated by the work. When an active utility line is exposed during construction, its location and elevation shall be plotted on the record drawings as described in this Section and both Engineer and Utility Owner notified in writing.

C. Inactive or abandoned utilities encountered during construction operations shall be removed and suitably backfilled if within the building area. Abandoned utilities outside the building area shall be removed, grouted, plugged or capped. The location of such utilities shall be noted on the record drawings and reported in writing to the Engineer.

D. The Contractor shall notify “Dig Safe” and local utility companies prior to the start of construction. The “Dig Safe” number shall be submitted by the Contractor in writing to the Engineer prior to construction.

E. Acceptance of any of the Contractor’s plans, design calculations and methods of construction by the Designer shall not relieve the Contractor of the responsibility for the adequacy of the excavation lateral support system; preventing damage to existing or new structures, utilities and streets adjacent to excavations; the safety of persons working within excavated areas and the public at large; and excavation dewatering.

1.12 SUPPORT OF EXCAVATION

A. Provide support of excavation (SOE) system, as necessary, in order to meet the requirements of OSHA and to assure complete safety against collapse of earth at sides of excavations. The contractor shall design and submit for review and upon approval install a temporary support of excavation (SOE) to protect the existing foundations during construction.

B. In selecting the type of SOE system, the Contractor shall take into consideration the possible presence of rock and the presence of boulders in the existing fill and in the natural soil.

C. If sufficient or proper supports have not been provided, additional supports shall be placed at the expense of the Contractor. Care shall be taken to prevent voids outside of the sheeting, but if voids are formed, they shall be immediately filled and rammed.

D. All components of SOE system not ordered left in place shall be carefully removed in such a manner as not to endanger the construction of other structures, utilities or property whether public or private. All voids left after withdrawal of sheeting shall be immediately refilled with sand and rammed with tools especially adapted to that purpose or otherwise compacted as directed to achieve the required density.

E. The design and installation of SOE systems shall not constitute a condition for which an increase may be made in the contract price with the exception that if the Engineer directs with writing that certain shoring or sheeting shall be left in place, the contract price will be adjusted in accordance with General Conditions.

F. SOE systems shall be designed to support the earth pressures, surcharge loads from stored material and construction equipment.

G. Shoring and bracing of trenches and other excavations shall, at a minimum, be in accordance with the latest requirements of the Department of Labor and Industries Bulletin No. 12, Section 10, and all subsequent amendments, and OSHA excavation safety standards.

H. SOE systems shall be designed by a Professional Engineer registered in the Commonwealth of Massachusetts and hired by and paid for by the Contractor.

1.13 DRAINAGE AND GROUNDWATER CONTROL

A. The Contractor shall control the grading in areas under construction on the site so that the surface of the ground will properly slope to prevent accumulation of groundwater and surface water in excavated areas and adjacent properties.

B. The Contractor shall provide, at his own expense, adequate pumping and drainage facilities to maintain the excavated area sufficiently dry from groundwater and/or surface runoff so as not to adversely affect construction procedures nor cause excessive disturbance of underlying natural ground. The flows of all water resulting from pumping shall be managed so as not to cause erosion, siltation of drainage systems, or damage to adjacent property.

C. The groundwater level shall me maintained at 12 inches beneath the bottom of excavation or deeper until the excavation is backfilled to at least 2 feet above the groundwater level.

D. Damage resulting from the failure of the dewatering operations of the Contractor, and damage resulting from the failure of the Contractor to maintain all the areas of work in a suitable dry condition, shall be repaired by the Contractor, as directed by the Engineer, at no additional expense to the Owner. The Contractor's pumping and dewatering operations shall be carried out in such a manner as to prevent damage to the Contract work and so that no loss of ground will result from these operations. Precautions shall be taken to protect new work from flooding during storms or from other causes. Pumping shall be continuous to protect the work and/or to maintain satisfactory progress.

E. All pipelines or structures not stable against uplift during construction or prior to completion shall be thoroughly braced or otherwise protected. Water from the trenches, excavations, and stormwater management operations shall be disposed of in such a manner as to avoid public nuisance, injury to public health or the environment, damage to public or private property, or damage to the work completed or in progress.

F. The Contractor shall excavate interceptor swales and ditches, as necessary, prior to the start of major earthmoving operations to reduce the potential for erosion and to keep areas as free from surface and ponded water as possible.

G. All piping exposed above ground surface for this use, shall be properly covered to allow foot traffic and vehicles to pass without obstruction.

H. Should surface, rain or groundwater be encountered during the operations, the Contractor shall furnish and operate pumps or other equipment, and provide all necessary piping to keep all excavations clear of water at all times and shall be responsible for any damage to work or adjacent properties for such water. All piping exposed above ground surface for this use, shall be properly covered to allow foot traffic and vehicles to pass without obstruction.

I. The presence of groundwater or stormwater in soil will not constitute a condition for which an increase in the contract price may be made. Under no circumstances place concrete fill, lay piping or install appurtenances in excavation containing free water. Keep utility trenches free of water until pipe joint material has hardened and backfilled to prevent flotation.

J. For further information refer to paragraphs on SPECIAL REQUIREMENTS FOR SEQUENCE OF CONSTRUCTION OPERATIONS AND DRAINAGE AND EROSION CONTROL as specified herein.

1.14 FROST PROTECTION / WORK IN FREEZING WEATHER

A. Protect excavation bottoms and sides against freezing. Provide protective insulating materials as necessary, including by means of heat blankets, and heating plant.

B. A layer of fill shall not be left in an uncompacted state at the close of a day’s operation when there is the potential for that layer to freeze.

C. The Contractor shall not place any material on snow, ice, frozen soil, or soil that was permitted to freeze prior to compaction. Removal of these unsatisfactory materials will be at the Contractor's expense.

D. Do not excavate to full indicated depth when freezing temperatures may be expected, unless work can be completed to subgrade, the materials installed, and the excavation backfilled the same day. Protect the excavation from frost if placing of materials or backfilling is delayed.

E. The Contractor shall keep the operations under this Contract clear and free of accumulation of snow within the limits of Contract Lines as necessary to carry out the work.

F. No materials shall be installed on frozen ground. Fill materials shall be free of frost.

G. The subgrade of footings and slabs shall be protected from frost before placing concrete. The subgrade on the sides of the footings shall be protected from frost after the footings are constructed until sufficient fill is placed to protect the bottom of footings from frost induced heave. Uninsulated slabs shall be covered with heat blankets until the slab areas are heated. The cover shall extend at least 4 feet beyond the limits of the slabs.

1.15 DISTURBANCE OF EXCAVATED AND FILLED AREAS DURING CONSTRUCTION

A. The Contractor shall take the necessary steps to avoid disturbance of subgrade and underlying natural soils/compacted fill during excavation and filling operations. Methods of excavation and filling operations shall be revised as necessary to avoid disturbance of the subgrade and underlying natural soils/compacted fill, including restricting the use of certain types of construction equipment and their movement over sensitive or unstable materials. The Contractor shall coordinate with the Engineer or Soils Representative to modify his operations as necessary to minimize disturbance and protect bearing soils, based on the Engineer's or Soils Representative's observations.

B. All excavated or filled areas disturbed during construction, all loose or saturated soil, and other areas that will not meet compaction requirements as specified herein shall be removed and replaced with compacted approved material in accordance with this Specifications. Fill that cannot be compacted within 48 hours because of its saturated condition shall be removed and replaced with compacted approved material in accordance with this Specifications. Costs of removal of disturbed material and replacement with approved material shall be borne by the Contractor.

C. If requested by the Engineer or Geotechnical Engineer, the Contractor shall place a six-inch layer of Crushed Stone or 12-inch layer of Granular Fill/Structural Fill over natural underlying soil to stabilize areas disturbed during construction.

1. The placement of the Crushed Stone layer or Granular Fill/Structural Fill as well as material costs shall be borne by the Contractor. A geotextile fabric shall be used to separate the crushed stone from the natural soil and from the overlying fill when directed by the Geotechnical Engineer. If the use of geotextile fabric could not be reasonable anticipated based on the contract documents, the material shall be used at no additional cost to the owner.

D. Material that is above or below optimum moisture for compaction of the particular material in place as determined by the Engineer or the Soils Representative and is disturbed by the Contractor during construction operations so that proper compaction cannot be reached shall be classified as unsuitable bearing materials. This material shall be removed and replaced with lean concrete, suitable/approved backfill material, or crushed stone as directed by the Geotechnical Engineer or Soils Representative at no additional cost to the Owner.

1.16 SPECIAL REQUIREMENTS FOR SEQUENCE OF CONSTRUCTION OPERATIONS AND DRAINAGE AND EROSION CONTROL

A. An initial procedure for sequencing of construction operations is specified under Section 31 25 00, Erosion and sedimentation Controls. This procedure shall be extended through earthwork operations as follows:

1. Perform initial procedures as specified under Section 31 25 00, Erosion and Sedimentation Controls – Initial Sequence of Construction Activities and Preliminary Drainage Control.
2. Repair any broken or damaged Sections of the haybales or siltation fencing installed during site preparation and install any additional Sections necessary for proper erosion control.
3. Throughout earthwork operations, in addition to drainage swales, check dams, siltation sumps, and other items shown on the Drawings, the Contractor shall take other necessary precautions, including installation of temporary drainage swales, siltation sumps, check dams, haybales, silt fencing and temporary pipe to direct and control drainage from disturbed areas on the site so that erosion and siltation is minimal. In addition, no erosion or discharge of silt or larger particles shall occur in water bodies or wetland areas to remain undisturbed or onto adjacent properties.
4. Damaged or loose haybales and siltation fence shall be replaced as necessary to maintain their function of controlled erosion and siltation. Damaged or broken down check dams and filtration dams shall be replaced immediately.
5. Throughout construction, remove any accumulation of silt or soil build-up behind haybales, silt fences, check dams and filtration dams as it occurs. Remove accumulations of silt and build-up from the siltation pumps and silt traps when it is approximately 18 inches deep, or when it adversely affects the performance of the system. Remove silt sacks in catch basins when they have become clogged and replace to maintain their function.
6. Replace the crushed stone on the inside of all siltation sumps as necessary to permit adequate flow through the media and to maintain their function as a filter of silt and larger particles. Excavate silt and other material from the basins of all siltation sumps as it accumulates.
7. Remove temporary drainage swales, check dams, siltation sumps, haybales and other temporary drainage, erosion and siltation control measures when permanent drainage control measures have been installed, and grass is established in drainage areas and lawn areas. Do not remove the above items without approval of the Engineer. If, in the Engineer's opinion, these measures are still necessary, they shall stay in place.

1.17 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.
   1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
   2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the grade and hot-mix asphalt paving.

C. Bedding Course: Course placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill. Imported fill shall meet the gradation requirements set forth in PART 2 - PRODUCTS.

E. Building Area: The area defined by the projection of a line from two foot outside of the edge of the footing extending upward and outward at a slope of 1.5H: 1V. (If over-excavation is required below the footing the building area will be redefined from the bottom of over-excavation).

F. Compaction: The tamping and rolling of all backfill placed in uniform horizontal layers not exceeding a defined uncompacted lift thickness.

G. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

H. Deleterious Material: Trash, debris, clay, topsoil, roots, organic material friable, glass, material that has become soft and saturated, even if previously compacted, material defined in section 1.17.X, or otherwise degradable materials that compromise the strength and properties of soils.

I. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated. Excavation is unclassified.
   1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Engineer. Authorized additional excavation and replacement material will be paid for according to Contract provisions.
   2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Engineer. Unauthorized excavation, as well as remedial work directed by Engineer, shall be without additional compensation.

J. Fill: Soil materials used to raise existing grades or meet proposed grades.

K. Frost Zone: The area within 4 feet of finished grade.

L. Influence Zone/Area: The area below a footing defined by the projection of a line from two feet outside of either edge of the footing extending downward and outward at a slope of 1V:1H.

M. “In-the-dry”: In-situ soil moisture content of no more than two percentage points above the optimum moisture content for that soil.

N. Optimum Moisture Content: Determined by the ASTM standard specified to determine the maximum dry density for relative compaction.

O. Prepared Ground Surface: The ground surface after clearing, grubbing, stripping, excavation, and scarification and/or compaction.

P. Proof-rolling: The tamping and rolling of all subgrades including running a loaded rubber tire truck over the subgrade when requested by the Geotechnical Engineer.

Q. Relative Density: As defined by ASTM D4253 or D4254.

R. Relative Compaction: The ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by ASTM D1557. Corrections for oversized material shall be applied to maximum dry density.

S. State Standards: Massachusetts Highway Department Standard Specifications for Highways and Bridges.

T. Structures: Buildings, footings, foundations of any type, retaining walls, buildings and equipment slabs, ramps, stairs, tanks, curbs, sidewalks, mechanical and electrical appurtenances, retaining walls, or other man-made stationary features constructed above or below the ground surface.

U. Subbase Course: Course placed between the subgrade and base course for hot-mix asphalt pavement, or course placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

V. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.

W. Unclassified Excavation: The nature of materials to be encountered has not been identified or described herein.

X. Unsuitable material shall be material having at least one of the following properties:

1. Material with a maximum unit dry weight per cubic foot less than 110 lbs., as determined by ASTM D1557.
2. Material containing greater than 2% organic matter by weight, topsoil, organic silt, peat, construction debris, roots and stumps.
3. Material which has a Liquid Limit greater than 55 when tested in accordance with ASTM D 4318.
4. Materials that do not meet one of the gradation specifications in this section.
5. Wet material which cannot be compacted due to moisture contents outside of the limits of ±2 percentage points of optimum moisture content.
6. Material classified as unsuitable by the Geotechnical Engineer.
7. Unsuitable material shall be disposed of off-site as directed by the Engineer.
8. Material processed onsite that is not well graded or contains excess stones and exhibits honeycombing when placed in lifts.
9. Materials that are unstable as a result of inadequate construction dewatering, excessive subgrade disturbance, or other means and methods used by the

Contractor are not considered unsuitable materials This include materials that were stable and that have become unstable.

Y. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

Z. Trench: An excavation of any length where the width is less than twice the depth and where the shortest distance between payment lines does not exceed ten (10') feet. All other excavations shall be defined as open excavations.

AA. Engineer: Where engineer is referenced it shall mean the Engineer or the Engineer's representative.

BB. Geotechnical Engineer: Where Geotechnical Engineer is referenced it shall mean the Geotechnical Engineer or its representative.

CC. The base layer of athletic fields shall mean the surface layer(s) required for the grass and/or athletic fields as designed by the project Civil Engineer or Landscape Architect.

1.18 REFERENCES

A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements govern.

B. American Society for Testing and Materials (ASTM):

1. ASTM D1556, Density of Soil In Place by the Sand-Cone Method.
2. ASTM D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)).
3. ASTM D6938, Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
4. ASTM D422, Particle Size Analysis of Soils.

C. Commonwealth of Massachusetts:

1. Massachusetts Highway Department Standard Specifications for Highways and Bridges.
2. The Commonwealth of Massachusetts State Building Code 780 CMR, Ninth Edition (MSBC 9th Edition)

D. American Association of State Highway and Transportation Officials (AASHTO):

1. AASHTO T-11, Standard Method of Test for Amount of Material Finer than 0.075 mm sieve in aggregate.
2. AASHTO T-27, Standard Method of test for sieve analysis of fine and coarse aggregates.

E. Occupational Safety and Health Act of 1970 (Public Law 91-596 of the United States, 29 USC Section 651 et seq.).

1.19 SUBMITTALS

A. Product Data: For the following:
   1. Each type of plastic warning tape.
   2. Geotextile – The contractor shall submit a 12” by 12” sample of geotextiles.
   3. Controlled low-strength material, including design mixture.

B. Submit a detailed construction sequence plan for project excavation indicating temporary stockpile areas, side slopes of excavations, limits of required temporary excavation support and sequence and procedures for subgrade protection, excavation, concrete placement, moisture conditioning of on-site excavated soils used as fill, filling, backfill, and compaction.

C. The Contractor shall submit, the name of imported material suppliers. Change of source suppliers shall require approval from the Engineer.

D. Grain-size distribution analysis test data shall be delivered with the samples. The analysis shall be performed in accordance with ASTM D 422. The data shall include a plot of the gradation and the envelope of the specified material. A material shall be considered meeting the specifications when its gradation curve fits entirely within the specified envelope. Borrow soil materials with grain-size distribution curves that do not fall entirely within the specified envelope shall be deemed unacceptable

E. The Contractor shall submit to the Engineer, under provisions of Section 01 33 00, manufacturer’s literature and data on proposed compaction equipment.

F. The Contractor shall provide to the Engineer, on a daily basis, copies of field records documenting the location of stockpiled material, and stockpile identification data.

G. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
   1. Classification according to ASTM D 2487 of each onsite and borrow soil material proposed for fill and backfill.
   2. Recent (less than one month old) Gradation Curve (ASTM-D422) and Laboratory compaction curve according to ASTM D 1557 for each on-site and borrow soil material proposed for fill and backfill.

H. Pre-excavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins

I. Excavation and Excavation Support Plan: Submit at least 10 calendar days prior to the start of the work a detailed plan for the sequence of excavation, and methods to be used for excavation support and dewatering of excavations if required. Submit engineering calculation stamped by a Massachusetts Registered Professional Engineer and shop drawings for earth support systems to be used.

J. Dewatering plan shall be submitted at least 10 days before the start of construction. Dewatering and groundwater control systems shall be designed to

keep excavations free of water and to avoid disturbance of the subgrade in accordance with Section 1.13 of these Specifications. The dewatering submittal shall include locations, depth, and size of deep sump pumps.

1.20 SAMPLING AND TESTING

A. The contractor shall submit 50-lbs samples of each type of fill material, in air-tight containers, proposed for use on-site in accordance with PART 2 - PRODUCTS, to the Owner's Geotechnical Engineer (Geotechnical Consultant) for **preliminary compliance testing** at least two (2) weeks prior to use. No fill material shall be delivered to the site or placed until the material has been approved. The final review of the material will be based on the re-tested sample by the owner's testing agency upon delivery of the material to the site. The gradation curves shall fit entirely within the envelopes defined by the limits specified herein for the material to be approved for use at the site.

1. Samples shall be delivered to the office of the Engineer or as directed.
2. Samples required in connection with compaction tests will be taken and transported by the Soils Representative.
3. Additional tests, including grain-size analyses and laboratory compaction tests shall be performed on the material after it is delivered to the site.
4. For on-site materials, submit representative samples, collected from each stockpile of excavated on-site material to be used, directly to the Owner's Geotechnical Consultant's office at least two (2) weeks in advance of use of these materials

B. Product Data: Submit location of pits for borrow material. Samples shall include name of source, name of material, sampling date, and intended use.

C. Samples shall be representative of the source pit. If materials are found to vary once construction begins, the Contractor will be required to submit additional representative samples at his own cost.

D. Compaction tests:

1. Compaction tests shall be performed at all bench and other site fixture pads.
2. Compaction tests shall be performed on each lift of placed and compacted material. Accordingly, it is the responsibility of the Contractor to provide ample notice to the testing agency to provide a field representative to perform field density tests.

