CITY OF NEWTON

PURCHASING DEPARTMENT

CONTRACT FOR HISTORIC NEWTON
(M.G.L. Ch. 30, Sec. 39M)

PROJECT MANUAL:

EAST PARISH TOMB RESTORATION

INVITATION FOR BID #15-124

Pre-Bid Meeting: June 11, 2015 at 1:00 p.m.

Sub Bid Opening: June 18, 2015 11:00 a.m

Bid Opening Date: June 25, 2015 at 11:00 a.m.

Prepared by:

Structures North Consulting Engineers
60 Washington Street
Salem, MA 01970
978-745-6817

JUNE 2015

Setti D. Warren, Mayor

CITY OF NEWTON
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END OF SECTION

CITY OF NEWTON
PURCHASING DEPARTMENT
INVITATION FOR BID #15-124

The City of Newton invites sealed bids in accordance with M.G.L. c.30, §39M from Contractors for:

EAST PARISH TOMB RESTORATION

Pre-bid Conference at: ***1:00 p.m., Thursday, June 11, 2015, East Parish Burial Site**
Corner of Centre Street and Cotton Street
Sub-Bid Opening: **11:00 a.m., Thursday, June 18, 2015**
General Contractor Opening : ***11:00 a.m., Thursday, June 25, 2015**
at the Purchasing Department, Room 201, Newton City Hall, 1000 Commonwealth Avenue, Newton, MA 02459. Bids will not be accepted nor may submitted bids be corrected, modified or withdrawn after the deadline for bids. Immediately following the deadline for bids, all bids received within the time specified will be publicly opened and read aloud.

Work under this contract shall consist of: the repair, stablization and restoration of tombs and monuments at Newton's East Parish burying ground located at the intersection of Centre Street and Cotton Street in Newton
Anticipated Start Date is: **5 days from execution of contract**
Completion Date is: **November 15 , 2015**

The scope of work includes treatment of damaged stones by a stone conservator. This work shall be subject to a separate sub-bid by stone conservator sub-bidders prior to the General Contractor (GC) bid submission date, The cost of subcontractor work shall be included in the the GC's Base Bid. The qualifications of the stone conservator subcontractor ("Conservator Qualifications") are set forth at Section 04550 of the Specifications, below. Subcontractor services are not filed sub-bids as defined in M.G.L. c. 149, §44F.

Contract Documents will be available online at the City's website: **www.newtonma.gov/bids** after: **10:00 a.m., June 4, 2015.** Bidders are responsible for downloading the specifications from the City's web site at **www.newtonma.gov/bids**. Bidders are requested to email the Purchasing Department (purchasing@newtonma.gov) their Company Name, Address, Email address, Phone & Facsimile number and what bid # (i.e. #15-124) they have downloaded.

All sub-bids and bids must be accompanied by a bid deposit in an amount that is not less than five percent (5%) of the value of the bid, including all add alternates. Bid deposits, payable to the City of Newton, shall be either in the form of a bid bond, cash, certified check, or a treasurer's or cashier's check issued by, a responsible bank or trust company.

Bids must be submitted with one ORIGINAL and two COPIES. There is no charge for contract documents.

All bids are subject to the provisions of M.G.L. Chapter 30, Section 39M. **Wages are subject** to minimum wage rates determined by the Massachusetts Department of Labor and Industries pursuant to M.G.L. Chapter 149, Sec. 26 to 27H. The schedule of wage rates applicable to this contract is included in the bidding documents. In addtion, the prevailing wage schedule will be updated annually for all public construction projects lasting longer than one (1) year. You will be required to pay the rates set out in any updated prevailing wage schedule. Increases in prevailing wage schedules will not be the basis for change order requests. The successful bidder will be required to provide a Certificate of Insurance demonstrating current coverage of the type and amounts set forth in the Project Manual**.** The successful bidder will be required to furnish both a **Labor and Materials Payment Bond in the amount of 50%** of the contract total.

The costs of any bond and any insurance required in this Invitation For Bid are the responsibility of the bidder; such costs will not be reimbursed by City and should be included in your bid. The GC shall meet all bonding requirements both for itself and its selected subcontractor.

Bidders attention is directed to the requirements of the City of Newton Supplemental Equal Employment Opportunity, Anit-Discriminitation and Affirmative Action Program and also to the Minority/Women Business Enterprise Plan, December 1999, which is hereby incorporated into the Contract Documents.

Once you've downloaded this bid from the internet website (**www.newtonma.gov/bids**) I strongly suggest you email (purchasing@newtonma.gov) your company's Name, address, EMAIL, phone, fax AND the INVITATION FOR BID NUMBER and Project Title, so that we may add you to the Bidders List and you will be notified of any/all addendums.

The City will reject any and all bids in accordance with the above referenced General Laws. In addition, the City reserves the right to waive minor informalities in any or all bids, or to reject any or all bids (in whole or in part) if it be in the public interest to do so.

CITY OF NEWTON

Nicholas Read
Chief Procurement Officer
June 4, 2015

Please Note: Changes in dates from what was originally advertised.

CITY OF NEWTON

DEPARTMENT OF PURCHASING

INSTRUCTIONS TO BIDDERS

ARTICLE 1 - BIDDER'S REPRESENTATION

1.1 Each Sub-Bidder and General Bidder (hereinafter collectively called the "Bidder") by making a bid (hereinafter called "bid") represents that:

1. The Bidder has read and understands the Bidding Documents, Contract Forms, General Conditions, Conditions of the Contract, General Requirements and Project Specifications (collectively, referred to as the "Contract Documents") and the bid is made in accordance therewith.

2. The Bidder was offered the opportunity to visit the work 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 work site will not relieve any Bidder from any obligation under the bid as submitted.

ARTICLE 2 - REQUEST FOR INTERPRETATION

2.1 Bidders shall promptly notify the City 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 to the *Chief Procurement Officer*, at purchasing@newtonma.gov or via facsimile (617) 796-1227. The City will only answer such requests if received by **Friday, June 12, 2015 at 12:00 noon**. In the event that the bid opening date is changed, the deadline for informational requests may also change as provided in an addendum issued by the City.

2.3 Interpretation, correction, or change in the Contract Documents will be made by addendum which will become part of the Contract Documents. The City will not be held accountable for any oral communication.

2.4 Addenda will be emailed to every individual or firm on record as having taken a set of Contract Documents. Addenda will be emailed to every individual or firm on record as having taken a set of Contract Documents. Receipt of all addenda issued must be acknowledged in the Bid Form. YOUR FAILURE TO ACKNOWLEDGE ALL ADDENDA MAY RESULT IN YOUR BID BEING REJECTED AS NON-RESPONSIVE.

2.5 Copies of addenda will be made available for inspection at the location listed in the Invitation for Bids where Contract Documents are on file, in addition to being available online at **www.newtonma.gov/bids**.

2.6 Bidders or proposers contacting ANY CITY EMPLOYEE regarding an Invitation for Bid (IFB) or a Request for Proposal (RFP), outside of the Purchasing Department, once an IFB or RFP has been released, may be disqualified from the procurement process.

2.7 Bidders downloading information off the internet web site are solely responsible for obtaining any addenda prior to the bid opening. If the bidder makes itself known to the Purchasing Department, at purchasing@newtonma.gov or via facsimile (617) 796-1227, it shall be placed on the bidder's list. Bidders must provide the Purchasing Department with their company's name, street address, city, state, zip, phone, fax, email address and **INVITATION FOR BID #15-124**.

ARTICLE 3 - MBE PARTICIPATION

3.1 Notice is hereby given that the Mayor's Affirmative Action Plan for the City of Newton in effect at the time of this solicitation is applicable to all construction contracts in excess of $10,000.00.

3.2 Notice is hereby given that the City of Newton Minority/Women Business Enterprise Plan and the Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program in effect at the time of this solicitation are applicable to all City contracts for goods and services in excess of $50,000.00.

3.3 Copies of the Plans and Program referred to in Sections 3.1 and 3.2 are available at: **www.newtonma.gov/purchasing**.

ARTICLE 4 - PREPARATION AND SUBMISSION OF BIDS

4.1 Bids shall be submitted on the "Form For General Bid" or"Form For Sub Bid," as appropriate, attached hereto.

4.2 All entries on a Bid Form shall be made by typewriter or in ink.

4.3 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.

4.4 Bid Deposits shall be submitted in the amount specified in the Invitation for Bids. They shall be made payable to the City 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 Commonwealth of Massachusetts; and shall be conditioned upon the faithful performance by the principal of the agreements contained in the bid. Bidders are reminded that the bid deposit covers the City for damages when a bidder withdraws its bid after the bid submisssion date. **Be advised that to the extent permitted by the law the City will retain all bid deposits for withdrawn bids.**

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

4.5 The Bid, including the bid deposit shall be enclosed in a sealed envelope with the following plainly marked on the outside:

* GENERAL BID (or SUB BID) FOR: **#15-124**

* NAME OF PROJECT: **East Parish Tomb Restoration**

* BIDDER'S NAME, BUSINESS ADDRESS, AND PHONE NUMBER

4.6 Date and time for receipt of bids is set forth in the Invitation for Bids.

4.7 Timely delivery of a bid at the location designated shall be the full responsibility of the Bidder. In the event that Newton City Hall is closed on the date or at the time that bids are due, the date and time for receipt of bids shall be on the next business day following that the Newton City Hall and the Purchasing Department are open.

4.8 Bids shall be submitted with one **original** and two **copies.**

4.9 Be advised that a new Massachusetts law has been enacted that required all employees who work on Massachusetts public works construction sites must have no less than 10 hours of OSHA-approved safety and health training. See Chapter 306 of the Acts of 2004, which became effective July 1, 2006.

1. This requirement will apply to any general bid or sub bid submitted.
2. This law directs the Massachusetts Attorney General to restrain the award of construction contracts to any contractor who is in violation to this requirement and to restrain the performance of these contracts by non-complying contractors.
3. The contractor and all subcontractors on this project will be required to provide certification of compliance with this requirement. Non-compliance with this law will disqualify you from bidding on public contracts.

ARTICLE 5 - ALTERNATES

5.1 Each Bidder shall acknowledge alternates (if any) in Section C on the Bid Form.

5.2 In the event an alternate does not involve a change in the amount of the base bid, the Bidder shall so indicated by writing "No Change", or "N/C" or "0" in the space provided for that alternate.

5.3 Bidders shall enter on the Bid Form a single amount for each alternate which shall consist of the amount for work performed by the Contractor.

5.4 The low Bidder will be determined on the basis of the sum of the base bid and the accepted alternates.

ARTICLE 6 - WITHDRAWAL OF BIDS

6.1 Any bid may be withdrawn prior to the time designated for receipt of bids on written or electronic request. Electronic withdrawal of bids must be confirmed over the Bidder's signature by written notice postmarked on or before the date and time set for receipt of bids.

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

6.3 No bids may be withdrawn within sixty (60) days, Saturdays, Sundays and legal holidays excluded, after the opening of the bids.

ARTICLE 7 - CONTRACT AWARD

7.1 The City soliciting prices for Sub Bid work for Grave Marker Conservation, and for General Bids for the whole project. Sub Bids are submitted to the City, the Sub-Bid results are provided to the General Bidders, and the General Bidders prepare their bids using Sub Bids submitted by responsible and eligible contractors meeting all Conservator Qualifications. It is the City's intent to award one (1) General Contract to the responsive and eligible GC submitting the lowest price. A contract will be awarded within sixty (60) days, Saturdays, Sundays, and legal holidays excluded, after the opening of the General Bids.

7.2 The City reserves the right to waive minor informalities in or to reject any or all Bids if it be in the public interest to do so.

7.3 The City reserves the right to reject any bidder who has failed to pay any local taxes, fees, assessments, betterments, or any other municipal charge, unless the bidder has a pending abatement application or has entered into a payment agreement with the collector-treasurer.

7.4 As used herein, the term "lowest responsible and eligible Bidder" shall mean the Bidder (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; (2) who has met all the requirements of the invitation for bids; (3) who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (4) who, where the provisions of section eight B of chapter twenty-nine apply, shall have been determined to be qualified thereunder; and (5) in the case of any sub-bid, meeting at Conservator Qualifications.

7.5 Subsequent to the award and within five (5) days, Saturday, Sundays and legal holidays excluded, after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the City a contract in the form included in the Contract Documents in such number of counterparts as the City may require.

7.6 In the event that the City receives low bids in identical amount from two or more responsive and responsible Bidders, the City shall select the successful Bidder by a blind selection process chosen by the City such as flipping a coin or drawing names from a hat. The low Bidders who are under consideration will be invited to attend and observe the selection process.

ARTICLE 8 - TAXES

8.1 The Bidder shall not include in this bid any tax imposed upon the sale or rental of tangible personal property in this Commonwealth, such as any and all building materials, supplies, services and equipment required to complete the work.

8.2 The City is exempt from payment of the Massachusetts Sales Tax, and the Bidder shall not include any sales tax on its bid. The City's exemption Number is E-046-001-404.

ARTICLE 9 – PROPRIETARY SPECIFICATIONS

9.1 The City has used a proprietary specification to describe the supply listed in the specifications. Such specifications are permitted under M.G.L. c. 30, §39M(b), provided that the City state in writing that use of the proprietary specification is in its best interest and that it will accept an "equal" of the item specified. An item is considered equal if (i) it is at least equal in quality, durability, appearance, strength, and design; (ii) will perform the intended function at least equally; and (iii) conforms substantially, even with deviations, to the detailed requirements contained in the specifications. Bidders wishing to provide an equal item should do so with their bids. The City shall have the sole right to determine whether or not said item is equal.

9.2 The required determination and justification have been duly prepared, and a copy may be requested in accordance with the Massachusetts Public Records Law, M.G.L. c. 66, §10.

END OF SECTION

CITY OF NEWTON

DEPARTMENT OF PURCHASING

GENERAL BID FORM #15-124

A. The undersigned proposes to furnish all labor and materials required in accordance with the Contract Documents supplied by the City of Newton entitled:

EAST PARISH TOMB RESTORATION

for the contract price specified below, subject to additions and deduction according to the terms of the specifications.

B. This bid includes addenda number(s) _____, _____, _____, _____,

C. The proposed contract price is:

BASE BID (Repair of Tombs 1047, Table Top, S Jackson):

_____DOLLARS ($ _____).
(The figure inserted above shall be the Total Base Bid Price.)

ALTERNATE 1 (Repair of Tombs 211, 220):

_____ DOLLARS ($ _____).
(The figure inserted above shall be the Total Base Bid Price.)

ALTERNATE 2 (Repair of Tombs Kenrick, T Jackson):

_____ DOLLARS ($ _____).

ALTERNATE 3 (Repair of Tombs A1, A2, B):

_____ DOLLARS ($ _____).

ALTERNATE 4 (Repair of Tombs C, Rogers):

_____ DOLLARS ($ _____).

ALTERNATE 5 (Repair of Tombs G, H):

_____ DOLLARS ($ _____).

The sub-division of the proposed contract price and the stone conservator cost is as follows:

Item 1. The work of the General Contractor, being all work other than that covered by Item 2

Total of Item 1: $ _____

Item 2. Stone Conservator Subcontract:

Name of Subcontractor Amount

_____$ _____
_____$ _____

Total of Item 2: $ _____

COMPANY:_____

D. The undersigned has completed and submits herewith the following documents:

- Bid Form - signed, 3 pages
- Bid Item Sheets, 11 pages
- Bidder's Qualifications and References Form, 2 pages
- Certificate of Non-Collusion, 1 page
- Debarment Letter, 1 page
- IRS W-9 Form, 1 page
- A five percent (5%) bid deposit/bid guarantee.

E. The undersigned agrees that, if s/he is selected as general contractor, s/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 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.

The undersigned hereby certifies that s/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 s/he will comply fully with all laws and regulations applicable to awards made subject to section forty-four A of M.G.L. Chapter 30, s 39M.

The undersigned certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) 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 (“OSHA”) 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 (3) that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States OSHA that is at least 10 hours in duration. The undersigned understands that any employee found on a worksite subject to this section without documentation of successful completion of a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration shall be subject to immediate removal.

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.

Date _____

_____
(Name of General Bidder)

BY: _____

_____
(Printed Name and Title of Signatory)

_____
(Business Address)

_____
(City, State, Zip)

_____/_____
(Telephone) (FAX)

_____
(E-mail address)

NOTE: If the bidder is a corporation, indicate state of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses of all partners; if an individual, give residential address if different from business address; and, if operating as a d/b/a give full legal identity. Attach additional pages as necessary.

END OF SECTION

CITY OF NEWTON
PURCHASING DEPARTMENT
FORM FOR SUB-BID #15-124
SUB TRADE CATEGORY: GRAVE MARKER CONSERVATOR

To all General Bidders Except those Excluded:

A. The Undersigned proposes to furnish all labor and materials required for completing, in accordance with the hereinafter described plans, specifications and addenda, all the above work specified in Section No.(s) _____ _____of the Specifications and in any Plans specified in such section, prepared by, _____for the contract sum of - _____ dollars ($_____).

For Alternate No 1. _____; Add $_____
For Alternate No 2. _____; Add $_____
For Alternate No 3. _____; Add $_____
For Alternate No 4. _____; Add $_____

B. This sub-bid includes addenda numbered_____

C. This sub-bid

☐ May be used by any general bidder except:

_____
_____

☐ May only be used by the following general bidders:

_____
_____

[To exclude general bidders, insert "X" in one box only and fill in blank following that box. Do not answer C if no general bidders are excluded.}

D. Unit Prices: N/A

E. The undersigned agrees that, if he is selected as a sub-bidder, he will, within 5 days, Saturdays, Sundays and legal holidays excluded, after presentation of a subcontract by the general bidder selected as the general contractor, execute with such general bidder a subcontract in accordance with the terms of this sub-bid, and contingent upon the execution of the general contract, and, if requested so to do in the general bid by the general bidder, who shall pay the premiums therefor, or if prequalification is required pursuant to section 44D 3/4, furnish a performance and payment bond of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the awarding authority, in the full sum of the subcontract price.

F. The names of all persons, firms and corporations furnishing to the undersigned labor or labor and materials for the class or classes or part thereof of work for which the provisions of the section of the specifications for this sub-trade require a listing in this paragraph, including the undersigned if customarily furnished by persons on his own payroll and in the absence of a contrary provision in the specifications, the name of each such class of work or part thereto and the bid price for such class of work or part thereof are:

Name	Class of Work	Bid Price
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

[Do not give bid price for any class or part thereof furnished by undersigned.]

G. The undersigned agrees that the above list of bids to the undersigned represents bona fide bids based on the hereinbefore described plans, specifications and addenda and that, if the undersigned is awarded the contract, they will be used for the work indicated at the amounts stated, if satisfactory to the awarding authority.

H. The undersigned further agrees to be bound to the general contractor by the terms of the hereinbefore described plans, specifications, including all general conditions stated therein, and addenda, and to assume toward him all the obligations and responsibilities that he, by those documents, assumes toward the owner.

I. The undersigned offers the following information as evidence of his qualifications to perform the work as bid upon according to all the requirements of the plans and specifications:

1. Have been in business under present business name _____ years.
2. Ever failed to complete any work awarded?_____
3. List one or more recent buildings with names of the general contractor and architect on which you served as a sub-contractor for work of similar character as required for the above-named building.

Building	Architect	General Contractor	Amount of Contract
(a) _____	_____	_____	_____
(b) _____	_____	_____	_____
(c) _____	_____	_____	_____

4. Bank Reference _____

J. 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 of subcontracts subject to section forty-four F.

The undersigned further certifies under penalties of perjury that this sub-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.

Date : _____

_____
(Name of Sub Bidder)

BY:_____
(Signature)

_____
(Printed Name and Title of Signatory)

_____
(Business Address)

_____
(City, State Zip)

_____
E-mail address

_____
(Telephone) (FAX)

END OF SECTION

CITY OF NEWTON

BIDDER'S QUALIFICATIONS AND REFERENCES FORM

All questions must be answered, and the data given must be clear and comprehensive. Please type or print legibly. If necessary, add additional sheet for starred items. This information will be utilized by the City for purposes of determining bidder responsiveness and responsibility with regard to the requirements and specifications of the Contract.

1. FIRM NAME: _____

2. WHEN ORGANIZED: _____

3 INCORPORATED? _____ YES _____ NO DATE AND STATE OF INCORPORATION: _____

4. IS YOUR BUSINESS A **MBE**? _____YES _____NO **WBE**? _____YES _____NO or **MWBE**? _____YES _____NO

* 5. LIST ALL CONTRACTS CURRENTLY ON HAND, SHOWING CONTRACT AMOUNT AND ANTICIPATED DATE OFCOMPLETION:

_____
_____
_____
_____
_____

* 6. HAVE YOU EVER FAILED TO COMPLETE A CONTRACT AWARDED TO YOU?
_____ YES _____ NO
IF YES, WHERE AND WHY?

_____
_____

* 7. HAVE YOU EVER DEFAULTED ON A CONTRACT? _____ YES _____ NO
IF YES, PROVIDE DETAILS.

_____
_____

* 8. LIST YOUR VEHICLES/EQUIPMENT AVAILABLE FOR THIS CONTRACT:

_____
_____
_____
_____
_____
_____
_____

* 9. IN THE SPACES FOLLOWING, PROVIDE INFORMATION REGARDING CONTRACTS COMPLETED BY YOUR FIRM SIMILAR IN NATURE TO THE PROJECT BEING BID. A MINIMUM OF FOUR (4) CONTRACTS SHALL BE LISTED. PUBLICLY BID CONTRACTS ARE PREFERRED, BUT NOT MANDATORY.

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____

DOLLAR AMOUNT: $ _____ DATE COMPLETED: _____
PUBLICLY BID? _____YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: ____)_____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

_____

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: $ _____ DATE COMPLETED: _____
PUBLICLY BID? _____YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: (____)_____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

_____

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: $ _____ DATE COMPLETED: _____
PUBLICLY BID? _____YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON:_____ TELEPHONE #: (____)_____
CONTACT PERSON'S RELATION TO PROJECT?:_____
(i.e., contract manager, purchasing agent, etc.)

_____

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: $ _____ DATE COMPLETED: _____
PUBLICLY BID? _____YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #:(____)_____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

10. The undersigned certifies that the information contained herein is complete and accurate and hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the City in verification of the recitals comprising this statement of Bidder's qualifications and experience.

DATE: _____ BIDDER: _____

SIGNATURE: _____

PRINTED NAME: _____ TITLE: _____

END OF SECTION

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee club, or other organization, entity, or group or individuals.

_____
(Signature of individual)

_____
Name of Business

City of Newton

Mayor
Setti D. Warren

Purchasing Department
Nicholas Read ✆ *Chief Procurement Officer*
1000 Commonwealth Avenue
Newton Centre, MA 02459-1449
purchasing@newtonma.gov

Telephone
(617) 796-1220
Fax:
(617) 796-1227
TDD/TTY
(617) 796-1089

Date

Vendor

Re: Debarment Letter for Invitation For Bid #15-124

As a potential vendor on the above contract, the City requires that you provide a debarment/suspension certification indicating that you are in compliance with the below Federal Executive Order. Certification can be done by completing and signing this form.

Debarment:

Federal Executive Order (E.O.) 12549 "Debarment and Suspension" requires that all contractors receiving individual awards, using federal funds, and all sub-recipients certify that the organization and its principals are not debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded by any Federal department or agency from doing business with the Federal Government.

I hereby certify under pains and penalties of perjury that neither I nor any principal(s) of the Company identified below is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency.

_____ (Name)
_____ (Company)
_____ (Address)
_____ (Address)
PHONE _____ FAX _____
EMAIL _____

_____Signature

_____Date

.

If you have questions, please contact Nicholas Read, Chief Procurement Officer at (617) 796-1220.

Form **W-9**
(Rev. October 2007)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

Give form to the requester. Do not send to the IRS.

Print or type
See Specific Instructions on page 2.

Name (as shown on your income tax return)

Business name, if different from above

Check appropriate box: ☐ Individual/Sole proprietor ☐ Corporation ☐ Partnership
☐ Limited liability company. Enter the tax classification (D=disregarded entity, C=corporation, P=partnership) ▶
☐ Other (see instructions) ▶

X Exempt payee

Address (number, street, and apt. or suite no.)

Requester's name and address (optional)

City, state, and ZIP code

List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on Line 1 to avoid backup withholding. For individuals, this is your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the chart on page 4 for guidelines on whose number to enter.

Social security number

or

Employer identification number

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me), and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding, and
3. I am a U.S. citizen or other U.S. person (defined below).

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the Certification, but you must provide your correct TIN. See the instructions on page 4.

Sign Here **Signature of U.S. person ▶** **Date ▶** Name

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Purpose of Form

A person who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) to report, for example, income paid to you, real estate transactions, mortgage interest you paid, acquisition or abandonment of secured property, cancellation of debt, or contributions you made to an IRA.

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN to the person requesting it (the requester) and, when applicable, to:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),

2. Certify that you are not subject to backup withholding, or

3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income.

Note. If a requester gives you a form other than Form W-9 to request your TIN, you must use the requester's form if it is substantially similar to this Form W-9.

Definition of a U.S. person. For federal tax purposes, you are considered a U.S. person if you are:

- An individual who is a U.S. citizen or U.S. resident alien,
- A partnership, corporation, company, or association created or organized in the United States or under the laws of the United States,
- An estate (other than a foreign estate), or
- A domestic trust (as defined in Regulations section 301.7701-7).

Special rules for partnerships. Partnerships that conduct a trade or business in the United States are generally required to pay a withholding tax on any foreign partners' share of income from such business. Further, in certain cases where a Form W-9 has not been received, a partnership is required to presume that a partner is a foreign person, and pay the withholding tax. Therefore, if you are a U.S. person that is a partner in a partnership conducting a trade or business in the United States, provide Form W-9 to the partnership to establish your U.S. status and avoid withholding on your share of partnership income.

The person who gives Form W-9 to the partnership for purposes of establishing its U.S. status and avoiding withholding on its allocable share of net income from the partnership conducting a trade or business in the United States is in the following cases:

- The U.S. owner of a disregarded entity and not the entity,

Cat. No. 10231X Form **W-9** (Rev. 10-2007)

CONTRACT FORMS

The awarded bidder will be required to complete and submit documents substantially similar in form to the following.

These forms may need to be modified on account of changed circumstances, and are provided for informational purposes only.

CITY-CONTRACTOR AGREEMENT

CONTRACT NO. C- _____

THIS AGREEMENT made this ___ day of _____ in the year Two Thousand and Fifteen by and between the CITY OF NEWTON, a municipal corporation organized and existing under the laws of the Commonwealth of Massachusetts, hereinafter referred to as the CITY, acting through its Chief Procurement Officer, but without personal liability to him, and

hereinafter referred to as the CONTRACTOR.

The parties hereto for the consideration hereinafter set forth agree as follows:

ARTICLE 1. **STATEMENT OF WORK.** The Contractor shall furnish all labor, materials, and equipment and perform all work required in strict accordance with the Contract Documents for the following project:

EAST PARISH TOMB RESTORATION

ARTICLE 2. **TIME OF COMPLETION.** The Contractor shall commence work under this Contract on the date specified in the written notice of the City to proceed and shall fully complete all work hereunder within the time specified in the Summary of Work and Specific Work Requirements of the Project Manual. Time is of the essence with regard to this contract. Failure to complete within the time specified shall be subject to the assessment of liquidated damages in accordance with the provisions contained in the Project Manual.

ARTICLE 3. **THE CONTRACT PRICE.** The City shall pay the Contractor for the full and satisfactory performance of the Contract a sum not to exceed:

ARTICLE 4. **CONTRACT DOCUMENTS.** The Contract Documents consist of the following documents which are either attached to this Agreement or are incorporated herein by reference:

a. This CITY-CONTRACTOR Agreement;

b. The City's Invitation For Bid **#15-124** issued by the Purchasing Department;

c. The Project Manual for **East Parish Tomb Restoration** including the Instructions to Bidders; General Conditions; Special Conditions; MWBE/AA Requirements, Wage Rate Requirements and Wage Rate Schedule(s) including any updated prevailing wage rate schedules if applicable; The Supplementary Special Conditions; General Requirements and Project Specifications; and Drawings, if included or referenced therein;

d. Addenda Number(s)____ ;

e. The Bid Response of the CONTRACTOR submitted for this Project and accompanying documents and certifications;

f. Certificate(s) of Insurance and surety bond(s) submitted by the CONTRACTOR in connection with this Project;

g. Duly authorized and executed Amendments, Change Orders or Work Orders issued by the CITY after execution of this CITY-CONTRACTOR Agreement.

This CITY-CONTRACTOR Agreement, together with the other documents enumerated in this Article, constitute the entire Agreement between the CITY and the CONTRACTOR.

ARTICLE 5. **ALTERNATES.** The following Alternates have been accepted and their costs are included in the Contract Price stated in Article 3 of this Agreement:

Alternates: _____

ARTICLE 6. **APPLICABLE STATUTES.** All applicable federal, state and local laws and regulations are incorporated herein by reference and the Contractor agrees to comply with same.

IN WITNESS WHEREOF, the parties have caused this instrument to be executed under seal the day and year first above written.

CONTRACTOR

By_____

Print Name _____

Title _____

Date _____

Affix Corporate Seal Here

CITY OF NEWTON

By _____
Chief Procurement Officer

Date_____

By_____
Museum Director

Date_____

City funds in the amount of $_____
are available in account number
21B60303 – 52409 - _____

I further certify that the Mayor, or his designee, is authorized to execute contracts and approve change orders

By_____
Comptroller of Accounts

Date _____

Approved as to Legal Form and Character

By_____
Associate City Solicitor

Date_____

CONTRACT AND BONDS APPROVED

By_____
Mayor or his designee

Date_____

CERTIFICATE OF AUTHORITY - CORPORATE

1. I hereby certify that I am the Clerk/Secretary of _____

(insert full name of Corporation)

2. corporation, and that _____

(insert the name of officer who signed the **contract and bonds**.)

3. is the duly elected _____

(insert the title of the officer in line 2)

4. of said corporation, and that on _____

(insert a date that is ***ON OR BEFORE*** the date the officer signed the **contract and bonds**.)

at a duly authorized meeting of the Board of Directors of said corporation, at which all the directors were present or waived notice, it was voted that

5. _____ the _____

(insert **name** from line 2) (insert **title** from line 3)

of this corporation be and hereby is authorized to execute contracts and bonds in the name and on behalf of said corporation, and affix its Corporate Seal thereto, and such execution of any contract of obligation in this corporation's name and on its behalf, with or without the Corporate Seal, shall be valid and binding upon this corporation; and that the above vote has not been amended or rescinded and remains in full force and effect as of the date set forth below.

6. ATTEST: _____ *AFFIX CORPORATE SEAL HERE*

(Signature of **Clerk or Secretary**)*

7. Name: _____

(Please print or type name in line 6)*

8. Date: _____

(insert a date that is ***ON OR AFTER*** the date the officer signed the **contract and bonds**.)

* The name and signature inserted in lines 6 & 7 **must** be that of the **Clerk or Secretary** of the corporation.

CERTIFICATION OF TAX COMPLIANCE

Pursuant to M.G.L. c.62C, §49A and requirements of the City, the undersigned acting on behalf of the Contractor certifies under the penalties of perjury that the Contractor is in compliance with all laws of the Commonwealth relating to taxes including payment of all local taxes, fees, assessments, betterments and any other local or municipal charges (unless the Contractor has a pending abatement application or has entered into a payment agreement with the entity to which such charges were owed), reporting of employees and contractors, and withholding and remitting child support.*

_____
**Signature of Individual
or Corporate Contractor (Mandatory)

_____
*** Contractor's Social Security Number
(Voluntary) or Federal Identification Number

Print Name:_____

By: _____
Corporate Officer
(Mandatory, if applicable)

Date: _____

Print Name:_____

* The provision in this Certification relating to child support applies only when the Contractor is an individual.

** Approval of a contract or other agreement will not be granted until the City receives a signed copy of this Certification.

*** Your social security number may be furnished to the Massachusetts Department of Revenue to determine whether you have met tax filing or tax payment obligations. Providers who fail to correct their non-filing or delinquency will not have a contract or other agreement issued, renewed, or extended.