E. Materials imported to the site by the Contractor for on-site use shall not contain oil, hazardous waste, or deleterious materials.

1. The Contractor shall be responsible for all costs incurred by the Owner as a result of the Contractor's action to import materials containing concentrations of oil and/or hazardous materials to the site.
2. In the event that site characterization of off-site borrow sources indicates that soils are acceptable to the Engineer for use, then chemical testing will not be required. It is anticipated that chemical testing would not normally be required for material from customarily utilized commercial borrow sources

   No fill material from "urban areas" will be accepted for fill at the site, even if chemical testing indicates no exceedances of "Reportable Concentrations".

If requested by the Owner or Engineer, based on review of the borrow site characterization, the Contractor shall conduct testing on proposed fill material and submit results prior to delivery to the site, at no additional cost to the Owner. Testing shall be conducted by a DEP-certified testing laboratory and shall include, at a minimum, the following analytical test data.

a. Total Petroleum Hydrocarbons (EPA Method 418.1) every 100 yards
b. Volatile Organic Compounds (EPA Method 8420) every 500 yards
c. PCB and Pesticides (EPA Method 8080) every 500 yards
d. Total RCRA Metals (EPA Method 6000-7000 series) every 500 yards
e. Polynuclear Aromatic Hydrocarbons (EPA Method 8270) every 500 yards
f. TCLP for those total parameters which exceed twenty times the TCP criteria every 500 yards
g. Total cyanide (EPA 9020)

3. All off-site material submitted for use on the project site shall conform to the S-1 Soils Standards contained in the Massachusetts Contingency Plan, dated October 1, 1993, Section 310 CMR 40.0975 or site soil background levels, whichever is lower. Samples will be chemically tested to determine their conformance with the S-1 Soils Standards and site soil background levels.
4. Testing parameters and testing frequencies may be reduced, as directed by the Soils Representative.
5. All sieve analyses for conformance of on-site and off-site fill materials to be used in the work shall be done by means of a mechanical wet sieve analysis and in accordance with ASTM D 422.

1.21 QUALITY ASSURANCE

A. The Owner may retain and pay for the services of an independent testing agency (Soils Representative) to monitor backfill operations, perform laboratory tests on soil samples, and to perform field density tests; and a Geotechnical Engineer to periodically observe the earthwork operations, observe the preparation of the subgrade for footings, slabs, and paved areas, and to review laboratory and field test data. The geotechnical engineer may from time to time request that the contractor excavate tests pits ahead of excavation to confirm subsurface conditions. A maximum of two test pits shall be excavated at no additional cost to the Owner.

B. The Engineer’s duties do not include the supervision or direction of the actual work by the Contractor, his employees or agents. Neither the presence of the Engineer nor any observation and testing by the Engineer shall excuse the contractor from defects discovered in his Work at that time or subsequent to the testing.

C. Subgrades shall be observed and approved by the geotechnical engineer before placing fill. The compaction and material composition shall be approved by the geotechnical engineer before placement. The by the Engineer and/or Geotechnical Engineer prior to placing subsequent lifts. If inspections indicate subgrade does not meet specified requirements and is consistent with the information provided in the geotechnical report, the unsuitable subgrade shall be excavated, the unsuitable material shall be removed, and replaced with approved backfill material and

compacted at no additional cost to the owner or engineer. The work shall be done in accordance with this specification.

D. Costs related to retesting due to unacceptable quality of work and failures discovered by testing shall be paid for by the Contractor at no additional expense to Owner, and the costs thereof will be deducted by the Owner from the Contract Sum.

1. Testing frequency shall be as follows:

Material	Responsible Party	Situation	Test	Minimum Frequency
Structural Fill/ Ordinary Fill/ Gravel Borrow/ Common Borrow/ Bedding Material/ Crushed Stone / Pea Gravel	Contractor	Source Investigation	Grain Size through 0.002 mm Moisture Density Relationship	1 per source 1 per source
	Owner	During Placement	Grain Size through 0.002 mm Moisture Density Relationship	1 per 100 tons 1 per 100 tons
	Owner	As-Placed	Dry Density and As-Placed Moisture	2 per lift per location or activity and no less than 1 every 500 sf
Loam Borrow	Contractor	During Placement	PH, Nitrogen, Phosphorous, Potassium, and USDA Classification	2 per Acre
Riprap	Contractor	Source Investigation	Source Material Certification Specific Gravity	1 per source 1 per source
	Contractor	During Placement	Source Material Certification Specific Gravity	1 per 500 tons 1 per 500 tons

a. The Soils Representative's presence or the Geotechnical Engineer does not include supervision or direction of the actual work by the Contractor, his employees or agents. Neither the presence of the Soils Representative, nor any observations and testing performed by him, nor any notice or failure to give notice shall excuse the Contractor from defects discovered in his work.

b. The Owner reserves the right to modify the services of the Soils Representative or Geotechnical engineer.

A. The contractor shall make provisions for allowing safe and timely observations and testing of Contractor's Work by the Geotechnical Engineer and by the Soils Representative. The presence of the independent testing agency and/or the Geotechnical Engineer does not include supervision or direction of the actual work of the Contractor, his employees or agents. Neither the presence of the Soils Representative and/or the Geotechnical Engineer, 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.

B. Pre-excavation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1. Before commencing earthwork, meet with representatives of the governing authorities, Owner, Engineer, consultants, Soils Representative, and other concerned entities. Review earthwork procedures and responsibilities including testing and inspection procedures and requirements. Notify

participants at least 3 working days prior to convening conference. Record discussions and agreements and furnish a copy to each participant.

C. Testing: Compaction tests will be required by the Owner and will be paid for by the owner. No specific testing schedule has been established at this time. If tests indicate that density requirement have not been achieved, the contractor continue compacting the tested material. All retesting is these areas shall be paid for by the contractor.

D. The Owner's Testing Agency will perform water content, gradation tests on onsite and processed materials, and compaction tests at a frequency and at locations as required. The results of these tests will be submitted to the Engineer, and a copy submitted to the Contractor, on a timely basis so that the Contractor can take such action as is required to remedy the indicated deficiencies.

E. Contractor shall notify Engineer when excavations have reached required subgrade and provide a minimum notice of 24 hours prior to placement of backfill on exposed subgrade. Density and Compaction Testing: The contractor is responsible to schedule compaction tests and allow adequate time for the proper execution of said tests. **This section also applies to instances when the General Contractor resumes earthwork operations after a period of pause in earthwork operations that require observations by the Geotechnical Engineer.**

1.22 PROJECTS AND CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by the Owner or others unless permitted in writing by Engineer and then only after arranging to provide temporary utility services according to requirements indicated.

1. Notify Engineer not less than two days in advance of proposed utility interruptions.
2. Do not proceed with utility interruptions without Engineer's written permission.
3. Contact a utility-locator service for the area where Project is located before excavating.

B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies and City of Boston to shut off services if lines are active.

C. All fill to be removed from the Building Area and Influence Zone as presented on the plans and described herein.

D. Subsurface investigations indicated the presence of sandy materials which will likely be easily disturbed due to construction activities. This material is also likely to require regular moisture conditioning to obtain required compaction requirements.

E. Work under this section shall include the removal of 10 cubic yards of un-anticipated rock ledge or solid masonry or concrete foundations in mass or trench excavations, or boulders over two (2) cubic yards in open excavations and over one (1) cubic yard in size in trenches. Such removals shall be measured by the Landscape Architect/Engineer by notifying the Landscape Architect/Engineer prior to removal. If not performed, credits to the extent of material removal deducted

from the 10 cubic yards in the measurements shall be applied to the contract price. The contract price shall be reduced by the extent of the work not undertaken as called for in this section.

1.23 MEASUREMENT

A. Measurement of Unsuitable Soil overexcavation:

1. Strip vegetation, topsoil, subsoil, buried organic material and fill to a minimum depth of 1 foot below the existing grades in accordance with the Contract Documents or in accordance with Drawings. Remove existing asphalt, curbing, and structures.
2. Employ a Registered Land Surveyor to survey to bottom of the excavation for unsuitable soils throughout the building footprint. Excavation shall be surveyed at each corner, at highs and lows. The maximum spacing for survey points is 20 feet in each direction on a grid.
3. Remove unsuitable soils as shown on the Contract Documents or as directed in the field by the Owner's Geotechnical Consultant.
4. The results of the surveys are to be plotted on an AutoCAD drawing showing the bottom of subsoil grades, the bottom of proposed subgrade including the zones of influence and bottom of unsuitable soils. The volume of over-excavated unsuitable soil removal is to be calculated by a Registered Land Surveyor. Submit volume calculations of over-excavated unsuitable soils and all survey information to the Engineer for review. Submission must include raw survey data, AutoCAD bottom of subsoil surface, AutoCAD bottom of proposed subgrade including the zones of influence AutoCAD bottom of unsuitable soils surface, and volume calculations in a spreadsheet (electronic format).
5. Quantities shall be measured in their original position to the limits of clearly defined vertical construction lines and to the depth required for the defined construction. Payment will be at the Contract Unit Prices.

PART 2 - PRODUCTS

2.1 GENERAL

A. Segregate excavated material based upon material type to enable reuse in appropriate locations based upon material type as described in Section 3.5.

B. Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

2.2 SOIL MATERIALS

A. Use of materials shall be as described below and as shown in the Drawings.

B. Fill material will not be accepted from off-site borrow sources that are Massachusetts DEP MCP disposal sites. Common borrow material obtained from off-site borrow sources that have no known releases or disposal of oil and/or hazardous material shall be acceptable for use only when accompanied by documentation stating there has been no known releases or disposal of oil and/or hazardous materials at the off-site borrow site.

C. Fill material shall be free from frost/ice and snow, rocks with a diameter greater than 2/3 of the loose lift thickness as specified herein, and foreign matter, such as construction debris, asphalt, trash, wood, roots, leaves, sod, and organic matter. All fill material shall be maintained by the contractor at suitable moisture contents for proper placement and compaction as specified herein

D. Offsite pulverized pavement and crushed concrete are not acceptable for fill material except as specified herein.

2.3 GRANULAR FILL (STRUCTURAL FILL)

A. Granular Fill (Structural Fill) shall be used below slabs, within the foundation zone of influence, sidewalks, exterior slabs, and other locations shown on the Drawings or indicated in the Specifications. Material used below slabs, within the foundation zone, and as shown on the structural Drawings shall conform with Specification 31 23 00 2.1(B). Material under sidewalks, exteriors slabs, and as shown on the civil Drawings shall meet the following:

Sieve Size	Percent Passing by Weight
3 inches	100
1 ½ inch	80 – 100
½ inch	50 – 100
No. 4	30 – 85
No. 20	15 – 60
No. 60	5 – 35
No. 200*	0 - 10

*0 – 5 Under sidewalks, and unheated and exterior slabs

Use structural fill within building areas beneath floor footings and slabs, retaining wall foundations, and in other soil-bearing situations.

Crushed concrete can be used as Structural Fill provided it meet the requirements of these specifications. If used, the crushed concrete shall be used up to 6 inches below the bottom of footings and 12 inches below the bottom of slabs.
Use Structural Fill with less than 5 percent fines in top 12 inches under exterior slabs-on-grade including equipment pads.
Use Structural Fill with less than 5 percent fines in top 8 inches under sidewalks.

2.4 ORDINARY FILL

A. Ordinary Fill shall have a plasticity index of less than 6 and shall meet the gradation requirements shown below. Ordinary Fill shall be compacted in maximum 9-inch loose lifts to at least 95 percent of the Modified Proctor maximum dry density (ASTM D1557), with moisture content s within ±2 percentage points of optimum moisture content.

Sieve Size	Percent Passing by Weight
6 inches	100
1 inch	50 – 100

No. 4	20 - 100
No. 20	10 - 70
No. 60	5 – 45
No. 200	0 - 20

Use Ordinary Fill for general grading; as backfill for embankments, behind the free draining backfill behind retaining walls, landscape areas, and athletic fields; and beneath the subbase layer in paved areas outside the building footprint.

Crushed concrete can be used as Ordinary Fill provided it meet the requirements set forth by this specification.

2.5 COMMON BORROW

A. Common Borrow material shall be soil containing no stone larger than 8 inches and shall be substantially free of organic loam, wood, trash, or other objectionable materials which may be decomposable, compressible or which cannot be properly compacted. Common Borrow materials shall not contain more than 30 percent fines remaining on the No. 200 sieve by weight of silt and clay.

1. No Common Borrow shall be imported until available onsite Ordinary Fill has been utilized or with prior written approval from the Engineer.
2. Common Borrow material from off-site borrow sources shall contain no detectable concentrations of asbestos.
3. Common Borrow to be placed within 12 inches of athletic fields shall be soil containing no stone larger than 3 inches and shall meet all other requirements listed herein.
4. Crushed concrete can be used as Common Borrow provided it meet the requirements of these specifications.

2.6 GRAVEL BORROW

A. Granular Fill shall be onsite or imported material conforming to Item M1.03.0 type a or b of the State Standards.

B. Sand Gravel Fill shall be onsite or imported material conforming to Item M1.03.0 type b of the State Standards.

C. Processed Gravel shall be onsite or imported material conforming to Item M1.03.1 of the State Standards.

D. Gravel Borrow may be anticipated to be onsite in limited quantities.

E. **Crushed concrete cannot be used as Gravel Borrow**.

2.7 BEDDING MATERIAL

A. Gravel Borrow Bedding Material shall be imported material conforming to Item M1.03.0 type c of the State Standards.

B. Crushed Stone Bedding Material shall be imported material conforming to Item M2.01.3 of the State Standards.

C. Coarse Sand Bedding Material shall be imported material conforming to Item M1.04.0 type A of the State Standards.

2.8 SAND FILL

A. Sand Fill: To be used as utility bedding and backfill. It shall be hard, durable sand free from ice, snow, roots, sod and other deleterious matter conforming to the material and gradation requirements for Type B Sand Borrow, MassDOT Item M1.04.0. The Sand Fill shall be used as backfilling material around banks of pipes. The Sand Fill shall be graded within the following limits:

Sieve Size	% Passing by Weight
3/8-inch	100
No.200	0-10

2.9 DENSE GRADED CRUSHED STONE FOR SUBBAASE

A. Dense graded Crushed Stone for subbase shall be imported material conforming to Item M2.01.7 of the State Standards.

B. **Crushed concrete cannot be used as Dense Graded Crushed Stone for Subbase**.

C. Dense graded Crushed Stone for subbase are not anticipated to be present onsite.

2.10 CRUSHED STONE

A. Crushed Stone shall be impacted durable material with maximum of 1 ½ ” or 2” as specified in the Drawings. Stone used for drainage components shall be double washed. For all other applications fines shall be <1% unless otherwise noted. Crushed stone shall meet the following gradation:

Size (inches)	Percent Finer
1 ½” – 2”	100%
1 ¼”	85% - 100%
¾”	10% - 40%
½”	0% - 8%
#200	< 1%

B. 3/4” Crushed Stone shall comply with State Standards M2.01.4.

C. 1/4” to 3/8” Crushed Stone shall comply with State Standards M2.01.6.

2.11 PEA GRAVEL

A. Clean naturally rounded aggregate with particle sizes no larger than 3/4 of an inch with no more than 5% passing the #8 sieve. The dry density shall be a minimum of 95 pounds per cubic foot.

2.12 WASHED STONE

A. Washed stone shall be free from shale, clay, organic materials, and debris with stone sizes conforming to No. 4 stone as specified by ASTM D448. Not more than 0.5 percent of satisfactory material passing a No. 200 sieve shall be allowed to adhere to the stone. Laboratory testing shall be completed in compliance with ASTM D6913, and results shall be submitted to the **Civil Engineer** for approval.

2.13 FILTER FABRIC

A. Filter fabric shall be nonwoven, needle-punched geotextile, manufactured for subsurface drainage applications, made from polypropylene fibers with elongation greater than 50 percent and complying with AASHTO M288. Filter fabric shall consist of Mirafi 140N, US120NW, GeoTex 401, or approved equal.

B. High Visibility Filter Fabric shall consist of US 160NW-HVO non-woven orange filter fabric, GeoTex 601OR, or Mirafi 160N/O, or approved equal.

2.14 GEOTEXTILE FABRIC

A. Geotextile No. 1: Geotextile Fabric for erosion control/slope protection shall conform to Item M9.50.0 type IV of the State Standards. Geotextile No. 1 is a nonwoven geotextile composed of polypropylene fibers, which are formed into a stable network such that fibers retain their relative position. The product is inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	**Test Method**	**Unit**	**Minimum Average Roll Value**
Grab Tensile Strength	ASTM D 4632-91	lbs	120
Grab Tensile Elongation	ASTM D 4632-91	%	50
Trapezoid Tear Strength	ASTM D 4533-91	lbs	50
Mullen Burst Strength	ASTM D 3786-87	psi	225
Puncture Strength	ASTM D 4833-00	lbs	65
Apparent Opening Size (AOS)	ASTM D 4751-99A	U.S. Sieve	70
Permittivity	ASTM D 4491-99A	sec^{-1}	1.8
Permeability	ASTM D 4491-99A	sec	0.21
Flow Rate	ASTM D 4491-99A	gal/min/ft	135
UV Resistance (at 500 hours)	ASTM D 4355-02	% strength retained	70

Physical Properties	**Test Method**	**Unit**	**Typical Value**
Weight	ASTM D 5261-92	oz/yd	4.8
Thickness	ASTM D 5199-01	mils	55
Roll Dimensions (width x length)	--	ft	12.5 x 360 / 15 x 360

Roll Area	--	yd	500 / 600
Estimated Roll Weight	--	lb	164 / 197

B. Geotextile No. 2: Geotextile No. 2 is a nonwoven geotextile composed of polypropylene fibers, which are formed into a stable network such that fibers retain their relative position. The product is inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids.

Mechanical Properties	**Test Method**	**Unit**	**Minimum Average Roll Value**
Grab Tensile Strength	ASTM D 4632	lbs	160
Grab Tensile Elongation	ASTM D 4632	%	50
Trapezoid Tear Strength	ASTM D 4533	lbs	60
Mullen Burst Strength	ASTM D 3786	psi	305
Puncture Strength	ASTM D 4833	lbs	95
Apparent Opening Size (AOS)	ASTM D 4751	U.S. Sieve	70
Permittivity	ASTM D 4491	sec^{-1}	1.4
Permeability	ASTM D 4491	sec	0.22
Flow Rate	ASTM D 4491	gal/min/ft	110
UV Resistance (at 500 hours)	ASTM D 4355	% strength retained	70

C. Geotextile No. 3: Geotextile for the installation of underground tank

1. Woven geotextile fabric with a minimum grab tensile strength of 120 lbs/inch and a maximum apparent opening size of #50 US sieve (0.300 mm)

D. A geotextile fabric shall not be used between crushed stone and soil fill material at the base of retaining walls. Where separation between crushed stone and soil fill material is required, the crushed stone shall be choked by means of a soil filter.