CITY OF NEWTON, MASSACHUSETTS

PAYMENT BOND

Know All Men By These Presents:

That we, _____, as PRINCIPAL, and _____, as SURETY, are held and firmly bound unto the City of Newton as Obligee, in the sum of

dollars **($_____)** to be paid to the Obligee, 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 Obligee, bearing the date of _____ _, 2015, for the construction of _____ in Newton, Massachusetts.

(Project Title)

Now, the conditions of this obligation are such that if the PRINCIPAL and all Sub-contractors under said contract 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 purposes or items set out in, and to be subject to, provisions of M.G.L. c. 30, sec. 39A, and M.G.L. c. 149 sec. 29, as amended, then this obligation shall become null and void; otherwise it shall remain in full force, virtue and effect.

In Witness Whereof, the PRINCIPAL and SURETY have hereto set their hands and seals this ___day of_____2015.

PRINCIPAL	SURETY
_____	_____
BY_____	BY _____
(SEAL)	(ATTORNEY-IN-FACT) (SEAL)
_____ (Title)	
ATTEST: _____	ATTEST: _____

CITY OF NEWTON

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

1.0 DEFINITIONS

1.1 THE CONTRACT DOCUMENTS

The term "Contract Documents" sometimes also referred to as the "Contract", means the contract entered into between the City of Newton (hereinafter "City") and the Contractor. It includes the Invitation for Bid, General Bid Form, Contract Form, these General Conditions of the Contract, Supplements and Amendments to the General Conditions (if any), Contract Specifications, Drawings, all addenda issued prior to execution of the contract, the Bid Bond, the Labor and Material Payment Bond, or other assurances of completion, the applicable wage rate determinations, and other documents listed in the Agreement and modifications issued after execution of the contract.

1.2 THE WORK

The term "Work", sometimes also referred to as the "Project", means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligation.

1.3 OWNER

The term "Owner" is the City of Newton.

1.4 CONTRACT OFFICER

The term "Contract Officer" means the person appointed by the Owner to administer the terms of the Contract between the Owner and the Contractor, who is also empowered to take certain actions under this Agreement.

1.5 CONTRACTOR

1.5.1 The Contractor, sometimes referred to as the General Contractor, is the person or entity identified as such throughout the Contract Documents as if singular in number. The term Contractor means the Contractor or its authorized representative.

1.5.2 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work under the Contract.

1.6 SUBSTANTIAL COMPLETION

The term "Substantial Completion" means the value of the work remaining to be performed by the Contractor is, in the estimate of the awarding authority, less than one percent (1%) of the original contract price.

2.0 CONTRACT ADMINISTRATION

2.1 PRE-CONSTRUCTION CONFERENCE

2.1.1 Prior to commencement of the Work, the Contractor shall meet in conference with representatives of the Owner regarding the Owner's requirements under the Contract for administration of the quality assurance program, safety program, labor provisions, the schedule of work, and other Contract procedures.

2.1.2 The Contractor shall begin work upon receipt of a written Notice to Proceed from the Contract Officer or designee. The Contractor shall not begin work prior to receiving such notice.

2.2 CONTRACT PERIOD

The Contractor shall complete all work required under this contract within the timeframe specified elsewhere in this document, or within the time schedule established in the notice to proceed issued by the Contracting Officer.

2.3 REJECTION OF DEFECTIVE MATERIALS AND WORK

The Owner's inspection of the Work shall not relieve the Contractor of any of its responsibilities to fulfill the Contract obligations, and defective work shall be corrected without cost to the Owner. Unsuitable work may be rejected by the Owner, notwithstanding that such work and materials have been previously overlooked or misjudged by the Owner and accepted for payment. If the Work or any part thereof shall be found defective at any time before the final acceptance of the whole Work, the Contractor shall forthwith correct such defect in a manner satisfactory to the Owner, and if any material brought upon the site for use in the Work, or selected for the same, shall be rejected by the Owner as unsuitable or not in conformity with the Contract requirements, the Contractor shall forthwith remove such materials from the vicinity of the Work.

2.4 CHANGES

2.4.1 All changes in the work including any increase, decrease, or other equitable adjustment in the Contract price or in the time for performing the Contract, shall be authorized in writing by the Owner and/or Contract Officer prior to commencement.

2.5 CONTRACT PRICE

The Contract Price is stated in the Contract Form, and including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

2.6 APPLICATIONS FOR PAYMENT

2.6.1 Once each month, on a date established by the Owner at the beginning of the Work, the Contractor shall deliver to the Owner an itemized Application for Payment, supported by such data substantiating the Contractor's right to payment as the Owner may require, and reflecting a minimum of 5% retainage until the final acceptance and payment by the Owner.

2.6.2 The Owner shall make payment to the Contractor within 30 days of receipt of said application, less any applicable retainage.

2.6.3 The Owner may make changes in any application for payment submitted by the Contractor for:

i. Retention based on the value of its claims against the Contractor,
ii. Retention of 5% of the approved amount of the Application for Payment.

2.7 FINAL PAYMENT

The acceptance by the Contractor of the last payment due under this Contract or the execution of the Final Certificate of Completion, shall operate as a release to the Owner from all claims and liability related to this Contract.

2.8 GUARANTY AND WARRANTY

2.8.1 WARRANTY

The Contractor warrants to the Owner 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. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

2.8.2 GENERAL GUARANTY

If at any time during the period of one (1) year from the date of Substantial Completion of the Work to be performed under this Contract, any part of the Work shall, in the reasonable determination of the Owner, require replacing or repairing due to the fact that it is broken, defective, or otherwise does not conform to the Contract Documents, the Owner will notify the Contractor to make the required repairs or replacement. If the Contractor shall neglect to commence such repairs or replacement to the satisfaction of the Owner within ten (10) days from the date of giving or mailing such notice, then the Owner may employ other persons to make

the same. The Contractor agrees, upon demand, to pay to the Owner all amounts which the Owner expends for such repairs or replacements. During this one year guarantee period any corrective work shall be performed in accordance with the applicable terms of this Contract. For items of work completed after use and occupancy has been taken, the one year guarantee shall commence at the time the Owner accepts such items. This one year guarantee shall not limit any express guaranty or warranty provided elsewhere in the Contract.

2.9 INSURANCE REQUIREMENTS

2.9.1 The Contractor shall provide insurance coverage as listed below. This insurance shall be provided at the Contractor's expense and shall be in full force and effect during the full term of this Contract.

WORKER'S COMPENSATION

Worker's Compensation:	Per M.G.L. c.. l49, s. 34 and c.. l52 as amended.

COMMERCIAL GENERAL LIABILITY

Personal Injury	$500,000 each occurrence $1,000,000 aggregate
Property Damage	$500,000 each occurrence $1,000,000 aggregate

VEHICLE LIABILITY

Personal Injury	$500,000 each person $1,000,000 aggregate
Property Damage	$300,000 each occurrence $500,000 aggregate

2.9.2 OWNER AS CO-INSURED

The Owner shall be named as additional insureds on the Contractor's Liability Policies.

2.9.3 CERTIFICATES OF INSURANCE, POLICIES

i. The Contractor shall not commence the work until proof of compliance with this Section 2.9 has been furnished to the Owner by submitting one copy of a properly endorsed insurance certificate issued by a company authorized to write insurance in the Commonwealth. This certificate shall indicate that the contractual liability coverage is in force.

ii. The Contractor shall file the original and one certified copy of all policies with the Owner within fifteen (15) days after contract award. If the Owner is damaged by the Contractor's failure to maintain such insurance and to so notify the Owner, then the Contractor shall be responsible for all reasonable costs attributable thereto.

2.9.4 CANCELLATION

Cancellation of any insurance required by this contract, whether by the insurer or the insured, shall not be valid unless written notice thereof is given by the party proposing cancellation to the other party and Owner at least thirty days prior to the effective date thereof, which shall be expressed in said notice.

2.10 INDEMNIFICATION

The Contractor shall take all responsibility for the Work and take all precautions for preventing injuries to persons and property in or about the Work; shall bear all losses resulting to or on account of the amount or character of the Work. The Contractor shall pay or cause payment to be made for all labor performed or furnished and for all materials used or employed in carrying out this Contract. The Contractor shall assume the defense of, and indemnify and save harmless the Owner, and the Owner's officers and agents from all claims relating to labor performed or furnished and materials used or employed for the Work; to inventions, patents and patent rights used in and in doing the Work unless such patent infringement is due to a product or process specified by the Owner; to injuries to any person or corporation received or sustained by or from the Contractor and any employees, and subcontractors and employees, in doing the work, or in consequence of any improper materials, implements or labor used or employed therein; and to any act, omission or neglect of the Contractor and any employees therein.

2.11 BONDS

The Contractor shall provide the Owner with a performance and with a payment or labor and materials bond in the form provided by the Owner, executed by a surety company licensed by the Commonwealth of Massachusetts' Division of Insurance. Such bond shall be in an amount equal to at least one half of the Contract price unless otherwise stated in the Contract Documents. All bonds shall be accompanied by a current power of attorney.

2.12 TERMINATION

2.12.1 TERMINATION FOR CAUSE

i. The Owner may terminate this contract for cause if it determines that any of the following circumstances have occurred:

a. The Contractor is adjudged bankrupt or has made a general assignment for the benefit of its creditors.
b. A receiver has been appointed of the Contractor's property.
c. All or a part of the Work has been abandoned.
d. 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 Owner, except as provided in the Contract.
e. The Owner has determined that the rate of progress required on the project is not being met.
f. The Contractor has substantially violated any provisions of this Contract.

ii. The Owner may complete the Work, or any part thereof, and charge its expense of so completing the Work or part thereof, to the Contractor.

iii. The Owner may take possession of and use any materials, machinery, implements and tools found upon the site of said Work. The Owner 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 Owner has no further use for them.

2.12.2 TERMINATION - NO FAULT

i. In the event that this Contract is terminated by the Owner, prior to the completion of construction and termination is not based on a reason listed in Paragraph 2.12.1, the Contractor shall be compensated for its costs incurred on the Project, including reasonable costs of de-mobilization, covering the period of time between the last approved application for payment and the date of termination.

ii. Payment by the Owner pursuant to Section 2.7 shall be considered to fully compensate the Contractor for all claims and expenses and those of any consultants, subcontractors, and suppliers, directly or indirectly attributable to the termination, including any claims for lost profits.

2.13 PERMITS, FEES, AND NOTICES

2.13.1 The Contractor shall secure and the Owner shall pay for the building permit, if required. The Contractor shall coordinate all efforts required to obtain this permit. All other permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work shall be secured and paid for by the Contractor.

2.13.2 The Contractor shall comply with and give notices required by laws, ordinances rules, regulations, and lawful orders of public authorities bearing on performance of the Work.

2.13.3 If the Contractor performs Work that it knows or reasonably should know is contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Owner, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs.

2.14 SAFETY REQUIREMENTS

2.14.1 The Contractor shall comply with all Federal, State, and local safety laws and regulations applicable to the Work performed under this Contract.

2.15 TEMPORARY HEATING

Not required; do not install Removal & Installation of Gym Flooring in any space which is not heated properly.

2.16 AVAILABILITY AND USE OF UTILITY SERVICES

2.16.1 The City shall make all reasonably required amounts of utilities available to the Contractor from existing outlets and supplies, as specified in the Contract. Unless otherwise provided in the Contract, the amount of each utility service consumed shall be charged to or paid for by the Contractor at prevailing rates charged to the City or, where the utility is produced by the City, at reasonable rates determined by the Contracting Officer. The Contractor shall carefully conserve any utilities furnished without charge.

2.17 DISPUTES

2.17.1 "Claim," as used in this section, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to the contract. A claim arising under the Contract, unlike a claim relating to the Contract, is a claim that can be resolved under a Contract clause that provides for the relief sought by the claimant. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim. The submission may be converted to a claim by complying with the requirements of this section, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

2.17.2 All disputes arising under or relating to this Contract, including any claims for damages for the alleged breach thereof which are not disposed of by agreement, shall be resolved under this section.

2.17.3 All claims by the Contractor shall be made in writing and submitted to the Contract Officer for a written decision. A claim by the City against the Contractor shall be subject to a written decision by the Contract Officer.

2.17.4 The Contract Officer shall, within thirty (30) days after receipt of the request, decide the claim or notify the Contractor of the date by which the decision will be made.

2.17.5 The Contract Officer's decision shall be final unless the Contractor (1) appeals in writing to a higher level in the City, (2) refers the appeal to an independent mediator or arbitrator, or (3) files suit in a court of competent jurisdiction. Such appeal must be made within thirty (30) days after receipt of the Contract Officer's decision.

2.17.6 The Contractor shall proceed diligently with performance of this Contract and/or any authorized change thereof, pending final resolution of any request for relief, claim, appeal, or action arising under or relating to the Contract and/or any authorized change thereof, and comply with any decision of the Contract Officer.

2.18 LIQUIDATED DAMAGES

2.18.1 If the Contractor fails to complete the Work within the time specified in the contract, or any extension thereof, the Contractor shall pay to the City as liquidated damages, the sum of $250.00 for each day of delay. Completion dates are specified in the Contract for separate phases of the work, and the amount of liquidated damages shall be assessed on each and every phase which is delayed. In the contect of this paragraph, “delay” means failure to provide installed and complete Removal & Installation of Gym Flooring on the date required by Peabody Construction, who is the Owner’s Contractor for the Phase 2 Renovation project at Angier Elementary School. To the extent that the Contractor's delay or nonperformance is excused under another section in this Contract, liquidated damages shall not be due the City. The Contractor remains liable for damages caused other than by delay.

2.18.2 If the City terminates the Contractor's right to proceed pursuant to section 2.12.1, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the Work together with any increased costs to the City in completing the Work.

2.18.3 If the City does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the Work is completed or accepted.

3.0 SALES TAX EXEMPTION AND OTHER TAXES

3.0.1 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.

3.0.2 The Contractor shall be responsible for paying all other taxes and tariffs of any sort, related to the Work.

3.1 PROHIBITION AGAINST LIENS

The Contractor is prohibited from placing a lien on the City's property. This prohibition shall apply to all subcontractors at any tier and all materials suppliers.

3.2 ORDER OF PRECEDENCE

In the event of a conflict between these General Conditions and the Specifications, the General Conditions shall prevail. In the event of a conflict between the Contract and any applicable state or local law or regulation, the state or local law or regulation shall prevail; provided that such state or local law or regulation does not conflict with, or is less restrictive than applicable federal law, regulation, or Executive Order. In the event of such a conflict, applicable federal law, regulation, and Executive Order shall prevail.

3.3 EXAMINATION AND RETENTION OF CONTRACTOR'S RECORDS

The City of Newton shall, until three (3) years after final payment under this Contract, have access to and the right to examine any of the Contractor's directly pertinent books, documents, papers, or other records involving transactions related to this Contract for the purpose of making audit, examination, excerpts, and/or transcriptions.

END OF GENERAL CONDITIONS

CITY OF NEWTON

WAGE RATE REQUIREMENTS

1. GENERAL

A. This section summarizes the requirements for the payment of wages to laborers and mechanics employed under the Contract.

B. Other duties and requirements of law which may not be specified in this section apply and are inherently a part of the Contract.

2. WAGE RATES

A. The rate per hour to be paid to mechanics, apprentices, teamsters, chauffeurs, and laborers employed on the Work shall not be less than the rate of wages in the attached "Minimum Wage Rates" as determined by the Commissioner of Labor and Industries. This schedule shall continue to be the minimum rate of wages for said employees during the life of this Contract.

B. Keep posted on the site a legible copy of said schedule. Keep on file the wage rates and classifications of labor employed on this Work in order that they may be available for inspection by the Owner, Administrator, or the Architect.

C. Apprentices employed pursuant to this determination of wage rates must be registered and approved by the State Apprenticeship Council wherever rates for journeymen or apprentices are not listed.

D. Pay reserve police officers employed on the Work the prevailing rate of wages paid to regular police officers as required by M.G.L. c149, Sec. 34B, as amended. Such police officers shall be covered by Workmen's Compensation Insurance and Employers Liability Insurance by the Contractor.

E. **The Contractor and all subcontractors shall, on a weekly basis throughout the term of the contract, provide to the City of Newton certified payroll affidavits verifying compliance with M.G.L. c.149, Sec. 27, 27A and 27B.** The Contractor is obiligated to provide such records to the City directly on a weekly basis. The City may assess a penalty of $100 for each day beyond the required submission date that such records are received, which amount shall be deducted from any amounts to the Contractor from the City. In the event of chronic late submissions, the City shall report the same to the Office of the Attorney General.

F. The Contractor and all subcontractors shall provide a Statement of Compliance within 15 days of the completion of its portion of the work. This statement shall be submitted to the Owner on the form found elsewhere in this section.

G. The Contractor shall maintain accurate and complete records, including payroll records, during the Contract term and for three years thereafter.

END OF SECTION

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

Prevailing Wage Rates

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

CHARLES D. BAKER
Governor

KARYN E. POLITO
Lt. Governor

RONALD L. WALKER, II
Secretary

JEAN ZEILER
Acting Director

Awarding Authority: City of Newton

Contract Number: 15-124 **City/Town:** NEWTON

Description of Work: East Parish Burial Tomb Restoration

Job Location: Centre Street and Cotton Street

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- 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 from the Department of Labor Standards ("DLS") 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 any sub-contractor.
- All apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentice must keep his/her apprentice identification card on his/her person 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. **If an apprentice rate is not listed on the prevailing wage schedule for the trade in which an apprentice is registered with the DAS, the apprentice must be paid the journeyworker's rate for the trade.**
- 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. Awarding authorities are required to request these updates 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, 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. Contractors are required to obtain the wage schedules from awarding authorities, and to pay no less than these rates to covered workers. The annual update requirement is not applicable to 27F "rental of equipment" contracts.
- Every contractor or subcontractor which performs construction work on the project is required to 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. A sample of a payroll reporting form may be obtained at 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.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may report the violation to the Fair Labor Division of the office of the Attorney General at (617) 727-3465.
- 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.

Issue Date: 05/22/2015 **Wage Request Number:** 20150522-019

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
Construction						
(2 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2014	$32.40	$9.91	$9.33	$0.00	$51.64
	06/01/2015	$32.75	$9.91	$9.33	$0.00	$51.99
	08/01/2015	$32.75	$10.41	$9.33	$0.00	$52.49
	12/01/2015	$32.75	$10.41	$10.08	$0.00	$53.24
	06/01/2016	$33.25	$10.41	$10.08	$0.00	$53.74
	08/01/2016	$33.25	$10.91	$10.08	$0.00	$54.24
	12/01/2016	$33.25	$10.91	$10.89	$0.00	$55.05
(3 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2014	$32.47	$9.91	$9.33	$0.00	$51.71
	06/01/2015	$32.82	$9.91	$9.33	$0.00	$52.06
	08/01/2015	$32.82	$10.41	$9.33	$0.00	$52.56
	12/01/2015	$32.82	$10.41	$10.08	$0.00	$53.31
	06/01/2016	$33.32	$10.41	$10.08	$0.00	$53.81
	08/01/2016	$33.32	$10.91	$10.08	$0.00	$54.31
	12/01/2016	$33.32	$10.91	$10.89	$0.00	$55.12
(4 & 5 AXLE) DRIVER - EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2014	$32.59	$9.91	$9.33	$0.00	$51.83
	06/01/2015	$32.94	$9.91	$9.33	$0.00	$52.18
	08/01/2015	$32.94	$10.41	$9.33	$0.00	$52.68
	12/01/2015	$32.94	$10.41	$10.08	$0.00	$53.43
	06/01/2016	$33.44	$10.41	$10.08	$0.00	$53.93
	08/01/2016	$33.44	$10.91	$10.08	$0.00	$54.43
	12/01/2016	$33.44	$10.91	$10.89	$0.00	$55.24
ADS/SUBMERSIBLE PILOT *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2014	$87.36	$9.80	$18.17	$0.00	$115.33
	08/01/2015	$90.51	$9.80	$18.17	$0.00	$118.48
AIR TRACK OPERATOR *LABORERS - ZONE 1*	12/01/2014	$35.35	$7.30	$12.95	$0.00	$55.60
	06/01/2015	$36.10	$7.30	$12.95	$0.00	$56.35
	12/01/2015	$36.85	$7.30	$12.95	$0.00	$57.10
	06/01/2016	$37.60	$7.30	$12.95	$0.00	$57.85
	12/01/2016	$38.60	$7.30	$12.95	$0.00	$58.85
For apprentice rates see "Apprentice- LABORER"						
ASBESTOS REMOVER - PIPE / MECH. EQUIPT. *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	12/01/2014	$32.48	$10.40	$5.95	$0.00	$48.83
	06/01/2015	$33.43	$10.40	$5.95	$0.00	$49.78
	12/01/2015	$34.38	$10.40	$5.95	$0.00	$50.73
ASPHALT RAKER *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$42.39	$10.00	$14.30	$0.00	$66.69
	06/01/2015	$43.14	$10.00	$14.30	$0.00	$67.44
	12/01/2015	$44.39	$10.00	$14.30	$0.00	$68.69
	06/01/2016	$45.14	$10.00	$14.30	$0.00	$69.44
	12/01/2016	$46.39	$10.00	$14.30	$0.00	$70.69
	06/01/2017	$47.39	$10.00	$14.30	$0.00	$71.69
	12/01/2017	$48.39	$10.00	$14.30	$0.00	$72.69

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BACKHOE/FRONT-END LOADER *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$42.39	$10.00	$14.30	$0.00	$66.69
	06/01/2015	$43.14	$10.00	$14.30	$0.00	$67.44
	12/01/2015	$44.39	$10.00	$14.30	$0.00	$68.69
	06/01/2016	$45.14	$10.00	$14.30	$0.00	$69.44
	12/01/2016	$46.39	$10.00	$14.30	$0.00	$70.69
	06/01/2017	$47.39	$10.00	$14.30	$0.00	$71.69
	12/01/2017	$48.39	$10.00	$14.30	$0.00	$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
BARCO-TYPE JUMPING TAMPER *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
BLOCK PAVER, RAMMER / CURB SETTER *LABORERS - ZONE 1*	12/01/2014	$35.35	$7.30	$12.95	$0.00	$55.60
	06/01/2015	$36.10	$7.30	$12.95	$0.00	$56.35
	12/01/2015	$36.85	$7.30	$12.95	$0.00	$57.10
	06/01/2016	$37.60	$7.30	$12.95	$0.00	$57.85
	12/01/2016	$38.60	$7.30	$12.95	$0.00	$58.85
For apprentice rates see "Apprentice- LABORER"						
BOILER MAKER *BOILERMAKERS LOCAL 29*	01/01/2010	$37.70	$6.97	$11.18	$0.00	$55.85

Apprentice - *BOILERMAKER - Local 29*
Effective Date - 01/01/2010

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	65	$24.51	$6.97	$11.18	$0.00	$42.66
2	65	$24.51	$6.97	$11.18	$0.00	$42.66
3	70	$26.39	$6.97	$11.18	$0.00	$44.54
4	75	$28.28	$6.97	$11.18	$0.00	$46.43
5	80	$30.16	$6.97	$11.18	$0.00	$48.31
6	85	$32.05	$6.97	$11.18	$0.00	$50.20
7	90	$33.93	$6.97	$11.18	$0.00	$52.08
8	95	$35.82	$6.97	$11.18	$0.00	$53.97

Notes:

Apprentice to Journeyworker Ratio:1:5

BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) *BRICKLAYERS LOCAL 3 (NEWTON)*	02/01/2015	$48.96	$10.18	$18.50	$0.00	$77.64
	08/01/2015	$49.86	$10.18	$18.57	$0.00	$78.61
	02/01/2016	$50.43	$10.18	$18.57	$0.00	$79.18
	08/01/2016	$51.33	$10.18	$18.65	$0.00	$80.16
	02/01/2017	$51.90	$10.18	$18.65	$0.00	$80.73

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *BRICK/PLASTER/CEMENT MASON - Local 3 Newton*

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.48	$10.18	$18.50	$0.00	$53.16
2	60	$29.38	$10.18	$18.50	$0.00	$58.06
3	70	$34.27	$10.18	$18.50	$0.00	$62.95
4	80	$39.17	$10.18	$18.50	$0.00	$67.85
5	90	$44.06	$10.18	$18.50	$0.00	$72.74

Effective Date - 08/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.93	$10.18	$18.57	$0.00	$53.68
2	60	$29.92	$10.18	$18.57	$0.00	$58.67
3	70	$34.90	$10.18	$18.57	$0.00	$63.65
4	80	$39.89	$10.18	$18.57	$0.00	$68.64
5	90	$44.87	$10.18	$18.57	$0.00	$73.62

Notes:

Apprentice to Journeyworker Ratio:1:5

BULLDOZER/GRADER/SCRAPER *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$41.99	$10.00	$14.30	$0.00	$66.29
	06/01/2015	$42.73	$10.00	$14.30	$0.00	$67.03
	12/01/2015	$43.97	$10.00	$14.30	$0.00	$68.27
	06/01/2016	$44.72	$10.00	$14.30	$0.00	$69.02
	12/01/2016	$45.95	$10.00	$14.30	$0.00	$70.25
	06/01/2017	$46.94	$10.00	$14.30	$0.00	$71.24
	12/01/2017	$47.93	$10.00	$14.30	$0.00	$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
CAISSON & UNDERPINNING BOTTOM MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2014	$35.70	$7.30	$13.15	$0.00	$56.15
	06/01/2015	$36.45	$7.30	$13.15	$0.00	$56.90
	12/01/2015	$37.20	$7.30	$13.15	$0.00	$57.65
	06/01/2016	$37.95	$7.30	$13.15	$0.00	$58.40
	12/01/2016	$38.95	$7.30	$13.15	$0.00	$59.40
For apprentice rates see "Apprentice- LABORER"						
CAISSON & UNDERPINNING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2014	$34.55	$7.30	$13.15	$0.00	$55.00
	06/01/2015	$35.30	$7.30	$13.15	$0.00	$55.75
	12/01/2015	$36.05	$7.30	$13.15	$0.00	$56.50
	06/01/2016	$36.80	$7.30	$13.15	$0.00	$57.25
	12/01/2016	$37.80	$7.30	$13.15	$0.00	$58.25
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
CAISSON & UNDERPINNING TOP MAN *LABORERS - FOUNDATION AND MARINE*	12/01/2014	$34.55	$7.30	$13.15	$0.00	$55.00
	06/01/2015	$35.30	$7.30	$13.15	$0.00	$55.75
	12/01/2015	$36.05	$7.30	$13.15	$0.00	$56.50
	06/01/2016	$36.80	$7.30	$13.15	$0.00	$57.25
	12/01/2016	$37.80	$7.30	$13.15	$0.00	$58.25
For apprentice rates see "Apprentice- LABORER"						
CARBIDE CORE DRILL OPERATOR *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
CARPENTER *CARPENTERS -ZONE 2 (Eastern Massachusetts)*	03/01/2015	$35.75	$9.80	$16.48	$0.00	$62.03

Apprentice - *CARPENTER - Zone 2 Eastern MA*

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$17.88	$9.80	$1.63	$0.00	$29.31
2	60	$21.45	$9.80	$1.63	$0.00	$32.88
3	70	$25.03	$9.80	$11.59	$0.00	$46.42
4	75	$26.81	$9.80	$11.59	$0.00	$48.20
5	80	$28.60	$9.80	$13.22	$0.00	$51.62
6	80	$28.60	$9.80	$13.22	$0.00	$51.62
7	90	$32.18	$9.80	$14.85	$0.00	$56.83
8	90	$32.18	$9.80	$14.85	$0.00	$56.83

Notes:

Apprentice to Journeyworker Ratio:1:5

CEMENT MASONRY/PLASTERING *BRICKLAYERS LOCAL 3 (NEWTON)*	01/01/2015	$44.90	$10.90	$18.71	$1.30	$75.81
	07/01/2015	$45.82	$10.90	$18.71	$1.30	$76.73
	01/01/2016	$46.44	$10.90	$18.71	$1.30	$77.35

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *CEMENT MASONRY/PLASTERING - Eastern Mass (Newton)*

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$22.45	$10.90	$12.21	$1.30	$46.86
2	60	$26.94	$10.90	$13.71	$1.30	$52.85
3	65	$29.19	$10.90	$14.71	$1.30	$56.10
4	70	$31.43	$10.90	$15.71	$1.30	$59.34
5	75	$33.68	$10.90	$16.71	$1.30	$62.59
6	80	$35.92	$10.90	$17.71	$1.30	$65.83
7	90	$40.41	$10.90	$18.71	$1.30	$71.32

Effective Date - 07/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$22.91	$10.90	$12.21	$1.30	$47.32
2	60	$27.49	$10.90	$13.71	$1.30	$53.40
3	65	$29.78	$10.90	$14.71	$1.30	$56.69
4	70	$32.07	$10.90	$15.71	$1.30	$59.98
5	75	$34.37	$10.90	$16.71	$1.30	$63.28
6	80	$36.66	$10.90	$17.71	$1.30	$66.57
7	90	$41.24	$10.90	$18.71	$1.30	$72.15

Notes:

Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

CHAIN SAW OPERATOR *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$43.39	$10.00	$14.30	$0.00	$67.69
	06/01/2015	$44.14	$10.00	$14.30	$0.00	$68.44
	12/01/2015	$45.39	$10.00	$14.30	$0.00	$69.69
	06/01/2016	$46.14	$10.00	$14.30	$0.00	$70.44
	12/01/2016	$47.39	$10.00	$14.30	$0.00	$71.69
	06/01/2017	$48.39	$10.00	$14.30	$0.00	$72.69
	12/01/2017	$49.39	$10.00	$14.30	$0.00	$73.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
COMPRESSOR OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$29.40	$10.00	$14.30	$0.00	$53.70
	06/01/2015	$29.92	$10.00	$14.30	$0.00	$54.22
	12/01/2015	$30.79	$10.00	$14.30	$0.00	$55.09
	06/01/2016	$31.31	$10.00	$14.30	$0.00	$55.61
	12/01/2016	$32.18	$10.00	$14.30	$0.00	$56.48
	06/01/2017	$32.87	$10.00	$14.30	$0.00	$57.17
	12/01/2017	$33.56	$10.00	$14.30	$0.00	$57.86
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DELEADER (BRIDGE) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2015	$47.66	$7.85	$16.10	$0.00	$71.61
	07/01/2015	$48.56	$7.85	$16.10	$0.00	$72.51
	01/01/2016	$49.51	$7.85	$16.10	$0.00	$73.46
	07/01/2016	$50.46	$7.85	$16.10	$0.00	$74.41
	01/01/2017	$51.41	$7.85	$16.10	$0.00	$75.36

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.83	$7.85	$0.00	$0.00	$31.68
2	55	$26.21	$7.85	$3.66	$0.00	$37.72
3	60	$28.60	$7.85	$3.99	$0.00	$40.44
4	65	$30.98	$7.85	$4.32	$0.00	$43.15
5	70	$33.36	$7.85	$14.11	$0.00	$55.32
6	75	$35.75	$7.85	$14.44	$0.00	$58.04
7	80	$38.13	$7.85	$14.77	$0.00	$60.75
8	90	$42.89	$7.85	$15.44	$0.00	$66.18

Effective Date - 07/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.28	$7.85	$0.00	$0.00	$32.13
2	55	$26.71	$7.85	$3.66	$0.00	$38.22
3	60	$29.14	$7.85	$3.99	$0.00	$40.98
4	65	$31.56	$7.85	$4.32	$0.00	$43.73
5	70	$33.99	$7.85	$14.11	$0.00	$55.95
6	75	$36.42	$7.85	$14.44	$0.00	$58.71
7	80	$38.85	$7.85	$14.77	$0.00	$61.47
8	90	$43.70	$7.85	$15.44	$0.00	$66.99

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

DEMO: ADZEMAN *LABORERS - ZONE 1*	12/01/2014	$34.75	$7.30	$12.95	$0.00	$55.00
	06/01/2015	$35.50	$7.30	$12.95	$0.00	$55.75
	12/01/2015	$36.25	$7.30	$12.95	$0.00	$56.50
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
DEMO: BACKHOE/LOADER/HAMMER OPERATOR *LABORERS - ZONE 1*	12/01/2014	$35.75	$7.30	$12.95	$0.00	$56.00
	06/01/2015	$36.50	$7.30	$12.95	$0.00	$56.75
	12/01/2015	$37.25	$7.30	$12.95	$0.00	$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: BURNERS *LABORERS - ZONE 1*	12/01/2014	$35.50	$7.30	$12.95	$0.00	$55.75
	06/01/2015	$36.25	$7.30	$12.95	$0.00	$56.50
	12/01/2015	$37.00	$7.30	$12.95	$0.00	$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: CONCRETE CUTTER/SAWYER *LABORERS - ZONE 1*	12/01/2014	$35.75	$7.30	$12.95	$0.00	$56.00
	06/01/2015	$36.50	$7.30	$12.95	$0.00	$56.75
	12/01/2015	$37.25	$7.30	$12.95	$0.00	$57.50
For apprentice rates see "Apprentice- LABORER"						
DEMO: JACKHAMMER OPERATOR *LABORERS - ZONE 1*	12/01/2014	$35.50	$7.30	$12.95	$0.00	$55.75
	06/01/2015	$36.25	$7.30	$12.95	$0.00	$56.50
	12/01/2015	$37.00	$7.30	$12.95	$0.00	$57.25
For apprentice rates see "Apprentice- LABORER"						
DEMO: WRECKING LABORER *LABORERS - ZONE 1*	12/01/2014	$34.75	$7.30	$12.95	$0.00	$55.00
	06/01/2015	$35.50	$7.30	$12.95	$0.00	$55.75
	12/01/2015	$36.25	$7.30	$12.95	$0.00	$56.50
For apprentice rates see "Apprentice- LABORER"						
DIRECTIONAL DRILL MACHINE OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$41.99	$10.00	$14.30	$0.00	$66.29
	06/01/2015	$42.73	$10.00	$14.30	$0.00	$67.03
	12/01/2015	$43.97	$10.00	$14.30	$0.00	$68.27
	06/01/2016	$44.72	$10.00	$14.30	$0.00	$69.02
	12/01/2016	$45.95	$10.00	$14.30	$0.00	$70.25
	06/01/2017	$46.94	$10.00	$14.30	$0.00	$71.24
	12/01/2017	$47.93	$10.00	$14.30	$0.00	$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
DIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2014	$58.24	$9.80	$18.17	$0.00	$86.21
	08/01/2015	$60.34	$9.80	$18.17	$0.00	$88.31
DIVER TENDER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2014	$41.60	$9.80	$18.17	$0.00	$69.57
	08/01/2015	$43.10	$9.80	$18.17	$0.00	$71.07
DIVER TENDER (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2014	$62.40	$9.80	$18.17	$0.00	$90.37
	08/01/2015	$64.65	$9.80	$18.17	$0.00	$92.62
DIVER/SLURRY (EFFLUENT) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2014	$87.36	$9.80	$18.17	$0.00	$115.33
	08/01/2015	$90.51	$9.80	$18.17	$0.00	$118.48
DRAWBRIDGE OPERATOR (Construction) *ELECTRICIANS LOCAL 103*	03/01/2015	$45.17	$13.00	$15.40	$0.00	$73.57
	09/01/2015	$46.13	$13.00	$15.43	$0.00	$74.56
	03/01/2016	$47.08	$13.00	$15.46	$0.00	$75.54
For apprentice rates see "Apprentice- ELECTRICIAN"						
ELECTRICIAN *ELECTRICIANS LOCAL 103*	03/01/2015	$45.17	$13.00	$15.40	$0.00	$73.57
	09/01/2015	$46.13	$13.00	$15.43	$0.00	$74.56
	03/01/2016	$47.08	$13.00	$15.46	$0.00	$75.54

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELECTRICIAN - Local 103*

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$18.07	$13.00	$0.54	$0.00	$31.61
2	40	$18.07	$13.00	$0.54	$0.00	$31.61
3	45	$20.33	$13.00	$11.64	$0.00	$44.97
4	45	$20.33	$13.00	$11.64	$0.00	$44.97
5	50	$22.59	$13.00	$11.98	$0.00	$47.57
6	55	$24.84	$13.00	$12.33	$0.00	$50.17
7	60	$27.10	$13.00	$12.66	$0.00	$52.76
8	65	$29.36	$13.00	$13.01	$0.00	$55.37
9	70	$31.62	$13.00	$13.35	$0.00	$57.97
10	75	$33.88	$13.00	$13.70	$0.00	$60.58

Effective Date - 09/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$18.45	$13.00	$0.55	$0.00	$32.00
2	40	$18.45	$13.00	$0.55	$0.00	$32.00
3	45	$20.76	$13.00	$11.65	$0.00	$45.41
4	45	$20.76	$13.00	$11.65	$0.00	$45.41
5	50	$23.07	$13.00	$11.99	$0.00	$48.06
6	55	$25.37	$13.00	$12.34	$0.00	$50.71
7	60	$27.68	$13.00	$12.68	$0.00	$53.36
8	65	$29.98	$13.00	$13.03	$0.00	$56.01
9	70	$32.29	$13.00	$13.37	$0.00	$58.66
10	75	$34.60	$13.00	$13.72	$0.00	$61.32

Notes: :

App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

Apprentice to Journeyworker Ratio:2:3***

ELEVATOR CONSTRUCTOR *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2015	$53.30	$13.58	$14.21	$0.00	$81.09
	01/01/2016	$54.53	$14.43	$14.96	$0.00	$83.92
	01/01/2017	$55.86	$15.28	$15.71	$0.00	$86.85

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ELEVATOR CONSTRUCTOR - Local 4*

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$26.65	$13.58	$0.00	$0.00	$40.23
2	55	$29.32	$13.58	$14.21	$0.00	$57.11
3	65	$34.65	$13.58	$14.21	$0.00	$62.44
4	70	$37.31	$13.58	$14.21	$0.00	$65.10
5	80	$42.64	$13.58	$14.21	$0.00	$70.43

Effective Date - 01/01/2016

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$27.27	$14.43	$0.00	$0.00	$41.70
2	55	$29.99	$14.43	$14.96	$0.00	$59.38
3	65	$35.44	$14.43	$14.96	$0.00	$64.83
4	70	$38.17	$14.43	$14.96	$0.00	$67.56
5	80	$43.62	$14.43	$14.96	$0.00	$73.01

Notes:

Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

Apprentice to Journeyworker Ratio:1:1

ELEVATOR CONSTRUCTOR HELPER *ELEVATOR CONSTRUCTORS LOCAL 4*	01/01/2015	$37.31	$13.58	$14.21	$0.00	$65.10
	01/01/2016	$38.17	$14.43	$14.96	$0.00	$67.56
	01/01/2017	$39.10	$15.28	$15.71	$0.00	$70.09
For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"						
FENCE & GUARD RAIL ERECTOR *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2015	$40.22	$10.00	$14.30	$0.00	$64.52
	11/01/2015	$40.80	$10.00	$14.30	$0.00	$65.10
	05/01/2016	$41.69	$10.00	$14.30	$0.00	$65.99
	11/01/2016	$42.28	$10.00	$14.30	$0.00	$66.58
	05/01/2017	$43.16	$10.00	$14.30	$0.00	$67.46
	11/01/2017	$43.89	$10.00	$14.30	$0.00	$68.19
	05/01/2018	$44.60	$10.00	$14.30	$0.00	$68.90
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2015	$41.65	$10.00	$14.30	$0.00	$65.95
	11/01/2015	$42.24	$10.00	$14.30	$0.00	$66.54
	05/01/2016	$43.13	$10.00	$14.30	$0.00	$67.43
	11/01/2016	$43.73	$10.00	$14.30	$0.00	$68.03
	05/01/2017	$44.62	$10.00	$14.30	$0.00	$68.92
	11/01/2017	$45.35	$10.00	$14.30	$0.00	$69.65
	05/01/2018	$46.07	$10.00	$14.30	$0.00	$70.37
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY *OPERATING ENGINEERS LOCAL 4*	05/01/2015	$21.68	$10.00	$14.30	$0.00	$45.98
	11/01/2015	$22.02	$10.00	$14.30	$0.00	$46.32
	05/01/2016	$22.54	$10.00	$14.30	$0.00	$46.84
	11/01/2016	$22.89	$10.00	$14.30	$0.00	$47.19
	05/01/2017	$23.42	$10.00	$14.30	$0.00	$47.72
	11/01/2017	$23.84	$10.00	$14.30	$0.00	$48.14
	05/01/2018	$24.27	$10.00	$14.30	$0.00	$48.57
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FIRE ALARM INSTALLER *ELECTRICIANS LOCAL 103*	03/01/2015	$45.17	$13.00	$15.40	$0.00	$73.57
	09/01/2015	$46.13	$13.00	$15.43	$0.00	$74.56
	03/01/2016	$47.08	$13.00	$15.46	$0.00	$75.54
For apprentice rates see "Apprentice- ELECTRICIAN"						
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING *ELECTRICIANS LOCAL 103*	03/01/2015	$33.88	$13.00	$13.70	$0.00	$60.58
	09/01/2015	$34.60	$13.00	$13.72	$0.00	$61.32
	03/01/2016	$35.31	$13.00	$13.74	$0.00	$62.05
For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN"						
FIREMAN (ASST. ENGINEER) *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$35.33	$10.00	$14.30	$0.00	$59.63
	06/01/2015	$35.95	$10.00	$14.30	$0.00	$60.25
	12/01/2015	$37.00	$10.00	$14.30	$0.00	$61.30
	06/01/2016	$37.62	$10.00	$14.30	$0.00	$61.92
	12/01/2016	$38.66	$10.00	$14.30	$0.00	$62.96
	06/01/2017	$39.50	$10.00	$14.30	$0.00	$63.80
	12/01/2017	$40.33	$10.00	$14.30	$0.00	$64.63
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
FLAGGER & SIGNALER *LABORERS - ZONE 1*	12/01/2014	$20.50	$7.30	$12.95	$0.00	$40.75
	06/01/2015	$20.50	$7.30	$12.95	$0.00	$40.75
	12/01/2015	$20.50	$7.30	$12.95	$0.00	$40.75
	06/01/2016	$20.50	$7.30	$12.95	$0.00	$40.75
	12/01/2016	$20.50	$7.30	$12.95	$0.00	$40.75
For apprentice rates see "Apprentice- LABORER"						
FLOORCOVERER *FLOORCOVERERS LOCAL 2168 ZONE 1*	09/01/2014	$40.40	$9.80	$17.21	$0.00	$67.41

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *FLOORCOVERER - Local 2168 Zone I*

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.20	$9.80	$1.79	$0.00	$31.79
2	55	$22.22	$9.80	$1.79	$0.00	$33.81
3	60	$24.24	$9.80	$11.84	$0.00	$45.88
4	65	$26.26	$9.80	$11.84	$0.00	$47.90
5	70	$28.28	$9.80	$13.63	$0.00	$51.71
6	75	$30.30	$9.80	$13.63	$0.00	$53.73
7	80	$32.32	$9.80	$15.42	$0.00	$57.54
8	85	$34.34	$9.80	$15.42	$0.00	$59.56

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

FORK LIFT/CHERRY PICKER *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$42.39	$10.00	$14.30	$0.00	$66.69
	06/01/2015	$43.14	$10.00	$14.30	$0.00	$67.44
	12/01/2015	$44.39	$10.00	$14.30	$0.00	$68.69
	06/01/2016	$45.14	$10.00	$14.30	$0.00	$69.44
	12/01/2016	$46.39	$10.00	$14.30	$0.00	$70.69
	06/01/2017	$47.39	$10.00	$14.30	$0.00	$71.69
	12/01/2017	$48.39	$10.00	$14.30	$0.00	$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GENERATOR/LIGHTING PLANT/HEATERS *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$29.40	$10.00	$14.30	$0.00	$53.70
	06/01/2015	$29.92	$10.00	$14.30	$0.00	$54.22
	12/01/2015	$30.79	$10.00	$14.30	$0.00	$55.09
	06/01/2016	$31.31	$10.00	$14.30	$0.00	$55.61
	12/01/2016	$32.18	$10.00	$14.30	$0.00	$56.48
	06/01/2017	$32.87	$10.00	$14.30	$0.00	$57.17
	12/01/2017	$33.56	$10.00	$14.30	$0.00	$57.86
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) *GLAZIERS LOCAL 35 (ZONE 2)*	01/01/2015	$37.16	$7.85	$16.10	$0.00	$61.11
	07/01/2015	$38.06	$7.85	$16.10	$0.00	$62.01
	01/01/2016	$39.01	$7.85	$16.10	$0.00	$62.96
	07/01/2016	$39.96	$7.85	$16.10	$0.00	$63.91
	01/01/2017	$40.91	$7.85	$16.10	$0.00	$64.86

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *GLAZIER - Local 35 Zone 2*

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.58	$7.85	$0.00	$0.00	$26.43
2	55	$20.44	$7.85	$3.66	$0.00	$31.95
3	60	$22.30	$7.85	$3.99	$0.00	$34.14
4	65	$24.15	$7.85	$4.32	$0.00	$36.32
5	70	$26.01	$7.85	$14.11	$0.00	$47.97
6	75	$27.87	$7.85	$14.44	$0.00	$50.16
7	80	$29.73	$7.85	$14.77	$0.00	$52.35
8	90	$33.44	$7.85	$15.44	$0.00	$56.73

Effective Date - 07/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.03	$7.85	$0.00	$0.00	$26.88
2	55	$20.93	$7.85	$3.66	$0.00	$32.44
3	60	$22.84	$7.85	$3.99	$0.00	$34.68
4	65	$24.74	$7.85	$4.32	$0.00	$36.91
5	70	$26.64	$7.85	$14.11	$0.00	$48.60
6	75	$28.55	$7.85	$14.44	$0.00	$50.84
7	80	$30.45	$7.85	$14.77	$0.00	$53.07
8	90	$34.25	$7.85	$15.44	$0.00	$57.54

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

HOISTING ENGINEER/CRANES/GRADALLS *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$42.39	$10.00	$14.30	$0.00	$66.69
	06/01/2015	$43.14	$10.00	$14.30	$0.00	$67.44
	12/01/2015	$44.39	$10.00	$14.30	$0.00	$68.69
	06/01/2016	$45.14	$10.00	$14.30	$0.00	$69.44
	12/01/2016	$46.39	$10.00	$14.30	$0.00	$70.69
	06/01/2017	$47.39	$10.00	$14.30	$0.00	$71.69
	12/01/2017	$48.39	$10.00	$14.30	$0.00	$72.69

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *OPERATING ENGINEERS - Local 4*

Effective Date - 12/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$23.31	$10.00	$0.00	$0.00	$33.31
2	60	$25.43	$10.00	$14.30	$0.00	$49.73
3	65	$27.55	$10.00	$14.30	$0.00	$51.85
4	70	$29.67	$10.00	$14.30	$0.00	$53.97
5	75	$31.79	$10.00	$14.30	$0.00	$56.09
6	80	$33.91	$10.00	$14.30	$0.00	$58.21
7	85	$36.03	$10.00	$14.30	$0.00	$60.33
8	90	$38.15	$10.00	$14.30	$0.00	$62.45

Effective Date - 06/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$23.73	$10.00	$0.00	$0.00	$33.73
2	60	$25.88	$10.00	$14.30	$0.00	$50.18
3	65	$28.04	$10.00	$14.30	$0.00	$52.34
4	70	$30.20	$10.00	$14.30	$0.00	$54.50
5	75	$32.36	$10.00	$14.30	$0.00	$56.66
6	80	$34.51	$10.00	$14.30	$0.00	$58.81
7	85	$36.67	$10.00	$14.30	$0.00	$60.97
8	90	$38.83	$10.00	$14.30	$0.00	$63.13

Notes:

Apprentice to Journeyworker Ratio:1:6

HVAC (DUCTWORK) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2015	$43.28	$10.20	$20.54	$2.22	$76.24
	08/01/2015	$44.28	$10.20	$20.54	$2.22	$77.24
	02/01/2016	$45.28	$10.20	$20.54	$2.22	$78.24
	08/01/2016	$46.43	$10.20	$20.54	$2.22	$79.39
	02/01/2017	$47.53	$10.20	$20.54	$2.22	$80.49
	08/01/2017	$48.63	$10.20	$20.54	$2.22	$81.59
	02/01/2018	$49.78	$10.20	$20.54	$2.22	$82.74

For apprentice rates see "Apprentice- SHEET METAL WORKER"

HVAC (ELECTRICAL CONTROLS) *ELECTRICIANS LOCAL 103*	03/01/2015	$45.17	$13.00	$15.40	$0.00	$73.57
	09/01/2015	$46.13	$13.00	$15.43	$0.00	$74.56
	03/01/2016	$47.08	$13.00	$15.46	$0.00	$75.54

For apprentice rates see "Apprentice- ELECTRICIAN"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
HVAC (TESTING AND BALANCING - AIR) *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2015	$43.28	$10.20	$20.54	$2.22	$76.24
	08/01/2015	$44.28	$10.20	$20.54	$2.22	$77.24
	02/01/2016	$45.28	$10.20	$20.54	$2.22	$78.24
	08/01/2016	$46.43	$10.20	$20.54	$2.22	$79.39
	02/01/2017	$47.53	$10.20	$20.54	$2.22	$80.49
	08/01/2017	$48.63	$10.20	$20.54	$2.22	$81.59
	02/01/2018	$49.78	$10.20	$20.54	$2.22	$82.74
For apprentice rates see "Apprentice- SHEET METAL WORKER"						
HVAC (TESTING AND BALANCING -WATER) *PIPEFITTERS LOCAL 537*	03/01/2015	$48.69	$9.70	$16.89	$0.00	$75.28
	09/01/2015	$49.69	$9.70	$16.89	$0.00	$76.28
	03/01/2016	$50.69	$9.70	$16.89	$0.00	$77.28
	09/01/2016	$51.69	$9.70	$16.89	$0.00	$78.28
	03/01/2017	$52.69	$9.70	$16.89	$0.00	$79.28
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HVAC MECHANIC *PIPEFITTERS LOCAL 537*	03/01/2015	$48.69	$9.70	$16.89	$0.00	$75.28
	09/01/2015	$49.69	$9.70	$16.89	$0.00	$76.28
	03/01/2016	$50.69	$9.70	$16.89	$0.00	$77.28
	09/01/2016	$51.69	$9.70	$16.89	$0.00	$78.28
	03/01/2017	$52.69	$9.70	$16.89	$0.00	$79.28
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
HYDRAULIC DRILLS *LABORERS - ZONE 1*	12/01/2014	$35.35	$7.30	$12.95	$0.00	$55.60
	06/01/2015	$36.10	$7.30	$12.95	$0.00	$56.35
	12/01/2015	$36.85	$7.30	$12.95	$0.00	$57.10
	06/01/2016	$37.60	$7.30	$12.95	$0.00	$57.85
	12/01/2016	$38.60	$7.30	$12.95	$0.00	$58.85
For apprentice rates see "Apprentice- LABORER"						
INSULATOR (PIPES & TANKS) *HEAT & FROST INSULATORS LOCAL 6 (BOSTON)*	09/01/2014	$43.31	$11.25	$12.60	$0.00	$67.16

Apprentice - *ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston*

Effective Date - 09/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.66	$11.25	$9.35	$0.00	$42.26
2	60	$25.99	$11.25	$10.00	$0.00	$47.24
3	70	$30.32	$11.25	$10.65	$0.00	$52.22
4	80	$34.65	$11.25	$11.30	$0.00	$57.20

Notes:
Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

IRONWORKER/WELDER *IRONWORKERS LOCAL 7 (BOSTON AREA)*	03/16/2015	$42.11	$7.70	$20.25	$0.00	$70.06

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *IRONWORKER - Local 7 Boston*

Effective Date - 03/16/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$25.27	$7.70	$20.25	$0.00	$53.22
2	70	$29.48	$7.70	$20.25	$0.00	$57.43
3	75	$31.58	$7.70	$20.25	$0.00	$59.53
4	80	$33.69	$7.70	$20.25	$0.00	$61.64
5	85	$35.79	$7.70	$20.25	$0.00	$63.74
6	90	$37.90	$7.70	$20.25	$0.00	$65.85

Notes:
** Structural 1:6; Ornamental 1:4

Apprentice to Journeyworker Ratio:**

JACKHAMMER & PAVING BREAKER OPERATOR *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
LABORER *LABORERS - ZONE 1*	12/01/2014	$34.60	$7.30	$12.95	$0.00	$54.85
	06/01/2015	$35.35	$7.30	$12.95	$0.00	$55.60
	12/01/2015	$36.10	$7.30	$12.95	$0.00	$56.35
	06/01/2016	$36.85	$7.30	$12.95	$0.00	$57.10
	12/01/2016	$37.85	$7.30	$12.95	$0.00	$58.10

Apprentice - *LABORER - Zone 1*

Effective Date - 12/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$20.76	$7.30	$12.95	$0.00	$41.01
2	70	$24.22	$7.30	$12.95	$0.00	$44.47
3	80	$27.68	$7.30	$12.95	$0.00	$47.93
4	90	$31.14	$7.30	$12.95	$0.00	$51.39

Effective Date - 06/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$21.21	$7.30	$12.95	$0.00	$41.46
2	70	$24.75	$7.30	$12.95	$0.00	$45.00
3	80	$28.28	$7.30	$12.95	$0.00	$48.53
4	90	$31.82	$7.30	$12.95	$0.00	$52.07

Notes:

Apprentice to Journeyworker Ratio:1:5

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
LABORER: CARPENTER TENDER *LABORERS - ZONE 1*	12/01/2014	$34.60	$7.30	$12.95	$0.00	$54.85
	06/01/2015	$35.35	$7.30	$12.95	$0.00	$55.60
	12/01/2015	$36.10	$7.30	$12.95	$0.00	$56.35
	06/01/2016	$36.85	$7.30	$12.95	$0.00	$57.10
	12/01/2016	$37.85	$7.30	$12.95	$0.00	$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: CEMENT FINISHER TENDER *LABORERS - ZONE 1*	12/01/2014	$34.60	$7.30	$12.95	$0.00	$54.85
	06/01/2015	$35.35	$7.30	$12.95	$0.00	$55.60
	12/01/2015	$36.10	$7.30	$12.95	$0.00	$56.35
	06/01/2016	$36.85	$7.30	$12.95	$0.00	$57.10
	12/01/2016	$37.85	$7.30	$12.95	$0.00	$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER *LABORERS - ZONE 1*	12/01/2014	$34.75	$7.30	$12.95	$0.00	$55.00
	06/01/2015	$35.50	$7.30	$12.95	$0.00	$55.75
	12/01/2015	$36.25	$7.30	$12.95	$0.00	$56.50
For apprentice rates see "Apprentice- LABORER"						
LABORER: MASON TENDER *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
LABORER: MULTI-TRADE TENDER *LABORERS - ZONE 1*	12/01/2014	$34.60	$7.30	$12.95	$0.00	$54.85
	06/01/2015	$35.35	$7.30	$12.95	$0.00	$55.60
	12/01/2015	$36.10	$7.30	$12.95	$0.00	$56.35
	06/01/2016	$36.85	$7.30	$12.95	$0.00	$57.10
	12/01/2016	$37.85	$7.30	$12.95	$0.00	$58.10
For apprentice rates see "Apprentice- LABORER"						
LABORER: TREE REMOVER *LABORERS - ZONE 1*	12/01/2014	$34.60	$7.30	$12.95	$0.00	$54.85
	06/01/2015	$35.35	$7.30	$12.95	$0.00	$55.60
	12/01/2015	$36.10	$7.30	$12.95	$0.00	$56.35
	06/01/2016	$36.85	$7.30	$12.95	$0.00	$57.10
	12/01/2016	$37.85	$7.30	$12.95	$0.00	$58.10
This classification applies to all tree work associated with the removal of standing trees, and trimming and removal of branches and limbs when the work is not done for a utility company for the purpose of operation, maintenance or repair of utility company equipment. For apprentice rates see "Apprentice- LABORER"						
LASER BEAM OPERATOR *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
MARBLE & TILE FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2015	$37.37	$10.18	$17.18	$0.00	$64.73
	08/01/2015	$38.08	$10.18	$17.25	$0.00	$65.51
	02/01/2016	$38.53	$10.18	$17.25	$0.00	$65.96
	08/01/2016	$39.23	$10.18	$17.33	$0.00	$66.74
	02/01/2017	$39.69	$10.18	$17.33	$0.00	$67.20

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MARBLE & TILE FINISHER - Local 3 Marble & Tile*

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.69	$10.18	$17.18	$0.00	$46.05
2	60	$22.42	$10.18	$17.18	$0.00	$49.78
3	70	$26.16	$10.18	$17.18	$0.00	$53.52
4	80	$29.90	$10.18	$17.18	$0.00	$57.26
5	90	$33.63	$10.18	$17.18	$0.00	$60.99

Effective Date - 08/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.04	$10.18	$17.25	$0.00	$46.47
2	60	$22.85	$10.18	$17.25	$0.00	$50.28
3	70	$26.66	$10.18	$17.25	$0.00	$54.09
4	80	$30.46	$10.18	$17.25	$0.00	$57.89
5	90	$34.27	$10.18	$17.25	$0.00	$61.70

Notes:

Apprentice to Journeyworker Ratio:1:3

MARBLE MASONS,TILELAYERS & TERRAZZO MECH *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2015	$49.00	$10.18	$18.50	$0.00	$77.68
	08/01/2015	$49.90	$10.18	$18.57	$0.00	$78.65
	02/01/2016	$50.47	$10.18	$18.57	$0.00	$79.22
	08/01/2016	$51.37	$10.18	$18.65	$0.00	$80.20
	02/01/2017	$51.94	$10.18	$18.65	$0.00	$80.77

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile*

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.50	$10.18	$18.50	$0.00	$53.18
2	60	$29.40	$10.18	$18.50	$0.00	$58.08
3	70	$34.30	$10.18	$18.50	$0.00	$62.98
4	80	$39.20	$10.18	$18.50	$0.00	$67.88
5	90	$44.10	$10.18	$18.50	$0.00	$72.78

Effective Date - 08/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.95	$10.18	$18.57	$0.00	$53.70
2	60	$29.94	$10.18	$18.57	$0.00	$58.69
3	70	$34.93	$10.18	$18.57	$0.00	$63.68
4	80	$39.92	$10.18	$18.57	$0.00	$68.67
5	90	$44.91	$10.18	$18.57	$0.00	$73.66

Notes:

Apprentice to Journeyworker Ratio:1:5

MECH. SWEEPER OPERATOR (ON CONST. SITES) *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$41.99	$10.00	$14.30	$0.00	$66.29
	06/01/2015	$42.73	$10.00	$14.30	$0.00	$67.03
	12/01/2015	$43.97	$10.00	$14.30	$0.00	$68.27
	06/01/2016	$44.72	$10.00	$14.30	$0.00	$69.02
	12/01/2016	$45.95	$10.00	$14.30	$0.00	$70.25
	06/01/2017	$46.94	$10.00	$14.30	$0.00	$71.24
	12/01/2017	$47.93	$10.00	$14.30	$0.00	$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MECHANICS MAINTENANCE *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$41.99	$10.00	$14.30	$0.00	$66.29
	06/01/2015	$42.73	$10.00	$14.30	$0.00	$67.03
	12/01/2015	$43.97	$10.00	$14.30	$0.00	$68.27
	06/01/2016	$44.72	$10.00	$14.30	$0.00	$69.02
	12/01/2016	$45.95	$10.00	$14.30	$0.00	$70.25
	06/01/2017	$46.94	$10.00	$14.30	$0.00	$71.24
	12/01/2017	$47.93	$10.00	$14.30	$0.00	$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
MILLWRIGHT (Zone 1) *MILLWRIGHTS LOCAL 1121 - Zone 1*	04/01/2015	$37.64	$9.80	$16.21	$0.00	$63.65

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *MILLWRIGHT - Local 1121 Zone 1*

Effective Date - 04/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	55	$20.70	$9.80	$4.48	$0.00	$34.98
2	65	$24.47	$9.80	$13.36	$0.00	$47.63
3	75	$28.23	$9.80	$14.18	$0.00	$52.21
4	85	$31.99	$9.80	$14.99	$0.00	$56.78

Notes:

Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:5

MORTAR MIXER *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
OILER (OTHER THAN TRUCK CRANES,GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$21.90	$10.00	$14.30	$0.00	$46.20
	06/01/2015	$22.28	$10.00	$14.30	$0.00	$46.58
	12/01/2015	$22.93	$10.00	$14.30	$0.00	$47.23
	06/01/2016	$23.32	$10.00	$14.30	$0.00	$47.62
	12/01/2016	$23.97	$10.00	$14.30	$0.00	$48.27
	06/01/2017	$24.48	$10.00	$14.30	$0.00	$48.78
	12/01/2017	$25.00	$10.00	$14.30	$0.00	$49.30
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OILER (TRUCK CRANES, GRADALLS) *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$25.54	$10.00	$14.30	$0.00	$49.84
	06/01/2015	$25.99	$10.00	$14.30	$0.00	$50.29
	12/01/2015	$26.74	$10.00	$14.30	$0.00	$51.04
	06/01/2016	$27.20	$10.00	$14.30	$0.00	$51.50
	12/01/2016	$27.95	$10.00	$14.30	$0.00	$52.25
	06/01/2017	$28.55	$10.00	$14.30	$0.00	$52.85
	12/01/2017	$29.16	$10.00	$14.30	$0.00	$53.46
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
OTHER POWER DRIVEN EQUIPMENT - CLASS II *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$41.99	$10.00	$14.30	$0.00	$66.29
	06/01/2015	$42.73	$10.00	$14.30	$0.00	$67.03
	12/01/2015	$43.97	$10.00	$14.30	$0.00	$68.27
	06/01/2016	$44.72	$10.00	$14.30	$0.00	$69.02
	12/01/2016	$45.95	$10.00	$14.30	$0.00	$70.25
	06/01/2017	$46.94	$10.00	$14.30	$0.00	$71.24
	12/01/2017	$47.93	$10.00	$14.30	$0.00	$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
PAINTER (BRIDGES/TANKS) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2015	$47.66	$7.85	$16.10	$0.00	$71.61
	07/01/2015	$48.56	$7.85	$16.10	$0.00	$72.51
	01/01/2016	$49.51	$7.85	$16.10	$0.00	$73.46
	07/01/2016	$50.46	$7.85	$16.10	$0.00	$74.41
	01/01/2017	$51.41	$7.85	$16.10	$0.00	$75.36

Apprentice - *PAINTER Local 35 - BRIDGES/TANKS*

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.83	$7.85	$0.00	$0.00	$31.68
2	55	$26.21	$7.85	$3.66	$0.00	$37.72
3	60	$28.60	$7.85	$3.99	$0.00	$40.44
4	65	$30.98	$7.85	$4.32	$0.00	$43.15
5	70	$33.36	$7.85	$14.11	$0.00	$55.32
6	75	$35.75	$7.85	$14.44	$0.00	$58.04
7	80	$38.13	$7.85	$14.77	$0.00	$60.75
8	90	$42.89	$7.85	$15.44	$0.00	$66.18

Effective Date - 07/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.28	$7.85	$0.00	$0.00	$32.13
2	55	$26.71	$7.85	$3.66	$0.00	$38.22
3	60	$29.14	$7.85	$3.99	$0.00	$40.98
4	65	$31.56	$7.85	$4.32	$0.00	$43.73
5	70	$33.99	$7.85	$14.11	$0.00	$55.95
6	75	$36.42	$7.85	$14.44	$0.00	$58.71
7	80	$38.85	$7.85	$14.77	$0.00	$61.47
8	90	$43.70	$7.85	$15.44	$0.00	$66.99

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2015	$38.56	$7.85	$16.10	$0.00	$62.51
	07/01/2015	$39.46	$7.85	$16.10	$0.00	$63.41
	01/01/2016	$40.41	$7.85	$16.10	$0.00	$64.36
	07/01/2016	$41.36	$7.85	$16.10	$0.00	$65.31
	01/01/2017	$42.31	$7.85	$16.10	$0.00	$66.26