2.15 OTHER SOIL MATERIAL

A. Drainage Aggregate: Narrowly graded mixture of washed crushed stone or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

B. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch (25-mm) sieve and 0 to 5 percent passing a No. 4 (4.75-mm) sieve.

C. Fine Aggregate: ASTM C 33; fine aggregate, natural, or manufactured sand.

D. River Stone: River stone shall be 1 ½" to 3" rounded and 3" to 6" rounded and oval, smooth stone, color range shall be warm tones of buff, beige, tan and gray. Color range shall be consistent throughout. Stone shall be clean and washed free of deleterious material. Contractor to submit 5-gallon container sample for each size range with source indicated.

E. Rip-rap: rip-rap shall be sound, durable rock which is angular in shape in accordance with M2.02.0 of the State Specifications.

2.16 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility; colored as follows:

B. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 GENERAL

A. Prior to commencing work, the Contractor shall establish property line locations and place construction control markers clearly visible and understandable to workers in the field. The Contractor shall exercise due care so as not to disturb adjacent structures and shall leave the Site in clean and orderly condition upon completion of the work.

B. Unanticipated Soil Conditions:

1. Removal of unsuitable materials up to the depths shown in the geotechnical report shall be part of the base bid and shall not be considered an unanticipated soil condition. The depth to the bottom of unsuitable material shall be estimated by interpolating between the depths to unsuitable material in the nearest borings and/or test pit.

2. If unsuitable bearing materials are encountered at the specified subgrade depths, i.e., deeper than the elevations shown in the Geotechnical Report, the Contractor shall notify the Engineer. The Contractor shall carry excavation deeper and replace the excavated material with suitable/approved compacted fill or lean concrete as directed by the Engineer or geotechnical engineer.
3. Removal of such material and its replacement as directed will be paid an extra compensation in quantity approved by the Engineer and calculated using survey points of the excavated area. Only changes in the work authorize in advance by the Engineer in writing shall constitute an adjustment in the Contract Price.
4. Material that is above or below optimum moisture for compaction of the particular material in place as determined by the Engineer or the Soils Representative and is disturbed by the Contractor during construction operations so that proper compaction cannot be reached shall not be construed as unsuitable bearing materials. This material shall be removed and replaced with lean concrete or with approved material as directed by the Engineer or Geotechnical Engineer or Soils Representative at no additional cost to the Owner.
5. The Contractor shall follow a construction procedure which permits visual identification of firm natural ground.

C. Excessive Excavation: If any part of the general or trench excavation is carried, through error, beyond the depth and dimensions indicated on the Drawings or called for in the Specifications, the Contractor at his own expense, shall furnish and install compacted gravel fill, concrete, or take other remedial measures as directed by the Engineer to bring fill material up to the required level or dimension.

D. The Contractor shall reuse on-site all on-site excavated soils that meet the gradation requirements of materials specified herein. Solid waste consisting of brick, concrete, asphalt, cobbles, boulders, and all unsuitable excavated materials shall become the property of the Contractor and be legally disposed of off-site at no additional cost to the Owner.

Samples and Testing:

1. Excavated material taken directly from on-site cuts that will meet the Specifications may be used as fill provided the Contractor obtains written approval from the Engineer. No such fill material shall be put in place until approved for use by the Engineer in writing and until test results, including gradation and compaction tests are approved by the Geotechnical Engineer.
2. Testing of materials as delivered may be made from time to time. Materials in question may not be used, pending test results. Tests of compacted materials will be made regularly. Remove rejected materials and replace with new, whether in stockpiles or in place.
3. **The existing fill and the natural soil contain high fines contents. Such soils are very susceptible to disturbance when exposed to moisture. Care shall be exercised during construction to maintain a dry working subgrade. Provide working mats, e. g., crushed stone or concrete mud mats, to reduce the potential for disturbance of the foundation subgrade and to improve working conditions. The use of crushed stone to stabilize soft subgrade shall be at no additional cost to the Owner**.

E. Deficiency of Fill Material: Provide required additional fill material to complete the work if a sufficient quantity of suitable material is not available from the required excavation on the project site at no additional cost to the Owner.

F. Surplus Fill Material: Surplus fill that is not required to fulfill the requirements of the Contract shall be removed from the site and legally disposed of at no additional cost to the Owner.

G. Protect all benchmarks, monuments, and property boundary pins. Replace if destroyed by contractor's operation.

3.2 PREPARATION

A. The Contractor shall be deemed to have inspected the Site and satisfied himself/herself as to actual grades and levels and true conditions under which the Work will be performed.

B. Areas required for execution of Work shall be cleared. The work area shall be free of standing water and shall be dry.

C. All site health and safety controls shall be fully established and in operation prior to beginning any demolition, soil, and fill excavation. Site controls shall include but not be limited to work zones properly barricaded, wheel wash and decontamination facilities, and all support equipment and supplies including personal protective equipment. All site controls shall be reviewed by the Engineer in the field.

D. The Contractor shall provide all layout field data, including ties, to the Engineer. The Contractor shall maintain all required field controls throughout the performance of the Work.

E. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

F. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Section 31 10 00 Site and Preparation Clearing."

G. Protect and maintain erosion and sedimentation controls, which are specified in Division 31 Section 31 25 00 – Erosion and Sedimentation Controls.

H. Provide protective insulating materials to protect subgrades and foundation soils against freezing temperatures or frost.

3.3 SUBGRADE PREPARATION

A. Topsoil and subsoil, existing fill, weathered bedrock, buried organic soil, tree stumps, roots balls, abandoned utilities, existing and abandoned foundations, asphalt, demolition debris, and other below-ground structures shall be entirely removed from within the footprint of the proposed building before the start of foundation work. The removal shall extend laterally beyond the limits of the influence zone of 5 feet beyond the limits of the proposed building, whichever is greater.

B. The topsoil, subsoil, and surficial organic material, tree stumps, rootballs, asphalt, and concrete shall be entirely removed from within the proposed driveways and parking lots.

C. The topsoil, subsoil, root balls, tree stumps, and other deleterious material shall be entirely removed from within the footprint of the proposed athletic field where the grades are anticipated to be raised. The surficial organic material, asphalt, and concrete shall be removed in accordance with the requirement provided the Landscape Architect.

D. Cobbles and boulders shall be removed at least 6 inches from beneath footings, i.e., 4.5 feet beneath the proposed FFE within the entire building footprint, 18 inches beneath the bottom of paved areas, and 24 inches beneath the base material for the turf in athletic fields. The resulting excavations shall be backfilled with compacted Structural Fill under the building and with Ordinary Fill under the subbase of paved areas and under the base material in athletic fields.

E. Tree stumps, root balls, and roots larger than ½ inch in diameter shall be removed and the cavities filled with approved backfill material and compacted in accordance with this Specification.

F. After the existing fill, surficial and buried organic material, and unsuitable material is removed, the exposed subgrade in the natural soil shall be compacted using at least four passes of a vibratory roller compactor imparting a minimum dynamic effort of 40 kips.

G. After removing the unsuitable material, the subgrade of the proposed paved areas and proposed athletic fields shall be compacted with a heavy vibratory roller compactor imparting a dynamic effort of at least 40 kips.

H. The base of the footing excavations in the natural glacial till shall be compacted with a dynamic vibratory compactor weighing at least 200 pounds and imparting a minimum of 4 kips of force to the subgrade, before placing the backfill or concrete.

I. The grades within the proposed building shall be restored using Structural Fill. At a minimum, 12 inches of Structural Fill shall be placed under the proposed slab.

J. Due to the susceptibility of the natural soil to disturbance under foot and vehicular traffic, a minimum of 6 inches of Structural Fill or crushed stone shall be placed under the footings to provide a firm working surface during placement of formwork and rebar.

K. To improve the existing fill under the proposed paved areas, the exposed subgrade in the existing fill (i.e., after removing the surficial topsoil and subsoil) shall be compacted with at least six (6) passes of a heavy vibratory roller compactor imparting a dynamic effort of at least 40 kips. Where soft zones of soil are observed, the soft soil shall be removed, and the grade shall be restored using Ordinary Fill to the bottom of the proposed subbase layer. Where buried organic material is present beneath the proposed paved areas, it shall be removed to at least 3 feet beneath the bottom of the pavement. The exposed surface shall be proofrolled before placing backfill. Where soft or loose zones are revealed by the proofrolling, the soft or loose material shall be removed and replaced with Ordinary Fill.

L. After the topsoil is removed from within the proposed athletic fields, the exposed subsoil, existing fill, or natural soil shall be proofrolled with a loaded rubber tire truck or with a large vibratory roller compactor imparting a minimum dynamic effort of 40 kips. Where soft zones are indicated by the proofrolling, the soft zones shall be removed and the grades shall be restored using Ordinary Fill to the bottom of the base material of the proposed turf designed by the landscape architect or the manufacturer/installer of synthetic turf, if any.

M. Existing building foundations, and other underground structures shall be entirely removed from under the proposed building.

N. Existing building foundations, and other underground structures shall be removed at least 18 inches beneath the bottom of the pavement and 18 inches beneath the ground surface of athletic fields if applicable.

O. In areas requiring rock excavations, disturbed rock material shall be removed and replaced with Structural Fill or crushed stone within the footprint of the proposed building, and with Ordinary Fill beneath the pavement subbase of the proposed parking lots and driveways.

P. Under utility pipes, manholes, and catch basins, rock shall be cut a minimum of 12 inches beneath the pipe or structure.

Q. Laterally, the rock shall be removed at least 1 foot beyond the limits of footings and 3 feet beyond the limits of walls. Rock shall be cut a minimum of 12 inches outside utility structures and a minimum of 18 inches on each side of utility pipes.

R. Contractor shall excavate from within the Building Area/Zone and Influence Area/Zone all unsuitable soils to a depth sufficient to reach the native soils as specified herein, within the geotechnical report, and within the contract plans. Note this may require excavation below footing subgrade as specified herein, within the geotechnical report, and within the contract plans.

S. All excavated materials shall be segregated such that reusable material meeting the gradations provided for above are separated from organics and all other deleterious material

T. Once the final subgrade has been reached, and upon acceptance by the Engineer and Soils Representative, Contractor shall backfill the excavated area with Structural Fill in the influence zone of building areas and Ordinary Fill in paved areas. Limits of excavation shall be determined in the field based upon observed conditions.

3.4 PROOF COMPACTING

A. Areas requiring excavation shall be excavated to subgrade and then proof compacted as specified in Section 1.2 of this Specification Section.

B. Where soft zones are revealed by compaction efforts and where organic soil is exposed, the soft material or organic soil shall be removed and replaced with Structural Fill in the influence zone of building areas and utility trenches and Ordinary Fill in paved areas.

3.5 REUSE OF ONSITE MATERIALS AND PROCESSING OF ONSITE MATERIALS

A. Based on the borings the existing fill contain up to 33 percent fines and the glacial till contained up to 38 percent fines. Subgrade support capacities may deteriorate when such soils become wet and/or disturbed. The contractor shall keep exposed subgrades properly drained and free of ponded water. Subgrades shall be protected from machine and foot traffic to reduce disturbance. Placed onsite material that become soft and unsuitable to support additional lifts of fill shall be removed and replaced at no additional cost to the owner. The contractor shall not make claims due to difficulty handling the onsite material.

B. Organic soils cannot be reused for backfill except as directed by the landscape architect.

C. The contractor shall plan on disposing of the excavated existing fill that does not meet the gradation requirements set forth by this specification and importing offsite materials for backfill, except for fill placed as ordinary fill in accordance with the geotechnical report in paved and landscape areas at depths greater than 3 feet beneath the bottom of the subbase layer of pavement and 3 feet beneath the bottom of the loam in athletic fields as described below. Excavated material free of organic matter and approved for reuse by the environmental professional can be placed in paved areas at depths greater than 3 feet from the bottom of the subbase layer of paved areas and 3 feet beneath the bottom of the loam in athletic fields provided that the maximum particle size is less than 2/3 of the lift thickness, the fines content is less than 30 percent, the material is compacted to a minimum relative compaction of 95 percent, and that the material is replaced at contractor's cost if it becomes soft as a result of exposure to wetness.

D. Should onsite materials be encountered that are suitable for reuse in accordance with the requirements for these specifications, the Owner shall receive a credit from the contractor for the quantity of reused onsite material. The credit shall be based on the difference in unit rates between imported and onsite material for the particular soil designation.

E. The Contractor may use a crusher onsite and to blend and crush blasted rock, boulders, and overburden soils to produce materials that meet the gradation requirements specified herein for reuse onsite.

F. Solid waste consisting of brick, concrete, asphalt, cobbles and boulders that measure less than 3 cubic yards in volume shall become the property of the Contractor and be legally disposed of off-site at no additional cost to the Owner.

G. Excavated onsite soils which are suitable for re-use at the time of excavation but become frozen or too wet for re-use due to poor material handling practices shall be disposed of off-site and replaced as necessary at no additional cost to the Owner.

H. The processing of the existing building concrete and brick materials into Ordinary Fill shall be allowed.

I. The Contractor must inspect all existing stockpiles on site including soil testing for each stockpiled material.

J. The Contractor must amend the existing stockpiles if testing determines that the stockpiles do not meet the specifications for their intended use. The Contractor shall provide third party sampling and testing for all soils amended on-site.

K. The Contractor shall be allowed to mobilize a rock crusher to the site to process boulders, blasted rock, and imported rock by blending these materials with the existing fill and natural soil and crushing them to produce a well graded materials, provided that these materials are maintained at suitable moisture contents for proper compaction Processed material obtained by crushing blasted rock, boulders, and soil shall meet the gradation requirements of Ordinary Fill and Structural Fill. Material produced by the crushing operation shall be well graded so as to reduce the potential for formation of honeycombs during its placement and compaction.

L. The contractor shall protect stockpiled unprocessed materials from exposure to moisture using tarps. The tarps shall be secured so as not to be moved by wind or other action. No claim shall be made, by the contractor, due to failure to comply with this requirement.

3.6 EXCAVATION, GENERAL

A. The Contractor shall remain responsible for adequacy and safety of construction means, methods and techniques.

B. The Contractor shall complete all excavations regardless of the type, nature or condition of the material encountered. The Contractor shall be solely responsible for making all excavations in a safe manner.

C. The Engineer shall be notified of unexpected subsurface conditions. Work shall be discontinued in affected areas until notified to resume work by the Engineer.

D. Displaced or loose soil shall be prevented from falling into any excavation. The stability of soil slopes shall be maintained in accordance with applicable local, state and federal regulations and guidelines.

E. All loose material shall be removed from the bottom of the excavation so that the bottom shall be in an undisturbed condition. If removal of the loose material results in excavation beyond the work limits and over excavation has not been approved by the Engineer; the restoration of the excavation to grade shall be done at no additional cost to the Engineer.

F. When the bottom of the excavation shall, by error of the Contractor, have been taken to a depth greater than the depth specified, or directed by the Engineer, said condition shall be corrected by refilling to the proper grade with granular fill or the design shall be altered in a fashion acceptable to the Engineer to compensate for said error. All measures taken to rectify conditions caused by over excavation shall have the Engineer's approval, and any increase in cost resulting from such measures shall be borne by the Contractor.

G. Excavation shall not be performed when weather conditions or the conditions of the materials are such that, in the opinion of the Engineer, work cannot be performed satisfactorily.

H. Appropriate measures shall be provided to retain excavation sidewalls and to ensure that persons working in or near the excavation are protected. Sheeting shoring or bracing may be used to support the walls of excavations. Method, design, construction and adequacy of any required bracing shall meet the OSHA requirements of 29 CFR Part 1926 and are the responsibility of the Contractor.

I. All damage related to or caused by the excavation shall be repaired at the expense of the Contractor.

J. Unclassified Excavation - For the purposes of payment, materials shall be unclassified except for those beyond the greater of the lines and grades shown in the Drawings. Unclassified excavation shall comprise and include the satisfactory excavation, removal, and disposal of all materials encountered within the lines and grades shown in the Drawings or limits specified herein, whichever is deeper, regardless of the nature of the materials, and shall be understood to include, but not be limited to, earth, topsoil, subsoil, hardpan, fill, foundations, pavements, curbs, piping, railroad track and ties, cobblestones, footings, bricks, concrete, abandoned drainage and utility structures, debris, and materials classified as unsuitable materials. All excavation and replacement, if applicable, with suitable material within the lines and grades shown in the Drawings or the limits specified herein, whichever is deeper, will be considered and bid as unclassified and shall be included in the Contractor's lump sum (i.e., shall not be paid for using Unit Prices)

K. Removal of unsuitable material beyond the grades and lines shown on the Drawings and specified herein and its replacement, if applicable, as directed will be paid on the basis of contract conditions relative to changes in work or as provided for under the unit rates for respective classification in accordance and following the method of measurement and verification of quantities as defined in this specification.

L. Should quantities of certain materials or classes of work be increased or decreased from what is shown in the drawings and specified herein, the Contract Unit Rates listed below (see Section 3.6.M) should be the basis of payment to the Contractor, or credit to the Owner, for such increase or decrease in the work. The Contract Unit Rates shall represent the exact net amount, per unit, to be paid to the Contractor in the case of increases in the quantities, and the exact amount to be refunded to the Owner in the case of decreases in the quantities. No additional adjustment shall be allowed for overhead, profit, insurance, or other direct or indirect expenses by the Contractor. Contract Unit Rates of materials shall include hauling, storing, stockpiling, moving, importing, spreading, and compacting. Increases or decreases in the quantities should be approved by the Owner.

1. The Contractor shall excavate soil and fill to the limits necessary to achieve the required grades determined by the Engineer. The limits of excavation may not coincide with those areas indicated on the Drawings. The excavation areas shown on the Drawings are estimated areas only.
2. If unanticipated bearing soils are encountered beyond the limits of excavation as specified on the Drawings and in the Specifications and at the specified subgrade depth, the Contractor shall notify the Owner’s Representative in writing. The Contractor shall carry the excavation deeper and replace the excavated material with appropriate specified material or concrete as directed by the Engineer.

3. Removal of topsoil, subsoil, rock, boulder, and organic silt, or silty sand as specified herein and in the Geotechnical Report will not be considered as unanticipated, unsuitable soil conditions at an elevation above specified subgrade elevations. Similarly, removal of these materials within paved areas as specified herein will not be considered unanticipated unsuitable soil conditions. Proposed over excavation as shown on the plans will not be considered unanticipated soil conditions.

M. Provide unit process as follows:

1. For each type of material listed in PART 2 - PRODUCTS, separate unit rates shall be provided for imported material and material processed onsite. The unit rates shall include furnishing/processing, stockpiling, placing, and compacting the material)
2. Provide unit rate for rock excavation in trenches and pits, removed from the site, and any placement of fill required to bring excavated surface to specified subgrade.
3. Provide unit rate for rock excavation as open excavation, removed from the site, and any placement of fill required to bring excavated surface to specified subgrade.