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - New*

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.28	$7.85	$0.00	$0.00	$27.13
2	55	$21.21	$7.85	$3.66	$0.00	$32.72
3	60	$23.14	$7.85	$3.99	$0.00	$34.98
4	65	$25.06	$7.85	$4.32	$0.00	$37.23
5	70	$26.99	$7.85	$14.11	$0.00	$48.95
6	75	$28.92	$7.85	$14.44	$0.00	$51.21
7	80	$30.85	$7.85	$14.77	$0.00	$53.47
8	90	$34.70	$7.85	$15.44	$0.00	$57.99

Effective Date - 07/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.73	$7.85	$0.00	$0.00	$27.58
2	55	$21.70	$7.85	$3.66	$0.00	$33.21
3	60	$23.68	$7.85	$3.99	$0.00	$35.52
4	65	$25.65	$7.85	$4.32	$0.00	$37.82
5	70	$27.62	$7.85	$14.11	$0.00	$49.58
6	75	$29.60	$7.85	$14.44	$0.00	$51.89
7	80	$31.57	$7.85	$14.77	$0.00	$54.19
8	90	$35.51	$7.85	$15.44	$0.00	$58.80

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (SPRAY OR SANDBLAST, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2015	$36.62	$7.85	$16.10	$0.00	$60.57
	07/01/2015	$37.52	$7.85	$16.10	$0.00	$61.47
	01/01/2016	$38.47	$7.85	$16.10	$0.00	$62.42
	07/01/2016	$39.42	$7.85	$16.10	$0.00	$63.37
	01/01/2017	$40.37	$7.85	$16.10	$0.00	$64.32

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint*

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.31	$7.85	$0.00	$0.00	$26.16
2	55	$20.14	$7.85	$3.66	$0.00	$31.65
3	60	$21.97	$7.85	$3.99	$0.00	$33.81
4	65	$23.80	$7.85	$4.32	$0.00	$35.97
5	70	$25.63	$7.85	$14.11	$0.00	$47.59
6	75	$27.47	$7.85	$14.44	$0.00	$49.76
7	80	$29.30	$7.85	$14.77	$0.00	$51.92
8	90	$32.96	$7.85	$15.44	$0.00	$56.25

Effective Date - 07/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.76	$7.85	$0.00	$0.00	$26.61
2	55	$20.64	$7.85	$3.66	$0.00	$32.15
3	60	$22.51	$7.85	$3.99	$0.00	$34.35
4	65	$24.39	$7.85	$4.32	$0.00	$36.56
5	70	$26.26	$7.85	$14.11	$0.00	$48.22
6	75	$28.14	$7.85	$14.44	$0.00	$50.43
7	80	$30.02	$7.85	$14.77	$0.00	$52.64
8	90	$33.77	$7.85	$15.44	$0.00	$57.06

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER (TRAFFIC MARKINGS) *LABORERS - ZONE 1*	12/01/2014	$34.60	$7.30	$12.95	$0.00	$54.85
	06/01/2015	$35.35	$7.30	$12.95	$0.00	$55.60
	12/01/2015	$36.10	$7.30	$12.95	$0.00	$56.35
	06/01/2016	$36.85	$7.30	$12.95	$0.00	$57.10
	12/01/2016	$37.85	$7.30	$12.95	$0.00	$58.10
For Apprentice rates see "Apprentice- LABORER"						
PAINTER / TAPER (BRUSH, NEW) * * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.*PAINTERS LOCAL 35 - ZONE 2*	01/01/2015	$37.16	$7.85	$16.10	$0.00	$61.11
	07/01/2015	$38.06	$7.85	$16.10	$0.00	$62.01
	01/01/2016	$39.01	$7.85	$16.10	$0.00	$62.96
	07/01/2016	$39.96	$7.85	$16.10	$0.00	$63.91
	01/01/2017	$40.91	$7.85	$16.10	$0.00	$64.86

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER - Local 35 Zone 2 - BRUSH NEW*

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.58	$7.85	$0.00	$0.00	$26.43
2	55	$20.44	$7.85	$3.66	$0.00	$31.95
3	60	$22.30	$7.85	$3.99	$0.00	$34.14
4	65	$24.15	$7.85	$4.32	$0.00	$36.32
5	70	$26.01	$7.85	$14.11	$0.00	$47.97
6	75	$27.87	$7.85	$14.44	$0.00	$50.16
7	80	$29.73	$7.85	$14.77	$0.00	$52.35
8	90	$33.44	$7.85	$15.44	$0.00	$56.73

Effective Date - 07/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$19.03	$7.85	$0.00	$0.00	$26.88
2	55	$20.93	$7.85	$3.66	$0.00	$32.44
3	60	$22.84	$7.85	$3.99	$0.00	$34.68
4	65	$24.74	$7.85	$4.32	$0.00	$36.91
5	70	$26.64	$7.85	$14.11	$0.00	$48.60
6	75	$28.55	$7.85	$14.44	$0.00	$50.84
7	80	$30.45	$7.85	$14.77	$0.00	$53.07
8	90	$34.25	$7.85	$15.44	$0.00	$57.54

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PAINTER / TAPER (BRUSH, REPAINT) *PAINTERS LOCAL 35 - ZONE 2*	01/01/2015	$35.22	$7.85	$16.10	$0.00	$59.17
	07/01/2015	$36.12	$7.85	$16.10	$0.00	$60.07
	01/01/2016	$37.07	$7.85	$16.10	$0.00	$61.02
	07/01/2016	$38.02	$7.85	$16.10	$0.00	$61.97
	01/01/2017	$38.97	$7.85	$16.10	$0.00	$62.92

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PAINTER Local 35 Zone 2 - BRUSH REPAINT*

Effective Date - 01/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$17.61	$7.85	$0.00	$0.00	$25.46
2	55	$19.37	$7.85	$3.66	$0.00	$30.88
3	60	$21.13	$7.85	$3.99	$0.00	$32.97
4	65	$22.89	$7.85	$4.32	$0.00	$35.06
5	70	$24.65	$7.85	$14.11	$0.00	$46.61
6	75	$26.42	$7.85	$14.44	$0.00	$48.71
7	80	$28.18	$7.85	$14.77	$0.00	$50.80
8	90	$31.70	$7.85	$15.44	$0.00	$54.99

Effective Date - 07/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$18.06	$7.85	$0.00	$0.00	$25.91
2	55	$19.87	$7.85	$3.66	$0.00	$31.38
3	60	$21.67	$7.85	$3.99	$0.00	$33.51
4	65	$23.48	$7.85	$4.32	$0.00	$35.65
5	70	$25.28	$7.85	$14.11	$0.00	$47.24
6	75	$27.09	$7.85	$14.44	$0.00	$49.38
7	80	$28.90	$7.85	$14.77	$0.00	$51.52
8	90	$32.51	$7.85	$15.44	$0.00	$55.80

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

PANEL & PICKUP TRUCKS DRIVER *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2014	$32.23	$9.91	$9.33	$0.00	$51.47
	06/01/2015	$32.58	$9.91	$9.33	$0.00	$51.82
	08/01/2015	$32.58	$10.41	$9.33	$0.00	$52.32
	12/01/2015	$32.58	$10.41	$10.08	$0.00	$53.07
	06/01/2016	$33.08	$10.41	$10.08	$0.00	$53.57
	08/01/2016	$33.08	$10.91	$10.08	$0.00	$54.07
	12/01/2016	$33.08	$10.91	$10.89	$0.00	$54.88
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2014	$41.60	$9.80	$18.17	$0.00	$69.57
	08/01/2015	$43.10	$9.80	$18.17	$0.00	$71.07
PILE DRIVER *PILE DRIVER LOCAL 56 (ZONE 1)*	08/01/2014	$41.60	$9.80	$18.17	$0.00	$69.57
	08/01/2015	$43.10	$9.80	$18.17	$0.00	$71.07

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PILE DRIVER - Local 56 Zone 1*

Effective Date - 08/01/2014

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.80	$9.80	$18.17	$0.00	$48.77
2	60	$24.96	$9.80	$18.17	$0.00	$52.93
3	70	$29.12	$9.80	$18.17	$0.00	$57.09
4	75	$31.20	$9.80	$18.17	$0.00	$59.17
5	80	$33.28	$9.80	$18.17	$0.00	$61.25
6	80	$33.28	$9.80	$18.17	$0.00	$61.25
7	90	$37.44	$9.80	$18.17	$0.00	$65.41
8	90	$37.44	$9.80	$18.17	$0.00	$65.41

Effective Date - 08/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$21.55	$9.80	$18.17	$0.00	$49.52
2	60	$25.86	$9.80	$18.17	$0.00	$53.83
3	70	$30.17	$9.80	$18.17	$0.00	$58.14
4	75	$32.33	$9.80	$18.17	$0.00	$60.30
5	80	$34.48	$9.80	$18.17	$0.00	$62.45
6	80	$34.48	$9.80	$18.17	$0.00	$62.45
7	90	$38.79	$9.80	$18.17	$0.00	$66.76
8	90	$38.79	$9.80	$18.17	$0.00	$66.76

Notes:

Apprentice to Journeyworker Ratio:1:3

PIPEFITTER & STEAMFITTER *PIPEFITTERS LOCAL 537*	03/01/2015	$48.69	$9.70	$16.89	$0.00	$75.28
	09/01/2015	$49.69	$9.70	$16.89	$0.00	$76.28
	03/01/2016	$50.69	$9.70	$16.89	$0.00	$77.28
	09/01/2016	$51.69	$9.70	$16.89	$0.00	$78.28
	03/01/2017	$52.69	$9.70	$16.89	$0.00	$79.28

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PIPEFITTER - Local 537*

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$19.48	$9.70	$7.50	$0.00	$36.68
2	45	$21.91	$9.70	$16.89	$0.00	$48.50
3	60	$29.21	$9.70	$16.89	$0.00	$55.80
4	70	$34.08	$9.70	$16.89	$0.00	$60.67
5	80	$38.95	$9.70	$16.89	$0.00	$65.54

Effective Date - 09/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$19.88	$9.70	$7.50	$0.00	$37.08
2	45	$22.36	$9.70	$16.89	$0.00	$48.95
3	60	$29.81	$9.70	$16.89	$0.00	$56.40
4	70	$34.78	$9.70	$16.89	$0.00	$61.37
5	80	$39.75	$9.70	$16.89	$0.00	$66.34

Notes:

** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.

Refrig/AC Mechanic **1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

Apprentice to Journeyworker Ratio:**

PIPELAYER *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
PLUMBERS & GASFITTERS *PLUMBERS & GASFITTERS LOCAL 12*	03/01/2015	$50.21	$10.32	$14.89	$0.00	$75.42
	09/01/2015	$51.21	$10.32	$14.89	$0.00	$76.42
	03/01/2016	$52.36	$10.32	$14.89	$0.00	$77.57
	09/01/2016	$53.41	$10.32	$14.89	$0.00	$78.62
	03/01/2017	$54.41	$10.32	$14.89	$0.00	$79.62

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *PLUMBER/GASFITTER - Local 12*

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$17.57	$10.32	$5.54	$0.00	$33.43
2	40	$20.08	$10.32	$6.27	$0.00	$36.67
3	55	$27.62	$10.32	$8.42	$0.00	$46.36
4	65	$32.64	$10.32	$9.87	$0.00	$52.83
5	75	$37.66	$10.32	$11.30	$0.00	$59.28

Effective Date - 09/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$17.92	$10.32	$5.54	$0.00	$33.78
2	40	$20.48	$10.32	$6.27	$0.00	$37.07
3	55	$28.17	$10.32	$8.42	$0.00	$46.91
4	65	$33.29	$10.32	$9.87	$0.00	$53.48
5	75	$38.41	$10.32	$11.30	$0.00	$60.03

Notes:
** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic$56.05 Step5 with lic$62.48

Apprentice to Journeyworker Ratio:**

PNEUMATIC CONTROLS (TEMP.) *PIPEFITTERS LOCAL 537*	03/01/2015	$48.69	$9.70	$16.89	$0.00	$75.28
	09/01/2015	$49.69	$9.70	$16.89	$0.00	$76.28
	03/01/2016	$50.69	$9.70	$16.89	$0.00	$77.28
	09/01/2016	$51.69	$9.70	$16.89	$0.00	$78.28
	03/01/2017	$52.69	$9.70	$16.89	$0.00	$79.28
For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER"						
PNEUMATIC DRILL/TOOL OPERATOR *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
POWDERMAN & BLASTER *LABORERS - ZONE 1*	12/01/2014	$35.60	$7.30	$12.95	$0.00	$55.85
	06/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	12/01/2015	$37.10	$7.30	$12.95	$0.00	$57.35
	06/01/2016	$37.85	$7.30	$12.95	$0.00	$58.10
	12/01/2016	$38.85	$7.30	$12.95	$0.00	$59.10
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
POWER SHOVEL/DERRICK/TRENCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$42.39	$10.00	$14.30	$0.00	$66.69
	06/01/2015	$43.14	$10.00	$14.30	$0.00	$67.44
	12/01/2015	$44.39	$10.00	$14.30	$0.00	$68.69
	06/01/2016	$45.14	$10.00	$14.30	$0.00	$69.44
	12/01/2016	$46.39	$10.00	$14.30	$0.00	$70.69
	06/01/2017	$47.39	$10.00	$14.30	$0.00	$71.69
	12/01/2017	$48.39	$10.00	$14.30	$0.00	$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (CONCRETE) *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$42.39	$10.00	$14.30	$0.00	$66.69
	06/01/2015	$43.14	$10.00	$14.30	$0.00	$67.44
	12/01/2015	$44.39	$10.00	$14.30	$0.00	$68.69
	06/01/2016	$45.14	$10.00	$14.30	$0.00	$69.44
	12/01/2016	$46.39	$10.00	$14.30	$0.00	$70.69
	06/01/2017	$47.39	$10.00	$14.30	$0.00	$71.69
	12/01/2017	$48.39	$10.00	$14.30	$0.00	$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
PUMP OPERATOR (DEWATERING, OTHER) *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$29.40	$10.00	$14.30	$0.00	$53.70
	06/01/2015	$29.92	$10.00	$14.30	$0.00	$54.22
	12/01/2015	$30.79	$10.00	$14.30	$0.00	$55.09
	06/01/2016	$31.31	$10.00	$14.30	$0.00	$55.61
	12/01/2016	$32.18	$10.00	$14.30	$0.00	$56.48
	06/01/2017	$32.87	$10.00	$14.30	$0.00	$57.17
	12/01/2017	$33.56	$10.00	$14.30	$0.00	$57.86
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
READY MIX CONCRETE DRIVERS after 4/30/10 (Drivers Hired After 4/30/2010)*TEAMSTERS LOCAL 25b*	05/01/2015	$27.88	$7.73	$8.92	$0.00	$44.53
	07/01/2015	$27.88	$7.98	$8.92	$0.00	$44.78
	05/01/2016	$28.03	$7.98	$9.31	$0.00	$45.32
	07/01/2016	$28.03	$8.23	$9.31	$0.00	$45.57
	05/01/2017	$28.18	$8.23	$9.72	$0.00	$46.13
	07/01/2017	$28.18	$8.48	$9.72	$0.00	$46.38
READY-MIX CONCRETE DRIVER *TEAMSTERS LOCAL 25b*	05/01/2015	$29.18	$7.73	$8.92	$0.00	$45.83
	07/01/2015	$29.18	$7.98	$8.92	$0.00	$46.08
	05/01/2016	$29.33	$7.98	$9.31	$0.00	$46.62
	07/01/2016	$29.33	$8.23	$9.31	$0.00	$46.87
	05/01/2017	$29.48	$8.23	$9.72	$0.00	$47.43
	07/01/2017	$29.48	$8.48	$9.72	$0.00	$47.68
RECLAIMERS *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$41.99	$10.00	$14.30	$0.00	$66.29
	06/01/2015	$42.73	$10.00	$14.30	$0.00	$67.03
	12/01/2015	$43.97	$10.00	$14.30	$0.00	$68.27
	06/01/2016	$44.72	$10.00	$14.30	$0.00	$69.02
	12/01/2016	$45.95	$10.00	$14.30	$0.00	$70.25
	06/01/2017	$46.94	$10.00	$14.30	$0.00	$71.24
	12/01/2017	$47.93	$10.00	$14.30	$0.00	$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
RESIDENTIAL WOOD FRAME (All Other Work) *CARPENTERS -ZONE 2 (Residential Wood)*	04/01/2011	$24.24	$8.67	$15.51	$0.00	$48.42

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
RESIDENTIAL WOOD FRAME CARPENTER **	05/01/2011	$24.24	$6.34	$6.23	$0.00	$36.81

** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement. *CARPENTERS -ZONE 2 (Residential Wood)*

As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.

Apprentice - *CARPENTER (Residential Wood Frame) - Zone 2*

Effective Date - 05/01/2011

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	60	$14.54	$6.34	$0.00	$0.00	$20.88
2	60	$14.54	$6.34	$6.23	$0.00	$27.11
3	65	$15.76	$6.34	$6.23	$0.00	$28.33
4	70	$16.97	$6.34	$6.23	$0.00	$29.54
5	75	$18.18	$6.34	$6.23	$0.00	$30.75
6	80	$19.39	$6.34	$6.23	$0.00	$31.96
7	85	$20.60	$6.34	$6.23	$0.00	$33.17
8	90	$21.82	$6.34	$6.23	$0.00	$34.39

Notes:

Apprentice to Journeyworker Ratio:1:5

RIDE-ON MOTORIZED BUGGY OPERATOR *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35

For apprentice rates see "Apprentice- LABORER"

ROLLER/SPREADER/MULCHING MACHINE *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$41.99	$10.00	$14.30	$0.00	$66.29
	06/01/2015	$42.73	$10.00	$14.30	$0.00	$67.03
	12/01/2015	$43.97	$10.00	$14.30	$0.00	$68.27
	06/01/2016	$44.72	$10.00	$14.30	$0.00	$69.02
	12/01/2016	$45.95	$10.00	$14.30	$0.00	$70.25
	06/01/2017	$46.94	$10.00	$14.30	$0.00	$71.24
	12/01/2017	$47.93	$10.00	$14.30	$0.00	$72.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

ROOFER (Inc.Roofer Waterproofing &Roofer Damproofg) *ROOFERS LOCAL 33*	02/01/2015	$40.11	$10.50	$11.60	$0.00	$62.21
	08/01/2015	$41.01	$10.50	$11.60	$0.00	$63.11
	02/01/2016	$41.91	$10.50	$11.60	$0.00	$64.01

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *ROOFER - Local 33*

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.06	$10.50	$3.38	$0.00	$33.94
2	60	$24.07	$10.50	$11.60	$0.00	$46.17
3	65	$26.07	$10.50	$11.60	$0.00	$48.17
4	75	$30.08	$10.50	$11.60	$0.00	$52.18
5	85	$34.09	$10.50	$11.60	$0.00	$56.19

Effective Date - 08/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$20.51	$10.50	$3.38	$0.00	$34.39
2	60	$24.61	$10.50	$11.60	$0.00	$46.71
3	65	$26.66	$10.50	$11.60	$0.00	$48.76
4	75	$30.76	$10.50	$11.60	$0.00	$52.86
5	85	$34.86	$10.50	$11.60	$0.00	$56.96

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.

Apprentice to Journeyworker Ratio:**

ROOFER SLATE / TILE / PRECAST CONCRETE *ROOFERS LOCAL 33*	02/01/2015	$40.36	$10.50	$11.60	$0.00	$62.46
	08/01/2015	$41.26	$10.50	$11.60	$0.00	$63.36
	02/01/2016	$42.16	$10.50	$11.60	$0.00	$64.26
For apprentice rates see "Apprentice- ROOFER"						
SHEETMETAL WORKER *SHEETMETAL WORKERS LOCAL 17 - A*	02/01/2015	$43.28	$10.20	$20.54	$2.22	$76.24
	08/01/2015	$44.28	$10.20	$20.54	$2.22	$77.24
	02/01/2016	$45.28	$10.20	$20.54	$2.22	$78.24
	08/01/2016	$46.43	$10.20	$20.54	$2.22	$79.39
	02/01/2017	$47.53	$10.20	$20.54	$2.22	$80.49
	08/01/2017	$48.63	$10.20	$20.54	$2.22	$81.59
	02/01/2018	$49.78	$10.20	$20.54	$2.22	$82.74

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SHEET METAL WORKER - Local 17-A*

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$17.31	$10.20	$4.58	$0.00	$32.09
2	40	$17.31	$10.20	$4.58	$0.00	$32.09
3	45	$19.48	$10.20	$9.09	$1.16	$39.93
4	45	$19.48	$10.20	$9.09	$1.16	$39.93
5	50	$21.64	$10.20	$9.91	$1.25	$43.00
6	50	$21.64	$10.20	$10.16	$1.26	$43.26
7	60	$25.97	$10.20	$11.55	$1.43	$49.15
8	65	$28.13	$10.20	$12.38	$1.52	$52.23
9	75	$32.46	$10.20	$14.02	$1.70	$58.38
10	85	$36.79	$10.20	$15.16	$1.86	$64.01

Effective Date - 08/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$17.71	$10.20	$4.58	$0.00	$32.49
2	40	$17.71	$10.20	$4.58	$0.00	$32.49
3	45	$19.93	$10.20	$9.09	$1.18	$40.40
4	45	$19.93	$10.20	$9.09	$1.18	$40.40
5	50	$22.14	$10.20	$9.91	$1.27	$43.52
6	50	$22.14	$10.20	$10.16	$1.28	$43.78
7	60	$26.57	$10.20	$11.55	$1.45	$49.77
8	65	$28.78	$10.20	$12.38	$1.54	$52.90
9	75	$33.21	$10.20	$14.02	$1.72	$59.15
10	85	$37.64	$10.20	$15.16	$1.89	$64.89

Notes:
Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

SIGN ERECTOR *PAINTERS LOCAL 35 - ZONE 2*	06/01/2013	$25.81	$7.07	$7.05	$0.00	$39.93

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SIGN ERECTOR - Local 35 Zone 2*

Effective Date - 06/01/2013

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$12.91	$7.07	$0.00	$0.00	$19.98
2	55	$14.20	$7.07	$2.45	$0.00	$23.72
3	60	$15.49	$7.07	$2.45	$0.00	$25.01
4	65	$16.78	$7.07	$2.45	$0.00	$26.30
5	70	$18.07	$7.07	$7.05	$0.00	$32.19
6	75	$19.36	$7.07	$7.05	$0.00	$33.48
7	80	$20.65	$7.07	$7.05	$0.00	$34.77
8	85	$21.94	$7.07	$7.05	$0.00	$36.06
9	90	$23.23	$7.07	$7.05	$0.00	$37.35

Notes:

Steps are 4 mos.

Apprentice to Journeyworker Ratio:1:1

SPECIALIZED EARTH MOVING EQUIP < 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2014	$32.69	$9.91	$9.33	$0.00	$51.93
	06/01/2015	$33.04	$9.91	$9.33	$0.00	$52.28
	08/01/2015	$33.04	$10.41	$9.33	$0.00	$52.78
	12/01/2015	$33.04	$10.41	$10.08	$0.00	$53.53
	06/01/2016	$33.54	$10.41	$10.08	$0.00	$54.03
	08/01/2016	$33.54	$10.91	$10.08	$0.00	$54.53
	12/01/2016	$33.54	$10.91	$10.89	$0.00	$55.34
SPECIALIZED EARTH MOVING EQUIP > 35 TONS *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2014	$32.98	$9.91	$9.33	$0.00	$52.22
	06/01/2015	$33.33	$9.91	$9.33	$0.00	$52.57
	08/01/2015	$33.33	$10.41	$9.33	$0.00	$53.07
	12/01/2015	$33.33	$10.41	$10.08	$0.00	$53.82
	06/01/2016	$33.83	$10.41	$10.08	$0.00	$54.32
	08/01/2016	$33.83	$10.91	$10.08	$0.00	$54.82
	12/01/2016	$33.83	$10.91	$10.89	$0.00	$55.63
SPRINKLER FITTER *SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1*	03/01/2015	$54.43	$8.42	$14.90	$0.00	$77.75
	10/01/2015	$55.58	$8.42	$14.90	$0.00	$78.90
	01/01/2016	$55.58	$8.67	$15.05	$0.00	$79.30
	03/01/2016	$56.58	$8.67	$15.05	$0.00	$80.30
	10/01/2016	$57.73	$8.67	$15.05	$0.00	$81.45
	03/01/2017	$58.73	$8.67	$15.05	$0.00	$82.45

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate

Apprentice - *SPRINKLER FITTER - Local 550 (Section A) Zone 1*

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$19.05	$8.42	$8.40	$0.00	$35.87
2	40	$21.77	$8.42	$8.40	$0.00	$38.59
3	45	$24.49	$8.42	$8.40	$0.00	$41.31
4	50	$27.22	$8.42	$8.40	$0.00	$44.04
5	55	$29.94	$8.42	$8.40	$0.00	$46.76
6	60	$32.66	$8.42	$8.40	$0.00	$49.48
7	65	$35.38	$8.42	$8.40	$0.00	$52.20
8	70	$38.10	$8.42	$8.40	$0.00	$54.92
9	75	$40.82	$8.42	$8.40	$0.00	$57.64
10	80	$43.54	$8.42	$8.40	$0.00	$60.36

Effective Date - 10/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	35	$19.45	$8.42	$8.40	$0.00	$36.27
2	40	$22.23	$8.42	$8.40	$0.00	$39.05
3	45	$25.01	$8.42	$8.40	$0.00	$41.83
4	50	$27.79	$8.42	$8.40	$0.00	$44.61
5	55	$30.57	$8.42	$8.40	$0.00	$47.39
6	60	$33.35	$8.42	$8.40	$0.00	$50.17
7	65	$36.13	$8.42	$8.40	$0.00	$52.95
8	70	$38.91	$8.42	$8.40	$0.00	$55.73
9	75	$41.69	$8.42	$8.40	$0.00	$58.51
10	80	$44.46	$8.42	$8.40	$0.00	$61.28

Notes: Apprentice entered prior 9/30/10:
40/45/50/55/60/65/70/75/80/85
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:3

STEAM BOILER OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$41.99	$10.00	$14.30	$0.00	$66.29
	06/01/2015	$42.73	$10.00	$14.30	$0.00	$67.03
	12/01/2015	$43.97	$10.00	$14.30	$0.00	$68.27
	06/01/2016	$44.72	$10.00	$14.30	$0.00	$69.02
	12/01/2016	$45.95	$10.00	$14.30	$0.00	$70.25
	06/01/2017	$46.94	$10.00	$14.30	$0.00	$71.24
	12/01/2017	$47.93	$10.00	$14.30	$0.00	$72.23

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$41.99	$10.00	$14.30	$0.00	$66.29
	06/01/2015	$42.73	$10.00	$14.30	$0.00	$67.03
	12/01/2015	$43.97	$10.00	$14.30	$0.00	$68.27
	06/01/2016	$44.72	$10.00	$14.30	$0.00	$69.02
	12/01/2016	$45.95	$10.00	$14.30	$0.00	$70.25
	06/01/2017	$46.94	$10.00	$14.30	$0.00	$71.24
	12/01/2017	$47.93	$10.00	$14.30	$0.00	$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TELECOMMUNICATION TECHNICIAN *ELECTRICIANS LOCAL 103*	03/01/2015	$33.88	$13.00	$13.70	$0.00	$60.58
	09/01/2015	$34.60	$13.00	$13.72	$0.00	$61.32
	03/01/2016	$35.31	$13.00	$13.74	$0.00	$62.05

Apprentice - *TELECOMMUNICATION TECHNICIAN - Local 103*

Effective Date - 03/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$13.55	$13.00	$0.41	$0.00	$26.96
2	40	$13.55	$13.00	$0.41	$0.00	$26.96
3	45	$15.25	$13.00	$10.87	$0.00	$39.12
4	45	$15.25	$13.00	$10.87	$0.00	$39.12
5	50	$16.94	$13.00	$11.11	$0.00	$41.05
6	55	$18.63	$13.00	$11.38	$0.00	$43.01
7	60	$20.33	$13.00	$11.64	$0.00	$44.97
8	65	$22.02	$13.00	$11.89	$0.00	$46.91
9	70	$23.72	$13.00	$12.15	$0.00	$48.87
10	75	$25.41	$13.00	$12.41	$0.00	$50.82

Effective Date - 09/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	40	$13.84	$13.00	$0.42	$0.00	$27.26
2	40	$13.84	$13.00	$0.42	$0.00	$27.26
3	45	$15.57	$13.00	$10.88	$0.00	$39.45
4	45	$15.57	$13.00	$10.88	$0.00	$39.45
5	50	$17.30	$13.00	$11.14	$0.00	$41.44
6	55	$19.03	$13.00	$11.39	$0.00	$43.42
7	60	$20.76	$13.00	$11.65	$0.00	$45.41
8	65	$22.49	$13.00	$11.90	$0.00	$47.39
9	70	$24.22	$13.00	$12.17	$0.00	$49.39
10	75	$25.95	$13.00	$12.43	$0.00	$51.38

Notes:

Apprentice to Journeyworker Ratio:1:1

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TERRAZZO FINISHERS *BRICKLAYERS LOCAL 3 - MARBLE & TILE*	02/01/2015	$47.90	$10.18	$18.50	$0.00	$76.58
	08/01/2015	$48.80	$10.18	$18.57	$0.00	$77.55
	02/01/2016	$49.37	$10.18	$18.57	$0.00	$78.12
	08/01/2016	$50.27	$10.18	$18.65	$0.00	$79.10
	02/01/2017	$50.84	$10.18	$18.65	$0.00	$79.67

Apprentice - *TERRAZZO FINISHER - Local 3 Marble & Tile*

Effective Date - 02/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$23.95	$10.18	$18.50	$0.00	$52.63
2	60	$28.74	$10.18	$18.50	$0.00	$57.42
3	70	$33.53	$10.18	$18.50	$0.00	$62.21
4	80	$38.32	$10.18	$18.50	$0.00	$67.00
5	90	$43.11	$10.18	$18.50	$0.00	$71.79

Effective Date - 08/01/2015

Step	percent	Apprentice Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
1	50	$24.40	$10.18	$18.57	$0.00	$53.15
2	60	$29.28	$10.18	$18.57	$0.00	$58.03
3	70	$34.16	$10.18	$18.57	$0.00	$62.91
4	80	$39.04	$10.18	$18.57	$0.00	$67.79
5	90	$43.92	$10.18	$18.57	$0.00	$72.67

Notes:

Apprentice to Journeyworker Ratio:1:3

TEST BORING DRILLER *LABORERS - FOUNDATION AND MARINE*	12/01/2014	$35.95	$7.30	$13.15	$0.00	$56.40
	06/01/2015	$36.70	$7.30	$13.15	$0.00	$57.15
	12/01/2015	$37.45	$7.30	$13.15	$0.00	$57.90
	06/01/2016	$38.20	$7.30	$13.15	$0.00	$58.65
	12/01/2016	$39.20	$7.30	$13.15	$0.00	$59.65
For apprentice rates see "Apprentice- LABORER"						
TEST BORING DRILLER HELPER *LABORERS - FOUNDATION AND MARINE*	12/01/2014	$34.67	$7.30	$13.15	$0.00	$55.12
	06/01/2015	$35.42	$7.30	$13.15	$0.00	$55.87
	12/01/2015	$36.17	$7.30	$13.15	$0.00	$56.62
	06/01/2016	$36.92	$7.30	$13.15	$0.00	$57.37
	12/01/2016	$37.92	$7.30	$13.15	$0.00	$58.37
For apprentice rates see "Apprentice- LABORER"						
TEST BORING LABORER *LABORERS - FOUNDATION AND MARINE*	12/01/2014	$34.55	$7.30	$13.15	$0.00	$55.00
	06/01/2015	$35.30	$7.30	$13.15	$0.00	$55.75
	12/01/2015	$36.05	$7.30	$13.15	$0.00	$56.50
	06/01/2016	$36.80	$7.30	$13.15	$0.00	$57.25
	12/01/2016	$37.80	$7.30	$13.15	$0.00	$58.25
For apprentice rates see "Apprentice- LABORER"						

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
TRACTORS/PORTABLE STEAM GENERATORS *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$41.99	$10.00	$14.30	$0.00	$66.29
	06/01/2015	$42.73	$10.00	$14.30	$0.00	$67.03
	12/01/2015	$43.97	$10.00	$14.30	$0.00	$68.27
	06/01/2016	$44.72	$10.00	$14.30	$0.00	$69.02
	12/01/2016	$45.95	$10.00	$14.30	$0.00	$70.25
	06/01/2017	$46.94	$10.00	$14.30	$0.00	$71.24
	12/01/2017	$47.93	$10.00	$14.30	$0.00	$72.23
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
TRAILERS FOR EARTH MOVING EQUIPMENT *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2014	$33.27	$9.91	$9.33	$0.00	$52.51
	06/01/2015	$33.62	$9.91	$9.33	$0.00	$52.86
	08/01/2015	$33.62	$10.41	$9.33	$0.00	$53.36
	12/01/2015	$33.62	$10.41	$10.08	$0.00	$54.11
	06/01/2016	$34.12	$10.41	$10.08	$0.00	$54.61
	08/01/2016	$34.12	$10.91	$10.08	$0.00	$55.11
	12/01/2016	$34.12	$10.91	$10.89	$0.00	$55.92
TUNNEL WORK - COMPRESSED AIR *LABORERS (COMPRESSED AIR)*	12/01/2014	$46.83	$7.30	$13.55	$0.00	$67.68
	06/01/2015	$47.58	$7.30	$13.55	$0.00	$68.43
	12/01/2015	$48.33	$7.30	$13.55	$0.00	$69.18
	06/01/2016	$49.08	$7.30	$13.55	$0.00	$69.93
	12/01/2016	$50.08	$7.30	$13.55	$0.00	$70.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) *LABORERS (COMPRESSED AIR)*	12/01/2014	$48.83	$7.30	$13.55	$0.00	$69.68
	06/01/2015	$49.58	$7.30	$13.55	$0.00	$70.43
	12/01/2015	$50.33	$7.30	$13.55	$0.00	$71.18
	06/01/2016	$51.08	$7.30	$13.55	$0.00	$71.93
	12/01/2016	$52.08	$7.30	$13.55	$0.00	$72.93
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR *LABORERS (FREE AIR TUNNEL)*	12/01/2014	$38.90	$7.30	$13.55	$0.00	$59.75
	06/01/2015	$39.65	$7.30	$13.55	$0.00	$60.50
	12/01/2015	$40.40	$7.30	$13.55	$0.00	$61.25
	06/01/2016	$41.15	$7.30	$13.55	$0.00	$62.00
	12/01/2016	$42.15	$7.30	$13.55	$0.00	$63.00
For apprentice rates see "Apprentice- LABORER"						
TUNNEL WORK - FREE AIR (HAZ. WASTE) *LABORERS (FREE AIR TUNNEL)*	12/01/2014	$40.90	$7.30	$13.55	$0.00	$61.75
	06/01/2015	$41.65	$7.30	$13.55	$0.00	$62.50
	12/01/2015	$42.40	$7.30	$13.55	$0.00	$63.25
	06/01/2016	$43.15	$7.30	$13.55	$0.00	$64.00
	12/01/2016	$44.15	$7.30	$13.55	$0.00	$65.00
For apprentice rates see "Apprentice- LABORER"						
VAC-HAUL *TEAMSTERS JOINT COUNCIL NO. 10 ZONE A*	12/01/2014	$32.69	$9.91	$9.33	$0.00	$51.93
	06/01/2015	$33.04	$9.91	$9.33	$0.00	$52.28
	08/01/2015	$33.04	$10.41	$9.33	$0.00	$52.78
	12/01/2015	$33.04	$10.41	$10.08	$0.00	$53.53
	06/01/2016	$33.54	$10.41	$10.08	$0.00	$54.03
	08/01/2016	$33.54	$10.91	$10.08	$0.00	$54.53
	12/01/2016	$33.54	$10.91	$10.89	$0.00	$55.34

Classification	Effective Date	Base Wage	Health	Pension	Supplemental Unemployment	Total Rate
WAGON DRILL OPERATOR *LABORERS - ZONE 1*	12/01/2014	$34.85	$7.30	$12.95	$0.00	$55.10
	06/01/2015	$35.60	$7.30	$12.95	$0.00	$55.85
	12/01/2015	$36.35	$7.30	$12.95	$0.00	$56.60
	06/01/2016	$37.10	$7.30	$12.95	$0.00	$57.35
	12/01/2016	$38.10	$7.30	$12.95	$0.00	$58.35
For apprentice rates see "Apprentice- LABORER"						
WASTE WATER PUMP OPERATOR *OPERATING ENGINEERS LOCAL 4*	12/01/2014	$42.39	$10.00	$14.30	$0.00	$66.69
	06/01/2015	$43.14	$10.00	$14.30	$0.00	$67.44
	12/01/2015	$44.39	$10.00	$14.30	$0.00	$68.69
	06/01/2016	$45.14	$10.00	$14.30	$0.00	$69.44
	12/01/2016	$46.39	$10.00	$14.30	$0.00	$70.69
	06/01/2017	$47.39	$10.00	$14.30	$0.00	$71.69
	12/01/2017	$48.39	$10.00	$14.30	$0.00	$72.69
For apprentice rates see "Apprentice- OPERATING ENGINEERS"						
WATER METER INSTALLER *PLUMBERS & GASFITTERS LOCAL 12*	03/01/2015	$50.21	$10.32	$14.89	$0.00	$75.42
	09/01/2015	$51.21	$10.32	$14.89	$0.00	$76.42
	03/01/2016	$52.36	$10.32	$14.89	$0.00	$77.57
	09/01/2016	$53.41	$10.32	$14.89	$0.00	$78.62
	03/01/2017	$54.41	$10.32	$14.89	$0.00	$79.62
For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER"						

Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)
Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.
*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.
**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

The Massachusetts Prevailing Wage Law
M.G.L. ch. 149, §§ 26 – 27

NOTICE TO AWARDING AUTHORITIES

- 'The enclosed wage schedule applies only to the specific project listed at the top and will be updated for any public construction project lasting longer than one (1) year.
- 'You should request an updated wage schedule from the Division of Occupational Safety if you have not opened bids or selected a contractor within 90 days of the date of issuance of the enclosed wage schedule.
- 'The wage schedule shall be incorporated in any advertisement or call for bids for the project for which it has been issued.
- 'Once a contractor has been selected by the awarding authority, the wage schedule shall be made a part of the contract for that project.

NOTICE TO CONTRACTORS

- The enclosed wage schedule, and any updated schedule, must be posted in a conspicuous place at the work site during the life of the project.
- The wages listed on the enclosed wage schedule must be paid to employees on public works projects regardless of whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- The enclosed wage schedule applies to all phases of the project including the final clean-up. Contractors whose only role is to perform final clean-up must pay their employees according to this wage schedule.
- All apprentices must be registered with the Massachusetts Division of Apprentice Training in order to be paid at the reduced apprentice rates. If a worker is not registered with the Division of Apprentice Training, they must be paid the “total rate” listed on the wage schedule regardless of experience or skill level. For further information, please call (617) 727-3486 or write to the Division of Apprentice Training, 399 Washington Street, 4th Floor, Boston, MA 02108

WEEKLY PAYROLL RECORDS REPORT
& STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c149, §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. This is required to be done on a weekly basis. 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 Department of Labor & Workforce Development/Division of Occupational Safety 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

_____, 2015

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 _____

DIVISION OF OCCUPATIONAL SAFETY, 399 WASHINGTON STREET, 5TH FL., BOSTON, MA. 02108

WEEKLY PAYROLL REPORT FORM

Company Name:

Project Name:

Awarding Auth.:

Work Week Ending:

Prime Contractor

Subcontractor
List Prime Contractor:

Employer Signature:

Print Name & Title:

Employee Name & Address	Work Classification	Hours Worked							(A) Tot. Hrs.	(B) Hourly Base Wage	Employer Contributions			(F) [B+C+D+E] Hourly Total Wage (prev. wage)	(G) [A*F] Weekly Total Amount
											(C) Health & Welfare	(D) Pension	(E) Supp. Unemp.		
		S	M	T	W	T	F	S							

NOTE: Every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority.

CITY OF NEWTON
DEPARTMENT OF PUBLIC WORKS

SUMMARY OF WORK AND SPECIFIC REQUIREMENTS OF THE CONTRACT FOR PUBLIC WORKS CONSTRUCTION

I. SUMMARY OF WORK

A. **The Work under the Contract consists of:**

1. The restoration of the damaged tombs and monuments both above and below grade, including but not limited to:

   - Dismantling and re-setting of stone and brick tomb walls
   - Dismantling and re-setting of stone and brick monuments
   - Filling opened tombs with sand.
   - Repointing of tomb walls and monuments
   - Rebuiding and repointing of damaged brick tomb vaults
   - Treatment of damaged stones by a stone conservator (Sub-Bid)

2. The work as shown on the Contract Documents will be completed under the Base Bid and five (5) alternates as instructed by the City of Newton and Historic Newton.

3. All means and methods for completed the work will be determined by the Contractor.

4. All work described in the Project Manual and/or shown on the Plan(s) unless specifically indicated as not to be done.

B. In addition the work under the contract includes:

   1. Work outside the Project Site as called for in the Project Manual and/or Plan(s) and as required for the performance of the work.

   2. The restoration of any items damaged or destroyed by encroaching upon areas outside the Project Site.

   3. All labor, materials, tools, and equipment necessary to do all the work required for the completion of each item as specified, which shall limited not only to the exact intent mentioned, but shall include incidental work necessary or customarily performed for the completion of that item.

   4. All items not specifically mentioned or noted in the Project Manual and/or Plan(s), but which are obviously necessary to make a complete working installation.

C. The Proposed Contract Price shall be complete costs, including overhead, profit, insurance, transportation, and all other costs connected with, or incidental to the work described.

II. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

A. Upon notification the Contractor shall commence the work specified in the Project Manual as directed by the City. The work shall proceed in a continuous uninterrupted fashion with adequately staffed crews, in a satisfactory manner, which will assure that the work is completed in a timely manner to the satisfaction of the City.

B. **All work pursuant to this contract shall be completed within approximately one hundred and thirty-eight (138) calendar days** following Notice to Proceed, unless the City specifically grants an extension of time.

C. Time is of the essence for the completion of this contract. If the Contractor fails to achieve substantial or final completion of the Work within the time required by the contract, and unless an extension of time is granted, the Contractor shall pay to the City as liquidated damages, the applicable amount specified in Article 6a of the General Conditions for each day of

delay. If different completion dates are specified in the Contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another section in this Contract, liquidated damages shall not be due the City. The Contractor remains liable for damages caused other than by delay

III. INSURANCE REQUIREMENTS

A. The Contractor shall carry and maintain until acceptance of the work such Workmen's Compensation, Automobile Liability, Public Liability, Contingent Public Liability, Property Damage and Contingent Property Damage Insurance, each including blasting coverage, as shall protect him and any sub-contractor performing work covered by this contract from all claims and liability for damages for personal injury, including accidental death, and for property damage which may arise from operations under this contract, whether such operations be by himself or by any sub-contractor or by any one directly or indirectly employed by either of them.

B. The City shall be named as an additional insured on such policy.

C. The amounts of such insurance shall be as follows:

1. Workmen's Compensation Insurance as required by Massachusetts General Law.

2. Automobile Liability Insurance on all vehicles owned or hired for a.) Bodily Injury in an amount not less than $500,000.00 for each occurrence, and not less than $1,000,000.00 aggregate; b.) Property Damage in an amount not less than $250,000.00 each occurrence, and not less than $500,000.00 aggregate.

3. Public Liability Insurance and Contingent Public Liability Insurance in an amount not less than $500,000.00 for injuries, including accidental death to any one person, and subject to the same limit for each person, in an amount not less than $1,000,000.00 on account of one accident.

4. Property Damage Insurance and Contingent Property Damage Insurance in an amount not less than $250,000.00 on account of one accident, and in an amount of not less than $500,000.00 on account of all accidents.

5. General Liability Insurance shall include Contractual Liability Insurance.

D. Before any work is started, the successful bidder shall be required to file with the Chief Procurement Officer certificates of insurance coverage as detailed above, with policy numbers and dates of expiration.

E. The Contractor shall indemnify, hold harmless and defend the City and its departments, officers, employees, servants, and agents from and against all actions, causes of actions, claims, demands, damages, costs, loss of services, expenses and compensation, including attorney's fees and interest arising out of or resulting directly or indirectly from the services rendered pursuant to this Contract, provided that any such action, cause of action, claim, demand, damage, cost, loss of service, expense, compensation (1) in any way grows out of bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, which (2) is caused in whole or in part by any act or omission of the Contractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is cased in part by a party indemnified hereunder.

IV. STONE CONSERVATOR QUALIFICATIONS

END OF SUMMARY

GENERAL PROVISIONS

1.0 PROJECT SITE

A. The area of work shall be at the East Parish Burial Grounds in Newton, MA. The East Parish Burying Ground is located at the intersection of Centre and Cotton Streets.

2.0 GENERAL REQUIREMENTS

A. All work shall comply with the latest edition of the Massachusetts State Building Code and the Secretary of the Interior's Standards for Historic Preservation.

B. The Contractor shall be responsible for all temporary shoring of the existing and new structure during the work, and for temporary protection of the surrounding environs.

C. The Contractor shall be solely responsible for all means and methods of construction employed on this project, and for all temporary bracing, support, and protection of the existing structure. Any sequences of work or methods indicated or implied in the contract documents are present only as assumptions on which the design of the permanent installations were based and are to be considered as suggested options for review by the contractor. Following review of existing conditions and the scope of work, the contractor shall submit his own statement of means and methods as well as schedule to the Engineer and shall keep the Engineer abreast of all progress and the beginning and completion of each phase or item of work.

D. The Contractor shall be solely responsible for maintaining the safety, stability and security of the structures and all contents and remains during all phases of work and shall correct any defects or damage which results from his actions.

E. The Contractor shall return all property including surrounding tombs, lawn areas and paved areas to the original condition. All repairs and/or replacement of existing materials and surfaces are to match the existing.

F. All debris of any nature shall be removed from the site and disposed of in accordance with all Federal, State and local regulations.

G. The Contractor shall, at his own discretion, shall retain the services of a certified industrial hygienist to review the cleanliness of the existing tombs before they are entered.

3.0 DRAWINGS

A. The attached drawings and any alterations or additions through addenda shall be the working drawings for the project.

B. Drawings shall not be scaled.

C. The Contractor shall field verify all existing conditions and dimensions and shall be responsible for dimensional coordination. Notify the Engineer of any and all discrepancies.

D. All items not specifically mentioned in the specifications or noted on the drawings, but which are obviously necessary to make a complete working installation, shall be included.

4.0 MATERIALS

A. Unless specifically so stated to the contrary the use of a manufacturer's name or style number is not restrictive, and is intended solely as an identification of the type and quality of the materials and services required. In all cases, the words "or approved equal" if not inserted are implied.

B. An item equal to that named or described in the specifications may upon written approval of the City be furnished by the Contractor. An item shall be considered equal to the item so named or described if (1) it is at least equal in quality, durability, appearance, strength and design; (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased; (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the specifications.

C. The name and identification of all materials other than the one specifically named shall be submitted to the City in writing for approval, prior to purchase, use or fabrication of such items. Subject to the provisions of M.G.L. Ch. 30, Sec. 39J, approval shall be at the sole discretion of the City, shall be in writing to be effective, and the decision of the City shall be final. The City may require tests of all materials so submitted to establish quality standards at the Contractor's expense.

D. For the use of material other than the one specified, the Contractor shall assume the cost of and responsibility for satisfactorily accomplishing all changes in the work as shown. All directions, specifications and recommendations by manufacturers for the installation, handling, storing, adjustment, and operation of their equipment shall be complied with and responsibility for proper performance shall continue to rest with the Contractor.

E. Except as otherwise provided for by the provisions of M.G.L. Ch. 30, Sec. 39J, the Contractor shall not have any right of appeal from the decision of the City condemning any materials furnished if the Contractor fails to obtain the approval for substitution in accordance with these provisions. If any substitution is more costly, the Contractor shall pay for such costs

END OF SECTION

CITY OF NEWTON

SPECIAL CONDITIONS OF THE CONTRACT

FOR PUBLIC WORKS CONSTRUCTION

The following Special Conditions supplement the City of Newton General Conditions of the Contract for Public Works Construction. The following clauses relate in particular to this contract. In the event of conflict or ambiguity between the General Conditions and these Special Conditions, the Special Conditions take precedence and shall govern.

1. The Contractor shall provide such police officers as the Engineer deems necessary for the direction and control of traffic entering, passing through and leaving the site of the contract. Such officers shall wear regulation policemen's uniforms and fluorescent safety vests. The City will reimburse the Contractor for payments made for the services of all traffic officers. The Contractor is required to submit to the Engineer copies of evidence of payment.

2. Unless otherwise specified elsewhere in this contract or specifically directed by the Engineer, all excavated material shall be wasted off-site at the Contractors' expense. No City of Newton disposal area will be available for this purpose.

3. The Contractor shall make his own arrangements with the owners of land other than the City easements occupied by or used by him in the prosecution of this contract and shall hold the City harmless from any and all claims for damages caused by or arising from such occupation or use. All temporary roadways built to accommodate equipment, trucks, etc., shall be built at the Contractor's own expense.

4. The City does not guarantee the locations of existing pipes or underground conduits. The locations of these structures shown on the plans are approximate. In private lands where sprinkler systems, driveway, walk and step heating cables and/or heating pipes are encountered, the Contractor shall use due caution when excavating in the vicinity of these structures.

5. The City does not guarantee the nature of any material encountered in any excavation. The Contractor must make his own examination, by boring, test holes, or otherwise, for determining the nature of the material to be excavated or the conditions under which the work is to be performed, and make his bid in sole reliance thereon.

6. The Contractor shall clean up the entire project before the City will accept the work. All rubbish, tree stumps, boulders from any excavation, surplus excavated material, unless specifically ordered by the Engineer to do otherwise, or any other debris shall be disposed of by the Contractor. The entire area within the easements and all other areas disturbed by the Contractor shall be graded and left in a condition comparable to that as found originally and satisfactory to the Engineer. All the work mentioned in this paragraph shall be included in the Furnishing, Trenching and Laying Item.

7. All trenches and areas resurfaced by the Contractor shall be guaranteed against settlement, upheaval or failure of any kind for a period of one (1) year after the City accepts the work and he shall replace such resurfacing at his own expense. The City Engineer shall be sole judge as to what constitutes a failure and which portion of the resurfacing is to be replaced, and his decision shall be final.

8. Before starting the work and from time to time during its progress, as the Engineer may request, the Contractor shall submit to the Engineer a written description of the methods he plans to use in doing the work and the various steps he intends to take.

9. The terms "earth excavation" and "excavation" used throughout these specifications shall include all the material to be excavated and/or removed (except rock excavation) including peat, muck, roots, trees, stumps, and all other material necessary for the completion of the work to be done as specified.

10. The term "complete in place" used throughout these specifications shall include all the work to be done for the completion of the item as specified.

11. The Contractor shall cooperate with other Contractors, Utility Companies and/or City of Newton Departments that may be working on or near the work site covered by the contract. The Engineer will decide as to the respective rights of the parties involved and his decisions shall be final.

12. The Contractor shall assume all liability, financial or otherwise, in connection with this contract and shall protect and save harmless the City of Newton for any and all damages or claims that may arise because of inconveniences, delays or loss experienced by him because of the presence and operations of other Contractors, Utility Companies and/or City of Newton Departments working near or within the limits of the contract.

13. The Contractor shall begin on receipt of written orders to do so, and the work once begun shall be continuously carried forward with a force of men adequate in the opinion of the Engineer to complete the work in a reasonable and expeditious manner, inclement and unseasonable weather conditions excepted. In the event the Engineer determines that the Contractor has not begun work on written orders to do so, or that the work once begun has been abandoned without authority, then the Engineer shall give the Contractor seventy-two (72) hours notice (Sunday excepted) to begin work, or resume work in case of abandonment. Failure of the Contractor to act within this specified time shall be deemed a breach of this contract and the Contractor shall be held liable for any damage or expense arising from such breach of contract.

14. Upon commencement of the work the Contractor shall assume full charge and care thereof and he shall take every necessary precaution against injury or damage to the work by action of the elements, or from any cause whatever, whether arising from the execution or the non-execution of the contract. The Contractor shall bear all losses resulting to him on account of the amount or character of the work or because the nature of the land in or on which the work is done is different from what was estimated or expected, or on account of the weather elements or other causes.

15. The Contractor shall rebuild, repair, restore and make good all injuries or damages to any portion of the work occasioned by any of the above causes before the completion and final acceptance of the work, and shall bear the expense thereof.

16. All notices, demands, requests, instructions, approvals and claims must be in writing. Any such notice shall be deemed to have been given as of the time of delivery, or of actual receipt in the case of telegrams or, in the case of mailing, when it should have been received in due course of post. For communicating purposes, the office address of the Contractor shall be that stated on the signature page of the contract; that of the City shall be as stated in the Notice to Contractors. Any subsequent change in address of either party shall be communicated to the other in writing.

17. The City will furnish to the Contractor, without charge, all copies of the specifications reasonably necessary in the performance of the contract work.

18. The Contractor shall supply to the City the name and telephone number of a responsible person who may be contacted during off-hour emergencies on the project. The Contractor shall cooperate at all times with the City and the Project Manager, and ensure the cooperation of his key personnel and that of his subcontractors.

19. The work must be completed in a continuous uninterrupted operation. The Contractor must use sufficient men and adequate equipment to complete all the necessary work requirements within a minimum period of time. The work shall be conducted between the hours of 7:00 a.m. and 4:30 p.m. on Monday through Friday. No work shall be done on holidays, Saturdays or Sundays other than for emergencies, or unless specifically authorized by the City.

20. The Contractor shall, with each monthly invoice submitted during the term of this Contract, submit to the City two (2) legible copies of his payrolls documenting the wages paid to all employees performing on site labor relating to the work of this Contract. These copies shall be prepared on forms supplied by the City.

21. a.) Unless specifically so stated to the contrary the use of a manufacturer's name or style number is not restrictive, and is intended solely as an identification of the type and quality of the materials and services required. In all cases, the words “or approved equal” if not inserted are implied.

    b.) An item equal to that named or described in the specifications may upon written approval of the City be furnished by the Contractor. An item shall be considered equal to the item so named or described if (1) it is at least equal in quality, durability, appearance, strength and design; (2) it will perform at least equally the function imposed by the general design for the public work being contracted for or the material being purchased; (3) it conforms substantially, even with deviations, to the detailed requirements for the item in the specifications.

    c.) The name and identification of all materials other than the one specifically named shall be submitted to the City in writing for approval, prior to purchase, use or fabrication of such items. Subject to the provisions of M.G.L. Ch. 30, Sec. 39J, approval shall be at the sole discretion of the City, shall be in writing to be effective, and the decision of the City shall be final. The City may require tests of all materials so submitted to establish quality standards at the Contractor’s expense.

d.) For the use of material other than the one specified, the Contractor shall assume the cost of and responsibility for satisfactorily accomplishing all changes in the work as shown. All directions, specifications and recommendations by manufacturers for the installation, handling, storing, adjustment, and operation of their equipment shall be complied with and responsibility for proper performance shall continue to rest with the Contractor.

f.) Except as otherwise provided for by the provisions of M.G.L. Ch. 30, Sec. 39J, the Contractor shall not have any right of appeal from the decision of the City condemning any materials furnished if the Contractor fails to obtain the approval for substitution in accordance with these provisions. If any substitution is more costly, the Contracotr shall pay for such costs

22. In addition to other guarantees or warranties required under law or other sections of the specification, the Contractor warrants all materials furnished and labor performed under this Contract to be free from defects or errors in workmanship or installation for a period of one year from the date of Completion of the work, as certified by the Project Manager. The Contractor shall indemnify the City of Newton for the full cost of any damage to the property that may result by reason of such defects or errors and shall indemnify the City of Newton from and against any and all claims, demands. losses, costs, expenses, liabilities and damages, including reasonable attorney's fees and expenses, arising out of or on account of this Contract, including but not limited to claims brought against the City of Newton for alleged infringement of patents based upon any methods of construction or application of upon materials furnished under the Contract.

23. The Contractor shall make no excavation in any public way or utility easement unless at least forty-eight (48) hours, exclusive of Saturdays, Sundays and legal holidays, before the proposed excavation is to be made, he has given notice in writing by registered mail, of the proposed excavation to such Public Utility Companies as supply gas, electricity and telephone service in the City, to such private companies as supply cable television service in the City and also to the City of Newton Water Department. Such notice shall set forth the name of the street and a reasonably accurate description of the location in which the excavation is to be made. The Contractor shall comply with the Dig Safe Law (G.L. c. 82, Sec. 40).

24. The Contractor shall exercise the greatest of care to ensure that no material being hauled either to or from the site by him or his sub- contractor's, is spilled onto any way, public or private, within the City limits. In the event that such spillage does occur, it shall be the Contractors' responsibility to remove the spilled material and clean the area by the end of the work day. If in the judgment of the Engineer, the Contractor has not satisfactorily cleaned the area of any spill, the Engineer may then order the area to be cleaned by the City at the Contractors' expense.

25. No cement or bituminous concrete shall be poured from October 30 to April 15, unless the Contractor receives prior written authority to do so from the Commissioner of Public Works.

26. By submitting a bid Contractor represents and warrants that it has the capability to perform in a year 2000 compliant manner. For the purpose of this paragraph “year 2000 compliant” means that Contractor will continue to perform in accordance with all requirements of this Agreement from, into and between the twentieth and twenty-first centuries, without delay or interruption in performance or delivery of services relating to the ability of systems used by the Contractor, or by parties upon whom the Contractor relies in the performance of this Agreement, to accurately interpret, convert, or process date/time data in electronic format.

END OF SECTION

PROJECT SPECIFICATIONS

SECTION 02050

DISMANTLING AND DEMOLITION

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

A. Dismantling and demolition of tomb elements for reconstruction and repair.

1.2 RELATED SECTIONS

A. Section 02205 – Excavation and Backfill

B. Section 02210 – Temporary Support and Protection

C. Section 04500 – Masonry Restoration

1.3 REFERENCES

A. Comply with Massachusetts Department of Public Works (MDPW) Standard Specifications for Bridges, Demolition Requirements.

B. Comply with all applicable requirements of other sections.

1.4 SUBMITTALS

A. Submit certificates attesting to legal disposal of refuse materials if requested by the engineer.

1.5 PROTECTION

A. Provide for the uninterrupted safety of workers and adjacent structures to remain as well as the general public during all phases of the work. Provide warning signs, and barricades as required to maintain a separated, safe, secure site.

B. Protect all elements that are to remain and all historic elements to be retained and/or re-set. Do not dismantle anything other than what is specifically indicated on the contract documents unless specifically requested to do so in writing by the Engineer.

PART 2 - PRODUCTS AND MATERIALS

2.1 PRODUCTS AND MATERIALS:

A. Provide products and materials which are incidental to the dismantling and demolition work, disposing of these or salvaging them for re-use as best suits the project conditions.

2.2 BACKFILL

A. The contractor shall provide suitable backfill as specified under Section 02205 where needed to temporarily fill holes of voids left by removal of partially buried items that are to be re-erected.

PART 3 - EXECUTION

3.1 SITE REVIEW:

A. Perform full review of site to verify extent of dismantling and to plan for coordination with other trades.

3.2 DISMANTLE (REMOVE FROM PRESENT POSITION) THE FOLLOWING:

A. Existing grave tomb walls, tables and related elements scheduled for dismantling and reassembly.

B. Existing incidental items not included in the work that are required to be dismantled in order to complete the scheduled work.

3.3 DISMANTLING OPERATIONS

A. Carefully study each item to be dismantled and determine the safest, least disturbing and potentially damaging method of disassembly. Number the items, photograph them and make a sketch of assembled items for re-use during re-assembly. Number each component with an appropriate non-permanent method of marking, and note the points of contact or intersection and their orientation. Take photographs of all elements to be worked on before and after the work.

B. Dismantle the specific items and store in a safe place for re-assembly.

C. Notify the Engineer immediately if any damage has occurred to any of the dismantled items and propose appropriate methods of repair.

3.4 DEMOLISH ONLY THE FOLLOWING:

A. Brick back-up wall construction associated with tomb elements scheduled to be replaced or reconstructed.

B. Only demolish items that are specifically released in writing by the Engineer for demolition.

3.5 DEMOLITION OPERATIONS

A. Examine areas and conditions under which the work will be performed. Correct conditions which are detrimental to the timely and proper completion of the work. Proceed only when unsatisfactory conditions have been corrected.

B. Protect items in or near the work that are to remain.

C. Dispose of demolished materials in environmentally sound and approved manner.

D. Minimize noise and dust. Provide wetting and protection as required.

E. Prevent accumulation of debris on the site. Remove refuse or salvaged items on a continuous, on-going basis.

F. Do not demolish any elements on which other elements depend for their stability without express permission of the Engineer.

G. Return site to neat, tidy condition following demolition operations.

3.6 STORAGE REQUIREMENTS

A. All dismantled elements shall be stored on pallets or vertically with spacer bars. Flat stone elements that are stored flat shall not be stacked. A maximum of two flat stone slabs can lean on each other when stored vertically.

END OF SECTION

SECTION 02205

EXCAVATION AND BACKFILL

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

A. The work of this section includes, but is not limited to, the following:

1. Excavation and backfill of tombs for restoration.

2. Filling of tombs with sand.

1.2 PROJECT CONDITIONS

A. Protection: Ensure the safe passage or persons and traffic around the areas of earthwork. Provide sheeting, shoring, and bracing as may be required to support sides of excavation.

B. Dust Control: Take effective measures to minimize and control windblown dust. Do not create ice hazards by water spraying in freezing weather.

C. Erosion Control: Take effective action to control erosion and run off from site. Prevent siltation of drainage systems and pollution of waterways and waterbodies. Install erosion controls prior to beginning site clearing and earthwork. Provide temporary silt barriers such as Siltation Fencing as may be required to protect adjacent areas and water bodies from site erosion.

D. Utilities: Locate all utilities and maintain and keep utilities in service and protected from damage, except utilities indicated to be removed or relocated. Excavate and uncover all utilities requiring work or service.

E. Cold Weather Conditions: Protect subgrade and building foundations from freezing in cold weather. Do not backfill when temperatures are below freezing.

F. Prior to beginning any soil excavation, the contractor shall submit a proposal in writing to the Architect / Engineer who shall then review it and forward it to the Massachusetts Historical Commission (MHC). MHC shall retain authority to require archeological documentation and mitigation measures to be undertaken by others prior to commencing excavation work. Avoid subsurface disturbance where possible.

G. Exercise extreme care during excavating to avoid contacting or damaging existing buried coffins, caskets, remains or artifacts. Stop work immediately upon detecting such and notify the Engineer immediately. Contractor shall be responsible for protecting these items on site until a proper method of storing or archiving is determined. Move to another location on the project and resume normal operations during the resulting period of review. This shall not be reason for change orders or delays unless the review period exceeds two weeks for a specific item; therefore, the contractor must allow sufficient slack in his project schedule.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

A. Structural Fill: Provide gravel, sandy gravel, or gravelly sand free from organic material, loam, trash, snow, ice, frozen soil, and other objectionable material and well graded within the following limits.

SIEVE SIZE	PERCENT FINER BY WEIGHT PASSING THROUGH
3 inches	100
No. 4	30-90
No. 40	10-50
No. 200	0-8

B. Crushed Stone: Provide clean, washed crushed stone free of fine materials and graded within the following limits:

SIEVE SIZE	PERCENT FINER BY WEIGHT PASSING THROUGH
1 inches	100
¾ inches	90-100
½ inches	10-50
No. 4	0-5
No. 40	0-5
No. 200	0-5

C. Sand: Provide clean, washed sand free of silt and clay components and graded within the following limits:

SIEVE SIZE	PERCENT FINER BY WEIGHT PASSING THROUGH
No. 4	100
No. 8	95-100
No. 16	70-100
No. 30	40-75
No. 50	10-35
No. 100	2-15

D. Flowable Fill: Provide controlled low strength materials (CLSM), commonly known as flowable fill, which meets the following requirements:

1. Normal to High Flowability so that all voids within the vault are filled, use of a pump may be found appropriate.

2. Unconfined compressive strength less than 150 psi so as to be considered excavatable.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS

A. Locate and mark excavations. Carefully remove sod in ¾" or 1" thick layers with topsoil retained in the root system. Following sod removal, remove topsoil down to a depth where it becomes sandy and inorganic, or to the bottom of the excavation, whichever is reached first. Following topsoil removal, remove remaining soil, if any, to the bottom of the excavation.