N. Unsuitable Soil Allowance: The Contractor shall carry in the base bid 2,000 cu. yds. for removal of unanticipated, unsuitable soil materials beyond the subgrade limits shown on all contract drawings and defined within the specification and beyond the quantity required for over excavation as shown on the plans and defined within the specifications. Allowance shall cover removal and disposal of unsuitable soil and furnishing imported suitable backfill materials compacted in place as directed herein. The base bid shall cover all costs related to such excavation, removal off site, disposal, and replacement with compacted fill of approved material, overhead, and profit. No amount other than that herein specified will be paid by the Owner for the work defined herein.

1. If the total void volume of unanticipated unsuitable material excavation below specified subgrades, and its replacement with compacted fill exceeds the amount included in the Contract as listed above, the Owner shall pay the excess excavation and replacement at the unit price submitted in the Bid Attachment – Unit Prices Schedule.
2. If the total quantity of unanticipated unsuitable materials below specified subgrades, and its replacement with compacted fill is less than the amount included in the Contract as listed above, the contract sum will be decreased by the difference in excavation and its replacement multiplied by the unit price submitted in the Bid Attachment – Unit Prices Schedule.
3. Final excavated surfaces shall be surveyed by the Contractor and shall be measured from specified subgrade to bottom of excavation. Payment shall be based upon actual volumes with no bulking or swell factors applied. Contractor shall submit all survey data and quantity calculations to Engineer for approval.

O. Petroleum Contaminated Soil Allowance: The Contractor shall carry in the base bid 100 cu. yds. for removal of unanticipated, petroleum contaminated soil materials. Allowance shall cover removal and disposal of petroleum contaminated soil and furnishing imported suitable backfill materials compacted in place as directed herein. The base bid shall cover all costs related to such excavation,

removal off site, disposal, and replacement with compacted fill of approved material, overhead, and profit. No amount other than that herein specified will be paid by the Owner for the work defined herein.

1. If the total void volume of unanticipated petroleum contaminated material excavation, and its replacement with compacted fill exceeds the amount included in the Contract as listed above, the Owner shall pay the excess excavation and replacement at the unit price submitted in the Bid Attachment – Unit Prices Schedule.
2. If the total quantity of unanticipated petroleum contaminated materials, and its replacement with compacted fill is less than the amount included in the Contract as listed above, the contract sum will be decreased by the difference in excavation and its replacement multiplied by the unit price submitted in the Bid Attachment – Unit Prices Schedule.
3. Final excavated surfaces shall be surveyed by the Contractor and shall be measured from specified subgrade to bottom of excavation. Payment shall be based upon actual volumes with no bulking or swell factors applied. Contractor shall submit all survey data and quantity calculations to Engineer for approval.

3.7 ROCK EXCAVATION

A. Definitions and Classifications: The following classifications of excavation will be made only when rock excavation is required.
   1. “Earth Excavation” consists of removal and disposal of pavement and other obstructions visible on ground surface, underground structures and utilities indicated to be demolished and removed, material of any classification indicated in data on subsurface conditions, and other materials encountered that are not classified as rock excavation.
   2. “Rock Excavation” consists of removal and disposal of materials encountered that cannot be excavated without continuous and systematic drilling and blasting or continuous use of a ripper or other special equipment, except such materials that are classed as earth excavation. Typical of materials classified as rock excavation are as follows:
      a. Rock, stone, or weathered bedrock in original ledge.
      b. Sandstone in original ledge.
      c. Boulders on site, outside trench limits, exceeding three cubic yards in volume.
      d. Boulders within trench limits, exceeding one cubic yard in volume.

B. Should highly fractured or weathered bedrock be encountered during excavation, the following shall apply:
   1. When the material is encountered in trenching operations or under footings, it shall be excavated or ripped with a hydraulic backhoe equal to or larger than Caterpillar 225 backhoe and will be classified as Earth Excavation. When it is demonstrated to the satisfaction of the Engineer and the Soils Representative that this material can no longer be removed with a hydraulic backhoe and requires drilling and blasting, this material shall be classified as Rock Excavation. For excavation procedures when this material is encountered under footings, refer to paragraph below.

2. When this material is encountered in open excavation, it shall be classified as earth excavation until drilling and blasting or continuous ripping is necessary as defined hereinabove.

C. Intermittent drilling and ripping performed to increase production and not necessary to permit excavation of material encountered will be classified as earth excavation.

D. Allowance for Rock Excavation: The Contractor shall carry in the Base Bid an allowance for 10 cubic yards or rock encountered in trench excavation removed from the site. The Contractor shall also carry in the Base Bid an allowance of 10 cubic yards of open rock excavation removed from the site. The Base Bid shall cover all costs relating to such rock excavation, including removal and placement of the excavated material, overhead and profit. No amount other than that herein specified will be paid by the Owner for excavation herein defined.

1. Quantities shall be measured by the volume of void created using survey points of the excavated area. The fixed unit price shall be applicable to variations in excess of the allowance quantity up to 100% of the allowance quantity.
2. If the total quantity of Rock Excavation, open and/or trench, is less than the amount of Rock Excavation included in the Contract as listed above, the Contract sum will be decreased by the difference in Rock Excavation multiplied at the fixed unit price. Quantities shall be measured by the volume of void created using survey points of the excavated area. The fixed unit price shall be applicable to variations of the allowance quantity by decreases of 100% of the allowance quantity.

E. Measurements:

1. When, during the process of excavation, rock is encountered, such material shall be uncovered and exposed in such a manner that the unbroken ledge surface is clearly visible, and the Engineer shall be notified by the Contractor, before proceeding further. The areas in question shall then be cross-sectioned as hereinafter specified.
2. Failure on the part of the Contractor to uncover such material and to notify the Engineer and proceeding by the Contractor with the rock excavation before cross-sections are taken, will forfeit the Contractor’s right of claim towards the stated allowance or additional payment over and above the stated allowance at the quoted unit price.
3. The Contractor shall employ and pay for a Professional Civil Engineer or Land Surveyor registered in the Commonwealth of Massachusetts to take cross-sections of rock before removal and to make computations of volume of rock encountered within the Payment Lines. Cross-sections shall be taken in the presence of the Soils Representative and the computations approved by the Engineer. The Owner has the option to perform independent cross-sections and computation of rock quantities.
4. Where removal of boulder or ledge is required outside the established payment lines, the extent of this removal and basis of payment shall be determined by the Engineer.

F. If ledge is encountered within the limits of the Proposed Building Area, the Contractor shall excavate this material 12 inches below subgrade of footings and 18 inches below subgrade of slabs and pavement unless otherwise directed by the

Engineer or Soils Representative. All loose or shaken rock shall be removed and replaced with compacted gravel fill, crushed stone or lean concrete as directed by the Soils Representative.

G. Rock excavation for foundations outside of the Building Area: Remove rock to foundation or footing subgrade. All rock bottoms for foundations shall be carefully examined. Loose or shaken rock shall be removed to solid bearing, and the rock surface leveled, or shelved to a slope not exceeding one inch per two feet, or as directed.

H. Prepared rock subgrades shall be compacted with at least four passes of a self-propelled vibratory roller such as Dyna Pac CA-30D (44,000 lbs. Centrifugal force) or equivalent. Rock subgrades in utility trenches shall be recompacted with at least four passes a walk-behind vibratory drum roller or other equivalent equipment having at least 10,000 pounds centrifugal force and sufficient to provide a firm, stable subgrade.

I. If any part of the rock excavation at footings to be carried beyond the depth and the dimensions indicated on the Drawings or called for in the Specifications, the Contractor shall, at his own expense, furnish and install concrete of same strength as footings to the required subgrade level of the footings as shown on the Drawings. Dowelling or other corrective structural measures as directed by the Engineer may also be required to properly anchor or reinforce the concrete. If rock excavation is carried beyond the depth and dimensions to subgrade in other areas, the Contractor shall, at his own expense, furnish and install compacted gravel fill to subgrade as directed by the Engineer.

J. Basis of Payment: The total amount of rock excavation will be based upon the in-situ volume of rock excavated within and/or above the lines referred to in the next paragraph as “Payment Lines”. The payment lines are only to be used as a basis of payment, and are not to be used as limits of excavation. Limits of excavation area as shown on the Drawings and as specified herein.

K. Payment Lines for Rock Excavation:

1. Payment lines for columns and footings shall be a vertical line one-foot off the edge of the footings; the depth shall be measured at 12 inches below the bottom elevations shown on the Drawings. Payment lines for walls to be damp-proofed shall be a vertical line three feet outside the walls. Vertical payment lines shall be as specified hereinafter.
2. Payment lines for manholes and catch basins shall be one-foot outside of the outer wall and 12 inches below subgrade beneath the structure.
3. Payment lines for rock excavation under slabs on grade shall be 18 inches below the bottom of the slab. Payment lines for rock excavation at plant beds shall be 12” at edge and full depth of required elevation for loam.
4. Payment lines for rock excavation at paved areas and lawns shall be 18 inches below bottom of asphalts.
5. Payment lines for rock excavation under pipes within the building and for utility trenches outside the building lines shall in no case be calculated as greater in width than the outside diameter of the pipe plus two feet for pipes up to 18 inches. For pipes 18 inches and larger payment lines shall in no case be calculated as greater in width than the outside diameter of the pipe plus three

feet. Payment lines at bottom of all pipe and utility trenches shall be 12 inches below the bottom of the pipe.

3.8 STORAGE OF SOIL MATERIALS – STOCKPILING

A. The Contractor shall be responsible for managing and tracking any and all materials excavated and placed in stockpiles for testing.

B. B. Materials shall be stockpiled on site at locations proposed by the Contractor and approved by the Engineer. Stockpiled materials shall be of sufficient quantities to meet project schedule and requirements

C. Tracking of the stockpiles shall be performed in accordance with the approved Work Plan submitted by the Contract in accordance with Section 01 33 00.

D. The temporary stockpiled fill must be removed from the Site in accordance with applicable regulatory deadlines however no later than the completion date of this contract or 90 days from the date the stockpile was created, whichever is encountered first.

E. Stockpiles shall be securely barricaded and clearly labeled. Differing materials shall be separated with dividers or stockpiled apart to prevent mixing.

F. The Contractor shall direct surface water away from stockpile site to prevent erosion or deterioration of materials. Soils shall be suitably dewatered prior to their relocation on Site or disposal off site.

G. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.9 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.10 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Trenches shall be excavated to the necessary width and depth for proper laying of pipe or other utility and excavation side slopes shall conform to OSHA requirements. Minimum width of trenches shall provide clearance between the sides of the trench and the outside face of the utility. Maximum trench sizes are as shown on the Drawings or as specified herein. The depth of the trench shall be twelve inches below the bottom of the pipe barrel or respective utility. If the existing soil at the final subgrade excavation is found not suitable, the Engineer or Soils Representative may approve removal and replacement of material.

1. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit, unless otherwise indicated.

2. Clearance: As indicated on plans.
3. For pipes and conduit 6 inches (150 mm) or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe circumference. Fill depressions with tamped sand backfill.
4. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

C. The Contractor shall provide, at his own expense, suitable bridges over trenches where required for accommodation and safety of the traveling public and as necessary to satisfy the required permits and codes.

3.11 SUBGRADE INSPECTION, COMPACTION AND PROOF ROLLING

A. Notify Engineer when excavations have reached required subgrade.

B. Proof compact all subgrades in accordance with Subsection 1.2 of this Specification Section and the Geotechnical Report to identify soft pockets and areas of excess yielding. Do not proof compact wet or saturated subgrades.
1. Completely proof compact subgrade in one direction repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph (5 km/h).

C. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Engineer and/or Soil Representative, and replace with compacted fill as directed.

D. Proof compacting shall be completed utilizing a 20-Ton vibratory drum roller for granular soils. Should clay or other cohesive soils be encountered, sheep's foot roller shall be utilized. A total of 6 passes shall be considered complete.

E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Engineer and/or soil representative, without additional compensation.

3.12 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:
1. Construction below finish grade including, where applicable, subdrainage,
2. Surveying locations of underground utilities for Record Documents.
3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring and bracing, and sheeting.

B. If, through failure or neglect of the Contractor to conduct the excavation work in a proper manner, the surface of the subgrade is in an unsuitable condition for proceeding with construction, the Contractor shall, at his own expense, remove the unsuitable material and replace it. Failure of the Contractor to control surface or ground water adequately, premature excavation at the work site, or other manifestations of the Contractor's neglect or improper conduct of the work, as

determined by the Engineer, shall be grounds for requiring removal and replacement of unsuitable subgrade without additional compensation.

C. Grading in the vicinity of backfilling shall be properly pitched to prevent water from running into the backfilled area. Work areas shall be kept free from water during performance of the work under this Contract at no expense to the Engineer. The Contractor shall build diversion berms and other devices necessary for this purpose.

D. The Contractor shall not commence backfilling operations until the Engineer gives approval.

E. After the subgrade has been prepared, fill material shall be placed and built-up in successive layers until the required elevations are reached. No fill shall be placed on a frozen surface, nor shall snow, ice, or other frozen material be included in fill. Wet materials containing moisture in excess of the amount necessary for satisfactory placement or compaction shall not be used.

F. All fill shall be brought up in essentially level lifts and shall be placed in levels by standard methods. The method of placement shall not disturb or damage other work. Layers of fill shall not exceed twelve inches of uncompacted thickness before compaction, unless otherwise specified or as necessary for proper subgrade stabilization.

G. Place backfill on subgrades free of mud, frost, snow, or ice.

H. Filling operations shall continue until the fill has been brought up to the finished slopes, lines, and grades making proper allowances for thickness of surface treatment.

I. The entire surface of the work shall be maintained free from ruts and in a condition that will permit construction equipment to travel readily over any Section. The top surface of each layer shall be made level or slightly sloped away from the center of the filled area. Fills shall be graded to drain and compacted/sealed whenever precipitation is expected.

J. Backfilling shall not be performed when weather conditions or the conditions of the material are such that, in the opinion of the Engineer, work cannot be performed satisfactorily.

3.13 ACCEPTABLE BACKFILL

A. Backfill materials shall be placed in the areas as indicated in the table below:

Fill below footings and slabs within the Building Area	Sand and Gravel Fill (Geotech Report)
Fill around footings for building and structures within the Influence zone	Sand and Gravel Fill (Geotech Report)
Fill below pavement subbase	Ordinary Fill (Geotech Report)

Fill below sidewalk subbase	Ordinary Fill (Geotech Report)
Fill placed in top 1 foot below sidewalks	Select Fill
Fill within utility trenches below pavement and sidewalk subbase	Granular Fill (Geotech Report)
Fill below utility bedding	Ordinary Fill
Fill placed in landscaped areas outside of the Influence Area of footings, retaining walls, and slopes	Common Borrow
Fill placed around banks of pipes	Granular Fill (Geotech Report)
Fill around footings for building and structures within the Influence zone	Structural Fill
Fill below pavement subbase	Ordinary Fill
Fill below base layer of athletic fields	Ordinary Fill

3.14 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Place and compact initial backfill material, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit.

1. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

D. Backfill voids with satisfactory soil while installing and removing shoring and bracing.

E. Place and compact final backfill of satisfactory soil to final subgrade elevation.

F. Backfill voids with approved backfill material while installing and removing shoring and bracing. Where voids cannot be backfilled with compacted backfill, the voids shall be filled with flowable fill.

G. Backfilling around banks of pipes shall be performed by chinking the Granular Fill with hand shovel and pouring water on the backfill material (Granular Fill) to fill the voids.

H. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs.

3.15 BELOW GRADE TANK BACKFILL

A. Backfill with Pea Gravel as specified herein. The use of the proper material is critical to the long-term tank performance.

B. Do not mix approved backfill material with sand or native materials. Do not backfill tank with sand or native materials.

C. Replace all excavated native materials with approved Pea Gravel which meets ASTM C 33 for quality and soundness.

3.16 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

1. Sequentially place and compact fill material in layers to required elevations.

B. Place soil fill on subgrades free of mud, frost, snow, or ice. The use of flowfill is acceptable where approved by the Engineer.

3.17 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by +2 to -3 percent and is too wet to compact to specified dry unit weight.
3. If in the opinion of the Engineer or Geotechnical Engineer, additional moisture is required, water shall be applied by sprinkler tanks or other uniform distribution devises. If excessive amounts of water or if rain should cause excessive wetness, the area shall be allowed to dry as provided above.

3.18 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross Sections, lines, and elevations indicated. Grading shall be done by standard methods. Areas adjacent to structures and other areas inaccessible to heavy grading equipment shall be graded by manual methods. Embankments shall be graded at all times to ensure runoff of water.

1. Provide a smooth transition between adjacent existing grades and new grades.
2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
3. Provide proper drainage from the site, no grading shall be done to direct water to damage or potentially damage adjacent property or work executed under this contract.

B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus [1 inch]
2. Walks: Plus or minus [1 inch]
3. Pavements: Plus or minus [1/2 inch]

3.19 FIELD QUALITY CONRTOL

A. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

B. 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 in accordance with Subsection 1.7 of this Specification Section and:

1. Paved Areas: At subgrade and at each compacted fill and backfill layer, at least 1 test for every 500 sq. ft. or less of paved area, but in no case fewer than 3 tests.
2. Trench Backfill: At each compacted initial and final backfill layer, at least 1 test for each 150 feet or less of trench length, but no fewer than 2 tests.

C. 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 to depth required; recompact and retest until specified compaction is obtained.

3.20 COMPACTION REQUIREMENTS

A. The following table lists minimum compactive efforts, which are required for all, fill materials. Compaction of each lift shall be completed before placement and compaction of the next lift is started. The compaction equipment shall make an equal numbers of transverse and longitudinal coverages of each lift. The degree of compaction for fill placed in various areas shall be as follows:

1.	Under concrete slabs and footings	95%
2.	In paved areas	
	Within aggregate base course	95%
	Within aggregate subbase course	95%
	Below subbase course	92%
3.	In landscaped areas (To be checked/approved by RLA)	90%
4.	Around and Above Utilities below	
	Below Pavement subbase in paved areas	95%

*Percentage of maximum dry density of the materials at optimum moisture content as determined by methods or tests for ASTM designation D1551 Method D.

B. Compaction shall be accomplished by vibratory rollers, multiple wheel pneumatic tired rollers or other types of approved compacting equipment. Loaded trucks, low beds, water wagons and the like shall not be considered as acceptable compaction

equipment unless specifically approved by the Engineer for a particular location. Equipment shall be of any such design that it will be able to compact the fill to the specified density in a reasonable length of time. All compaction equipment shall be subject to the approval of the Engineer.

C. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

D. Backfill shall not be placed against walls until they are braced or have cured sufficiently to develop strength necessary to withstand, without damage, pressure from backfilling and compacting operations.

E. Before backfilling against walls, the permanent structures must be completed and sufficiently aged to attain strength required to resist backfill pressures without damage. Temporary bracing will not be permitted except by written permission from the Engineer. Correct any damage to the structure caused by backfilling operations at no cost to the Owner.

F. During backfilling, the difference in elevation of backfill on opposite sides of the structure shall not exceed 24 inches, except as noted. Where backfill of buried wall is only on one side, only hand-operated roller or plate compactors shall be used within a lateral distance of 5 feet of back of wall for walls less than 15 feet high and within 10 feet of back of wall for walls more than 15 feet high. The backfill material shall be compacted with a dynamic vibratory compactor weighing no more than 1000 pounds and imparting a minimum of no more than 8 kips of force to the subgrade.