B. Shoring and Bracing: Slope excavations and provide shoring and bracing as needed to comply with requirements of all local requirements and standard, accepted practice.

C. Dewatering and Drainage: Remove water from excavations by appropriate methods, and protect excavations from surface runoff.

D. Finished Grades: The grading around the tombs should match the historical grades as closely as can be determined. On the above ground tombs the grading at the fronts of the tombs should allow access to and visibility of the tomb doors.

E. Moisture Control, Placement and Compaction of Backfill:

1. Outside of and around all tombs: Re-use existing soil from each excavation or replace (or supplement) with structural fill meeting the above gradation requirements. Control moisture in subgrades and in fill materials, and conform compact all materials within 3% of optimum moisture. Compact, to 95% of maximum density as determined by ASTM D1557, Method C. Place backfill in lifts of not more than 6".

2. Above tombs: Re-use existing soil from each excavation or replace (or supplement) with structural fill, or flowable fill as noted on the drawings, meeting the above gradation requirements. Control moisture in subgrades and in fill materials, and conform compact all materials within 3% of optimum moisture. Place backfill in lifts of not more than 6". Above this shall be 6" of loam per Section 02485.

3. Inside of tombs: Provide sand meeting the above gradation requirements. By hand, carefully deposit around and over remains and minimally hand-compact in 6" lifts to a degree that will support light foot traffic. See Section 02222 Protection of Remains and Artifacts for additional requirements.

4. Disposal: Dispose of excess materials and materials which are not to be reused off-site in a legal manner. Do not remove topsoil without the permission of the owner.

F. Cold Weather: Contractor shall be responsible for protection of earth materials, subgrade, and foundations from frost during excavation operations and shall submit protection plan to the Engineer for review. Do not place or compact fill when ambient air temperatures are below freezing or when the fill could freeze prior to compaction.

G. Stockpile sod, topsoil, and inorganic soil at separate locations on site for re-use. Locations shall be separated to avoid inter-mixing of materials, shall be protected against run-off, and shall be located on walkways in order to not damage existing lawns.

H. Protect all grave markers from damage during excavation and backfill operation, utilizing wooden barriers or shields when necessary.

3.2 SURFACING AND SEEDING

A. Following inorganic fill or crushed stone fill placement along excavations, add topsoil to a minimum depth of 8" from grade.

B. Following completion of earthwork, add topsoil (loam) to a minimum depth as indicated on the drawings and not less than 4". In locations with increased slope, install Geosynthetic Synthetic Erosion Control Mat at a depth of between 1" and 2" from the top of soil, or as directed by manufacturer's instructions for Regetation Mat (ECRM) and Turf Stabilizaiton (TRM) applications.

C. Spread sod over topsoil in pieces arranged to most completely cover the area, selecting the most healthy salvaged pieces.

D. Seed and maintain completed work in accordance with Section 02485 - Seeding.

END OF SECTION

SECTION 02210

TEMPORARY SUPPORT AND PROTECTION

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

A. Temporary support of tomb elements and miscellaneous stonework and adjacent structures during work.

B. Bracing of pits as may be required during excavation and backfilling.

1.2 RELATED SECTIONS

A. Section 02050 – Dismantling and Demolition

B. Section 04500 – Masonry Restoration

1.3 REFERENCES

A. Comply with the following standard material specifications:

1. ASD/LFRD 2005 National Design Specification for Wood Construction.

2. Massachusetts State Building Code, Eighth Edition

1.4 QUALITY CONTROL

A. Comply with all applicable and referenced standards for the products employed.

B. The contractor shall be solely responsible for all means and methods of construction employed on this project including all temporary bracing, support and protection of the existing Structure. Any sequences of work or methods indicated or implied in the contract documents are present only as assumptions on which the design of the permanent installations are based and are to be considered as a suggested option for review by the contractor.

PART 2 - PRODUCTS AND MATERIALS

2.1 WOOD PRODUCTS AND CONNECTORS: as may be required to construct shoring and bracing for the existing masonry structures. Provide the following:

A. Rough Carpentry Materials:

Framing:	Hem Fir #2 KD or SPF #1 KD, size as noted.
Sills:	(2) 2x6 SYP #2 Pressure Treated where bearing on masonry or concrete.
Sheathing:	3/4" CDX plywood.
Shims:	Red or white oak, tapered to 1/16" min. dimension.

B. Provide standard framing connectors suitable for flush framed applications as may be required. All nailing shall be per Massachusetts Building Code. All nails shall be hot dip galvanized.

C. Provide 6 mil. min. thickness tarpaulins as required for weather protection.

D. Provide padded blankets of soft fabric pads as needed at bearing locations.

PART 3 - EXECUTION

3.1 CONSTRUCT SHORING AND BRACING TO MAINTAIN SAFE, STABLE CONDITIONS

A. Construction shall be sufficient for soil loads, stone loads, etc. as well as for anticipated construction loads.

B. Pit bracing of excavations shall be provided at pits where there is a chance that sides or adjacent structures can cave in during operations. Bracing shall be temporary, and shall be withdrawn as backfill and/or new subgrade structures are installed.

C. Lateral bracing shall be provided as needed to position and stabilize stonework during setting in excavated pits and backfilling.

D. Do not utilize any anchors which will permanently mar the existing surrounding structure to be preserved.

E. Provide and utilize removable shims during lifting, setting, and positioning operations to maintain safe, even support of effected elements. Shims shall be removed in their entirety following work that requires their use.

F. Protect all contact points between shoring / bracing and stone elements with soft pads and/or blankets.

3.2 PROTECTION OF SENSITIVE AND/OR UNCOVERED ELEMENTS

A. Provide barricades, covers, and sleepers as may be required to protect artifacts, stones, and other sensitive elements from the public and severe weather.

B. Do not allow stones or wooden elements that are being restored or set to rest directly on the earth but maintain in a clean, dry condition during all operations in which the cleanliness and dryness of the elements is critical.

C. Cover all open excavations with plywood or tarpaulins during periods of inclement weather.

3.3 REMOVAL AND CLEANUP

A. Remove all work provided under this section from the site and dispose of in an approved manner.

END OF SECTION

SECTION 02222

PROTECTION OF TOMB CONTENTS

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

A. This Section addresses the protection of Human Remains and associated Artifacts that may be encountered within the tombs.

1.2 RELATED WORK

A. Section 02210- Temporary Support and Protection

B. Section 02050- Dismantling and Demolition

C. Section 04500- Masonry Restoration

1.3 GENERAL REQUIREMENTS

A. Protection of Remains/ Artifacts: All work must be done in such a way as does not disturb the existing remains and artifacts in the floors of the vaults on which work will proceed.

B. Ventilation and Worker Safety: Out of concern for the unlikely possibility of pre-existing diseases festering within the human remains and/or artifacts that have up to now been contained within the tombs, the interiors of the tombs shall be properly ventilated for at least one hour prior to access by workers. Workers shall be properly suited with OSHA-approved respirators in order to perform sand-covering operations as specified herein. The contractor may at his own option retain the services of a certified industrial hygienist to verify that the tomb interiors are suitable for unprotected human occupancy, and in such case the mandatory requirements for protective suits and respirators shall be relieved. The contractor shall be solely responsible for his own safety and that of his workers, even if it requires safety measures that are in excess of those that are described herein. The contractor shall hold Historic Newton, the City of Newton, and the Engineer harmless from claims made regarding the safety of workers on this project.

PART 2 - PRODUCTS

2.1 WORKER PROTECTION

A. The contractor shall provide all necessary equipment and materials required for the protection of workers entering the tombs and for the tombs' proper and safe ventilation. All protection and equipment shall meet applicable OSHA and Board of Health standards for working with and within contaminated environs and shall be properly cleaned and/or disposed of following completion of the work.

2.2 BUILDING MATERIALS

A. Provide referenced building materials in accordance with the Specification Sections applicable to the related work.

PART 3 - EXECUTION

3.1 INSPECTION AND DOCUMENTATION OF CONTENTS

A. Notify the Engineer as well as the Owner at least one week in advance as to the scheduled day and time that each of the tombs will be opened and accessed. The Engineer and Owner reserve the right to have an Archaeologist on site to assist in the documentation of the tomb contents and monitoring of the work.

B. Upon accessing the tomb interior, make note of the contents (such as wood, pottery, bones and fragments) that are generally lying on the tomb's earthen floor. Identify a path by which the tomb can be entered without disturbing the contents.

C. Enter the tomb without disturbing the contents and make a photographic survey of the contents and the tomb interior. Measure the tomb size and the maximum height of contents and make a chalk marking on the tomb wall that is 6” higher than the highest point of the contents.

3.2 SAND COVERING AND CREATION OF A WORKING SURFACE

A. Carefully hand-deposit sand around and over the tomb contents, using no more than a shovel to carefully and loosely deposit the sand without in any way disturbing the contents. Proceed in this manner until the each of the contents is covered by at least three inches of sand, following the general contour of the contents. Work sand into any voids that exist below or between the contents so that the contents will not be disturbed by shifting of the sand when more overburden and foot traffic is imposed above.

1. At Tomb S-B, only, in the South Parish Burying Ground, a layer of plastic membrane shall be laid over the remains prior to the placement of the sand covering.

B. Where tomb walls are to be reconstructed place plywood against the inside surfaces of the tomb to provide retention for the sand when the side walls are disassembled, cutting it to follow the profile of the initial 3” covering of the contents and running up to the top of the proposed concrete grade beam elevations. Transfer the chalk elevation marks from the wall to the plywood.

C. Continue to deposit sand, using shovels, conveyor (placed into the tomb but not supported over the contents and/or screed or rake, hand compacting the sand with each 3” lift. Create a uniform, mostly flat surface at an elevation of 6” above the top of the highest contents (at the chalk marks on the plywood or tomb walls).

D. Lay flat sheets of protective plywood over the sand, to be used as a working surface and removed later.

3.3 TOMB RECONSTRUCTION

A. Following removal of the roof, slowly dismantle the tomb walls where indicated until the top of the side-bracing plywood is reached. Provide cross-ties through the middle of the tomb and/or struts to the outside as needed to sufficiently brace the plywood so that it acts as a retainer for the sand within the tomb. Continue removing the walls until the desired elevations are reached.

B. Reconstruct the brick exterior walls at least up to the elevation of the current top of sand, then remove the wall-plywood braces and cut the wall plywood away along an elevation of 1” above the top of sand, then continue building the walls.

C. Upon completion of the walls and roof replacement, remove the protective flat plywood from the interior and place the remaining sand up to a depth of the lesser of 4-feet from the tomb floor or at the elevation average adjacent grade along perimeter of the tomb, as indicated on the drawings.

END OF SECTION

SECTION 02485

SEEDING

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

A. Seeding of all areas designated as lawn.

1.2 RELATED SECTIONS

A. Section 02205 - Excavation and Backfill

1.3 STANDARDS

A. The following related items are included herein and shall mean:

1. AOAC: Association of Official Agricultural Chemists

2. ASTM: American Society of Testing and Materials

1.4 SUBMITTALS AND SAMPLES

A. Samples: Prior to ordering the below listed materials, submit representative samples to Engineer for selection and approval, in accordance with requirements of General Conditions and Supplementary General Conditions as follows. Do not order materials until Engineer's approval has been obtained. Delivered materials shall match the approved samples.

1. Screened Loam: The Contractor shall provide representative samples for testing and approval. Two test samples of ten pounds (10) each shall be taken and analyzed from each potential loam source. Contractor shall deliver samples to a testing laboratory approved by the Engineer and shall have testing reports sent directly to the Engineer and pay all costs. Report shall be submitted at least one month before any loaming is to be done and shall include the following tests and recommendations:

a. Mechanical and chemical analysis shall be by a public extension service agency or a certified private testing laboratory in accordance with the current "Standards" of the Association of Official Agricultural Chemists.

b. Soil Test Report shall include a mechanical sieve analysis with soil classification. Organic content and Cation Exchange Capacity (CEC) shall be reported. Chemical analysis shall include pH (1:1 soil/water ratio), buffer pH, Soluble Salts, (1:2 soil/water ratio), Nitrate Nitrogen, Ammonium Nitrogen, Phosphorus, Potassium, Calcium, Aluminum. Magnesium, Manganese, Ferric Iron and Sulfate.

c. Soil Test Report shall clearly recommend appropriate application of limestone, fertilizer and other soil additives required to correct soil deficiencies and to adjust loam as necessary to support successful turf growth.

B. Certificate of Compliance: Submit six (6) copies of the manufacturer¹s Certificate of Compliance to the specifications with each shipment of each type of seed. These certificates shall include the guaranteed percentages of purity, weed content and germination of the seed and also the net weight and date of shipment. No seed may be sown until the Contractor has submitted the certificates and they have been approved.

C. Maintenance instructions for lawns: Submit three (3) copies.

1.5 CERTIFICATE OF ACCEPTANCE

A. The Engineer will inspect all work upon the written request of the Contractor received at least ten days before the anticipated date of inspection.

B. Seeded lawns shall be reviewed for acceptance only after all areas have a close stand of grass with no bare spots greater than two inches in diameter, at least 90% of the grass established shall be permanent grass species and the lawns have been maintained for a minimum of ninety (90) days prior to inspection.

C. Furnish full and complete written instructions for maintenance of the lawns to the Owner at the time of acceptance.

D. Engineer's inspection shall determine if the grass is acceptable and whether maintenance shall continue in any part.

E. After all necessary corrective work and clean-up have been completed and maintenance instructions have been received by the Owner, the Engineer will certify, in writing the acceptance of the lawns. The Contractor's responsibility for maintenance of lawns or parts of lawns shall cease on receipt of the written Certificate of Acceptance.

1.6 EXAMINATION OF CONDITIONS

A. All areas to be seeded shall be inspected by the Contractor before starting work and any defects, such as incorrect grading, drainage problems, etc., shall be reported to the Engineer prior to beginning this work. The commencement of work by the Contractor shall indicate his acceptance of the areas to be seeded, and he shall assume full responsibility for the work of this Section.

1.7 QUALITY ASSURANCE

A. Storage and Handling: Store and handle packaged materials in strict compliance with manufacturer's instructions and recommendations. Protect all materials from damage, injury and theft.

B. Subcontractor Qualifications: Landscape subcontract work shall be assigned to an experienced and qualified landscape subcontractor with a minimum of five (5) years of experience and who employs experienced employees under the full time supervision of a qualified foreman.

PART 2 - PRODUCTS

2.1 SCREENED LOAM

A. Screened loam shall be a "sandy loam" determined by mechanical analysis ASTM D-422 and based on the "USDA Textural Classification." It shall conform to the following sand, silt and clay distribution for material passing the #4 sieve:

Textural Classification	% Total Weight
Sand (0.05-2.0 mm dia. range)	less than 52%
Silt (0.002-0.05 mm id. range)	28-50%
Clay (less than 0.002 mm id. range)	7-27%

Soil test shall include breakdown of sand and subfractions from very coarse to very fine.

B. Maximum grain size shall be one and one quarter inches largest dimension. The maximum retained on the one-quarter inch sieve shall be 20% by weight of the total sample. Test shall be combined hydrometer and wet sieving in compliance with ASTM D-422 after destruction of organic matter by ignition.

C. Screened loam shall be free from plants and their roots and other debris and extraneous matter. It shall be uncontaminated by salt, water, foreign matter and substances harmful to plant growth. The electrical conductivity (EC squared) of a 1:2 soil/ water suspension shall be equal to or less than 1.0 milliohms/ cm. (test material passing #4 sieve).

D. Material shall consist of natural topsoil, free from subsoil, obtained from an area which has never been stripped. It shall be removed to a depth of one (1) foot or less if subsoil is encountered. Loam shall be of uniform quality screened free of hard clods, stones greater than 1/2 inch, stiff clay, hardpan, sods, partially disintegrated stone, lime, cement, ashes slag, concrete, tar residues, tarred paper, boards, chips, glass, sticks, or any other undesirable material.

E. Screened loam shall have an acidity range of pH 6.0 to pH 6.5 and shall contain not less than 5% nor more than 10% organic matter as determined by the loss on ignition of oven dried samples. Test samples shall be oven-dried to a constant weight at a temperature of 230 degrees F., plus or minus 9 degrees. To adjust organic matter content, the soil may be amended, prior to site delivery by the addition of composted humus. Use of organic amendments is acceptable only if random soil sampling indicates thorough incorporation.

F. Screened loam shall have a Cation Exchange Capacity (CEC) of between 10 and 15.

G. All screened loam shall be provided from off site sources. The screened loam must be brought to the site, meeting all specification requirements. There must be no mixing or amending of soil on site. No loam shall be spread prior to screening. The screened loam must not be handled or moved when in a wet or frozen condition.

H. To assure screened loam purchased fulfills specified requirements regarding textural analysis, organic matter content, CEC, and pH, soil testing results will be obtained by the Contractor and submitted to the Engineer for approval one month before any soil is delivered to the site.

2.2 SEED

A. Lawn seed: Fresh, clean, and new crop seed mixture. Grass shall be of the previous year¹s crop and in no case shall weed seed content exceed 1% by weight. The seed shall be furnished and delivered in the proportion specified below in new, clean, sealed and properly labeled containers. All seed shall comply with State and Federal seed laws. Submit manufacturer¹s Certificates of Compliance. Seed which has become wet, moldy or otherwise damaged will not be accepted.

B. Lawn seed shall be composed of the following varieties which shall be mixed in the following proportions and shall test to minimum percentages, purity and germination specified. For Lawns Proportion by weight Germination minimum / Purity minimum

Creeping Red Fescue or Chewing's Fescue 50% 85% 95%
Kentucky Bluegrass (Flyking) 20% 90% 90%
Manhattan Perennial Rye 25% 90% 90%
Red Top 5% 85% 92%

2.3 FERTILIZER

A. Granular, non-burning product composed of not less than 50% organic slow acting, guaranteed analysis professional fertilizer.

1. Starter fertilizer containing 20% nitrogen, 26% phosphorus and 6% potash.

2. Top dressing fertilizer containing 31% nitrogen, 3% phosphorus and 10% potash.

3. Type and brand of fertilizer shall be documented as to not being deleterious or acidic to marble or other stonework.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine finish surfaces, grades, topsoil quality and depth. Do not start seeding work until unsatisfactory conditions are corrected.

3.2 PREPARATION

A. Loosen topsoil of lawn areas to minimum depth of 4". Remove stones over 1" in any dimension.

B. Grade areas to be seeded to a smooth, free draining even surface with a loose, moderately coarse texture. Remove ridges and fill depressions as required to drain.

3.3 INSTALLATION

A. Seed immediately following fine grading of soil. Spring seeding between April 1 and June 1 and Fall seeding between August 15 and October 15.

B. There shall be 6” of seeded loam above the tombs.

3.4 MAINTENANCE

A. Maintain seeded areas until completion and acceptance of the entire project.

END OF SECTION

SECTION 03300

CAST IN PLACE CONCRETE

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

A. The work of this section includes, but is not limited to, the following:

1. Cast in place concrete footings.

1.2 PROJECT CONDITIONS

A. Cast in place concrete shall be placed and cured under conditions that are conducive to good curing and placement and which conform to ACI standards for the methods employed.

1.3 SUBMITTALS

A. Submit the following items to the Engineer for review:

1. Concrete Mix Design.

2. Product Data for all accessories, admixtures and inserts.

1.4 REFERENCES

A. ACI 301 - Structural Concrete for Buildings.

B. ACI 302 - Guide for Concrete Floor and Slab Construction.

C. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.

D. ACI 305R - Hot Weather Concreting.

E. ACI 306R - Cold Weather Concreting.

F. ACI 308 - Standard Practice for Curing Concrete.

G. ACI 318 - Building Code Requirements for Reinforced Concrete.

H. ANSI/ASTM D1752 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.

I. ASTM C33 - Concrete Aggregates.

J. ASTM C94 - Ready-Mixed Concrete.

K. ASTM C150 - Portland Cement.

L. ASTM C260 - Air Entraining Admixtures for Concrete.

M. ASTM C494 - Chemicals Admixtures for Concrete.

N. ACI SP-66 - American Concrete Institute - Detailing Manual.

O. ANSI/ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.

P. CRSI - Concrete Reinforcing Steel Institute - Manual of Practice.

Q. CRSI - Placing Reinforcing Bars.

1.5 SUBMITTALS

A. Product Data: Provide product data for all accessories, admixtures and inserts.

B. Shop Drawings: Fully show all bar sizes, spacing, locations, and quantities of reinforcing steel and wire fabric. Provide bending and cutting schedules.

1.6 RECORD DOCUMENTS

A. Accurately record actual locations of embedded utilities and components which are concealed from view.

1.7 QUALITY ASSURANCE

A. Perform Work in accordance with ACI 301.

B. Conform to ACI 305R when concreting during hot weather.

C. Conform to ACI 306R when concreting during cold weather.

D. Detailing and construction of formwork, shoring and bracing shall be sufficient to maintain required alignments and surfaces. All work shall conform to ACI 318 and ACI 301, the Massachusetts State Building Code, and accepted construction practice.

E. Reinforcing steel detailing and installation shall be in accordance with CRSI - Manual of Standard Practice, ACI SP-66, and ACI 318.

PART 2 - PRODUCTS

2.1 CONCRETE MATERIALS

A. Cement: ASTM C150.

B. Fine and Coarse Aggregates: ASTM C33.

C. Water: Clean and not detrimental to concrete.

2.2 ADMIXTURES

A. Air Entraining admixture: ASTM C260.

B. Chemical: ASTM C494 Type A - Water Reducing

C. No admixtures shall contain calcium chloride.

2.3 REINFORCEMENT AND ACCESSORIES

A. Reinforcing Steel: ASTM A615, 60 ksi yield grade; deformed billet steel bars, epoxy coated in accordance with ASTM A775.

B. Tie Wire: Minimum 16 gage annealed type, epoxy coated.

C. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapor barrier puncture.

2.4 CONCRETE MIX

A. Standards: Mix concrete in accordance with ACI 304. Deliver concrete in accordance with ASTM C94. Select proportions for normal weight concrete in accordance with ACI 301 Method 1.

B. Mix Requirements:

1. Cast in Place Concrete shall have the following properties:

Compressive Strength (28 day)	4,000 psi
Water/Cement Ratio (maximum)	0.40 by weight outdoors
Aggregate Size	1” maximum
Air Entrainment	4% to 6% percent
Water Reducing Agent	As Required
Slump	to suit placement

2. Use accelerating admixtures in cold weather when approved by Engineer but do not relax other cold weather concrete placement requirements.

3. Do not use calcium chloride containing admixtures.

4. Add air entraining agent to normal weight concrete mix for work exposed to exterior.

2.5 FORM MATERIALS AND ACCESSORIES

A. Plywood: Douglas Fir or Spruce species; sheathing grade; clean, smooth sheets with true edges.

B. Form Ties: Snap-off type, galvanized metal, fixed or adjustable length, with waterproofing washer, free of defects that could create 1" of larger holes or defects in the concrete surface.

C. Form Release Agent: Colorless mineral oil which will not stain concrete, or absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete.

D. Corners: Chamfer, rigid plastic or wood strip type, 3/4" x 3/4", maximum possible lengths.

PART 3 - EXECUTION

3.1 ERECTION OF FORMWORK

A. Hand trim sides and bottom of earth forms where used. Remove loose soil prior to placing concrete.

B. Erect formwork, shoring and bracing in accordance with ACI 301 to achieve required geometry and stability.

C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Align joints and make watertight. Keep form joints to a minimum. Provide chamfer strips on external corners of foundation walls.

D. Apply form release agent on formwork in accordance with manufacturer's recommendations. Do not apply form release agent where concrete surfaces will receive applied coverings which are effected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

3.2 PLACEMENT OF REINFORCING STEEL AND TENSION RODS

A. Place, support and secure reinforcement and anchor rods against displacement. Do not deviate from required position. Do not displace or damage vapor barrier where present. Accommodate placement of formed openings and inserts.

3.3 CONCRETE PLACEMENT

A. Place concrete in accordance with ACI 304 or ACI 301. Notify Engineer minimum 24 hours prior to commencement of operations.

B. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints, and waterstops are not disturbed during concrete placement.

C. Maintain records of concrete placement: Record date, location, quantity, air temperature, and test samples taken.

3.4 FORM REMOVAL

A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.

B. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

3.5 CONCRETE FINISHING, CURING AND PROTECTION

A. Provide formed concrete surfaces to be left exposed concrete walls with smooth rubbed finish. Top surface shall have a floated finish.

B. Membrane-cure concrete for not less than 7-days.

END OF SECTION

SECTION 04500

MASONRY RESTORATION

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

A. Dismantling and reconstruction of stone tomb walls.

B. Dismantling and reconstruction of brick and stone table-top and obelisk tomb monuments.

C. Cutting, pointing and localized repair of exterior masonry to remain.

D. Localized repair of existing masonry vaults to remain.

E. Repair of damaged stone units.

F. Removal and replacement of stone stair cover slabs.

1.2 SCOPE OF WORK

A. The Work shall include all masonry work, the nature and quantities of which are detailed and described herein and on the contract drawings.

B. The base bid shall include all masonry work, the nature and quantities of which are detailed and described herein and on the Contract Drawings.

C. The masonry Contractor shall be responsible for coordinating and insuring that all flashing and weep holes are installed.

1.3 RELATED SECTIONS

A. Section 02050 – Dismantling and Demolition

B. Section 02205 – Excavation and Backfill.

C. Section 02210 – Temporary Support and Protection

D. Section 03300 – Cast-in-Place Concrete

E. Section 04550 – Grave Marker Conservation

F. Section 05500 – Structural Metal

G. Section 05750 – Cast Iron Door Covers

1.4 REFERENCES

A. Comply with the following standard material specifications:

B. ASTM C33 - Concrete Aggregates

C. ASTM C141- Hydrated Hydraulic Lime

D. ASTM C144 - Sand for Mortar and Grout

E. ASTM C216 - Fired Clay Units

F. ASTM C270 - Mortar and Mortar Testing for Unit Masonry

G. ASTM C1713 – Mortars for the Repair of Historic Masonry

H. ASTM A276, Type 304 - Threaded Round Stainless Steel Bar Stock.

I. ACI 301 - Concrete Mix Design and Placement

J. ASTM C144 - Sand for Mortar and Grout

K. ACI 318 - Building Code Requirements for Reinforced Concrete for Buildings

L. ACI 530 - Building Code Requirements for Masonry Structures.

M. ACI 530.1 - Specifications for Masonry Structures.

N. ASTM A82 - Cold-Drawn Steel Wire for Concrete Reinforcement.

O. ASTM A123 - Zinc (Hot-Dipped Galvanized) Coatings on Iron and Steel Products.

P. ASTM A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate.

Q. ASTM A525 - Steel Sheet, Zinc Coated, (Galvanized) by the Hot-Dip Process.

R. ASTM A580 - Stainless and Heat-Resisting Steel Wire.

S. ASTM A615 - Deformed and Plain Billet Steel Bars for Concrete Reinforcement.

T. ASTM B370 - Copper Sheet and Strip for Building Construction.

U. ASTM C55 - Concrete Building Brick.

V. ASTM C90 - Load-Bearing Concrete Masonry Units.

W. ASTM C216 - Facing Brick (Solid Masonry Units Made From Clay or Shale).

X. ASTM C652 - Hollow Brick (Hollow Masonry Units Made From Clay or Shale).

Y. IMIAC - International Masonry Industry All-Weather Council: Recommended Practices and Guide Specification for Cold Weather Masonry Construction.

Z. UL - Fire Resistance Directory.

1.5 SUBMITTALS

A. Resumes and Qualifications: Contractor shall submit resumes and qualifications for each of the following individuals to be reviewed by the Owner and Engineer.

1. Forman: Contractor shall submit resume and a list of prior projects for the foreman who will be on site for the duration of the project. Submittal shall include at least five examples of projects similar in scope and importance to the work at Newtown's East Parish/Centre Street Burying Grounds. Project references shall include name and date of execution of each project as well as the names and telephone numbers of references for each of the five projects.

2. Mason(s): Contractor shall submit resume and a list of prior projects for the site supervisor who will be on site for the duration of the project. Submittal shall include at least five examples of projects similar in scope and importance to the work at Newtown's East Parish/Centre Street Burying Grounds. Project

references shall include name and date of execution of each project as well as the names and telephone numbers of references for each of the five projects.

B. Submit the following items to the Engineer for review:

1. Test reports required as per paragraph 1.6 - Quality Control.

2. Product Data: Submit manufacturers' technical data for each product indicated including recommendations for their application and use. Include test reports and certifications substantiating that products comply with requirements.

3. Product data sheets and samples.

4. Concrete mix design where needed.

C. Submit shop drawings and samples for all masonry fabrications.

1. Replacement stone sample where appropriate.

2. Information directly from the brick manufacturer which is needed to re-order the exact brick for future repairs.

D. Perform field-constructed mock-ups for review by the Engineer:

E. Produce mortar and grout samples in the form of 2" x 2" x 2" flat slabs, placed against wooden side forms and backing, for easy removal of cured sample. Provide 8 samples per mortar and grout type taken on different days and cured under conditions that match field conditions to testing laboratory for compression testing. Provide at least four 2" x 2" x 2" field cut samples of existing mortar to the testing laboratory for comparative compression testing. Contractor shall arrange for and pay for all testing and shall submit results at 7 days and at 28 days to the Engineer. Adjustments in mix and re-tests shall be made as required at no additional cost to the owner. Test existing mortar samples and trial mixes at least three weeks before commencing masonry work.

F. Samples of new structural pointing and patching mortars and grouts cured in same fashion as will be applied to structure.

G. Mortar colors and textures shall match existing cleaned mortar surfaces.

H. 24"x24" raking (joint cutting) test/sample patches for (as preparation for repointing work) to be provided by the Contractor at exterior and interior wall surfaces and located as agreed with Engineer on site. No raking or joint cutting shall be started until samples are approved.

I. 24"x24" pointing / repointing test/sample patches to be provided by the Contractor at exterior and interior wall surfaces and located at agreed with the Engineer on site. No repointing shall be started until samples are approved.

J. Four completed hole and plug mortar applications to simulate completed retrofit facing tie installations.

K. Work that does not match the approved sample panels shall be rejected and redone. The Contractor shall be responsible for producing as many sample panels as necessary to provide a match of existing adjacent work that meets the satisfaction of the Engineer.

1.6 QUALITY CONTROL

A. Comply with all referenced standards for the products employed.

B. Comply with requirements of Massachusetts State Building Code.

C. Coordinate times of Special Inspections to comply with Massachusetts State Building Code.

D. All masonry work shall be performed by individuals with more than ten year well-referenced experience with historic brick and stone masonry restoration. The Contractor shall submit references for five successfully completed projects of similar scope.

E. The Contractor shall maintain a steady crew for the duration of the project, employ a qualified foreman who is present on the job every day.

F. During periods of cold or questionable weather, keep a log of work including air temperature and weather conditions, work started and completed per day, and tests taken. No work shall be done when the ambient temperature of the structure or the air is less than 45 degrees F.

1.7 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to site in manufacturer's original and unopened containers and packaging, bearing labels as to type and names of products and manufacturers.

B. Protect mortar and other cementitious materials from deterioration by moisture and temperature. Store in a dry location or in waterproof containers. Keep containers tightly closed and away from open flames. Protect liquid components from freezing. Comply with manufacturer's recommendations for minimum and maximum temperature requirements for storage.

C. Restore any damage to site caused by storage, mixing or construction work.

D. Packing and Loading of Materials: Carefully pack and load finished stone for shipment using all reasonable and customary precautions against damage in transit. Do not use any material that may cause staining or discoloration for blocking or packing.

E. Store brick in a way that is conducive to pre-wetting and moisture acclimation, removing plastic wrapping. Spray with water at the beginning and end of each work day.