G. The Contractor shall compact all fills made during the day of work prior to leaving the project for the evening. The upper layer shall be pitched as necessary to provide positive drainage towards swales or interceptor ditches to minimize ponding and erosion should it rain.

3.21 COMPACTION TESTING

A. The Contractor shall make all necessary excavations and preparations for testing. Excavations for density tests shall be backfilled with material similar to that excavated, and compacted to the specified density by the Contractor. Failure of the backfill material to achieve the specified density will be just cause for rejection of any or all portions of the excavation Section tested. The Contractor will not be granted an extension of time or additional compensation for testing or repair of backfill ordered by the Engineer.

B. Field density tests will be made by the Owner’s Inspection Agency in accordance with the Method of Test for ASTM Designation D1556 or D6938, to determine adequacy of compaction; the location and frequency of such field tests shall be at the Engineer’s Inspection Agency’s discretion.

C. All field density tests results shall be reviewed by the Engineer prior to the placement of concrete.

D. The Contractor shall notify the Inspection Agency when an area is ready for compaction testing. This notification shall be 48 hours in advance of placing or final compaction so that the Engineer Inspection Agency has adequate time to take compaction tests.

E. Cooperate with the Engineer in obtaining field samples of in-place materials after compaction. Furnish incidental field labor in connection with these tests. The Contractor will be informed by the Engineer of areas of unsatisfactory density which may require improvements by removal and replacement, or by scarifying, aerating, sprinkling (as needed), and recompaction prior to the placement of the new lift. No additional compensation shall be paid for work required to achieve proper compaction.

F. The Owner or Engineer's Inspection Agency's presence does not include supervision or direction of the actual work by the Contractor, his employees, or agents. Neither the presence of the Inspection Agency nor any observations and testing performed by him shall excuse the Contractor from defects discovered in his work.

3.22 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

1. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

B. Scarify or remove and replace soil material to depth as directed by Engineer; reshape and recompact.

1. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
2. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.23 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Project property.

3.24 REMOVAL OF EROSION CONTROL MEASURES

A. Remove temporary drainage swales, check dams, siltation sumps, hay bales, siltation fencing and other temporary drainage, erosion and siltation control measures when permanent drainage control measures have been installed and grass is established in drainage areas leading to siltation sumps. Contractor shall excavate and remove all sediments from siltation sumps prior to backfilling the sumps. Remove erosion control measures when approved by the Engineer.

End of Section

SECTION 311000

SITE PREPARATION AND CLEARING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this trade.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.2 SCOPE OF WORK

A. This Section includes the following but is not limited to:

1. Removing existing trees, shrubs, groundcovers, plants and grass.
2. Clearing and grubbing.
3. Stripping and stockpiling topsoil.
4. Removing above- and below-grade site improvements.
5. Installation and maintenance of temporary erosion and sedimentation control measures.
6. Removal and disposal of site features at the locations specified on the Drawings and in Section 02 41 00 Site Demolition.

B. Work to be done includes furnishing all labor, materials, equipment and services required to complete all site preparation, erosion control and demolition work indicated on the drawings and as specified herein.

C. Special attention is directed to requirements covering existing site conditions to be protected and preserved in the finished work and to the Initial Sequence of Construction Activities and Preliminary Drainage Control specified herein.

D. It is brought to the Contractor’s attention that procedures for drainage, erosion and siltation control specified in this Section and Section 31 25 00 will be controlled by a NPDES General Permit for Construction Activity. The Contractor is responsible for filing the NPDES General Permit for Construction Activity. A copy of Notice of Intent and NOI drawings shall be retained on the site during construction. In addition to this Section, the Contractor shall refer to the General and Supplemental General Conditions and Division 1, General Requirements, for other conditions related to the NPDES Permit. Contractor is required to prepare all necessary documents required for the NPDES Permit including Storm Water Pollution Prevention Plan.

E. Applying for and obtaining an NPDES Permit for General Construction Activity prior to any construction work at the site is the Contractor’s responsibility.

1.3 RELATED WORK

A. Division 2 – Section 02 41 00 "Site Demolition".

B. Division 31 – Section 31 00 00 "Earthwork" for soil materials, excavating, backfilling, and site grading.

C. Division 31 – Section 31 25 00 "Erosion Control" for installation and maintenance of erosion controls, minimization of disturbances to sensitive areas.

D. Division 32 – Section 32 00 00 "Bituminous Concrete Paving" for placement of vertical granite curing and paving of roadways and walkways.

1.4 LIABILITY FOR DAMAGES

A. The Contractor shall be liable for all damage and/or disturbance to existing adjacent lands beyond the Limit of Work. Actual damage to these areas, caused by the Contractor, shall be repaired to the satisfaction of the Engineer, at no additional cost to the owner or Engineer. Repairs may include pruning or removing damaged vegetation as specified, replacement of damaged vegetation, restoration of the ground plane to its original condition, and any other work required to restore the area to its original condition as depicted in the site photographs taken at the beginning of construction. The project will not be accepted until all repair work is complete.

1.5 PERMITS AND CODES

A. All work shall comply with all codes, rules, regulations, laws and ordinances of the City of Boston, Commonwealth of Massachusetts, and all other authorities having jurisdiction. All work necessary to make site preparation comply with such requirements shall be provided without additional cost to the Owner.

B. The Contractor shall procure and pay for all permits and licenses required for work under this Section.

C. The Contractor shall not close or obstruct any streets, sidewalks, or passageways, unless and until they have been discontinued by the Town or unless and until he shall have first secured all necessary municipal or other permits thereof. No material whatsoever shall be placed or stored in streets or passageways until they have been so discontinued. The Contractor shall conduct their operations to interfere as little as possible with the use ordinarily made of roads, driveways, sidewalks, or other facilities near enough to the work to be affected thereby.

D. The procedures for drainage, erosion, and siltation control specified in this Section and Section 312500, are related to procedures required for a NPDES General Permit NOI. In addition to these Sections, the Contractor shall refer to the General and Supplementary General Conditions and Division 1 General Requirements for other conditions related to the NPDES Permit.

E. Issue submittals in accordance with Division 1. Submittals under this Section shall include manufacturer's specifications and installation instructions.

1.6 EXAMINATION OF SITE AND DOCUMENTS

A. It is hereby understood that the Contractor has carefully examined the site and all conditions affecting work under this Section. No claim for additional costs will be allowed because of lack of full knowledge of existing conditions.

B. Plans, surveys, measurements and dimensions, under which the work is to be performed are believed to be correct to the best of the Engineer's knowledge, but the Contractor shall have examined them for himself during the bidding period, as no allowance will be made for any errors or inaccuracies that may be found herein.

C. Information on the Drawings, Reference Drawings, and in the Specifications relating to subsurface conditions, natural phenomena, and existing utilities and structures is from the best sources presently available. Such information is furnished only for the information and convenience of the Contractor, and the accuracy or completeness of this information is not guaranteed.

D. Site Information – data on indicated subsurface conditions are not intended as representations or warrants of continuity of such conditions between soil borings. It is expressly understood that Owner will not be responsible for interpretations or conclusions drawn there from by the Contractor. Data are made available for the convenience of the Contractor. Neither the Owner nor the Soils Representative assumes responsibility for accuracy of the data other than at the particular locations and at the time the explorations were made.

1.7 STAGING AREA

A. No parking is permitted within the right of way of adjacent streets or onsite outside of the limit of work for each phase. The Contractor shall submit a plan for his/her construction staging and equipment storage within the limits of work, prior to commencing construction.

B. No parking of cars or stockpiling of construction materials shall be permitted under any trees that are scheduled to remain or be protected.

1.8 DISPOSITION OF EXISTING UTILITIES

A. Active utilities existing on the site shall be carefully protected from damage and relocated or removed or abandoned as necessitated by the work. When an active utility line is exposed during construction, its location and elevation shall be plotted on the record drawings as described in this Section and both Engineer and the utility owner notified in writing.

B. Inactive or abandoned utilities encountered during construction operations shall be removed, plugged, or capped. The location of such utilities shall be noted on the record drawings and reported in writing to the Engineer.

PART 2 - PRODUCTS

2.1 TREE PROTECTION FENCING

A. Fencing fixed in position and meeting the following requirements:

1. Plastic Protection-Zone Fencing: Plastic construction fencing constructed of high-density extruded and stretched polyethylene fabric with 2-inch (50-mm) maximum opening in pattern and weighing a minimum of 0.4 lb/ft. (0.6 kg/m); remaining flexible from minus 60 to plus 200 deg F (minus 16 to plus 93 deg C); inert to most chemicals and acids; minimum tensile yield strength of 2000 psi (13.8 MPa) and ultimate tensile strength of 2680 psi (18.5 MPa); secured with plastic bands or galvanized-steel or stainless-steel wire ties; and supported by tubular or T-shape galvanized-steel posts spaced not more than 8 feet (2.4 m) apart.

a. Height: 4 feet

b. Color: High-visibility orange, nonfading.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

A. Restrict construction activities to those areas within the limits of construction, public rights-of –way, and easements designated on the Contract Drawings. Adjacent properties and improvements thereon, public or private, which become damaged by construction operations shall be promptly restored at the Contractor's expense to their original condition, and to the full satisfaction of the property owner.

3.2 SITE CLEARING

A. General: Remove trees, shrubs, grass and other vegetation, improvements, or obstructions, except for those indicated on the Contract Drawings to remain, interfering with installation of new construction. Remove such items elsewhere on site or premises as specifically indicated. Removal shall include digging out stumps in their entirety and grubbing roots to at least 30 inches below existing or proposed grades, whichever is deeper, as shown on the Contract Drawings.

B. Carefully and cleanly cut roots and branches of existing trees indicated to remain and be protected, where such roots and branches obstruct new construction. Use only hand methods for grubbing inside drip line of trees indicated to be left standing.

C. Clearing shall consist of the felling and disposal of standing trees, and the removal and disposal of all brush, down timber, fences and rubbish. Trees, brush and down timber may be chipped and a portion of the chipped material shall be stockpiled on site in a location selected by the Engineer and for dispersion into wooded areas in locations selected by Engineer.

D. In all areas that are to be cleared, all brush, grass and other vegetation, except trees, shall be cut off flush with or below the original ground surface.

E. All lines and grade work required for this contract at the site shall be laid out by a registered land surveyor or Professional Engineer employed by the Contractor, in accordance with the Drawings and Specifications.

F. Prior to starting site clearing operations, stake out all roads, edges of parking areas, and other future paved areas as indicated, limits of cut and fill at the edges of these areas (it limits do not coincide) and areas of trees to be saved as noted on the Drawings.

G. Before any clearing is done, promptly upon completion of layout work, the Contractor shall arrange a conference on the site with the Engineer to identify and mark trees and shrubs which are to remain. Adjustments to clearing lines shall be made at this time to save trees or other existing conditions on the edges of clearing lines. If necessary, minor grading adjustments shall be made to save these trees. Do no clearing without clear understanding of existing conditions to be preserved.

H. The owner shall be reimbursed should individual trees, shown on the drawings to be protected, become damaged during the course of the work. All expenses incurred shall be paid by the Contractor without additional cost to the Owner.

The owner shall be reimbursed should trees, which are beyond limits of clearing shown on the drawings or beyond limits of clearing approved by the Engineer, be cleared or damaged and are part of larger, contiguous wooded areas.

These damaged trees shall be removed from the site, the stumps grubbed and the ground surface repaired. Costs for this removal shall be borne by the Contractor and not be included as part of the above schedule.

I. Fell trees in such a way as not to injure trees to be saved. Trees shall be cut three feet or less from existing grades. All brush or other material shall be cut flush to the ground. All material from clearing operations shall be chipped or cut into log lengths. All piles of chipped material (except those stockpiled for future inclusion in the work) and logs from clearing operations shall be removed from the site prior to or at the end of the clearing work.

J. Limits of clearing shall be those areas shown on the Drawings with modifications as herein specified. Removal of trees, shrubs and bushes outside these areas shall be done only as noted on Drawings.

K. No trees to be saved shall be used for crane stays, guys or other fastenings. Vehicles shall not be parked nor debris burned where damage may result to trees to be saved. Do not permit heavy equipment, materials or stockpiles within branch spread. Remove interfering branches without injury to trunks and cover scars with wound paint.

3.3 INITIAL SEQUENCE OF CONSTRUCTION ACTIVITIES AND PRELIMINARY DRAINAGE CONTROL

A. Prior to beginning grubbing and topsoil stripping operations, the Contractor shall perform the following sequence of construction operations to minimize erosion and siltation on the lower parts of the site.

1. Prior to grubbing or topsoil stripping, place all haybales, silt fence visual barrier, and catch basin filter fabric protection at the edge of the limits of work and in the location shown on the Drawings. Although installation of these measures can be phased according to the construction schedule, haybales, silt fence and visual barrier must be in place prior to any work in a specific location. During grubbing and topsoil operations, extend haybales and silt fence as necessary and maintain these until siltation sumps or other erosion

control measures can be constructed. Provide all necessary erosion and siltation control measures to eliminate erosion or siltation from occurring beyond the limits of work.

2. Prior to any earthwork operations, install temporary siltation pumps, filtration dams and swales with check dams in the areas shown on the Drawings or as otherwise approved by the Engineer. Place inlet protection in any downstream catch basins that fall either within the limits of work or beyond the limits of work that will receive silts or sediments from construction operations. These measures may be installed in phases according to the Construction Schedule but must be completed prior to earthwork operations in the adjacent work area.
3. Should the work require it dewatering trenches, well points, or deep sumps will be required for pre-drainage of soils in areas where substantial work is to occur below the ground water level. These areas shall be excavated in-the-dry. Construct dewatering trenches, well points, or deep sumps in these areas. Begin immediate pumping of any water buildup in these dewatering trenches or sumps into siltation sumps or other erosion control devices approved by the Engineer. During construction and during use of siltation sumps for dewatering, a 12-inch gravel filter shall be placed on the upstream side of the filtration dam. Care shall be taken to pump this water into the siltation sump in such a manner so that water laden with silt and debris will be properly filtered out through the filtration dam and so the gravel filter does not erode from pump water discharge. The gravel filter shall be replaced as necessary when it becomes clogged with silt and debris or does not permit free drainage of water through it to properly maintain its function of filtering out silt and debris. During dewatering, care shall be taken to prevent water from flowing back into the areas being pumped or into adjacent areas. It may be necessary to build a temporary dike around the edges of the siltation sump to prevent water from flowing back into adjacent areas.
4. Begin grubbing and topsoil stripping operations simultaneously with the excavation of the dewatering trenches or deep sumps. It is called to the attention of the Contractor that there are numerous locations within the limits of the work where flowing water will occur during periods of heavy rainfall and from normal rainfall that can be expected during the months that construction will occur. Temporary erosion and siltation control measures will have to be taken during construction to eliminate any erosion and siltation beyond the limits of the work until the permanent measures shown on the Drawings can be installed. All necessary measures shall be taken so this does not occur.
5. Do no grubbing, topsoil stripping or excavation operations in areas where substantial work is to occur below the water table until surface and subsurface water in this area will have drained and soils have reached a stable condition. Prior to beginning the above operations, arrange a meeting with the Engineer or his designated representative to observe conditions in this area and discuss methods for proceeding the excavation operations.
6. Damaged or loose haybales and siltation fence shall be replaced as necessary to maintain their function of controlling erosion and siltation. Damaged or broken down check dams and filtration dams shall be replaced immediately. Catch basin filter fabric protection shall be replaced as necessary to maintain its function of controlling erosion and siltation.
7. Remove any accumulation of silt or soil buildup behind haybales, check dams and filtration dams, as it occurs. Remove accumulations of silt and soil

buildup from the siltation sumps, and silt traps. Replace the gravel filter on the inside of the filtration dams when it becomes clogged with silt or does not permit free drainage of storm water through it, whichever occurs first. During freezing weather, ½" crushed stone may be used in lieu of gravel if approved by the Engineer. Remove silt sacks under catch basin grates when they become clogged and replace with new ones.

8. Throughout excavation, filling and grading operations, in addition to drainage swales, check dams, siltation sumps, filtration dams and other items shown on the Drawings, the Contractor shall take other necessary precautions, including installation of temporary drainage swales, siltation sumps, filtration dams, check dams, haybales, siltation fence and temporary pipe to direct and control drainage from disturbed areas on the site so that erosion and siltation is minimal. In addition, no erosion or discharge of silt or larger particles shall occur onto adjacent properties.

B. If the Contractor anticipates deviations from the above procedures, he shall notify the Engineer or his designated representatives as soon as possible. No substantial deviations from the above sequence of activities shall take place without the Engineer's or his designated representative's approval.

C. The Contractor shall maintain these erosion control measures for the duration of this Contract or until they no longer function for their intended purpose, as determined by the Engineer.

D. All silt and collected debris shall be removed from the sumps prior to backfilling of these areas.

3.4 GRUBBING

A. Limits of grubbing shall coincide with limits of clearing.

B. Remove completely all stones or surface boulders within the topsoil zone, and stumps, roots, matted roots and brush. Exposed boulders or other materials may be removed contiguous with stumps and matted roots. However, this shall be done in such a manner as not to remove topsoil in the same operation such as using a toothed blade to "rake" stones and stumps from topsoil.

C. Stumps and boulders shall be removed from the site and legally disposed of.

3.5 STRIPPING AND STOCKPILING TOPSOIL AND SUBSOIL

A. Prior to the start of General Excavation, strip all topsoil and subsoil from within areas to be regraded, as shown on the Drawings and stockpile where indicated on the Drawings or remove from the site and stockpile off-site if there is not adequate space in the location indicated on the Drawings. Do no stripping without clear understanding of the existing soil, planting and site conditions to be preserved and limits of existing topsoil stockpile and stripped areas.

B. All topsoil encountered during the stripping operations, regardless of depth, shall be removed and stockpiled on the site as shown on the Drawings or where directed by the Engineer or removed from the site if the Contractor determines there is adequate topsoil to complete the work and after approval by the Engineer. Areas having greater depths of topsoil than indicated on boring data sheets or reasonably anticipated shall be stripped of all such material and fill shall be used to bring such

areas to the rough grade level. Stones over six inches and tree roots over two inches in any dimension shall be removed from loam before stockpiling. All other stripped soil that can be classified as fill as defined in Section 310000, EARTHWORK, shall be stockpiled for reuse in rough grading. This material shall be stripped separately from the topsoil. Topsoil and organic materials due to be stripped are as follows:

1. Building Structures, Roads, Parking Areas, and other site improvements except lawn areas – remove completely.
2. Future Lawn Areas –Topsoil shall be removed from adjacent proposed buildings, structures, site improvements, roads and parking areas a distance equal to the depth of fill plus three feet in the particular location, i.e. for a five-foot fill, topsoil shall be removed a minimum of eight feet away from the adjacent site improvements.

C. The Contractor shall so control his topsoil stripping operation so that it does not become contaminated with subsoil or other earth materials; the Contractor shall use machinery suitable for achieving this result.

D. Fill: The material directly below the topsoil indicated on the test pit logs as “fill” shall not be considered usable as Ordinary Fill as specified in Section 310000, EARTHWORK, or for topsoil. The only area where fill may be used is under lawn areas and pavement areas. This material shall be stripped separately from the topsoil and from the underlying earth materials. Fill shall be stripped as follows:

1. Building Structures and other site improvements except lawn areas – remove completely.
2. Future Lawn Areas, Sub-soil shall be removed from adjacent proposed buildings, structures, site improvements, roads and parking areas a distance equal to the depth of fill plus three feet in the particular location, i.e. for a five-foot fill, topsoil shall be removed a minimum of eight feet away from the adjacent site improvements.

E. All excess subsoil encountered in earthwork operations shall be removed from the site and legally disposed of. Topsoil shall be stockpiled as described hereinabove.

F. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other waste materials.

G. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. The Contractor is responsible for all construction, protection, movement and maintenance of stockpiles. Stockpiles shall be neatly trimmed and graded to provide proper drainage from their surfaces and maintained so as not to erode or pollute their surroundings.

H. The Contractor shall take reasonable care to avoid creating unsightly or unsafe conditions and to avoid unnecessary damage or injury to surroundings.

I. Do not stockpile topsoil within tree protection zones.

J. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

K. Topsoil which has been stripped and stockpiled but is not needed after the completion of all final topsoil and grassing shall be disposed of offsite. Prior to the disposal of any stockpiled excess topsoil offsite, the Contractor shall offer any excess topsoil to the Engineer for their use.

3.6 RESTORATION OF SITE ITEMS

A. Wherever streets, lawns or other items within or outside the Contract Limit Lines have been damaged in fulfilling the work required under this Contract, the Contractor shall furnish and install all material at no cost to the Owner to bring finish surfaces level with the existing adjacent conditions. All work shall be installed to match the existing conditions. Notify the proper authorities, if required, prior to restoring surfaces outside the Contract Limit Lien to assure conformance to existing requirements.

3.7 REMOVAL OF EROSION CONTROL

A. At the time of acceptance of lawns by the Owner, Contractor shall remove all remaining erosion control devices such as silt fence, haybales, and visual barrier and legally dispose of them offsite.

3.8 DISPOSAL OF WASTE ITEMS

A. Removal from the Subject Property: Remove waste materials and unsuitable and excess topsoil and dispose of offsite in a legal manner. Waste materials shall include but not be limited to timber, brush, refuse, stumps, roots, vines, debris and other objectionable matter. All timber designated in the field by the Engineer to not be disposed of by the Contractor shall be stored at a nearby location for ultimate disposal by the Engineer.

B. Burning of cleared and grubbed materials, or other fires for any reason will not be permitted.

C. No rubbish or debris of any kind shall be buried on the site.

3.9 IDENTIFICATION OF TREES AND SHRUBS TO REMAIN

A. Prior to starting site clearing operations, stake out all areas of trees and shrubs to be saved as noted on the Contract Documents for approval by the Engineer.

B. The Contractor shall be responsible for the protection of all existing trees and plants designated to remain for the length of the construction period, including liability for all damages as specified herein. The placement of protection devices additional to those specified shall, however, bet at the Contractor's discretion and with no additional cost to the Engineer.

3.10 REFERENCE POINTS

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. The Contractor shall conduct a benchmark survey throughout the Site to verify the accuracy of the benchmarks shown on the Drawings.

C. The Contractor shall install benchmarks prior to commencing work in areas, which will not be disturbed so at any time there is a benchmark within 250 feet of all portions of the work.

3.11 PROTECTION OF EXISTING UTILITIES

A. Protect existing site improvements from damage during construction.

B. Restore damaged improvements to their original condition, as acceptable to the Engineer.

C. All areas disturbed through the removal and disposal of existing utilities and site improvements outside the limits of final grading shall be loamed and seeded or paved to match or exceed existing conditions.

D. The Contractor shall protect existing utility poles, overhead wires, and other electrical or communications elements within and adjacent to the property.

E. Any damage to these utilities or structures resulting from the construction operation shall be repaired to meet or exceed the existing condition at the Contractor's expense.

F. Any losses to the property or any other utility company resulting from the interruption of service from construction or blasting activity, both directly or indirectly, shall be the responsibility of the Contractor, and shall result in no additional cost to the Engineer.

G. The Contractor shall make every effort to protect existing utilities including electrical and communications conduits and structures during construction. Any damage to utilities designated to remain shall be repaired immediately at the Contractor's expense.

End of Section

SECTION 312500
EROSION CONTROL

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 1 – GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

A. This Section specifies requirements for control of erosion from the Limits Work onto adjacent down gradient areas as shown on the Drawings, as specified herein for applicable construction activities.

B. Furnish and install hay bales, silt fence, swales, soil berms, mulches, grasses, channels, crushed stone, rip-rap, grading to control runoff, dewatering filter basins, and all other devices required to control erosion. Continually maintain all erosion control devices within the limits of the contract areas. Remove and clean up of all erosion control devices within the limits of the contract areas.

C. RELATED WORK: The following items are not included in this Section and will be performed under the designated Sections.

1. Section 31 00 00, “Earthwork” for excavation, backfilling and compaction requirements
2. Section 33 40 00, “Storm Drainage Systems” for installation of Storm Drainage System

1.3 APPLICABLE REGULATIONS

A. In order to prevent erosion and sedimentation from construction activities related to the performance of this project, the Contractor and his subcontractors shall comply with permits issued for the project, all applicable federal, state and local laws and regulations concerning erosion and sediment control, as well as the specific requirements stated in this Section and elsewhere in the Specifications.

1. Commonwealth of Massachusetts, Department of Public Works, Standard Specifications for Highways and Bridges, latest edition, herein referred to as the “Standard Specifications” and related articles.
2. Massachusetts “Erosion and Sedimentation Control Guidelines for Urban and Suburban Areas, A Guide for Planners, Designers, and Municipal Officials” prepared by Department of Environmental Protection (DEP), Reprinted May 2003.

1.4 QUALITY ASSURANCE

A. The Contractor shall install and maintain sedimentation control devices during construction as specified and as indicated by the SWPPP to prevent the movement of sediment from the construction site to off site areas via surface runoff or underground drainage systems. Measures in addition to those indicated to prevent

the movement of sediment off site shall be installed, maintained, removed, and cleaned up at no additional cost to the Owner.

1.5 DESIGN CRITERIA

A. Conduct all construction in a manner and sequence that causes the least practical disturbance of the physical environment.

B. Stabilize disturbed earth surfaces in the shortest practical time and employ any and all such temporary erosion control devices as may be necessary until such time as that adequate soil stabilization has been achieved or permanent erosion control devices are operational.

C. The erosion control devices specified herein represent the minimum required work for erosion control. The Contractor shall add to these minimum devices any and all measures to effectively prevent migration of sediment from the limits of the work area.

D. Within this Section, the Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas dated 1997 and the Massachusetts Department of Environmental Protection guidelines shall be the standard source for all erosion and sedimentation control procedures.

1.6 SUBMITTALS

A. Refer to Section 01 33 00 – SUBMITTALS for submittal provisions and procedures.

B. At least 5 days prior to the start of any other construction, the Contractor will review the installed erosion controls with the Engineer.

C. At least 5 days prior to intended use, the Contractor shall provide the following samples and/or submittals for approval. Do not order materials until the Engineer's approval of samples, certifications or test results has been obtained. Delivered materials shall closely match the approved samples.

1. Silt Fence: Submit manufacturer's material specification and installation instructions.
2. Inlet Protection.
3. Mulch Material: Submit one Cubic Foot Sample.
4. Mesh of Matting: Submit One square foot sample and manufacturer's technical description and installation instructions.

D. Implementation Plan

Prior to commencement of the work, the Contractor shall:

1. Meet with the Engineer to develop mutual understandings relative to compliance with the provisions of this Section.
2. Install all erosion control measures as specified on the Drawings.
3. Should the Contractor desire to change or modify the specified erosion controls then he shall submit in writing his plans to the Engineer for implementing erosion and sediment control including, but not limited to, placement of hay bales, silt fence, containment berms, temporary channels, settling ponds, and dewatering filter basins, as well as a description of all

construction techniques intended to minimize erosion and sedimentation, and a program for maintenance of these facilities throughout the performance of construction activities.

4. The Contractor shall submit design and sizes of all dewatering filter basins.

PART 2 - MATERIALS

2.1 HAY BALES

A. Bales shall be made of straw or hay with forty pounds minimum weight and one hundred and twenty pounds maximum weight. They should be either wire or nylon bound. Wood stakes shall be a minimum of 2 inch by 2-inch nominal size by a minimum of 3 feet long. As an alternate, No. 4 size steel reinforcing bars may be used with rubber safety tops.

2.2 SILT FENCE

A. Silt fences or sedimentation barriers shall consist of wood posts with industrial support netting and sediment control filter fabric attached.

B. Wood post shall be standard 2”x2”x4.5’ long hardwood stakes commonly used to support filter fabric. Silt fence shall be furnished standard with filter fabric attached to hardwood posts and spaced at a maximum distance of 8 feet.

C. Provide suitable heavy nylon cord for securing abutting silt fence posts.

D. The filter fabric material shall be needle punched non-woven polypropylene geotextile conforming to the following criteria:

Minimum Acceptance

Fabric Properties	**Value**	**Test Method**
Grab Tensile Strength (lbs)	124	ASTM D4632
Elongation of Failure (%)	15	ASTM D4632
Mullen Burst Strength (PSI)	300	ASTM D3786
Puncture Strength (lbs)	100	ASTM D4833
Flow Rate (gal/min/sf)	10	ASTM D4491
Apparent Opening Size (sieve)	30	ASTM D4751
Ultraviolet Radiation (% strength retained)	70	ASTM D4355
Trapezoidal Tear Strength (lbs)	60	ASTM D4533
Permittivity (sec^{-1})	.01	ASTM D4491

E. Control fabric should be at least 3 feet wide.

2.3 CATCH BASIN INSERTS

A. Siltsack®, Basin bag, Ultra-BasinGuard or equal shall be manufactured from a specially designed woven polypropylene geotextile. The insert will be manufactured to fit the opening of the catch basin or drop inlet.

2.4 FILTER SOCKS

A. Filter Socks are biodegradable sediment-trapping devices. Manufacturers include SiltSoxx, Corr Logs, Straw Wattles, or equivalent.

2.5 STONE STABILIZATION PAD

A. Material as shown on Drawings to ensure no offsite tracking of soil.

2.6 WATER

A. Water used for dust control and equipment washes shall be clean and free of salt, oil, and other injurious materials. Water is not available on site. The Contractor shall provide all necessary water.

PART 3 - EXECUTION

3.1 GENERAL EROSION CONTROL REQUIREMENTS

A. All materials and installation shall be in accordance with the Drawings.

B. Means of protection as noted on the Drawings indicate the minimum provisions necessary. Additional means of protection shall be provided by the Contractor as needed for continued or unforeseen erosion problems, at no additional expense to the Owner.

C. The Engineer has the authority to control the surface area exposed by construction operations and to direct the Contractor to immediately provide permanent or temporary erosion control measures to prevent contamination of adjacent streams, watercourses, lakes, ponds or other areas of water impoundment. Every effort shall be made by the Contractor to prevent erosion on the site and abutting property.

D. All slopes shall be stabilized by mulching, seeding or otherwise protected as the work progresses to comply with the intent of this specification. All damaged slopes shall be repaired as soon as possible. The Engineer shall limit the surface area of earth material exposed if the Contractor fails to sufficiently protect the slopes to prevent pollution.

E. The Contractor shall at all times have on hand the necessary materials and equipment to provide for early slope stabilization and corrective measures to damaged slopes.

F. The Contractor shall continually maintain all erosion control devices within the contract work limit and shall remove such devices upon completion of the Work and surface stabilization, or if ordered by the Engineer.

G. The Contractor shall operate all equipment and perform all construction operations so as to minimize pollution. The Contractor shall cease any of his operations, which will increase pollution during rainstorms.

H. The Contractor shall place additional erosion and sedimentation controls in accordance with by laws and regulations.

I. After any significant rainfall (more than 1 inch of rainfall in a 24 hour period), sediment control structure shall be inspected for integrity. Any damaged devices shall be corrected immediately.

3.2 HAY BALE INSTALLATION

A. Bales shall be set lengthwise on the contour for sheet flow applications. They shall be held in place by two wooden stakes in each bale as detailed on the Drawings. Bales shall be maintained or replaced until they are no longer necessary for the purpose intended or are ordered removed by the Engineer.

B. Bales shall be set with bindings parallel to grade and entrenched to a minimum depth of 6 inches. Stakes shall be driven a minimum of 18 inches into the ground and cut off flush with the top of the bale.

C. After the bale lines are staked, the end joints shall be chinked with loose straw to close any gaps. Excavated soil shall then be backfilled against the uphill side of the barrier to a depth of 4 inches above the downhill grade.

D. Inspection shall be weekly and repair or replacement shall be made as needed.

E. Following compaction of the backfill, loose straw shall be scattered over the surface directly behind the barrier.

F. Hay bale checks should be placed in diversions generally at 50-foot intervals and in accordance with the detail on the Drawings. Sediment shall be removed from behind the checks when it has accumulated to one half the original height of the dam measured at the low point.

3.3 SILT FENCE INSTALLATION

A. Silt fence shall be installed utilizing posts 4.5 feet long minimum staked at least 8’ on center. Prior to installation, a 6-inch by 8-inch deep anchor trench shall be installed at the base of the fence and the final height will be at minimum 2 feet.

B. Inspect siltation fence periodically and remove accumulated sediment.

3.4 DIVERSIONS

A. Diversions for directing surface runoff away from and/or around trenching and other construction operations shall be installed and stabilized in advance of new work. The Contractor shall select the cross-sectional shape (parabolic, v shaped or trapezoidal) of diversions and shall have proper equipment available on-site for maintenance of the diversions.

B. The minimum capacity of the diversion shall be sized to accommodate a 2 year design storm.

C. Periodic cleaning shall be done to maintain capacity.

3.5 DEWATERING DISCHARGES

A. All pumped discharges and surface water flow from work areas shall be passed through a filter barrier of hay bales and silt fence combination or dewatering bags before being discharged into gutters, ditches, drainage swales, storm sewer systems, wetlands, natural water bodies, streams, or rivers. The method of all such discharges shall be subject to the approval of the Engineer.

B. The Contractor shall design and size all dewatering discharge basins such that the discharge from the basins is free of silt and debris to the satisfaction of the Engineer and all applicable regulatory agencies.

3.6 CATCH BASIN INSERTS

A. Installation of inserts shall be prior to any upstream soil disturbance.

B. Inserts shall be inspected after each rain event and at a minimum every two weeks.

C. Debris and silt shall be cleaned on a regular basis.

3.7 REMOVAL AND CLEAN-UP

A. All temporary erosion control facilities and accumulated sediments shall be removed and legally disposed in a neat and workmanlike manner when all disturbed areas have been satisfactorily stabilized.

End of Section

SECTION 320000

BITUMINOUS CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 1 – GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.

1.2 WORK TO BE PERFORMED

A. Work under this section includes installation of bituminous concrete pavements, curbing and pavement markings for roadways and parking areas as shown on the Drawings. All existing pavement to remain, but damaged, as a result of the construction operations, shall be restored in accordance with the requirements of this Section. Trench fills for trench excavations through roadways shall consist of general pavement structures according to this Section.

B. The Contractor shall install all pavement and drives, which have been removed or damaged during construction operations. Pavement shall include satisfactory repair by the Contractor of driveways and any other surface disturbed by his/her operations by the same materials as removed or as specified herein. Driveway aprons shall be part of the work.

C. Items to be Installed:

1. Concrete Curbing
2. Granite Curbing
3. Pavement Markings
4. Bituminous concrete curbs
5. Paving

D. Related Work:

1. Section 03 30 00 – CAST-IN-PLACE CONCRETE
2. Section 31 00 00 – EARTHWORK
3. Section 31 23 19 – DEWATERING AND DRAINAGE
4. Section 32 17 23 – PAVEMENT MARKINGS

1.3 REFERENCES

A. All work specified in this Section shall conform to the Commonwealth of Massachusetts Standard Specifications for Highway and Bridges latest revision, herein referred to as "State Standards".

B. All work specified in this Section shall conform to the Rules and Regulations governing the Subdivision of Land in the City of Boston, Massachusetts.

C. American Society of Testing and Materials (ASTM) (latest edition):

1. C 33 Specification for Concrete Aggregates.
2. C 136 Method for Sieve Analysis for Fine and Coarse Aggregate.
3. C 140 Sampling and Testing Concrete Masonry Units.

4. C 144 Standard Specifications for Aggregate for Masonry Mortar.
5. C 936 Specifications for Solid Interlocking Concrete Paving Units.
6. C 979 Specification for Pigments for Integrally Colored Concrete.
7. D 698 Test Methods for Moisture Density Relations of Soil and Soil Aggregate Mixtures Using a 5.5 lb (24.4 N) Rammer and 12 in. (305 mm) drop.
8. D 1557 Test Methods for Moisture Density Relations of Soil and Soil Aggregate Mixtures Using a 10-lb (44.5 N) Rammer and 18 in. (457 mm) drop.
9. D 2940 Graded Aggregate Material for Bases and Subbases for Highways or Airports.
10. C 29 Bulk Density and Voids in Aggregate Materials.

1.4 PRODUCT HANDLING

A. Use all means necessary to protect bituminous concrete pavement materials before, ongoing, and after installation, and to protect the installed work and materials of all other trades.

B. In the event of damage, immediately make all repairs and replacements necessary as directed by the Engineer.

1.5 SUBMITTALS

A. The Contractor shall submit to the Engineer, data showing gradation and composition of materials proposed.

B. The bituminous concrete mix formula must be submitted to the Engineer prior to the initiation of paving operations.

1.6 QUALITY CONTROL

A. For actual finishing of bituminous concrete surfaces and operation of the required equipment, use only personnel who are thoroughly trained and experienced in the skills required and whose prime occupation is this type of work.

B. Existing paved areas damaged or removed shall be repaired or replaced, respectively, with the same materials and level of quality as on the Project.

1.7 GUARANTEE / WARRANTY

A. Material Guaranty: Before any contract is awarded, the Bidder may be required to furnish without expense to the Engineer complete statement of the origin, composition and manufacture of any or all materials proposed to be used in the construction of the work, together with samples, which may be subjected to the tests required by the Engineer to determine the quality and fitness of the material.

PART 2 - MATERIALS

2.1 MATERIALS

A. Subgrade base course material shall conform to the applicable subsections of Section 310000, Earthwork of this Specification.

B. Bituminous Concrete Pavement shall conform to the applicable subsections of Section 460, Class I Bituminous Concrete Pavement, Type 1 of the “Standard Specifications.”