F. Store cementitious materials off the ground, under cover and in dry location.

G. Store aggregates where grading and other required characteristics can be maintained.

H. Protect mortar materials and stone accessories including metal items to prevent deterioration by corrosion and accumulation of dirt.

1.8 SEQUENCING/SCHEDULING

A. Order replacement brick units (if needed) at the earliest possible date, to avoid delaying completion of the Work.

B. Utilize sequence that best suits the work.

C. The existing exterior brickwork is in a dangerously unstable state. Schedule work to remove and/or at least brace all unstable masonry elements by the earliest possible opportunity in order to make conditions safe.

1.9 PROJECT CONDITIONS

A. Do not repoint mortar joints or repair masonry unless air temperatures are between 40˚F (4˚C) and 80˚F (27˚C) and will remain so for at least 48 hours after completion of work. During periods of questionable weather keep a log of work including air temperature and weather conditions, work started and completed per day and tests taken.

B. Prevent grout or mortar used in repointing and repair work from staining face of surrounding masonry and other surfaces. Remove immediately grout and mortar in contact with exposed masonry and other surfaces.

C. Protect sills, ledges and projections from mortar droppings.

D. Protection: Protect and maintain all work in a dry safe condition for the duration of the work.

E. Protection of Work: Cover tops of walls with heavy waterproof sheeting at end of each day's work. Cover partially completed structures when work is not in progress.

1. Extend cover a minimum of 24 inches down both sides and hold cover in place.

2. Staining: Prevent grout or mortar from staining the face of stone to be left exposed. Remove immediately grout or mortar in contact with such stone.

3. Protect surrounding surfaces from rain-splashed soil and mortar splatter by means of coverings spread on ground and over wall surface. Protect sills, ledges and projections from droppings of mortar.

F. Remove all masonry determined to be frozen or damaged by freezing conditions.

G. Protect base of walls from rain-splashed mud and mortar splatter by means of coverings spread on ground and over wall surface. Protect sills, ledges and projections from droppings of mortar.

H. Protection During Cleaning: Protect persons, motor vehicles, construction site and surrounding buildings from injury resulting from stone cleaning work.

1. Protect all non-stone surfaces. Review all protective measures with Engineer.

2. Protect all non-masonry surfaces. Review all protective measures with Architect.

3. Prevent cleaning solutions from coming into contact with pedestrians, motor vehicles, plant materials, buildings and other surfaces that could be injured by such contact.

4. Do not clean stone during winds of sufficient force to spread cleaning solutions to unprotected surfaces.

5. Dispose of run-off from cleaning operations by legal means and in a manner which prevents soil erosion, undermining of paving and foundations, and damage to adjacent landscaping.

1.10 COLD WEATHER PROTECTION

A. Do not perform any wet masonry work when temperature of surrounding area is below 40 degrees F., or below 45 degrees F. and falling, or forecast by public news media to fall to or below 35 degrees F. within 24 hours without temporary heated enclosures or without heating materials or other precautions necessary to prevent freezing. Minimum temperature within heated enclosure shall be 40 degrees F. Do not use masonry materials which are likely to contain frost. Do not use accelerating ingredients with any mortar. Mortar shall harden without freezing and with no damage from frost. Protect all work against freezing for not less than 48 hours after installation.

B. Do not lay masonry units that are cold and wet or frozen. Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen setting beds.

C. Comply with requirements of International Masonry All-Weather Council's "Guide Specification for Cold-Weather Masonry Construction". Heat materials and provide temporary protection of completed portions of stone work.

1.11 HOT WEATHER PROTECTION

A. Protect masonry work in hot weather to prevent excessive evaporation of setting beds and grout. Provide artificial shade, wind breaks and use cooled materials as required. Use fresh mortar. Discard mortar that has stiffened due to hydration.

PART 2 - PRODUCTS

2.1 MASONRY UNITS

A. Brick: Re-used or new as needed, or ASTM C216, Grade SW, Low Absorption. Minimum strength shall be 8,000 psi, maximum water absorption shall be 8%. Provide new brick only as required if existing units cannot be salvaged, to match size and shape of existing surrounding brick. Color shall be one shade darker than the existing brick in its present condition.

B. Stone: Re-use original building stone or replicated new units only where original units cannot be re-used. Clean, protect, repair and drill existing stone units (as needed) in accordance with this section.

C. Stone Slabs: Dimensional stone roof slabs belt units: Natural cleft Black Munson Slate in Dimensions required with broken and 'rockfaced" edges as supplied by: Portland Munson Slate Company, Mr. John Tatko or approved equal to match the existing stone.

2.2 MORTAR AND GROUT

A. Mortar and Grout Materials:

1. Cement: Type 1 white and/or gray cement as follows: Portland Cement: ASTM C150 complying with staining requirements of ASTM C91 for a low-alkali cement having a maximum of 0.60% equivalent alkalies. Mortar shall show no efflorescence when cast in a 2" x 7" x ½" slab consisting of 1 part of the cement to be used, 2 parts Ottawa plastic mortar sand and distilled water, and subjected to a 7 day "wick test" conforming to ASTM C67.

2. Hydrated Lime: ASTM C207, Type S.

3. Coarse Aggregate For Grout: ASTM C-33, 3/8" dia. minimum gravel or stone.

4. Fine Aggregate / Sand:

a. ASTM C144, washed, clean and free of salts. "Bulk" or moisten sand before mixing with binder (proportions based on damp sand)

b. For use in mortar that will be used for pointing that is exposed to public view sand shall match the sand in the original mortar in color, coarseness and gradation, subject to review by the Engineer.

5. Water: Potable, clean, free of oils, acids, alkalis and organic matter.

6. Grouting Aid: Equal or Equivalent to "Interplast-N" Expanding / Fluidifying Grouting Aid as manufactured by the Sika Corporation of Lyndhurst, NJ.

7. Crack Seal for Lime-Cement Grout Injection: Lime-cement mortar to stay in place or removable caulking or jute.

B. Provide mortar conforming to ASTM C1713 "Proportion Specification" in the formulation(s) as listed below.

1. Structural mortar for Masonry Reconstruction and Re-setting shall be 1 part Portland Cement, 1 part Hydrated Lime and 6 parts Bulked Sand.

Where exposed, mortar sand shall be properly selected and blended to match the color, texture and appearance of the existing mortar sand, and when used, Portland Cement shall be a combination of white and gray cement that bests suits the color matching of the existing mortar binder. Where additionally needed, up to 10% by mineral oxide pigment by weight of binder may be added to best match the color of the original mortar. Pigments shall be chemically pure mineral oxides, alkali proof and light fast, and shall be equal or equivalent to "Solomon Grind" as manufactured by Chem Services Inc, of Springfield, IL.

2. Structural mortar for repair and pointing of existing masonry shall be 1 part Portland Cement, 3 parts Hydrated Lime and 12 parts Bulked Sand.

Where visually exposed, mortar sand shall be properly selected and blended to match the color, texture and appearance of the existing mortar sand, and when used, Portland Cement shall be a combination of

white and gray cement that bests suits the color matching of the existing mortar binder. Where additionally needed, up to 10% by mineral oxide pigment by weight of binder may be added to best match the color of the original mortar. Pigments shall be chemically pure mineral oxides, alkali proof and light fast, and shall be equal or equivalent to "Solomon Grind" as manufactured by Chem Services Inc, of Springfield, IL.

2.3 MORTAR AND GROUT MIXING

A. Thoroughly mix mortar ingredients in accordance with ASTM C270 in quantities needed for immediate use.

B. Mortar colors shall be chosen to match cleaned stone and mortar surfaces. Chemically clean an 18" square area of wall at a location to be designated in the field by the Architect for use in color comparison.

C. Do not use anti-freeze compounds to lower the freezing point of grout.

D. The contractor shall review the water content and any required adjustments along with proposed products with the Engineer. Contractor shall then submit a record mortar mix design along with product data sheets to the Engineer for verification, review and approval before beginning any mixing or installation.

2.4 REINFORCEMENT, ANCHORAGE AND ADHESIVE PRODUCTS

A. Provide stainless steel ties and anchors as indicated on the contract drawings, meeting the requirements of ASTM A276, Type 304/316.

1. Ties and anchors shall be threaded over their entire lengths unless otherwise noted.

2. Pins for sealant-setting to stonework shall be straight, unthreaded rod stock.

3. Provide steel fabrications as detailed on the Structural Drawings. Fabrications shall be dimensioned and/or modified as needed to suit field conditions and shall be fabricated or manufactured per approved shop drawings only.

B. Sealant for Setting of Pins and Sealing Joints where indicated::

1. Provide 2-component polyurethane complying with ASTM C-920 and Federal Specification TT-S-00227.

2. Provide closed cell backer rod at all sealant joints. Backer rod shall be carefully sized per sealant manufacturer instructions for each Sealed Joint.

3. Sealant shall be equal or equivalent to the Sika or Tremco product lines.

C. Epoxy Adhesive for Injection of Cracks in Damaged Stone Units and for adhering loose shards and repair Dutchmen: Equal or equivalent to "Sikadur Injection Gel" as manufactured by the Sika Corporation of Lyndhurst, NJ or approved equal. Crack Sealant for Epoxy Injection: "Sikadur 33" as manufactured by the Sika Corporation of Lyndhurst, NJ, or approved equal, along with ports as required.

2.5 MISCELLANEOUS PRODUCTS

A. Provide Plastic Shims as needed for initial leveling and floating of stone units into bedding mortar. These shall be a stone-suitable product that is equal or equivalent to those supplied by Korolath of New England, Woburn, MA.

2.6 MORTAR WASHDOWN CLEANER

A. For non-pigmented mortars, use equal or equivalent to "Sure Klean 600 Detergent" as manufactured by ProSoCo Corp. For pigmented mortars use equal or equivalent to "Vana Trol" as manufactured by ProSoCo Corp.

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS OF THE WORK

A. An effort shall be made to minimize the need for on-site storage of masonry materials, close coordination of the field personnel, material suppliers and the general contractor shall be shall be maintained to provide for a steady flow of materials on a close to as-needed basis.

B. Document all existing masonry during dismantling, including wall thicknesses, pilaster sizing and layout, window and door openings, bearing locations and critical coursing elevations. All documentation shall be recorded on sketches with true dimensions, stored both on site and offsite. All reconstructed work shall geometrically replicate the original construction.

C. All dismantled work shall be fully documented and the original geometry of the structure (before bulging and sagging) be established. Reconstruction shall be done to replicate original geometry.

D. Inspect all masonry within work areas, identify all required repairs and removals.

E. Perform all other indicated masonry work in accordance with the requirements of this section and all references.

F. Perform all required repairs to stone units in accordance with this section and Section 04550: Grave Marker Conservation.

3.2 REMOVAL OF DESIGNATED OR DAMAGED MASONRY

A. Provide and install all temporary shoring, bracing and support to surrounding construction before beginning removal. Removal shall be done slowly and methodically to maintain stability to all remaining elements at all times. Contractor shall be responsible for maintaining integrity and safety of surrounding construction, in general, during work per the requirements of Section 02210.

B. Carefully remove designated masonry, maintaining support to all surrounding and supported elements that are otherwise dependent upon the masonry being removed for support or stability. Following removal of the exterior grade veneer units, remove all remaining back-up masonry, storing both in separate locations. Clean and store all salvageable brick units for re-use, provide replacement bricks for units that cannot be re-used.

C. Following removal of designated masonry, inspect and remove additional masonry that is loose, damaged or can be separated with unassisted hands.

D. Clean the exposed surfaces of the remaining material, and remove shards of material which have become loose during work or have shifted from their proper positions. Notify Engineer immediately of the number of brick wythes that need to be removed before proceeding with work.

E. Notify the Engineer of any masonry beyond immediate work area, which becomes loosened during work. Stop work immediately, provide additional bracing and review with Engineer before resuming.

F. Protect the existing interior structure from the external weather and from dust and debris caused by these operations. Provide weather protection as needed until the external envelope of the tomb is restored.

3.3 GROUT INJECTION OF CRACKS AND SMALL HOLES AND VOIDS IN EXSTING MASONRY TO REMAIN

A. The following pertains to grout injection of structural cracks of up to 2" in width.

B. Mechanically widen outer edges of structural cracks and drill ¼” diameter holes at 6” to 12” o.c. and install grouting ports. Seal surface of crack and around ports with removable sealant or jute. Leave bottom 4” of crack open and seal after water flushing. Removable Crack Seal for cementitious grouting shall be placed on both sides of the wall or crack to be injected.

C. Flood crack with water at 10 psi maximum pressure and allow deleterious materials and any sand or masonry residue to flow out at bottom. Seal remaining drainage opening at bottom of crack with removable Crack Seal for cementitious grouting.

D. Pressure-inject grout into crack, starting at bottom and progressing upward until all ports are filled and plugged. Injection shall be performed within 30 minutes of water saturation but after all free water has run out. Injection pressure shall not exceed 10 psi. Lifts shall not exceed 48” in height.

E. Remove ports and removable Crack Seal and inspect penetration of crack. Begin remainder of restoration work if acceptable, or re-inject if not well penetrated.

F. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 40 degrees F. by 9:00 AM and rising.

3.4 FILLING OF LARGE VOIDS IN EXISTING MASONRY TO REMAIN

A. Expose the core, cell or void as much as possible and provide a cleaning port at the top and bottom of the crack or void, or at 4" max. o.c. if greater. Flood crack with water at 10 psi maximum pressure and allow deleterious materials and any sand or masonry residue to flow out at bottom.

B. Hand rub cement paste slurry on surfaces against which to be filled, if possible, and fill the excavated void(s) by one or more of the following methods as may apply:

1. Hand pack structural mortar into shallow voids and cracks between ¼” and 2” in width and less than 6” depth, adding small stone shards where the overall thickness of mortar exceeds 1”.

2. Form open sides and ports and gravity feed coarse grout into voids, hand tamping with a rod or wooden pole.

C. Limit lift heights to 24”, allowing enough curing time between lifts for the grout to set to sufficient stiffness that it will not laterally load the sides against which it was placed, even when another lift is placed over it.

D. Work and vibrate wet grout with a thin rod during deposition, but do not over-work to the point that air bubbles or voids will form.

E. Form or strike exposed surfaces of grout fills 1” inside of liner surface to allow for final pointing. Clean surfaces of stones and surrounding work following each day’s operations. Moist cure completed work for not less than 48 hours.

F. Clean surfaces of stones and surrounding work following each day’s operations. Moist cure completed work for not less than 48 hours.

G. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 40 degrees F. by 9:00 AM and rising.

3.5 INSTALLATION OF DOWELS, ANCHORS, TENSION RODS AND CONNECTORS

A. Drill holes for embedded anchors, dowels and pinning rods as follows:

1. Locate holes within the existing masonry so that they are at least 2” from the nearest joint intersection and within the faces of existing units rather than in the joints.

2. Monitor Conditions of brick or stone units as the drill is advancing into them. Check for vibration or movement of brick units halfway through each by tapping with the bit. Notify the Engineer if the brickwork or stonework feels “soft”.

3. All holes greater than ½” diameter shall be drilled using a diamond tipped core drill, dry application on interior surfaces, wet or dry application on exterior surfaces. Do not use a rotary hammer or impact type hammer for holes greater than ½” in diameter.

B. Install Adhesive-Set connectors, pins and dowels as shown on the Contract Drawings and as described below using the applicable Injection System.

1. Carefully drill holes of the proper oversize diameter for the screen tube (in masonry) and for injection resin or sealants 1/8" larger in diameter than the anchor rod or pin, or as indicated on the Drawings or specified by the manufacturer of the injection system if different.

2. Locate and size anchors and pins in as indicated in the Contract Documents and as needed per Engineer's field instructions following exposure of hidden conditions.

3. Provide embedments as noted or instructed but not less than 8" embedment at ½" diameter and larger anchors or 4" embedment at anchors of less than ½' diameter.

4. Incrementally core-drill all holes being careful not to damage or loosen substrate and being careful to avoid embedded metal if any.

5. Simultaneously with injection of holes, pre-butter rods' surfaces with injection resin so that there is a uniform coating all around the rod of between 1/16" and 1/8" in thickness and insert rods immediately thereafter.

6. Wipe off excess resin and clean out remaining hole depth. Do not allow resin to leak out of holes and stain stone surface(s). Remove resin immediately if this happens!

7. Monitor progress and quality of work, adjusting techniques as may be necessary with approval of the Engineer. Check that annular space is filled around the end of each rod following insertion. If properly installed, resin should be oozing out beyond end of rod all around annular space, showing that the annular space and the hole are completely filled. Supplementary injection may be necessary due to the presence of voids.

3.6 RECONSTRUCTION AND BONDING OF MULTI-WYTHE BRICK MASONRY

A. Install drilled and grout-set reinforcing steel into the existing structure per the requirements of this Section and as indicated on the drawings. Install longitudinal reinforcing with 24" lap joints concurrently with the brick masonry reconstruction.

B. Lay-up new brickwork with lateral headers to tooth wythes together at a 16" by 16" pattern and toothing into existing construction with in the horizontal longitudinal direction with full running bond.

1. Repeatedly pre-soak surfaces to which new work will be bonded to a period of not less than 24 hours. Allow to surface dry to a dull but saturated finish and hand rub a cement paste slurry within 30 minutes before applying new work.

2. Lay a bed of mortar against intact masonry surfaces to surround the unit(s) to be reset. Hand rub a mortar paste slurry over contact surfaces of stones to be set and existing surfaces to which new work will be bonded, and pre-butter depressions that are deeper than 1/4" to provide a non-concave surface. The bedded mortar should match the finished joints in thickness plus an allowance for sloughing.

3. Brick units shall be re-set to within ¼" of their previous positions and surface alignment, with individual joints' widths along all sides within 1/8" of their cumulative average width per stone. Reconstruct masonry using conventional and accepted techniques. Add header bricks between new wythes at a 24" x 16" pattern and anchor new wythes to existing construction using bent Retrofit Masonry Anchors. All horizontal and vertical joints (including collar joints) shall be completely filled with mortar that shall match the existing construction.

4. Strike outer joints to a depth of ½" recess from brick faces and surrounding masonry at exterior wall surfaces to allow for final tuck pointing, and tool joints at interior surfaces to meet the outer surfaces of the bricks with a profile that matches the surrounding existing work.

C. Following a curing period of not less than one nor more than 7 days, final tuck-point exterior surfaces of walls to match the adjacent original construction and the approved test sample. Provide feathered transitions from new to adjacent, existing mortar, angled at approx. 45 degrees from the exterior brick surface place.

D. Moist-cure all completed work for periods of not less than 72 hours.

E. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 40 degrees F. by 9:00 AM and rising.

3.7 RE-SETTING OF STONEWORK

A. At bed joints, add lead shims as needed to help float large units without squeezing out the mortar. Install stone anchors at proper alignments and stack next courses of units properly over them. Incorporate cotton chord weeps as indicated below next courses' head joints and clean sloughed mortar off internal stone perches at voided construction to expose tops of lower courses and weeps. Tool the interior edge of the mortar bedding at cavities to provide "shed joints" at a 1:1 slope, keeping the weep extensions clear of mortar. Incorporate flashing where indicated, providing solid bedding below the flashing to minimize "oil canning".

B. At head joints, fill the gaps between stone ends solidly with mortar, using backer rods at the interior edges of cavity construction if needed. Add slate shims if greater than 1" thickness, in order to minimize shrinkage and sloughing.

C. At bonded collar joints, hand rub a mortar paste slurry over the contact surfaces of the stone to be set and pre-butter depressions which are deeper than 1/4" to provide a non-concave surface. After setting and adjusting the stone units, pack bonded collar joints with mortar, adding stone aggregate shims if greater than 1" in thickness to minimize sloughing and shrinkage. Aggregate shall be washed, moistened pea-stone if the joint is between 1" and 3" in width, and small loose stones of suitable size if joint width is greater than 3".

D. Stones shall be re-set to within ¼" of their previous positions and surface alignment, with individual joints' widths along all sides within 1/8" of their cumulative average width per stone.

E. Strike outer joints at a recessed depth of 2 ½ times the joints' widths from the surrounding masonry and provide dovetail transitions to existing surrounding joints and to those that are to be re-pointed or removed.

F. Finish point outer surfaces of the joints to match surrounding work after not less than 24 hours from the setting of the stones and filling of the joints.

G. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 40 degrees F. by 9:00 AM and rising.

3.8 SETTING OF STONE CAPS OR COPING

A. Measurement and Preparation:

1. Clean contact surfaces of stones of all existing mortar or deleterious materials. Clean surfaces to expose stone below.

2. Measure stones to establish existing geometry and for establishing proper relationship and orientation between stones when re-set. Proper Relationship shall be such that all three principle axes of each stone are parallel with the respective principal axes of the mating stone (or CMU backup). Orientation of stones shall be established for each unit so that the front and top direction is maintained constant between all interconnected units and to match the present orientations, and so that the pieces fit together like a puzzle and existing pins and holes align.

3. Drill holes in units to receive setting pins according to the Contract Drawings and this Section.

B. Size and arrange lead shims and on bearing surfaces. Shims shall be lead sheet of proper size and shall provide for full and symmetrical bearing of reset stone to within 1/16" tolerance of the indicated geometries.

C. Fill setting pin holes on undersides of units with sealant and carefully set stones into proper final positions.

D. Coordinate flashing installation and provide integral flashed “thimbles” over all setting pins.

E. Following setting of stonework, point and/or flexibly seal the inter-stone joints as and where indicated on the Contract Drawings.

F. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 40 degrees F. by 9:00 AM and rising.

3.9 PREPARATION OF JOINTS FOR REPOINTING

A. Rake mortar joints in existing construction in areas designated to be repointed to a minimum depth of 2.5 times the mortar joint width, 1", or as deeply as necessary to reach sound mortar (whichever is greatest), but not to exceed one half of the thickness of the stone thickness without supplementary means of support. Employ tools that are sharp and will completely cut out joints at intersections without splitting or damaging stones or bricks. Raking work shall match the approved test sample.

B. Gently drive wedges or hardwood shims into wide, deep cracks in masonry where there is a possibility that the vertical and in-plane lateral support of masonry work will be compromised during deep raking of the joints. This should at least be done where more than half of the length of a specific joint is removed to a depth of more than one third of the thickness of the stone.

C. Cut flashing reglets in new or existing masonry as indicated on the Contract Drawings.

D. Wire brush clean and then pre-wet the joints and allow for the existing mortar to dry or saturate to a dull, non-glossy finish immediately before applying new mortar.

E. Where applicable, lead-abate all immediate lead-painted masonry surface areas that will be affected by cutting and pointing work, prior to starting masonry operations.

3.10 RE-POINTING

A. Pre-wet prepared mortar joint surfaces until they are saturated but surface dry. At flashing reglets, verify that flashing has been fully installed and is stable.

B. Apply final "tuck" lift of pointing mortar, tooling joints to exactly match the existing joint profiles that are adjacent to the work.

C. Where so specified, point joints and beds with specified sealant after first installing the specified backup material and applying primer if required, all in strict accordance with the printed instructions of the sealant manufacturer. Test all sealants for compatibility prior to use. Tool all sealants to insure maximum adhesion to contact surfaces.

D. Moist cure all work, spraying with a water mist and cover with damp cloth or tarpaulin.

E. Clean mortar from all surfaces following completion and curing of work.

F. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 40 degrees F. by 9:00 AM and rising.

G. The Contractor shall be responsible for matching the joints of the mock-up surrounding work and shall re-cut and replace any joints that are poorly formed or do not match the mock-up or the surrounding work, as determined by the Engineer, at the Contractor's own expense.

H. Moist cure all work, spraying with a water mist and cover with damp cloth or tarpaulin.

I. Chemically clean all surfaces following completion and curing of work, being careful to reveal the mortar aggregate but to not over-etch, weaken or discolor the mortar. Remove excess mortar from the surface before it sets using a bristle brush or by rubbing the surface with burlap or clean sand. If mortar is left on the surface, wash surface clean using dilute solutions of Hydroclean HT-455.

J. Completed work shall match approved sample patch or shall be re-done at the Contractor’s expense.

3.11 FINISH POINTING

A. Pre-wet prepared surfaces until they are saturated but surface dry.

B. Apply a 3/8" base lift of tuck pointing mortar, and allow to cure. Base lift shall have a struck recess for tuck-pointing to lock into.

C. Apply final "tuck" lift of tuck pointing mortar and strike-off for flush surface.

D. Moist cure all work, spraying with a water mist and cover with damp cloth or tarpaulin.

E. Clean mortar from all surfaces following completion and curing of work.

F. Work under this subsection shall only be done when the ambient air, material, and substrate temperatures are above 40 degrees F. by 9:00 AM and rising.

G. The Contractor shall be responsible for matching the joints of the mock-up surrounding work and shall re-cut and replace any joints that are poorly formed or do not match the mock-up or the surrounding work, as determined by the Engineer, at the Contractor's own expense.

H. Moist cure all work, spraying with a water mist and cover with damp cloth or tarpaulin.

I. Chemically clean all surfaces following completion and curing of work.

J. Completed work shall match approved sample patch or shall be re-done at the Contractor’s expense.

3.12 CLEANING AND PROTECTION OF COMPLETED MASONRY WORK

A. As work proceeds and upon completion, remove excess mortar, smears and droppings. Clean adjacent and adjoining surface of marks arising out of execution of work in this Section.

B. Sweep up and remove daily sand, cleaning compounds and mixtures, dirt, debris and rubbish. Sweep or flush away nightly, all residual washed materials. Keep the premises neat and clean at all times.

C. After installation and pointing are completed, carefully clean all surfaces of all dirt, excess mortar, grout splatter, stains and/or other site incident defacements. Clean soiled surfaces using a non-acidic solution that will not harm stone or adjacent materials. Consult stone fabricator for acceptable cleaners. Do not use wire brushes, acid or other solutions which may cause discoloration. Use nonmetallic tools in cleaning operation. Apply in accordance with cleaner manufacturer recommendations.

D. Mechanically remove all loose mortar and concrete splatter with hand tools without scratching, gouging or otherwise marring the existing substrate.

E. Chemically clean stone following completion of work, and where specifically specified on the drawings.

3.13 SETTING/ RE-SETTING TOLERANCES

A. Maximum Variation from Plane of Wall: 1/4" in 10 feet or as required by elevator clearances.

B. Maximum Variation from Plumb: 1/4" per story non-cumulative, 1/2" total, or as required by elevator clearances.

C. Maximum Variation from Level Coursing: 1/8" in 4 feet, 1/4" in 10 feet.

D. Maximum Variation of Joint Thickness: 1/8".

END OF SECTION

SECTION 04550

GRAVE MARKER CONSERVATION
By Building and Monument Conservation

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Attention is directed to the Contract and General Conditions and all sections within Division 1 – General Requirements, Special Conditions which are hereby made a part of this section of the specifications.

B. Attention is directed to the plans for the East Parish/Centre Street Burying Ground in Newton, Massachusetts which indicate the location, and scope of work, for the tombs to be treated under this contract.

1.2 SUMMARY AND DESCRIPTION OF WORK

A. The work of this section consists of the provision of all plant, materials, labor and equipment, power, water and trash removal and the like necessary and/or required for the complete execution of all stone conservation as required by the specifications and schedules.

B. Outline of General Scope of Work:

1. Review of existing project reports, conditions assessments and documentation for all the carved or lettered stones, etc. that are scheduled to receive conservation treatments and/or resetting under this contract.

2. Document the condition of each table top tomb, obelisk or lettered plaque scheduled to receive conservation treatments and/or resetting under this contract with a survey sheet and digital photographs prior to proceeding with any work.

3. Submit conservation treatment plan for each tomb for approval prior to proceeding with any work.

4. Stabilize all loose fragments of stone and friable areas of stone with tissue paper and B-72 or water soluble adhesives prior to proceeding with any other treatments including removal and resetting of stones.

5. Complete specified conservation treatments as stipulated for each tomb. Treatments include but are not limited to: Removal and resetting of stones, removal of prior treatments, gluing of pieces separated along cleavage planes, gluing of pieces broken across cleavage planes or bedding planes, grouting of fissures, cracks and seams, application of mortar caps, composite mortar repairs and laying down of flaking areas, marble pre-consolidation and consolidation.

6. Document all treatments with digital photographs during conservation work. Provide owner with prints of the digital photographs as well as all photographs saved on a high quality thumb drive.

7. Thoroughly document conditions after conservation work is complete with sketches and digital photographs.

8. Provide the City of Newton, Engineering Department with one complete project binder containing the following: Prints of digital photographs taken before, during and after conservation treatments, copies of all survey sheets, field reports, project correspondence, material safety data sheets, and manufacturer's cut sheets for all products. Provide a thumb drive with all photographs and digital copies of the above documents.

C. Outline of Specific Treatments:

1. *Treatments for Brownstone Table Tops, Slabs, Legs and Footings*

a. Document conditions prior to removal or treatment using survey sheet and photography as per specifications.

b. Secure all loose and friable areas with B-72 and tissue paper or water soluble adhesives prior to removal from the ground or further treatment.

c. Remove soil residue and biological growths with water and specified cleaning products using stiff brushes and wood scrapers.

d. Remove prior adhesive and composite patching repairs where applicable.

e. Re-adhere fragments using specified adhesives and methods.

f. Laydown flaking areas with specified grouts/adhesives.

g. Fill cracks, seams and fissures with specified grouts/adhesives.

h. Fill areas of loss with specified composite repair materials.

i. Replace severely deteriorated brownstone elements where directed by the contract documents with new Portland Connecticut brownstone units cut, carved and tooled to match the existing.

2. *Treatments for Marble Tomb Plaques, Table Tops and Marble Obelisk*

a. Document conditions prior to removal using survey sheet and photography as per specifications.

b. Secure all loose and friable areas with B-72 and tissue paper or water soluble adhesives prior to removal from the ground.

c. Number all fragments that are too large to secure with B-72 and tissue paper using a numbering system based on the existing plot plan and the name and date of the deceased (where legible).

d. Remove tomb plaques from adjacent masonry as per specifications prior to disassembling the tomb front walls where possible. Place any fragments in clearly labeled plastic bags for reattachment at a later time.

e. Remove soil residue and biological growths with water and specified cleaning products using stiff brushes and wood scrapers.

f. Remove prior adhesive, old setting mortar, fills, grouts and composite patching repairs where applicable.

g. Pre-consolidate friable marble where specified using Prosoco HCT.

h. Re-adhere fragments using specified adhesives and methods.

i. Fill cracks, seams and fissures with specified grouts and cap open seams, cracks, fissures etc. with specified products.

j. Fill areas of loss with specified composite repair materials.

k. Apply mortar caps on top surface of stones where required.

l. Consolidate marble table top on Tomb E-211 with Prosoco OH100

m. Reset stone per specifications.

1.3 SUBMITTALS

A. Resumes and Qualifications: Contractor shall submit resumes and qualifications for each or the following individuals:

Conservator (s): Contractor shall submit resume and a list of prior projects for lead conservator and any assisting conservators on the project. Submittal shall include at least five examples of projects similar in scope and importance to the work at Newtown's East Parish/Centre Street Burying Grounds. Project references shall include name and date of execution of each project as well as the names and telephone numbers of references for each of the five projects.

Conservation Technicians and Stone Craftsmen: Contractor shall submit the resumes and a list of prior projects for each individual who will be executing treatments on the stones. In the submittal, the role of each individual shall be identified i.e. carver, mechanic, technician.

B. Product Data: Submit manufacturer's technical data for each product indicated including recommendations for their application and use. Include test reports and certifications substantiating that products comply with requirements. Submit material safety data sheets.

C. Written Description: Submit written program for each phase of conservation including schedule and phasing. Include items for coordination with other trades and indication of how surrounding materials will be protected. Describe materials and equipment to be used on site.

D. Alternate Methods: If, after the contact is awarded, alternate methods and materials to those indicated are proposed for any phase of the stone conservation work, the contractor shall provide a written description, including evidence of successful use on other comparable projects along with standard submittals outlined above. Written approval from the project conservator is required prior to substituting any materials or methods.

1.4 MOCK UPS

A. Sample of workmanship for stone pre-consolidation and stone re-adhesion.

B. The contractor shall submit one sample of removal of prior adhesive repairs and prior composite mortar repairs in locations indicated by project conservator. Samples to be evaluated for methodology and impact on stone.