2.2 PAVEMENT BASE

A. Processed Gravel as specified in Section 31 00 00, EARTHWORK.

2.3 PAVEMENT SUB-BASE

A. Processed Gravel as specified in Section 31 00 00, EARTHWORK.

2.4 SUBGRADE

A. Reuse on-site material or imported material as specified in Section 31 00 00, EARTHWORK.

2.5 CONCRETE CURBING

A. All curbing shall be placed so that areas behind curbs shall be graded smooth, and topsoil and seed shall be placed.

B. Concrete curbs shall be in accordance with MHD Standard Specifications M9.04.1 and installed in accordance with MHD Std. Spec. Section 500.

C. Concrete curb inlets shall conform to M9.04.5 and the City of Boston standards.

2.6 GRANITE CURBING

A. All curbing shall be placed so that areas behind curbs shall be graded smooth, and topsoil and seed shall be placed.

B. Granite curbs shall be in accordance with MHD Standard Specifications M9.04.1 and installed in accordance to MHD Std. Spec. Section 500.

C. Granite curb inlets shall conform to M9.04.5 and the City of Boston standards.

2.7 BITUMINOUS BERM / CURB

A. Bituminous berm shall be Class I Bituminous Concrete, Type I-1 in accordance with MHD Standard Specifications Section 470.

PART 3 - EXECUTION (Not Used)

3.1 GENERAL REQUIREMENTS

A. Contractor Requirements:

1. The Contractor shall perform and complete the Work within the limits indicated in a continuous manner so that the pavement placement work may proceed without delay.

2. The Contractor shall, at all times, prior to acceptance of the work by the Engineer, maintain the completed work in a safe and satisfactory condition. All maintenance and repairs to the completed work shall be subject to the approval of the Engineer and the controlling municipal and State authorities. All maintenance and repairs of the completed work shall be provided by the Contractor at no additional cost to the Engineer.

3. Equipment used in the work will be subject to approval by the Engineer and shall be maintained in a satisfactory condition at all times. Unless otherwise permitted, compaction shall be performed by use of suitable power rollers. Finished surfaces of new asphaltic surface courses shall finish even with adjacent existing pavement surfaces and be free from surface irregularities.

4. It shall be the responsibility of the Contractor to obtain from the controlling municipal authorities all required permits for cutting roadway pavements and to perform the work in accordance with all customs and requirements of the controlling authorities, in addition to those specified herein, and at no additional expense to the Engineer.

5. Existing pavements outside of the indicated work limits which are damaged as a result of the Contractor's operations, including base courses, bituminous tack coats and surface courses, shall be replaced by the Contractor in accordance with the requirements specified herein for the respective type of pavement; in a satisfactory manner and at no additional cost to the Engineer.

6. In case of settlement or other defects in new or replaced pavements, the Contractor shall cut out, replace, restore, or repair the damaged pavements at no additional expense to the Engineer. This requirement shall remain in effect for 2 years after the acceptance of the work by the Engineer. The pavement area to be replaced, repaired, or restored, shall extend from edge of pavement to edge of pavement, a minimum of 20 feet on either side of the defect; final pavement course shall be feathered to provide a smooth finish detail.

7. This Contract shall not be considered complete until the replacement, restoration and repair of pavements has been provided in a manner satisfactory to the Engineer, and in accordance with the requirements specified herein.

8. Cement concrete used for granite curb installation shall be installed in such a manner that allows for the full required planting bed depth to be installed above in accordance with Section 32 93 00.

B. All materials and each part of detail of the work shall be subject to inspection by the Engineer. The Engineer shall be allowed access to all parts of the Work and shall be furnished with such information and assistance by the contractor as is required to make a complete and detailed inspection, (such assistance may include furnishing labor, tools, and equipment, at no expense to the Engineer.)

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

D. Any work done or materials used without authorization by the Engineer may be ordered removed and replaced at the Contractor's expense. The Contractor shall furnish written information to the Engineer stating the original sources of supply of all materials manufactured away from the actual site of the work. In order to ensure a proper time sequence for required inspection and approval this information shall be furnished at least two weeks in advance of the incorporation in the work of any such materials.

E. For the purpose of observing work that affects their respective properties, inspectors for the municipalities, public agencies and the utility companies shall be permitted access to the work, but all official orders and directives to the Contractor will be issued by the Engineer.

F. The inspection of the work shall not relieve the Contractor of any of his obligations to fulfill the terms of the Contract a herein prescribed by the plans and specifications.

G. Failure to reject any defective work or materials shall not in any way prevent later rejection when such defect is discovered, nor obligate the Engineer to make final acceptance.

H. The Contractor shall give prior notice to the Engineer when work on the various items is to be performed by him or his Subcontractors. If work is suspended on any item, prior notice shall be given to the Engineer before resumption of such work.

3.2 SUBGRADE PREPARATION

A. Prepare subgrade by shaping and compacting to proper grade. Remove all soft and yielding material from the subgrade and replace with suitable material. Compact thoroughly using approved types of rollers or tampers. Ensure that all areas are stable and dry.

B. Saw cut edges of existing pavement along even lines to obtain undisturbed, clean and sound vertical edges of original pavement.

C. Do not store or stockpile materials on the subgrade.

3.3 PAVEMENT

A. The subbase to be placed under pavement (at least 8 inches at parking areas and 12 inches at driveways) shall consist of processed gravel as specified in Section 31 00 00, Earthwork, evenly spread and thoroughly compacted.

1. Compaction of the subbase shall be in accordance with Section 31 00 00 Earthwork
2. All thicknesses are measured after rolling. The permanent surface course shall be evenly spread and rolled with a power roller having a minimum weight of 5 tons.

3.4 COMPACTION

A. The Contractor shall conform to the State Standards for pavement operations, including compaction (401.03.10).

B. Immediately after the bituminous mixture has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted by rolling. The surface shall be rolled when the mixture is in the proper condition and when rolling does not cause undue displacement, cracking and shoving.

C. The number, weight and type of rollers furnished shall be sufficient to obtain the required compaction while the mixture is in a workable condition. Rolling shall be continued until all roller marks are eliminated and the minimum densities have been obtained based upon 95 percent of laboratory Marshall Densities made in the proportions of the job-mix formula, AASHTO T-245.

D. Steel-Tired, Static Weight Rollers: The maximum roller speeds for steel-tired static-weight rollers for various operations shall not exceed three miles per hour. The wheels of steel-wheel rollers shall be kept moist and clean to prevent adhesion of the fresh material, but an excess of water will not be permitted.

E. Vibratory Rollers: The maximum roller speed for vibratory rollers shall be that which provides impact spacing less than the compacted lift thickness. When vibratory rollers are used in the static mode, roller speed shall not exceed three miles per hour.

1. When an approved vibratory roller is used for breakdown rolling in a vibratory mode, intermediate rolling will not be required. When the vibratory roller is used for finish rolling it shall be used in the static mode. Rolling shall progress continuously until the specified density of the corresponding daily plant Marshall Density, AASHTO T-245 has been attained. Finish rolling shall continue until all roller marks are eliminated.

F. Unless otherwise directed, rolling shall start longitudinally at the sides and gradually progress toward the center of the pavement.

G. The motion of the rollers shall be slow enough at all times to avoid displacement of the hot mixture. Any displacement resulting from reversing the direction of the rollers or from any other cause shall be satisfactorily corrected.

H. When the base course or binder course fails to comply with the density requirements herein specified, additional compaction may be applied when permitted and as directed, to attain the required density. If satisfactory density

cannot be attained the Contractor shall be required to remove and replace, at his own expense, any affected area, which is proven to be structurally inadequate and/or incapable of maintaining material integrity.

I. Any mixture that becomes loose and broken, mixed with dirt, or is in any way defective, shall be removed and replaced with fresh hot mixture, which shall be compacted to conform to the surrounding area. Any area showing an excess or deficiency of bituminous material shall be removed and replaced.

J. In the event of dispute as to the creditability of the results, density shall be determined from cores taken from the pavement.

3.5 FIELD QUALITY CONTROL

A. Thickness: Test in-place asphalt concrete courses for compliance with requirements for thickness. Repair or remove and replace unacceptable paving as directed by the Engineer. In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness.

B. Compaction:

1. The Bituminous mixture shall be compacted to at least 95% of the density achieved on the laboratory testing of the design mix for the project.
2. Density will be checked by the Nuclear Density gage Method, ASTM 2950.

C. Guarantee: During the two-year guarantee period, the Contractor shall maintain the surfacing and shall promptly fill with similar material in compliance with the above specifications, any depressions and hold that may occur so as to keep the surfacing in a safe and satisfactory condition for traffic.

End of Section

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SECTION 321313
SITE CONCRETE

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

A. Work included: Provide all labor, materials, equipment, and transportation necessary to complete the placement of concrete. Such work includes, but is not limited to, the following:
   1. Furnishing, placing, curing, finishing and protection of all plain and reinforced concrete work, above and below grade of the Site. Also, include all concrete work necessary to complete the work of other trades.
   2. Coordination with all other trades for location of all pipe sleeves, duct openings, electrical boxes and conduits and other devices required by other trades.
   3. Prepare program of inspections of all concrete work and perform such tests and inspections.

B. Related Work: The following items are not included in this Section and will be performed under the designated Sections.
   1. Section 31 00 00, “Earthwork” for excavation, backfill and compaction requirements.
   2. Section 32 00 00, “Bituminous Concrete Pavement” for installation of curbing.

1.3 SUBMITTALS

A. Refer to Section 01 33 00 Submittals provisions and procedures.
   1. Material Certificates: Provide copies of materials certificates signed by material producer and Contractor, certifying that each material item complies with, or exceeds, specified requirements.
   2. Plant mix design for concrete.
   3. Submit manufacturer’s literature describing products, installation procedures and routine maintenance.
   4. Samples for Verification Purposes: Submit three (3) samples of surface applied polyurethane tactile mat of the kind proposed for use.
   5. Shop drawings are required for products specified showing fabrication details; tile surface profile; adhesives; plans of mat placement including joints, and material to be used as well as outlining installation materials and procedure.

1.4 REFERENCE STANDARDS

A. The following standards are applicable to the Work of this Section to the extent referenced herein:

1. Commonwealth of Massachusetts, Massachusetts Highway Department (MHD), Standard Specifications for Highways and bridges, latest English Edition with amendments, hereinafter referred to as the "Standard Specifications." All referenced to method of measurement, basis of payment and payment items in the Standard Specifications are herby deleted. References made to particular Sections or paragraphs in the Standard Specifications shall include all related articles mentioned therein.
2. Commonwealth of Massachusetts, Massachusetts Highway Department, Construction Standards, latest Edition with amendments hereinafter referred to as the "Construction Standards."
3. ASTM: American Society for Testing and Material.
4. AASHTO: American Association of State Highway and Transportation Officials.
5. ACI: American Concrete Institute.
6. All ramps and curb ramps shall comply with American Disabilities Act Accessibility Guidelines and the Massachusetts Architectural Access Board (MAAB).

1.5 TESTING, CONTROL AND INSPECTION

A. The Contractor will retain the services of a qualified independent testing agency, approved by the Engineer, to test aggregate and to prepare a mix design for each strength of concrete specified; and shall submit such mix designs and test results to the Engineer for approval. Mix designs may also be based on proven current designs accompanied by test results. The costs of all such preliminary services shall be borne by the Contractor.

B. The Owner will retain the services of a concrete testing company to provide concrete sampling and testing.
   1. Testing equipment will be provided by and tests performed by the testing laboratory. Upon request by the Engineer, the testing laboratory shall provide such auxiliary personnel and services needed to accomplish the testing work.
   2. Concrete test cylinder tests shall be taken for each 50 cubic yards of concrete placed, but at least one set for each day of concrete placements.
   3. Testing required because of changes requested by the Contractor in materials, sources of materials or mix proportions, and extra testing of concrete or materials because of failure to meet the Specification requirements shall be paid by the Contractor.
   4. Concrete shall be sampled and tested for quality control as follows:
      a. Sampling fresh concrete: ASTM C172
      b. Concrete test specimens: ASTM C31
      c. Slump: ASTM C143. – Slump shall be one to three inches, or five to seven inches with Super plasticizer.
      d. Air Content: ASTM C231 – Air content shall be 6% +/- 1%.
      e. Compressive strength: ASTM C39 – Concrete shall be 4000 psi at 28 days
      f. Unit Weight: ASTM C29

1.6 NOTIFICATION OF RELATED TRADES

A. Notify all other trades responsible for installing chases, electrical handholes, conduit, and other electrical utilities when ready for such installation, and for final checking immediately before concrete is placed. Cooperate with such trades to obtain proper installation.

PART 2 - PRODUCTS

2.1 BOLLARDS

A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable.

B. Bollard Construction:

1. Bollard shall be constructed of 6” ID Schedule 40 steel pipe and filled with 3,000 PSI concrete.
2. Bollard shall be capped with 1” concrete wash with a rounded top.

C. Steel Finish: Color Coated.

1. Color: As indicated on Drawings.

2.2 CONCRETE

A. Portland Cement: ASTM C-150 Type 1: All cement shall be from a single source.

B. Natural Aggregates:

1. Fine Aggregate for Concrete: Shall be natural sand consisting of clean, hard, durable, uncoated particles, conforming to ASTM C33. Organic content shall be determined according to ASTM C40. Allow no frozen or partially frozen aggregate in the mix.
2. Course Aggregate for Concrete: For regular weight concrete use crushed stone or gravel from approved source conforming to ASTM C33. Coarse aggregate shall not contain greater amounts of deleterious material than specified in table III, ASTM C33.

C. Water from approved source, potable, clean and free of oils, salt, alkali, organic matter and other deleterious material.

2.3 CONCRETE ADA ACCESSIBLE CURB CUTS

A. Contractor shall install concrete ADA accessible curb cuts at all locations shown on plans. Curb cut configurations shall be as detailed on the Drawings.

1. All concrete curb cuts shall be isolated from surrounding concrete pavement when applicable.
2. Curb cuts shall be built with cut curbstone to match concrete curb cut slopes.

B. Curb cuts shall comply with all requirements established by the Architectural Access Board, Commonwealth of Massachusetts, CMR 521.

C. Curb cuts shall not exceed:

1. Cross-slopes at front and back of curb cuts: 1.5% max.

2. Curb cuts: 7.5% max

D. All planes of the finished curb cuts shall be field checked for slopes using a two-foot electronic “smart” level.

1. Curb cuts that do not comply with the slope requirements shall be cut out in their entirety and completely rebuilt.

2.4 CONCRETE RAMPS

A. All ramps to comply with ADA Accessibility Guidelines and MAAB.

B. All ramps shall be sloped no greater than 1:12.

C. Ramps shall have level landings at bottom and top of each ramp and each ramp run. Landings shall have the following features:

1. The landing shall be at least as wide as the ramp run leading to it.
2. The landing length shall be a minimum of 60 in (1525 mm) clear.
3. If ramps change direction at landings, the minimum landing size shall be 60 in by 60 in (1525 mm by 1525 mm).

2.5 FORMS

A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.

1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less. Do not use notched and bent forms.

B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.6 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, fabricated from steel wire into flat sheets.

B. Deformed-Steel Welded Wire Reinforcement: ASTM A 497/A 497M, flat sheet.

C. Epoxy-Coated Welded Wire Reinforcement: ASTM A 884/A 884M, Class A, plain steel.

D. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.

E. Galvanized Reinforcing Bars: ASTM A 767/A 767M, Class II zinc coated, hot-dip galvanized after fabrication and bending; with ASTM A 615/A 615M, Grade 60 deformed bars.

F. Epoxy-Coated Reinforcing Bars: ASTM A 775/A 775M or ASTM A 934/A 934M; with ASTM A 615/A 615M, Grade 60 deformed bars.

G. Steel Bar Mats: ASTM A 184/A 184M; with ASTM A 615/A 615M, Grade 60, deformed bars; assembled with clips.

H. Plain-Steel Wire: ASTM A 82/A 82M

I. Deformed-Steel Wire: ASTM A 496/A 496M.

J. Epoxy-Coated-Steel Wire: ASTM A 884/A 884M, Class A coated.

K. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 plain-steel bars. Cut bars true to length with ends square and free of burrs.

L. Epoxy-Coated, Joint Dowel Bars: ASTM A 775/A 775M; with ASTM A 615/A 615M, Grade 60, plain-steel bars.

M. Tie Bars: ASTM A 615/A 615M, Grade 60, deformed.

N. Hook Bolts: ASTM A 307, Grade A, internally and externally threaded. Design hook-bolt joint assembly to hold coupling against paving form and in position during concreting operations, and to permit removal without damage to concrete or hook bolt.

O. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:

P. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.

Q. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.

R. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating, compatible with epoxy coating on reinforcement.

S. Zinc Repair Material: ASTM A 780.

PART 3 - EXECUTION

3.1 CONCRETE BOLLARDS

A. EXAMINATION

1. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance of the Work.
2. Proceed with installation only after unsatisfactory conditions have been corrected.

B. INSTALLATION, GENERAL

1. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.
2. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.
3. Install site furnishings level, plumb, true, and securely anchored at locations indicated on Drawings.
4. Post Setting: Set cast-in support posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.
5. Posts Set into Voids in Concrete: Form or core-drill holes for installing posts in concrete to depth recommended in writing by manufacturer of site furnishings and 3/4 inch (19 mm) larger than OD of post. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.
6. Pipe Sleeves: Use steel pipe sleeves preset and anchored into concrete for installing posts. After posts have been inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions, with top smoothed and shaped to shed water.

3.2 MIXING PROCESS FOR CAST-IN-PLASE CONCRETE

A. Ready-mixed concrete shall be mixed and transported in accordance with specification for Ready-Mixed Concrete” ASTM C94, Alt. No. 3 and ACI Standard 304, “Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.

B. The concrete shall be of such consistency and be so spaced and worked that a smooth mortar face will be replaced.

3.3 EMBEDDED ITEMS FOR CAST-IN-PLACE CONCRETE

A. Coordinate the installation of all inserts required by other trades.

3.4 PLACING OF CAST-IN-PLACE CONCRETE

A. Notify the Engineer at least 48 hours prior to each placement.

B. Do not place concrete until conduit, catch basin frame and grates, manhole frames and covers, granite curing and other work to receive the concrete have been inspected and approved by the Engineer and all other trades concerned.

C. In hot weather all concreting shall be done in accordance with ACI 306, “Recommended Practice for Hot Weather Concreting”.

D. In cold weather, all concreting shall be done in accordance with ACI 306, “Recommended Practice for Cold Weather Concreting”.

E. Conveying: Concrete shall be handled from the mixer to the place of final deposit as rapidly as practicable by methods that will prevent separation or loss of ingredients and in a manner which will assure that the required quality of the concrete is retained.

F. Depositing: Delivery and placement of concrete shall be programmed so that the time lapse between batching and placement shall not exceed 1-1/2 hours. Concrete shall not be allowed a free fall over 4 feet. Concrete shall be deposited as nearly as practicable in its final position to avoid segregation due to rehandling or flowing.

G. Concrete shall be deposited continuously, in horizontal layers of such thickness (not deeper than 18 inches) that no concrete will be deposited on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness within the Section. Placing shall be carried out at such a rate that the concrete, which is being integrated, with fresh concrete is still plastic. Concrete which ash partially hardened or which ash been contaminated with foreign materials shall not be deposited.