C. Contractor to submit one sample of stone to stone adhesive joints for approval prior to proceeding with balance of repairs.

D. Contractor to submit one sample each of B-72 and grouting for approval.

E. Contractor to submit one sample each of: mortar fills, composite mortar repairs, mortar caps and capping of cracks and fissures.

1.5 QUALITY ASSURANCE

A. Statement of Significance: The tombs, table top markers, obelisks and inscribed plaques located in Newtown's Historic Burying Grounds represent some of the earliest and most significant grave markers in New England. The three sites are designated historic burying grounds and are listed on the National Register.

B. Stone Conservation Contractor: Work shall be performed by firm(s) employing masons and conservators that have no less than five years of experience with comparable stone conservation projects. The Contractor shall submit references for five successfully completed projects of similar scope.

C. The contractor shall maintain a steady crew for the duration of the project Employ a qualified foreman who is present on the job every day.

D. All work performed must comply with the United States Secretary of the Interior's Standards for the Treatment of Cultural Landscapes and the AIC Code of Ethics and Guidelines for Practice.

1.6 JOB CONDITIONS

A. Take whatever precautions are necessary to protect the stone units from damage resulting from work under this section or other related sections of work.

B. Prevent mortar and patching compounds, adhesives, resins etc. used in conservation and repair work from staining the stones under treatment or any adjacent stones, masonry, bronze etc. Prevent damage from other materials or chemicals used on the project.

C. Work shall not be permitted in freezing weather unless the work area has been enclosed and heated to maintain a constant temperature and humidity.

D. Materials shall be used only at the manufacturer's recommended and temperature and humidity tolerances. In case of conflict between standards on the project, the more stringent shall apply.

PART 2 - PRODUCTS

2.1 MATERIALS GENERAL

A. Comply with referenced standards and other requirements indicated applicable to each type of material required.

B. Reference in the specifications to materials by trade name is to establish a standard of quality. It is not intended to exclude other manufacturers whose materials that, in the judgment of the project conservator are equivalent to those named based on sample panels.

2.2 MORTAR MATERIALS FOR FILLS, REBUILDING AREAS OF LOSS AND MORTAR CAPS

A. Composite Repair Mortars

1. Non-Polymer Modified Composite Repair Mortars for filling areas of loss in Slate, Marble or Brownstone : Jahn M-70 for brownstone repairs/fills from Cathedral Stone Products. 8332 Bristol Court, #107, Jessup, Maryland 20794 (800) 684-0901 or approved alternate based on submittal.

2. Polymer Modified Composite Repair Mortars for Mortar Caps and Seam fills on Slate Markers : Edison Custom System 45 from Edison Chemical Systems, Inc. 25 Grant Street, Waterbury, CT 06704 (203) 597-8044

3. Hydraulic Lime Based Repair Mortars for Filling Seams and areas of Loss on slate or brownstone: Lithomix from St Astier available from LimeWorks.us 215-536-6706 Email LimeWorks.us

2.3 GROUT MATERIALS

A. Acryloid B-72 (Ethyl Methcrylate Copolymer) dissolved in solvent. Concentrations to vary depending on the depth and width of the crack or void to be filled. Large voids to be filled with B-72 bulked with an inert material such as fine silica sand. Exact proportions to be determined by conservator in the field based on the size of the area to be filled and other requirements such as the ability of the mix to flow evenly through the area.

B. Hydraulic Lime Grout for fills and injecting into voids

1 part hydraulic lime.
2 –3 parts fine sand and/or stone dust and inorganic pigment as required to match color of stone. Do not to exceed ASTM ratios of pigment to binder.

St Astier NHL 2 and/or St Astier NHL 3.5 available from LimeWorks.us 215-536-6706 Email LimeWorks.us

C. Injection and Gravity-Feed Grout (where and as may be required for grout filling of voids) shall be a pozzolan-lime or hydraulic lime grout with shrinkage not to exceed 0.10 %, compressive strength to be between 1,400 and 1,800 psi at 28 days and tensile bond strength to be at least 40 psi as demonstrated by test or specifically documented by manufacturer's literature.

D. Fine Repair Grout and Adhesive for Stone to Stone Contact: A pozzolan-lime or hydraulic lime based adhesive grou**t with compressive strength of** between 1,400 and 1,800 psi at 28 days and tensile bond strength of at least 40 psi as demonstrated by test or specifically documented by manufacturer's literature.

2.4 MATERIALS FOR THE STABILIZATION OF LOOSE FRAGMENTS PRIOR TO REMOVAL OR OTHER TREATMENTS.

A. Acrylic Resin B-72 and Japanese tissue paper applied to the surface of the friable or loose stone. B-72 to be dissolved in solvent such as acetone. Percentage of solids to solvent to be field tested. Approximately 5% . For situations where a water soluble adhesive is appropriate, Methyl Cellulose or Polyvinyl Alcohol can be used to lay down the tissue paper or cloth.

2.5 STONE ADHESIVES FOR NON-STRUCTURAL REPAIRS AND LAYING DOWN OF STONE FLAKES, AND VERY SHALLOW AREAS OF EXFOLIATION.

A. Paraloid Acrylic Resin B-72 (100%) dissolved in solvent such as acetone. Percentage of solids to solvent to be field tested. Approximately 10%. Paraloid B-72 can be obtained from Talas, 568 Broadway NY, NY 10012 (212) 219-0770 or other conservation supply companies.

2.6 STONE ADHESIVE FOR STRUCTURAL REPAIRS AND PINNING

A. Flowable and Paste Epoxies for injections and structural repairs:

1. Akemi Akepox 2000, 2010, 2030, 5000, 5010 from Akemi North America (877) 462-5364 available from Stone Boss Industries, 26-04 Borough Place, Woodside, NY 11377 (718)278-2677 Fax (718) 267-1997 or approved equal.

2.7 CLEANING AGENTS FOR REMOVING SOILING PRIOR TO ADHESIVE REPAIRS

A. Water: All water shall be clean potable water. If potable water is not available at jobsite, filter all water with approved particulate filter.

B. Non-Ionic Detergents: Triton X 100 available from Talas, 568 Broadway, New York, NY 10012 (212) 219-0770

C. Concentrated Soap: Vulpex Soap available from Talas, 568 Broadway, New York, NY 10012 (212) 219-0770

D. Synthetic Anionic Detergent: Orvus WA Paste available from Talas, 568 Broadway, New York, NY 10012 (212) 219-0770

2.8 STONE PRE-CONSOLIDANTS AND CONSOLIDANTS FOR SUGARING/FRIABLE MARBLE

A. Preconsolidant: ProSoCo Conservare HCT

B. Consolidant: ProSoCo Conservare OH100

2.9 TOPICAL COLORING AGENT FOR COLOR MATCHING OF MORTAR PATCHES,SEAMS AND CRACK FILLS ON SLATE MARKERS

A. Kiem Purktistalat silicate paints available from Kiem Mineral Systems, #62 Port Lewes, Lewes, and Deleware 19958 (302) 644-1007 Fax (302) 644-0866

B. Silin Stain from Cathedral Stone Products. 8332 Bristol Court, #107, Jessup, Maryland 20794 (800) 684-0901

2.10 SOLVENTS FOR FLUSHING CRACKS AND FISSURES AND FOR PREPARING MATING SURFACES PRIOR TO GROUTING OR ADHESIVE REPAIRS.

A. Acetone (CH3) C0

B. Ethanol-D6 Anhydrous

2.11 REPLACEMENT BROWNSTONE

A. New or salvaged Portland Connecticut Brownstone.

B. New brownstone can be obtained from: Portland Brownstone Quarries, 130 Braemar Drive, Cheshire, Ct. 06410 203 250-1502 Attn: Mike Meehan.

2.12 BIOCIDE FOR THE REMOVAL OF ALGEA, MOSS AND LICHENS FROM STONE

A. D-2 available from D-2 Biological Solutions. (917) 693-7441 infro@d2bio.com

PART 3 - EXECUTION

3.1 TREATMENT PLAN

A. Conservator retained by contractor is to submit for review a detailed treatment proposal for the stone units scheduled for treatment. Conservation plan is to include any changes in scope, materials and/or methodologies from what has been specified. No work may commence on the markers until the treatment plan has been reviewed and approved. Treatment plan to include detailed descriptions of materials and methods to be used in each treatment as well as manufacturer's data on each product. Material Safety Data Sheets for each product to be submitted separately. Treatment plan to include sequence of treatments. Plan shall be considered incomplete and will be rejected unless all treatments from start to finish for an individual sculpture are submitted at the same time.

3.2 DOCUMENTATION

A. Survey Sheet: Each plaque, obelisk of table top marker that is treated under this contract shall have an individual survey and treatment sheet. The survey sheet shall record the plot number of the marker as indicated on the existing survey, the name of deceased, (where legible) and the year of death. The survey sheet shall contain a rough outline sketch of the marker and indications of major conditions including cracks, fissures, areas of loss and prior repairs. The type of material and the rough dimensions shall also be recorded. All treatments shall be recorded on the survey sheet and located on the outline sketch along with any other pertinent information. A sample survey sheet shall be submitted at the start of the contract. Completed survey sheets shall be placed in archival sleeves and turned over to the City of Newton.

B. Photo-documentation: Each marker that is treated under this contract shall have a minimum of 6 views photographed digitally showing the marker from the front, back and/or top, before, during and after treatment. Markers that have conditions on the sides that are being addressed should also be photographed from the side views. All photographs of the before treatment phase are to be reviewed prior to starting treatments.

C. Submit one set of 4 x 6 inch prints on archival paper of the digital photographs. Each photograph is to have a label adhered on the back with typed identification of the marker by plot number, name and date of treatment as well as cemetery. Each photograph is to be labeled before, during and after treatment. Submit all photographs on a thumb drive as part of project close-out.

3.3 SECURING OF FRAGMENTS

A. The goal of this step shall be to secure all loose, semi-detached or friable areas against loss during other conservation treatments including pointing and cleaning. Contractor will be held responsible for losses on the stone that take place during conservation treatments therefore the extent of this step shall be that which is in the contractor's judgement sufficient to secure against losses.

B. Acrylic Resin B-72 dissolved in a solvent such as acetone approximately 5% solids shall be applied with a brush to areas requiring pre-consolidation. Japanese tissue paper shall be applied to wetted areas. Additional solution of B-72 may be applied over tissue paper. Alternate for units to be stored/treated indoors a water soluble adhesive can be used in place of the B-72

3.4 REMOVAL OF STONE FROM WALL AND REMOVAL OF PRIOR MORTAR FILLS AND COMPOSITE MORTAR REPAIRS

A. Surface tension and bond of prior repairs may be broken using power tools such as small diamond cutting wheels, Drummel Tools and small pneumatic chisels. All other removal to be performed by skilled craftsmen using hand tools. Use of hand held grinders or other power tools shall be only after demonstrated proficiency by each craftsman/conservation technician on selected control areas. Cutting wheel shall not be brought in proximity with stone surface or arrises. Cutting wheels shall be used only to break the bonds and create entry points for hand tools. Every precaution shall be taken not to damage, nick, scar or abrade the stone.

3.5 MORTAR FILLS AND MORTAR CAPS -GENERAL

A. The goal of mortar fills and caps is create the maximum water shedding fill, joint or seam for each particular configuration of stone.

B. Surface of fill shall be tooled and slicked to conform to the contours of the edge of the stone in order to achieve maximum water shedding.

C. Mix mortar to specified proportions and in conformance with the color and texture of approved samples.

D. Apply mortar to stone that has been properly prepared and is free of dirt, soiling and any loose or friable material or surface accretions that may have a detrimental effect on the bond. Wet stone to avoid excess absorption of moisture from mortar.

E. Apply mortar in consecutive lifts where required to avoid excessive shrinkage.

F. Moist cure mortar for a minimum of seven days or until mortar is properly cured.

G. When composite mortar repair has reached full 28 day cure tint surface of mortar, if required with Keim Purktistalat silicate paints available from Kiem Mineral Systems, #62 Port Lewes, Lewes, Deleware 19958 (302) 644-1007 Fax (302) 644-0866 or approved equal.

3.6 MORTAR APPLICATION FOR FILLS AND MORTAR CAPS

A. First layer to create a uniform depth for later applications and to be thoroughly compacted into cavities: apply mortar to a maximum thickness of 3/8”

B. After voids have been filled to a uniform depth, apply remaining mortar in successive ¼” thick layers: fully compact each layer and allow to dry to thumbprint hardness before applying next layer.

C. When final layer is thumbprint hard, tool to match approved sample.

D. Avoid feather-edging of mortar joint.

E. If existing stonework has rounded edges from wear, recess slightly the mortar from face of stone surface.

F. Immediately after completion, remove excess mortar by light brushing with a natural bristle brush. Do not leave encrusted matter.

G. Keep mortar damp for 48 hours after pointing to permit proper hardening of mortar. Cover masonry temporarily with burlap, which is moistened periodically. Cover wall with plastic sheets temporarily to prevent evaporation. Continue to Moisten for up to seven days if required because of high temperatures or high winds. Protect mortar from overnight rain.

H. For proprietary mortars; follow manufacturer’s directions for applying and curing mortars.

3.7 CLEANING AFTER MORTAR FILLS OR PATCHING OR GROUTING

A. The face of all stonework shall be thoroughly cleaned after completion of the patching, grouting, fills and other work liable to soil the stone. The stonework shall be gone over and any mortar splashes or smears shall be carefully removed from the surface with scrapers.

B. The cleaning shall be done with clean water applied vigorously with fiber brushes. After cleaning with brushes the stone shall be thoroughly rinsed with clear water. Proprietary cleaning compounds containing caustic agents, intended for removing mortar smears shall not be used. The goal is to remove all smears before they set so that caustic agents are not required.

3.8 CLEANING OF MARKERS

A. The goal of the stone cleaning is to produce a surface that is free of organic growths and general soiling prior to adhesion, grouting or application of repair mortars. This includes removal of all surface dirt and encrustations.

B. For General Soiling: Pre-Wet surface of stone with potable water. Apply Triton X-100 Non-ionic detergent diluted with water to stone surface using a natural bristle brush. Allow detergent and water to remain on surface for length of time determined in cleaning mock-ups. Rinse surface with water from garden hose.

C. Repeat water and non-ionic detergent wash or proceed to water with other specified cleaning agents as determined by the results of cleaning mock-up.

D. For Removal of Biological Growths: Pre-Wet surface of stone with potable water. Apply D-2 to stone surface using a natural bristle brush as per manufacturer's directions. Allow cleaner and water to remain on surface for length during mock-ups. Scrub stone with natural bristle brush and then rinse surface with water from garden hose. Reapply as required.

3.9 RE-ADHESION OF STONE (NON STRUCTURAL)

A. Prepare mating surfaces of stone that is to be re-adhered by cleaning surfaces until surfaces are free of dirt, sand, old grout, old mortar, ferrous metal stains or deposits and organic materials. After cleaning with specified cleaning agents clean with specified solvents just prior to apply adhesive materials.

B. Loose pieces of stone shall be reattached with Acrylic Resin B-72 dissolved in a solvent such as acetone. Approximately 10%-15% solids. Area of stone to receive reattachment and piece to be reattached shall be thoroughly coated with adhesive. Secure fragment until adhesive is set. Secure with reversible means. Clean surface of stone so that no adhesive residue remains on surface.

3.10 B-72 INJECTIONS FOR AREAS OF SHALLOW EXFOLIATION

A. Using a hypodermic needle, inject solvent into crack or fissures to clean surfaces. After solvent has evaporated inject Acrylic B-72 10-15% by volume in solvent. Wipe surface clean and remove any excess with solvent. Hold acrylic back ½ inch from face of seam with clay. Remove clay and grout seam face with specified material tinted to match cleaned stone. Alternately, introduce B-72 to area of delamination using a method that relies on capillary action to draw material into the area.

3.11 LIME GROUT

A. The goal of lime based fills is to prevent against further water penetration into fissures or small areas of loss in marble and to create a water shedding surface.

B. Pre-wet area to be grouted with water.

C. Apply lime grout with small spatula or inject it with a plastic syringe. Compress grout into opening. Tool surface so that grout is flush with surface. Moist cure grout for 24 hours or length required to achieve a full set and curing of grout.

3.12 LIME INJECTION GROUTS FOR SURFACE CRACKS IN MARBLE

A. Flush seam, crack or fissure with solvent.

B. As solvent is evaporating inject lime injection grout as per manufacturer's specifications.

C. When injecting into vertical surfaces, use clay or latex dams to contain grout. Provide ports in dams to verify that grout has flowed to that level.

D. Cure grout as per manufacturer's specifications.

3.13 ADHESIVE REPAIRS

A. Prepare mating surfaces by removing prior adhesives where applicable and cleaning to remove soiling with detergents as specified above and with solvents to remove oils as specified above.

B. Lay fragments to be adhered on clean flat surface if marker has been removed from ground.

C. Drill holes to receive pins where applicable, if necessary and at the consultant's direction. Blow dust out of drill holes. Test fit by placing pins in holes and dry setting. Set pins in edge of one fragment with epoxy and mate surfaces. Do not apply epoxy to mating faces or other end of pin at this point. Adjust fit using clamps and jigs to hold stone in place. It is important that proper mating be achieved at this point. When epoxy has set, separate pieces and apply epoxy to other end of pins and sparingly along mating surfaces. Reclamp stones and keep under pressure until epoxy has set. Set time will vary depending on temperature of air and stone.

D. For fragments that will not be pinned, follow steps above for cleaning and dry setting to ensure proper fit. Use clamps and jigs as required to secure pieces.

E. For Fragments to be adhered while marker is still in the ground follow steps above for cleaning. Use jigs and flat surfaces clamped to the stone in order to achieve best possible mating of surfaces.

F. Mix and apply adhesives as per manufacturer's recommendations.

G. Hold glue line away from face of stone in order to grout seam with lime based grout after adhesive has set.

H. Immediately remove any adhesive residue that has flowed over the face of stone

3.14 MARBLE PRE-CONSOLIDATION TREATMENT

A. ProSoCo Conservare HCT Stone Pre-Consolidant to be applied as per manufacturer's directions.

1. All stone to be pre-consolidated shall be thoroughly dry. Protection of area to be consolidated from rain for at least two weeks prior to consolidation is a requirement.

2. Apply pre-consolidant with a pump sprayer. Flood surface to the point that no more material can be absorbed. Wait 20 to 30 minutes and reapply. Wait 20 to 30 minutes and apply third and final flood coat.

3. After waiting 20 to 30 minutes, apply Part B, stabilizing rinse.

4. Allow material to cure 48 hours prior to proceeding with stone consolidation with the Conservare OH.

3.15 MARBLE CONSOLIDATION TREAMENT

A. The specifications in this section outline the treatment but are not intended to limit or override any of the manufacturer's product or safety data or to limit or define any applicable safety standards. It is the contractor's responsibility to familiarize themselves with all applicable standards.
The following conditions must be achieved prior to beginning stone consolidation:

1. Repointing shall be completed and approved.

2. All pointing, patching mortars and lime-based grouts shall be thoroughly cured. Minimum of 28 days.

3. All areas to receive stone consolidation must be cleaned and free of dirt, grime and gypsum crusts. All cleaned areas must have received final sign-off by project conservator.

4. All loose or semi-detached fragments of stone shall be reattached and the adhesive shall be properly cured. Adhesion joints must be protected against the solvents of the stone consolidants or they will loosen during consolidation.

5. All adjacent areas of building and grounds shall be properly protected.

6. All stone to be consolidated shall be thoroughly dry. Protection of area to be consolidated at least two weeks prior to consolidation is a requirement.

B. Submittals for Consolidation Treatments

1. Product Data: Contractor shall review all written data sheets, Material Safety Data sheets an container labels and all special requirements

2. Materials List: The Contractor shall submit to the project conservator a complete list of materials proposed for use which gives the manufacturer's name and any necessary identification numbers for each product.

3. Manufacturer's Recommendations: The contractor shall submit to the project conservator a copy of manufacturer's current product data and current material safety data sheets as well recommendations for application and relevant limitations, safety and environmental precautions and application rates.

C. Environmental Requirements:

1. Work in this section shall not be conducted when the air temperature or the surface temperature of the stone is below 50 degrees Fahrenheit or above 85 degrees Fahrenheit. Or, if the relative humidity is below 40% or above 70%.

2. Consolidants shall not be applied during rain or to wet surfaces or when there is a chance of rain 24 hours after application.

3. Materials shall not be applied when there is a chance the winds may carry chemicals to unprotected surfaces or areas outside the contract jurisdiction.

D. Application:

1. Conservare OH stone strengthener should be applied in repeated applications referred to as cycles.

2. Each cycle consists of three (3) successive saturating applications applied at five (5) to fifteen (15) minute intervals depending on drying times. The completed treatment requires three (3) cycles or (9) applications.

3. Spray OH from the bottom up to the point that the stone can absorb no more material.

4. Allow stone strengthener to be fully absorbed by the stone before proceeding with next application. Absorption time will be between 5 and 15 minutes depending on drying time.

5. Repeat applications until three applications have been completed. Allow surfaces to dry for 20 minutes before beginning next cycle of three applications.

6. Continue applications until three cycles of three application have been completed. There should be 9 applications of consolidant in all.

7. Protect treated areas for two weeks against contact with liquid water.

E. Cleaning Solvent:

1. A quantity of MEK sufficient to treat one day's work shall be kept on sight during the consolidation treatment. The cleaning solvent shall be used in the event of an over-application of consolidant where the material remains on the surface and does not penetrate.

2. Follow manufacturer's directions and all safety precautions. Like the consolidant the cleaning solvent contains flammable and toxic materials. The same stringent controls outlined above of the use of the Conservare OH apply to the use of the cleaning solvent.

END OF SECTION

SECTION 05500

STRUCTURAL STEEL FABRICATIONS

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

A. Stainless steel pinning rods

B. Galvanized steel lintels

C. Custom fabricated connection hardware

1.2 RELATED SECTIONS

A. Section 02210 – Temporary Shoring and Bracing

B. Section 04500 – Masonry Restoration

1.3 REFERENCES

A. Comply with the following standard material specifications:

1. AISC – Code of Standard Practice – Manual of Steel Construction – Allowable Stress Design (ASD)

2. ASTM A992 – Structural Steel

3. ASTM A123 – Zinc (Hot Dipped Galvanized) Coatings on Iron and Steel Products

4. ASTM A153 – Zinc (Hot Dip) Coating on Iron and Steel Hardware

5. ASTM A240, Type 304 – Stainless Steel Plate

6. ASTM A276, Type 304 – Threaded Round Stainless Steel Bar Stock

7. ASTM A307 – Carbon Steel Externally Threaded Standard Fasteners

8. ASTM A325 – High Strength Steel Bolts

9. ASTM A563 – Carbon and Alloy Steel Nuts

10. AWS A2.4 – Symbols for Welding, Brazing, and Nondestructive Examination

11. AWS D1.1 – Structural Welding Code

12. SSPC (Steel Structures Painting Council) – Painting Manual

1.4 SUBMITTALS

A. Submit the following items to the Engineer for review:

1. Shop Drawings of all fabrications and castings showing quantities, field verified dimensions, locations, and connections to be made in the field

2. Product literature for standard products and/or mass-produced items to be used

3. Daily logs of work.

1.5 QUALITY CONTROL

A. Comply with all referenced standards for the products employed.

B. Coordinate times of Engineer's Special Inspections and make site available.

PART 2 - PRODUCTS

2.1 FABRICATIONS AND CONNECTORS-GENERAL

A. All structural steel fabrications shall be pre-welded, punched, and fitted as required to minimize work in the field.

B. All burrs, nicks and kinks shall be removed from fabricated items before shipment to site or to Galvanizer.

C. Non-stainless structural steel fabrications shall be composed ASTM A992, Grade 50 steel and shall be of welded construction. All welds shall be continuous and as shown on the drawings. Welding electrodes shall be AWS E70-XX. Fabrication shall be done per applicable referenced standards. All stainless structural steel fabrications shall be composed of ASTM A240, Type 304, welded with compatible stainless electrodes of similar strength whose deposition shall in no way hinder the corrosion properties of the base metal or the weld.

D. All non-stainless structural steel fabrications shall be hot dip galvanized in accordance with ASTM A123.

2.2 STAINLESS STEEL RODS AND PINS

A. Provide straight stainless steel threaded rods meeting ASTM A276, Type 304. Rods shall be threaded over their entire lengths.

PART 3 - EXECUTION

3.1 INSTALLATION OF RODS AND MISCELLANEOUS CONNECTORS

A. Install Stainless Steel Rods and Galvanized Steel Lintels per Section 04500 and contract drawings.

END OF SECTION

SECTION 05750

CAST IRON DOOR COVERS

PART 1 - GENERAL

1.1 INCLUDED IN THIS SECTION

A. Stainless steel bolts and connectors.

B. Cast Iron vault door covers and hardware.

1.2 RELATED SECTIONS

A. Section 02210 - Temporary Shoring and Support

B. Section 04500 - Masonry

1.3 REFERENCES

A. Comply with the following standard material specifications:

1. AISC – Code of Standard Practice – Manual of Steel Construction – Allowable Stress Design (ASD).
2. ASTM A36 – Structural Steel.
3. ASTM A48 –Gray Iron Castings.
4. ASTM A240, Type 304 - Stainless Steel Plate.
5. ASTM A276, Type 304 - Threaded Round Stainless Steel Bar Stock.
6. ASTM A307 - Carbon Steel Externally Threaded Standard Fasteners.
7. ASTM A325 – High Strength Steel Bolts.
8. ASTM A500, Grade B – Carbon Steel for Cold Formed Structural Tubes.
9. ASTM A563 – Carbon and Alloy Steel Nuts.
10. AWS A2.4 – Symbols for Welding, Brazing and Nondestructive Examination.
11. AWS D1.1 – Structural Welding Code.
12. SSPC (Steel Structures Painting Council) - Painting Manual.

1.4 SUBMITTALS

A. Submit the following items to the Engineer for review:

1. Shop Drawings of all fabrications and castings showing quantities, field verified dimensions, locations, and connections to be made in the field.
2. Product literature for standard products and/or mass produced items to be used.

1.5 QUALITY CONTROL

A. Comply with all referenced standards for the products employed.

B. Allow access for Engineer's Special Inspections to shop and site as requested by the Engineer and provide the Engineer with the fabrication and installation schedule.

C. Tomb door manufacturer shall make his facility available on short notice for inspection of work by a testing and inspection agency hired by the City to verify conformance to specifications.

PART 2 - PRODUCTS

2.1 STRUCTURAL STEEL FABRICATIONS AND CONNECTORS

A. All structural steel fabrications shall be pre-welded, punched, and fitted as required to minimize work in the field, or shall be shipped of extra length to allow for inconsistencies in existing conditions if they are to be field fabricated.

B. All burrs, nicks and kinks shall be removed from fabricated items before shipment and installation.

C. Structural steel fabrications shall be composed of the following materials:

1. Plates, carbon steel bars, beams and angles shall be ASTM A36

D. All structural steel fabrications shall be hot dip galvanized in accordance with ASTM A123.

E. Fabrication shall be done per applicable referenced standards.

2.2 STAINLESS STEEL TIE RODS AND HARDWARE

A. Provide stainless steel rods meeting ASTM F593, AIA Type 304 with mated turnbuckles, washers and nuts of AISI type 304 or 304, stainless. Tapered plate washers as required shall be milled ASTM A240, Type 304 stainless steel plate. Provide thread overlaps at noted on drawings and run threads 3" longer than required to account for filed adjustment.

2.3 STAINLESS STEEL PINNING RODS AND HARDWARE

A. Provide stainless steel threaded rods meeting ASTM F593, AISI Type 304 with mated nuts of AISI type 304 or 304, stainless where indicated.

B. At pinning rods set in existing stone rubble facades and set in concrete: Provide 3", 90 degree hooks at outer ends and grind or press sides of hook and outer 2" of shanks to 3/8" thickness. Bend shall be made hot and shall have a 1" inside radius. Provide threads over 12" lengths at inner (opposite) ends and double nuts where indicated.

C. At pinning rods set in holes drilled in existing facing stones and brick arches: Provide threads over 12" lengths both ends of rods.

2.4 VAULT DOOR COVERS

A. Vault door cover assemblies shall be of the following materials:

1. Vault Door Covers shall be Cast Gray Iron meeting ASTM A48, grade 30.

2. Vault door plate connectors shall be galvanized steel angles with pre-welded painted stainless steel nuts meeting AISI type 304 or 302 aligned with holes as shown on the drawings.

3. Attachment hardware from connectors to stonework shall be stainless steel rods meeting ASTM F593, AISI Type 304, to be drilled and grouted into the existing stonework. Washers and nuts shall be AISI type 304 or 302, stainless.

4. Attachment hardware between door plates and door plate connectors shall be 1/2" dia. countersunk, pan head AISI type 304 or 302, 18-8 stainless steel bolts with a black oxide finish, length to suit installation. Bolt heads shall have two opposing insert holes for turning with a standard tool, two of which shall be provided to the City for use. Bolt Installation hardware and inserts shall match that which is currently in use by the City at other locations where possible. Washers and nuts shall be AISI type 304 or 304, stainless.

B. Vault doors shall be shop painted with an approved 3-coat paint system as follows:

1. Preparation: SSPC SP-6

2. Base Coat: “Rust Blok” rust inhibiting primer by Benjamin Moore of Milford, NJ or equivalent, color: Gray.

3. Intermediate Coat: “IronClad” alkyd intermediate coat by Benjamin Moore or equivalent, color: Black.

4. Top Coat: “Impervo Enamel” alkyd top coat Benjamin Moore or equivalent, color: Black.

C. Drilled and reamed holes shall be provided with for 1/16" oversize for adjustment, and all burrs, nicks and kinks shall be removed from fabricated items before shipment and installation.

D. Holes in angle connectors for drilled and grouted anchors shall be longitudinally slotted for vertical adjustment. Hot dip galvanize after pre-welding nuts.

2.5 EPOXY GROUT FOR ANCHORAGE OF RODS

A. Epoxy anchor grout shall be by the HIT HY20 epoxy injection system as manufactured by HILTI, Inc of Tulsa, OK, or approved equal.

PART 3 - EXECUTION

3.1 STAINLESS STEEL TIE RODS AND GALVANIZED STEEL SIDE GIRTS

A. Expose vault and shore, repair, and restore masonry work, and drill holes for tie rods per Section 04100.

B. Coordinate geometry between connected tie rod holes and existing vault surfaces. Locate holes to align with drilled rod locations through vault walls. Galvanize side girts after cutting and punching holes.

C. Provide clean trenches to lay the side girts into for maximum straight continuous lengths (side girt may be split into up to three sections with no less than two tie rods in each). Placement of side girts shall allow for total encasement in grout, mortar, and/or peastone concrete so that there is no less than 1” of cover between steel and soil materials.

D. Install and tension tie rods per Section 04500.

3.2 STAINLESS STEEL PINNING RODS

A. Install stainless steel pinning rods per Section 04500.

3.3 VAULT DOOR COVERS

A. Install angle connectors for vault door covers by drilling and epoxy grouting stainless steel anchor bolts per the drawings. Set and shim angle connectors so that the exposed flat legs are at the proper offsets with respect to the wall surface and all surfaces are parallel to the wall surface and coplanar.

B. Drill countersunk reamed holes in the cast iron door plates to align with the bolt hole patterns of the angle connectors at each of the vault door openings, checking clearances with existing hinge pintles. Paint plates after drilling and reaming holes. Door plates shall be set so that the top edges are all parallel to each other and to the average alignment of the tops of the wall.

C. Trial set plates against angle connectors and install temporary carbon steel headed bolts with thread pitch matching permanent bolts. Provide shims between angle connectors and plates as required for full four point contact before tightening, temporarily keeping shims in place with approved means. Following approval of plate orientation and alignment, or readjustment of angle connectors, replace temporary bolts with final countersunk bolts.

D. Touch-up paint all damages to finish on plate covers and paint exposed bolt heads.

END OF SECTION

DRAWINGS

16 Pages of Drawings

are available on The City's Website: www.newtonma.gov/bids

or pickup in the Purchasing Department, Room 201