3.5 INSTALLATION OF DETECTABLE WARNING SYSTEM

A. During all concrete pouring and REP Tile installation procedures, ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.

B. The physical characteristics of the concrete shall be consistent with the Contract Specifications while maintaining a slump range of 4 - 7 to permit solid placement of the REP Tile. An overly wet mix will cause the REP Tile to float. Under these conditions, suitable weights such as 2 concrete blocks or sandbags (25 pounds) shall be placed on each REP Tile.

C. The concrete shall be poured and finished, true and smooth to the required dimensions and slope prior to REP Tile placement.

D. To the maximum extent possible, the REP Tiles shall be oriented such that the rows of in-line truncated domes are parallel with the direction of the ramp. When multiple REP Tiles regardless of size are used, the truncated domes shall be aligned between the detectable warning surface tiles and throughout the entire detectable warning surface installation.

E. The REP Tiles shall be tamped or vibrated into the fresh concrete to ensure that there are no voids or air pockets, and the field level of the detectable warning surface tile is flush to the adjacent concrete surface or as the Drawings indicate to permit proper water drainage and eliminate tripping hazards between adjacent finishes.

F. On Continuous Runs: The Installer shall leave a 1/8” nominal gap between successive Detectable Warning Surface Tiles. As part of the concrete finishing operation, the Installer shall apply ¼” edge treatment around the perimeter of the detectable warning surface tiles to facilitate future replacement of the detectable warning surface tile. A urethane sealant such as Sikaflex 1a or BASF NP1 shall be

applied to the edge treatment for a watertight detectable warning surface tile installation.

G. During and after the REP Tile installation and the concrete curing stage, it is imperative that there are no walking, leaning or external forces placed on the REP Tile to rock the REP Tile, causing a void between the underside of the REP Tile and the concrete substrate.

H. Remove protective plastic sheeting from REP Tile within 24 hours of installation of the REP Tile. Particularly under hot weather conditions (80 degrees or higher), plastic sheeting will adhere strongly (resulting in difficult removal of same) to detectable warning surface tile when not removed quickly.

I. Clean REP Tiles by method specified by the manufacturer.

3.6 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.

B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.7 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

D. Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

E. Zinc-Coated Reinforcement: Use galvanized-steel wire ties to fasten zinc-coated reinforcement. Repair cut and damaged zinc coatings with zinc repair material.

F. Epoxy-Coated Reinforcement: Use epoxy-coated steel wire ties to fasten epoxy-coated reinforcement. Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M.

G. Install fabricated bar mats in lengths as long as practicable. Handle units to keep them flat and free of distortions. Straighten bends, kinks, and other irregularities, or replace units as required before placement. Set mats for a minimum 2-inch (50-mm) overlap of adjacent mats.

End of Section

SECTION 321723

PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within SECTION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.2 DESCRIPTION OF WORK

A. This Section shall include: Labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:

1. The work covered under this Section of the Specifications includes furnishing all labor, equipment, appliances and materials, and performing all operations in connection with the furnishing and placing of the pavement marking as indicated on the Drawings and as herein specified.

B. Related Sections include the following:

1. Section 31 00 00 "Earthwork" for soil materials, excavating, backfilling, and site grading.
2. Section 32 00 00 “Bituminous Concrete Pavement”, for placement of vertical granite curbing and paving of roadways and walkways.

1.3 SUBMITTALS

A. Refer to Section 01 33 00 – SUBMITTAL PROCEDURES for submittal provisions and procedures.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: A qualified pavement marking installer whose work has resulted in successful establishment pavement markings.

1. Installer’s Field Supervisions: Require Installer to maintain an experienced full-time supervisor on Project Site when work is in progress.

1.5 REFERENCE STANDARDS

A. All work shall conform to the Commonwealth of Massachusetts, Massachusetts Highway Department, Standard Specifications for Highways and Bridges, hereinafter referred to as the Standard Specification, section 840 and 860, and Engineering Directive Dated June 16, 2005.

1.6 LIABILITY FOR DAMAGES

A. The Contractor shall be liable for all damage to existing signs prior or during removal and resetting.

PART 2 - MATERIALS

2.1 FINAL PAVEMENT MARKINGS

A. Final Pavement Markings within MassDOT Right-of-way shall be thermoplastic, conforming to Massachusetts Standard Specifications.

B. Final Pavement Markings onsite shall be epoxy resin, conforming to City of Boston and Massachusetts Standard Specifications.

C. Pavement markings shall be “white” or “yellow” in color, unless otherwise noted on Drawings.

D. General pavement marking delineation for parking stalls shall measure 4 inches in width. All other pavement

PART 3 - EXECUTION

3.1 INSTALLATION

A. Installation of pavement markings shall be in accordance with the Massachusetts Standard Specifications and Manufacturer’s Requirements.

B. Pavement marking should be installed within 48 hours after the final pavement installation.

3.2 INSPECTION

A. All materials and each part or detail of the work shall be subject to observation by the Engineer. The Engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the contractor as is required to make a complete and detailed inspection, (such assistance may include furnishing labor, tools, and equipment, at no expense to the Engineer).

B. Any work done or materials used without authorization by the Engineer may be ordered removed and replaced at the Contractor’s expense. The Contractor shall furnish written information to the Engineer stating the original sources of supply of the materials manufactured away from the actual site of the work. In order to insure a proper time sequence for required inspection and approval this information shall be furnished at least two weeks (or as otherwise directed by the Engineer) in advance of the incorporation in the work of any such materials.

C. For the purpose of observing work that affects their respective properties, inspectors for the municipalities, public agencies and the utility companies shall be permitted access to the work, but all official orders and directives to the Contractor will be issued by the Engineer.

D. The observation of the work shall not relieve the Contractor of any of his obligations to fulfill the terms of the Contract as herein prescribed by the plans and specifications.

E. Failure to reject any defective work or materials shall not in any way prevent later rejection when such defect is discovered or obligate the Engineer to make final acceptance.

End of Section

SECTION 330513

MANHOLES AND CATCH BASINS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.2 WORK TO BE PERFORMED

A. The work covered in this Section of the Specifications includes construction and placement of all precast reinforced concrete drainage manholes, catch basins, castings for drain covers and frames, rungs and all appurtenant and incidental work, complete, in strict accordance with the Specifications and the applicable Drawings.

1.3 REFERENCES

A. All work specified in this Section shall conform to the standard requirements of the City of Boston and the Commonwealth of Massachusetts Standard Specifications for Highway and Bridges, latest revision, herein referred to as “State Standards” Specifically Section 200, 230, and 140.

B. American Society for Testing and Materials Standards.

1. All gray iron castings shall conform to the requirements of AASHTO Designation M105, Class 30 and ASTM A48-74. Test both cover and frame, for H-20 Highway Loading.
2. Ductile iron castings shall conform to ASTM A 536. Grade 60-40-18 unless otherwise specified.
3. Cast steel shall conform to ASTM A27. Grade 70-36 and shall be thoroughly annealed.

1.4 SUBMITTALS

A. Submittals for the following items shall be made in accordance with the requirements as specified in Section 01 33 00, SUBMITTAL PROCEDURES.

1. The drawings shall show the setting plans, exact profile of each units, openings required, all inserts and other items which are to be embedded in the units.
2. Shop drawings showing details of manhole cover and frame, catch basin frame and grate, manhole step castings, construction details, tolerances and other information as required.
3. Shop Drawings showing roof drain connectors and/or adapters.
4. Conformance Certificate: Each shipment of castings and concrete manholes and catch basins shall be accompanied with the manufacturer’s notarized certification that materials meet specified requirements.

1.5 QUALITY CONTROL

A. Provide the following:

1. All pre-cast concrete shall be the product of a manufacturer who has demonstrated capability to produce pre-cast concrete products of the quality specified. A manufacturer must be able to show that he has experienced personnel, physical facilities, established quality control procedures, and a management capability sufficient to execute the work of this contract. When requested by the Engineer, the Contractor shall submit written evidence of the above requirements.
2. Experienced plant personnel shall closely supervise the manufacturing process, and daily records of concrete strength shall be kept and submitted to the Engineer for control.
3. Provide at least one person who shall be present at all times during execution of this portion of the work and who shall be thoroughly trained and experienced in the installation of the pre-cast concrete structures and shall direct all work performed under this Section.

1.6 PRODUCT HANDLING

A. Materials and equipment shall be progressively delivered at the site so that there will be neither delay in the progress of the work nor an accumulation of materials that is not to be used within a reasonable time. Materials shall be so stored as to assure the preservation of their quality and fitness for the work.

B. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located so as to facilitate their prompt inspection.

C. Private property shall not be used for storage purposes without written permission of the owner or lessee, and if requested by the Engineer copies of such written permission shall be furnished to him/her. All storage sites shall be restored to their original condition by the Contractor at his expense

1. Avoid damage to castings from impact, abrasion, or corrosion during handling and storage.
2. Use all means necessary to protect pre-cast concrete units and materials before, during and after installation and to protect the installed work and materials for all other trades.
3. In case of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at the Contractor’s expense.

PART 2 - MATERIALS

2.1 GENERAL

A. Cement shall be Portland cement conforming to ASTM C150, Type III, high early strength and comply with Standard Specification M4.02.

B. Aggregate: shall conform to ASTM C330 and shall be graded, crushed stone with a resulting unit weight of concrete of up to one hundred fifty five (155) pounds per cubic foot, and a minimum unit weight of not less than one hundred forty-eight (148) pounds.

C. Water: shall be clear and free of injurious and deleterious substances.

D. Concrete: shall have a minimum strength of 5000 psi at twenty-eight (28) days and strength of 3000 psi at the time of form release.

1. During the process of manufacturing of the units not less than two (2) test cylinders shall be tested at time release of the form and two (2) at age twenty-eight (28) days.
2. All compression test cylinders shall be made, cured and stored in accordance with ASTM C31. Cylinders shall be tested in accordance with ASTM C39.
3. All concrete shall contain three (3) to five- (5) percent air entrainment.

E. Admixtures shall only be used after prior approval of the Engineer.

F. All reinforcing bars shall conform to the requirements of ASTM designation: A615, Grade 60 and comply with Section 901.61 of the Standard Specification.

G. Welded wire fabric shall conform to the requirements of ASTM designation: A185.

H. All frames and grates shall be H-20.

2.2 PRECAST CONCRETE MANHOLES, CATCH BASINS AND BRICK

A. Precast Concrete Manhole and Catch Basin Sections shall be similar or equal to that shown on the Drawings and shall conform to ASTM Specifications C-478 and C-76 Class IV Wall "B". The horizontal joints between Sections shall be sealed using a flexible butyl resin sealant and shall conform to AASHTO M-198B. In addition, the horizontal joints on the inside and outside of the manhole and catch basin shall be sealed with a "Quick Plug" as manufactured by Parson or equal.

B. Brick shall conform to ASTM Specification C-32 for sewer brick, except that the table therein is amended to provide that the required minimum compressive strength in pounds per square inch shall be for any individual brick 3,000 or 5,000 for the average of five bricks selected at random. The maximum absorption of water by five-hour boiling test shall not exceed 16% for any individual brick or 12% for the average of any five bricks selected at random.

C. Mortar for all brickwork shall be composed of Portland cement and sand in the proportions of 1:2. No mortar cement or lime shall be used. Cement shall be type II Portland Cement as specified for concrete masonry.

D. The dome of the manholes shall be a precast concrete Section. The top 6-inches of the dome, not to exceed 12 inches, shall be built of brick and mortar to permit adjustment of the frame to meet the ground surface.

E. Openings for pipe insertions shall be round and shall be precast or cored only. The diameter of the opening shall be adequate to install a rubber boot seal. The cored or precast opening shall maintain a minimum undisturbed distance of 6” from manhole Section joints. Flexible rubber boot shall be neoprene with stainless steel clamps and bands.

F. The precast bases shall be supported on a compacted level foundation of crushed stone at least 6-inches thick.

G. The barrel shall be at least 48 inches inside diameter with not less than 5 inch thick wall.

H. Sections shall be steam cured and shall not be shipped until at least 5 days after having been cast.

I. The date of manufacture and the name of trademark of the manufacturer shall be clearly marked on the inside of the barrel.

J. The top conical Section shall have a wall thickness not less than 5-inches at the bottom and wall thickness of 8 inches at the top. The conical Section shall taper from a minimum of 48 inches diameter to 36 inches diameter at the top.

2.3 DRAINAGE MANHOLE FRAMES AND COVERS

A. Manhole Frames and Covers shall have a hot-dipped bituminous coating and form to the details on the Drawings. Cast iron shall conform to ASTM A-48, Class 25. The underside of the cover and upper side of lip frame must present parallel plane surfaces, and at these points of contact, the frames and covers shall be machined to prevent covers from rocking in the frames under traffic.

B. Covers shall bear evenly in the frame and both frame seats and covers shall be accurately fabricated so that covers are interchangeable for use with any and all frames. Where indicated, frames and covers shall be watertight, and locked. The sizes and weights (medium duty, heavy duty) are shown on the detail sheets for special manholes.

C. Mortar shall consist of one-part cement and two parts clean sand. No lime shall be used.

D. Covers shall have a non-slip surface and shall have the word “DRAIN”, as applicable, inscribed.

E. Frames and covers shall be installed on the manholes as indicated on the Drawings. They shall be well bedded and encased in cement mortar and accurately set to the grades indicated. Red clay brick with cement mortar shall be used to adjust grade of frame and cover. One half inch of cement mortar plaster cast shall be applied to exterior of red clay bricks.

F. All frames shall be designed for H-20 wheel loading.

G. Manhole frames and covers shall be specified by the City of Boston or equal.

2.4 CATCH BASINS FRAMES AND GRATES

A. Catch Basin Frames and Grates shall have a hot-dipped bituminous coating and conform to the details on the drawings. Cast iron shall conform to ASTM A-48, Class 25. The underside of the grate and upper side of lip frame must present parallel plane surfaces, and at these points of contact, the frames and grates shall be machined to prevent grates from rocking in the frames under traffic.

B. Grate shall bear evenly in the frame and both frame seats and grates shall be accurately fabricated so that grate is interchangeable for use with any and all catch basin frames. The sizes and weights (medium duty, heavy duty) are shown on the detail sheets.

C. Mortar shall consist of one-part cement and two-part clean sand. No lime shall be used.

D. Gratings shall have a non-slip surface.

E. Gratings shall be installed on the catch basins as indicated on the Drawings. They shall be well bedded and encased in cement mortar and accurately set to the grades indicated. Red clay brick with cement mortar shall be used to adjust frame and grate. One half inch of cement mortar plaster cast shall be applied to exterior of red clay bricks.

F. Catch basin frames and grates shall be as specified by the City of Boston or equal.

2.5 MANHOLE STEPS

A. Steps shall conform to ASTM C-478.

B. The capacity of each step shall be 1000 lb. At 6-inch distance from wall, 1500 lb. At 4-inch distance from wall.

C. Steps shall measure 12 inches wide (min.) and extend 6 inches from wall.

D. Manhole steps shall be provided in each base, riser and top Section and shall be integrally cast in each; 12 inches O.C.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine the substrate and conditions under which work of this Section is to be performed, and correct unsatisfactory conditions that would prevent proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

1. Examine castings for blowholes, porosity, hard spots, shrinkage, distortion, or other defects. Check coating for smoothness and tenacity.

B. The installation of all pipes of various materials, structures, and connections to existing pipes/structures shall be made at the locations and elevations as shown on the drawings.

C. All materials and each part of detail of the work shall be subject to inspection by the Engineer. The Engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the contractor as is required to make a complete and detailed inspection, (such assistance may include furnishing labor, tools, and equipment, at no expense to the Engineer.)

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

the removing and the replacing of the covering or making good of the parts removed, will be at the Contractor's expense.

E. Any work done or materials used without authorization by the Engineer may be ordered removed and replaced at the Contractor's expense. The Contractor shall furnish written information to the Engineer stating the original sources of supply of all materials manufactured away from the actual site of the work. In order to ensure a proper time sequence for required inspection and approval this information shall be furnished at least two weeks in advance of the incorporation in the work of any such materials.

F. For the purpose of observing work that affects their respective properties, inspectors for the municipalities, public agencies and the utility companies shall be permitted access to the work, but all official orders and directives to the Contractor will be issued by the Engineer.

G. The inspection of the work shall not relieve the Contractor of any of his obligations to fulfill the terms of the Contract a herein prescribed by the plans and specifications.

H. Failure to reject any defective work or materials shall not in any way prevent later rejection when such defect is discovered, nor obligate the Owner to make final acceptance.

I. The Contractor shall give prior notice to the Engineer when work on the various items is to be performed by him or his Subcontractors. If work is suspended on any item, prior notice shall be given to the Engineer before resumption of such work.

J. All storm drain lines shall be given combined pressure and leakage tests as required by the City of Boston.

3.2 GENERAL

A. Excavation and backfilling requirements for installation of manhole and catch basin structures shall be in accordance with the requirements as specified in Section 31 00 00, Earthwork.

B. Manhole and catch basin barrel and cone Sections shall be set so as to be vertical and in true alignment.

C. Where required for future connections, openings shall be cast in the manholes and catch basins at the proper location and shall be sealed with watertight brick bulkheads or plugs.

D. Drop manholes shall be built in accordance with the details shown on the Drawings and as specified herein.

E. The inverts of all manholes shall be constructed of brick and formed to the details shown on the Drawings.

3.3 CONSTRUCTION AND INSTALLATION

A. Bottom riser Sections of reinforced concrete manholes and catch basins may be either cast-in-place or precast concrete. The top edges, of cast-in-place bottom Sections, shall be formed with a removable steel ring template designed to fit the tongue end of the precast riser Sections.

B. Inverts: Where pipe alignment permits, and where directed by the Engineer, the pipe shall be continued through the manhole and the top half carefully and evenly cut away. Where changes in alignment occur, unless otherwise authorized by the Engineer, inverts shall be constructed of brick and mortar with a smooth flow line and an even curve in accordance with the plans.

C. Joints: Pipe joints into manholes and catch basins shall be constructed in accordance with the details shown on the plans. Complete details of the boot manufacture and installation shall be submitted for approval. All areas around pipes passing through walls of manholes and catch basins shall be completely filled with waterproof cement mortar to tightly fill any space through which water can pass. All manhole and catch basin joints between Sections shall also be completely filled with waterproof mortar, both inside and outside, and coated with epoxy sealer inside and out.

D. Bricks shall be laid in a workmanlike manner, true to line, and the joints shall be carefully struck and pointed on the inside. Bricks shall be thoroughly wet when laid and each brick shall be laid in mortar so as to form full bed, end and side joints in one operation. The outside of the brickwork shall be neatly plastered with ½" layer of cement mortar as the work progresses. The brickwork shall be satisfactorily bonded to the concrete and cast-iron frame. No brick masonry shall be laid in water, or any water allowed to rise on the brickwork until the masonry has set for at least 24 hours.

End of Section